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

Form 10-K

(Mark One)

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

For the fiscal year ended December 31, 2016

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: 000-50768

ACADIA PHARMACEUTICALS INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	**06-1376651**
(State or Other Jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification Number)**
3611 Valley Centre Drive, Suite 300 San Diego, California	**92130**
(Address of Principal Executive Offices)	**(Zip Code)**

Registrant's telephone number, including area code:

(858) 558-2871

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

Title of each class	**Name of each exchange on which registered**
Common Stock, par value $0.0001 per share	**The NASDAQ Global Select Market**

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

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

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. Yes ☐ No ☒

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of 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, or a smaller reporting company. See definitions of "large accelerated filer", "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Securities Exchange Act of 1934:

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐ (Do not check if a smaller reporting company)	Smaller reporting company	☐

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

As of June 30, 2016, the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was approximately $2.3 billion, based on the closing price of the registrant's common stock on the NASDAQ Global Select Market on June 30, 2016 of $32.46 per share.

As of January 31, 2017, 121,407,626 shares of the registrant's common stock, $0.0001 par value, were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement to be filed with the Securities and Exchange Commission by May 1, 2017 are incorporated by reference into Part III of this report.

ACADIA PHARMACEUTICALS INC.

TABLE OF CONTENTS
FORM 10-K
For the Year Ended December 31, 2016

PART I

FORWARD-LOOKING STATEMENTS

This report and the information incorporated herein by reference contain forward-looking statements that involve a number of risks and uncertainties, as well as assumptions that, if they never materialize or prove incorrect, could cause our results to differ materially from those expressed or implied by such forward-looking statements. Although our forward-looking statements reflect the good faith judgment of our management, these statements can only be based on facts and factors currently known by us. Consequently, forward-looking statements are inherently subject to risks and uncertainties, and actual results and outcomes may differ materially from results and outcomes discussed in the forward-looking statements.

Forward-looking statements can be identified by the use of forward-looking words such as “believes,” “expects,” “hopes,” “may,” “will,” “plans,” “intends,” “estimates,” “could,” “should,” “would,” “continue,” “seeks,” “aims,” “projects,” “predicts,” “pro forma,” “anticipates,” “potential” or other similar words (including their use in the negative), or by discussions of future matters such as the benefits to be derived from NUPLAZID (pimavanserin) and from our drug candidates, the potential market opportunities for pimavanserin and our drug candidates, our strategy for the commercialization of NUPLAZID, our plans for exploring and developing pimavanserin for indications other than Parkinson’s disease psychosis, our plans and timing with respect to seeking regulatory approvals, the potential commercialization of any of our drug candidates that receive regulatory approval, the progress, timing, results or implications of clinical trials and other development activities involving NUPLAZID and our drug candidates, our strategy for discovering, developing and, if approved, commercializing drug candidates, our existing and potential future collaborations, our estimates of future payments, revenues and profitability, our estimates regarding our capital requirements, future expenses and need for additional financing, possible changes in legislation,, and other statements that are not historical. These statements include but are not limited to statements under the captions “Business,” “Risk Factors,” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” as well as other sections in this report. You should be aware that the occurrence of any of the events discussed under the caption “Risk Factors” and elsewhere in this report could substantially harm our business, results of operations and financial condition and cause our results to differ materially from those expressed or implied by our forward-looking statements. If any of these events occurs, the trading price of our common stock could decline and you could lose all or a part of the value of your shares of our common stock.

The cautionary statements made in this report are intended to be applicable to all related forward-looking statements wherever they may appear in this report. We urge you not to place undue reliance on these forward-looking statements, which speak only as of the date of this report.

Item 1. *Business.*

Company Overview

We are a biopharmaceutical company focused on the development and commercialization of innovative medicines to address unmet medical needs in central nervous system, or CNS, disorders. We have a portfolio of product opportunities led by our novel drug, NUPLAZID® (pimavanserin), which was approved by the U.S. Food and Drug Administration, or FDA, on April 29, 2016 for the treatment of hallucinations and delusions associated with Parkinson’s disease psychosis, or PD Psychosis, and is the only drug approved in the United States for this condition. NUPLAZID is a selective serotonin inverse agonist, or SSIA, preferentially targeting 5-HT_{2A} receptors. Through this novel mechanism, NUPLAZID demonstrated significant efficacy in reducing the hallucinations and delusions associated with PD Psychosis in our Phase III pivotal trial and has the potential to avoid many of the debilitating side effects of existing antipsychotics, none of which are approved by the FDA in the treatment of PD Psychosis. We hold worldwide commercialization rights to pimavanserin. We launched NUPLAZID in the United States in May 2016.

We believe that pimavanserin has the potential to address important unmet medical needs in neurological and psychiatric disorders in addition to PD Psychosis and we plan to continue to study the use of pimavanserin in multiple disease states.

For example, we believe Alzheimer’s disease represents one of our most important opportunities for further exploration. In December 2016, we announced positive top-line results from our Phase II study exploring the utility of pimavanserin for the treatment of Alzheimer’s disease psychosis, or AD Psychosis, a disorder for which no drug is currently approved by the FDA. We plan to continue to advance the evaluation of pimavanserin in this patient population in a Phase III study planned to begin in the second half of 2017. Additionally, in October 2016, we announced that we initiated another study, SERENE, for Alzheimer’s disease patients. SERENE is a Phase II study evaluating pimavanserin for the treatment of Alzheimer’s disease agitation and aggression, a debilitating condition for which there is no drug approved by the FDA.

We also believe schizophrenia represents a disease with multiple unmet or ill-served needs and we are currently exploring the utility of pimavanserin in this area. Despite a large number of FDA-approved therapies for schizophrenia, current drugs do not adequately address some very important symptoms of schizophrenia, such as the inadequate response to current antipsychotic treatment of psychotic symptoms and negative symptoms. In November 2016, we announced that we initiated two studies evaluating the adjunctive use of pimavanserin in patients with schizophrenia. ENHANCE-1 is a Phase III study evaluating pimavanserin for adjunctive treatment of schizophrenia in patients with an inadequate response to their current antipsychotic therapy. ADVANCE is a Phase II study evaluating pimavanserin for adjunctive treatment in patients with negative symptoms of schizophrenia.

Depression is another disorder with a high unmet need that we believe represents an attractive development opportunity for pimavanserin. Preclinical and clinical studies have shown that patients with depression often do not receive adequate relief from an antidepressant medication, and, due to side effects of currently available therapies, many patients discontinue their medication, significantly increasing their chance of relapse. Preclinical and clinical evidence suggests 5-HT2A antagonism may be an effective adjunctive therapy to currently prescribed antidepressants. In December 2016, we announced that we initiated CLARITY, a Phase II study evaluating pimavanserin for adjunctive treatment in patients with major depressive disorder who have an inadequate response to standard antidepressant therapy.

We were originally incorporated in Vermont in 1993 as Receptor Technologies, Inc. We reincorporated in Delaware in 1997 and our headquarters are in San Diego, California. We maintain a website at *www.acadia-pharm.com*, to which we regularly post copies of our press releases as well as additional information about us. Our filings with the Securities and Exchange Commission, or SEC, are available free of charge through our website as soon as reasonably practicable after being electronically filed with or furnished to the SEC. Interested persons can subscribe on our website to email alerts that are sent automatically when we issue press releases, file our reports with the SEC or post certain other information to our website. Information contained in our website does not constitute a part of this report or our other filings with the SEC.

We own or have rights to various trademarks, copyrights and trade names used in our business, including ACADIA® and NUPLAZID®. Our logos and trademarks are the property of ACADIA Pharmaceuticals Inc. All other brand names or trademarks appearing in this report are the property of their respective holders. Use or display by us of other parties' trademarks, trade dress, or products in this report is not intended to, and does not, imply a relationship with, or endorsement or sponsorship of us, by the trademark or trade dress owners.

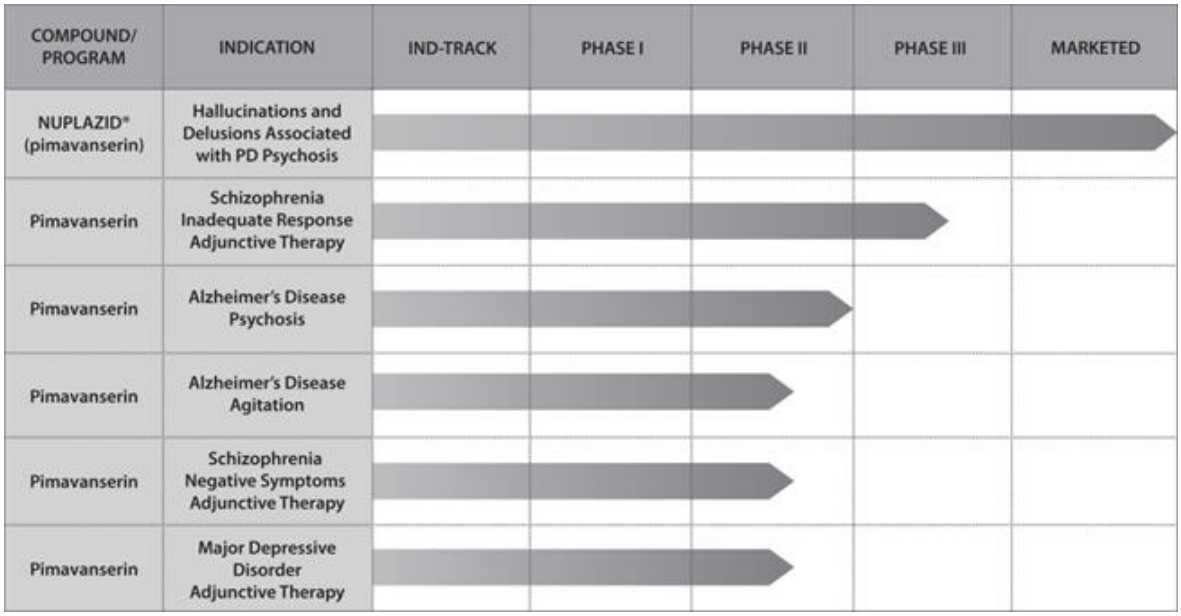
Our Strategy

Our strategy is to discover, develop and commercialize innovative small molecule drugs that address unmet medical needs in CNS disorders. We have assembled a management team with significant industry experience to lead the discovery, development, and commercialization of our product opportunities. We complement our management team with scientific and clinical advisors, including recognized experts in the fields of PD Psychosis, Alzheimer's disease, schizophrenia, depression, and other CNS disorders. Key elements of our strategy are to:

- ***Successfully execute the U.S. commercial launch of NUPLAZID for PD Psychosis.*** NUPLAZID was approved by the FDA on April 29, 2016 for the treatment of hallucinations and delusions associated with PD Psychosis, and is the only drug approved in the United States for this condition. We launched NUPLAZID in the United States in May 2016 and an important objective is to establish NUPLAZID as the first choice, best choice for PD Psychosis. In connection with FDA approval of NUPLAZID, we hired a U.S. specialty sales force of 133 sales specialists who are focused on promoting NUPLAZID to physicians who treat PD Psychosis patients, including neurologists, psychiatrists and long-term care physicians. We plan to add approximately 20 sales specialists to this sales force to increase NUPLAZID's penetration in long-term care.
- ***Leverage the commercial potential of pimavanserin by expanding to additional neurological and psychiatric disorders.*** We intend to continue pursuing the development and commercialization of pimavanserin in additional neurological and psychiatric indications that are underserved by currently available antipsychotics and antidepressants and represent large unmet medical needs. For example, in December 2016, we announced positive top-line results from our Phase II -019 Study in AD Psychosis and we plan to continue to evaluate the treatment of patients with AD Psychosis in a Phase III study planned for the second half of 2017. We are also executing on our pimavanserin life cycle management plan through new studies announced in the fourth quarter of 2016 in the areas of Alzheimer's disease, schizophrenia, and depression. In addition to the ongoing development of pimavanserin in these areas, we may also consider additional indications that are a good strategic fit and which have large unmet medical needs.
- ***Seek to in-license or acquire complementary products or product candidates.*** Although NUPLAZID (pimavanserin) emanates from internal discoveries, in the future we may in-license or acquire assets, which could include clinical-stage product candidates or commercial-stage products, to leverage our U.S. specialty sales force.

Our Pipeline

NUPLAZID (pimavanserin) was approved by the FDA on April 29, 2016 for the treatment of hallucinations and delusions associated with PD Psychosis. In addition to PD Psychosis, our pipeline includes multiple product opportunities being explored in clinical development across several CNS disorders with high unmet medical needs. We believe that our product opportunities offer innovative therapeutic approaches and may provide significant advantages relative to current therapies. The following table summarizes our product opportunities and programs:



NUPLAZID (Pimavanserin)

Pimavanserin is a new chemical entity that we discovered and that was approved by the FDA on April 29, 2016 for the treatment of hallucinations and delusions associated with PD Psychosis and is the only drug approved in the United States for this condition. NUPLAZID (pimavanserin) is an SSIA preferentially targeting the 5-HT_{2A} receptor, a key serotonin receptor that plays an important role in psychosis. Through this novel mechanism, NUPLAZID demonstrated significant efficacy in reducing the hallucinations and delusions associated with PD Psychosis in our Phase III pivotal trial and has the potential to avoid many of the debilitating side effects of existing antipsychotics, none of which are approved by the FDA in the treatment of PD Psychosis. We hold worldwide commercialization rights to NUPLAZID (pimavanserin) for all indications and have established a broad patent portfolio, which includes numerous issued patents in the United States, Europe, and several additional countries. The recommended dosing of NUPLAZID is two 17 mg tablets, taken together once a day.

NUPLAZID as a Treatment for PD Psychosis

Parkinson's disease is the second most common neurodegenerative disorder after Alzheimer's disease. According to the Parkinson's Disease Foundation, about one million people in the United States and more than 10 million people globally suffer from this disease. Parkinson's disease is more common in people over 60 years of age and the prevalence of this disease is expected to increase significantly as the population ages.

PD Psychosis is a debilitating disorder commonly characterized by visual hallucinations and delusions that afflicts about 40 percent of the one million Parkinson's disease patients in the United States. The development of psychosis in patients with Parkinson's disease substantially contributes to the burden of Parkinson's disease and deeply affects their quality of life. PD Psychosis is associated with a diminished quality of life, nursing home placement, and increased caregiver stress and burden.

As the first and only drug approved by the FDA for the treatment of hallucinations and delusions associated with PD Psychosis, NUPLAZID provides an innovative and non-dopaminergic approach to the treatment of PD Psychosis without compromising motor control and potentially avoiding many of the debilitating side effects of existing antipsychotics.

In connection with the FDA approval of NUPLAZID, we have committed to conduct post-marketing studies, including a randomized, placebo-controlled withdrawal study in PD Psychosis patients treated with NUPLAZID and randomized, placebo-controlled eight-week studies in predominantly frail and elderly patients that would add to the NUPLAZID safety database by exposing an aggregate of at least 500 patients to NUPLAZID. Through our open-label extension safety extension study for our Phase III studies in PD Psychosis, together with a similar extension study from our earlier Phase II PD Psychosis trial, we generated a considerable amount of long-term safety data on NUPLAZID. A total of over 275 patients have been treated with NUPLAZID for at least one year and, of those, at least 170 patients have been treated for at least two years. Our longest single-patient exposure is greater than 10 years. We believe that our experience to date suggests that long-term administration of NUPLAZID is generally safe and well tolerated in this elderly and fragile patient population.

Pimavanserin as a Treatment for AD Psychosis

According to the Alzheimer's Association, an estimated 5.4 million people in the United States have Alzheimer's disease, with only half being diagnosed, and it is currently the fifth leading cause of death for people age 65 and older. Studies have suggested that approximately 25 to 50 percent of patients diagnosed with Alzheimer's disease may develop psychosis, commonly consisting of hallucinations and delusions. The diagnosis of AD Psychosis is associated with more rapid cognitive and functional decline and increased institutionalization.

The FDA has not approved any drug to treat AD Psychosis. As symptoms progress and become more severe, physicians often resort to off-label use of antipsychotic medications in these patients. In addition to the long-term safety risks, studies have shown the use of atypical antipsychotics is associated with a statistically significant worsening of cognitive function in patients with Alzheimer's disease. There is a large unmet medical need for a safe and effective therapy to treat the psychosis in patients with Alzheimer's disease.

Patients with AD Psychosis and PD Psychosis share many characteristics and often exhibit similar psychiatric symptoms associated with their respective underlying neurodegenerative disease. We have shown that pimavanserin attenuates psychosis-related behaviors in preclinical models of AD Psychosis. In preclinical models, pimavanserin also has been shown to positively interact with cholinesterase inhibitors to enhance their pro-cognitive effect. Because of its selective mechanism of action and its efficacy and safety profile observed to date in studies conducted in elderly patients with PD Psychosis, we believe that pimavanserin also may be ideally suited to address the need for a new treatment for AD Psychosis that is safe, effective, and well tolerated.

In December 2016 we announced positive top-line results from our Phase II study, referred to as the -019 Study, examining the safety and efficacy of pimavanserin as a treatment for AD Psychosis. The -019 Study was a double-blind, placebo-controlled exploratory trial designed to evaluate the efficacy and safety of pimavanserin as a treatment for patients with AD Psychosis. A total of 181 patients were enrolled in the study in the United Kingdom. Following a screening period that included brief psycho-social therapy, patients were randomized on a one-to-one basis to receive either 34 mg of pimavanserin or placebo once-daily. The primary endpoint of the study was antipsychotic efficacy as measured by the mean change in the Neuropsychiatric Inventory—Nursing Home, or NPI-NH, Psychosis score (combined hallucinations and delusions domains) from baseline to week six of dosing. The study also assessed additional secondary endpoints, including the cognitive status of patients and the durability of response to pimavanserin, through week 12 of dosing.

Pimavanserin demonstrated efficacy on the primary endpoint of the -019 Study with a 3.76 point improvement in psychosis at week six compared to a 1.93 point improvement for placebo, representing a statistically significant treatment improvement in the NPI-NH Psychosis score ($p=0.0451$). Baseline mean scores for the pimavanserin and placebo treated groups were 9.52 and 10.00, respectively. Pimavanserin was generally well tolerated and the safety profile was consistent with what has been observed in previous studies. Based on a preliminary analysis of safety data, the most common adverse events reported were falls, urinary tract infection and agitation. The mortality rate was the same in the pimavanserin and placebo treatment groups. Over the course of 12 weeks of treatment, pimavanserin did not impair cognition as measured by the Mini-Mental State Examination, or MMSE, score and was similar to placebo. On the secondary endpoint of mean change in NPI-NH Psychosis score at week 12, pimavanserin maintained the improvement on psychosis observed at the week six primary endpoint, but did not statistically separate from placebo. The mean age of patients in the study was 86 years.

We plan to continue to evaluate the treatment of patients with AD Psychosis in a Phase III study planned for the second half of 2017.

Pimavanserin as a Treatment for AD Agitation

While the diagnostic criteria for Alzheimer's disease focus mostly on the related cognitive deficits, it is the behavioral and neuropsychiatric symptoms that can be most troublesome for caregivers and lead to poor quality of life for patients. In addition to psychosis, these symptoms include agitation and aggressive behaviors. Alzheimer's disease agitation and aggression, or collectively AD Agitation, is characterized by verbal aggression, physical aggression and excessive motor activities. Agitation and aggression in Alzheimer's disease patients are a major cause of acute care inpatient hospitalizations and pose a major challenge for patient care. Therefore, the detection, management, and treatment of these symptoms is critical to Alzheimer's disease patient care. Studies suggest that 40 to 50 percent of patients diagnosed with Alzheimer's disease in the United States exhibit AD Agitation.

The FDA has not approved any drug for the treatment of AD Agitation. As a result, antipsychotics are frequently used off-label, despite their limited efficacy and associated long-term safety risks. Preclinical and clinical studies suggest that blockade of the 5-HT_{2A} receptor is associated with decreased agitation and aggression in models of Alzheimer's disease. We believe pimavanserin's selective activity at the 5-HT_{2A} receptor may confer benefits for patients with AD Agitation. In addition, pimavanserin's favorable side effect profile observed to date in treating elderly patients with PD Psychosis and AD Psychosis may make it an ideal therapy for AD Agitation.

In October 2016, we announced that we initiated SERENE, a Phase II study with pimavanserin in AD Agitation. SERENE is a randomized, double-blind, placebo-controlled, multi-center outpatient study designed to examine the efficacy and safety of pimavanserin in approximately 430 patients with Alzheimer's disease who have agitation and/or aggression symptoms. Patients will be randomized to receive once daily oral doses of 34 mg pimavanserin, 20 mg pimavanserin or placebo for 12 weeks. The primary endpoint in the study is a reduction in total score on the Cohen-Mansfield Agitation Inventory, or CMAI. Following participation in SERENE, patients will be eligible to enroll in an open-label safety extension study.

Pimavanserin as an Adjunctive Treatment for Schizophrenia

Schizophrenia is a severe chronic mental illness that involves disturbances in cognition, perception, emotion, and other aspects of behavior. These disturbances may include positive symptoms, such as hallucinations and delusions, and a range of negative symptoms, including loss of interest and emotional withdrawal. Schizophrenia is associated with persistent impairment of a patient's social functioning and productivity. Cognitive disturbances often prevent patients with schizophrenia from readjusting to society. As a result, patients with schizophrenia are normally required to be under medical care for their entire lives. According to the National Institute of Mental Health, or NIMH, approximately one percent of the U.S. population suffers from schizophrenia.

Most patients with schizophrenia in the United States today are treated with second-generation, or atypical, antipsychotics, which induce fewer motor disturbances than typical, or first-generation, antipsychotics, but still fail to address most of the negative symptoms of schizophrenia. In addition, currently prescribed treatments do not effectively address or may exacerbate cognitive disturbances associated with schizophrenia. It is believed that the efficacy of atypical antipsychotics is due to their interactions with dopamine and 5-HT_{2A} receptors. Despite their commercial success, current antipsychotic drugs have substantial limitations, including inadequate efficacy and severe side effects. The side effects induced by the atypical agents may include weight gain, non-insulin dependent (type II) diabetes, cardiovascular side effects, sleep disturbances, and motor disturbances. We believe that these side effects generally arise either from non-essential receptor interactions or from excessive dopamine blockade.

The limitations of currently available antipsychotics result in poor patient compliance. A study conducted by the NIMH, which was published in *The New England Journal of Medicine* in September 2005, found that 74 percent of patients taking typical or atypical antipsychotics discontinued treatment within 18 months because of side effects or lack of efficacy. We believe there is a large unmet medical need for new therapies that have improved side effect and efficacy profiles.

As an SSIA, pimavanserin is a new class of antipsychotic medication with a distinct mechanism of action targeting serotonergic 5-HT_{2A} receptors while avoiding activity at dopamine and other receptors commonly targeted by other antipsychotics which, we believe, may enable pimavanserin to be used in certain treatment approaches to improve the therapy for patients with schizophrenia. We initiated the following studies during the fourth quarter of 2016 to evaluate pimavanserin for adjunctive treatment of schizophrenia in patients with an inadequate response to current antipsychotic therapy and for adjunctive treatment in patients with negative symptoms of schizophrenia:

ENHANCE-1

In November 2016, we announced that we initiated ENHANCE-1, a Phase III study to evaluate pimavanserin for adjunctive treatment of schizophrenia in patients with an inadequate response to current antipsychotic therapy. According to the American Psychiatric Association, about 30 percent of patients with schizophrenia have inadequate response to antipsychotic medications, meaning that they exhibit improvement, but continue to have residual hallucinations or delusions. As a result, about 25 to 50 percent of schizophrenia patients are treated with two or more antipsychotics. This polypharmacy has led to increased dose-related side effects and complicated dosing regimens that can further contribute to poor treatment compliance and subsequent relapse in these patients. We believe pimavanserin, through its highly selective mechanism of action, could provide an important new option for adjunctive treatment of schizophrenia and improve clinical outcomes by both augmenting the efficacy of currently used antipsychotics and lessening the undesirable side effects associated with polypharmacy.

ENHANCE-1 is a Phase III, six-week, randomized, double-blind, placebo-controlled, multi-center, outpatient study designed to examine the efficacy and safety of adjunctive use of pimavanserin in patients with schizophrenia who have not achieved an adequate response to their current antipsychotic treatment. Approximately 380 patients will be randomized to receive pimavanserin, or placebo, orally, once daily, in addition to their ongoing antipsychotic in a flexible dosing regimen. The starting daily dose of 20 mg of pimavanserin at baseline may be adjusted to 34 mg or 10 mg during the first three weeks of treatment. The primary endpoint of the study is the change from baseline to week six on the Positive and Negative Syndrome Scale, or PANSS, total score. Following participation in ENHANCE-1, patients will be eligible to enroll in a 52-week open-label extension study.

ADVANCE

In November 2016, we announced that we initiated ADVANCE, a Phase II study to evaluate pimavanserin for adjunctive treatment in patients with negative symptoms of schizophrenia. Studies show that about 40 to 50 percent of schizophrenia patients suffer from prominent negative symptoms. While currently available antipsychotic treatments for schizophrenia target positive symptoms, most patients remain functionally impaired because of negative symptoms, cognitive deficits and limited social function. There is currently no drug approved by the FDA for the treatment of the negative symptoms of schizophrenia.

ADVANCE is a Phase II, 26-week, randomized, double-blind, placebo-controlled, multi-center study designed to examine the efficacy and safety of adjunctive use of pimavanserin in patients with schizophrenia who have predominant negative symptoms. Approximately 380 patients will be randomized to receive either pimavanserin or placebo, orally, once daily, in addition to their ongoing antipsychotic in a flexible dosing regimen. The starting daily dose of 20 mg of pimavanserin at baseline may be adjusted to 34 mg or 10 mg during the first eight weeks of treatment. The primary endpoint of the study is the change from baseline to week 26 on the Negative Symptom Assessment-16, or NSA-16, total score. Following participation in ADVANCE, patients will be eligible to enroll in a 52-week open-label extension study.

Pimavanserin as an Adjunctive Treatment for Major Depressive Disorder

Major Depressive Disorder, or MDD, is a condition characterized by depressive symptoms, such as a depressed mood or a loss of interest or pleasure in daily activities for more than two weeks, as well as impaired social, occupational or other important functioning. Studies have shown that the majority of people who suffer from MDD do not respond to initial antidepressant therapy. Also, due to side effects of current therapies, many patients discontinue their medication, significantly increasing their chance of relapse. According to the NIMH, MDD affects approximately 16 million adults in the United States and is the leading cause of disability for ages 15-44.

Preclinical and clinical evidence suggests that the blockade of 5-HT_{2A} receptors improves the clinical effects of selective serotonin reuptake inhibitors, or SSRIs. As an SSIA preferentially targeting 5-HT_{2A} receptors, we believe use of pimavanserin as an adjunctive treatment for MDD may improve outcomes for patients with MDD.

In December 2016, we announced that we initiated CLARITY, a Phase II, 10-week, randomized, double-blind, placebo-controlled, multi-center study designed to examine the efficacy and safety of adjunctive use of pimavanserin in patients with MDD who have an inadequate response to standard antidepressant therapy with either an SSRI or a serotonin norepinephrine reuptake inhibitor, or SNRI. Approximately 188 patients will be randomized to receive either 34 mg of pimavanserin or placebo, orally, once daily, in addition to their ongoing antidepressant for 10 weeks. The primary endpoint of the study is the change from baseline on the Hamilton Depression Rating Scale, or HAM-D, total score.

Competition

We face, and will continue to face, intense competition from pharmaceutical and biotechnology companies, as well as numerous academic and research institutions and governmental agencies, both in the United States and abroad. We compete, or will compete, with existing and new products being developed by our competitors. Some of these competitors are pursuing the development of pharmaceuticals that target the same diseases and conditions that our research and development programs target.

For example, the use of NUPLAZID for the treatment of hallucinations and delusions associated with PD Psychosis competes with off-label use of antipsychotic drugs, including generic drugs quetiapine, clozapine, olanzapine, risperidone and aripiprazole.

If approved, pimavanserin for the treatment of AD Psychosis would compete with off-label use of antipsychotic drugs, including risperidone and quetiapine, and drugs indicated for the treatment of Alzheimer's disease and dementia in patients with Alzheimer's disease, including Aricept, marketed by Eisai Inc. and Pfizer Inc., and Namenda, marketed by Forest Laboratories, LLC, a wholly-owned subsidiary of Actavis plc.

Pimavanserin for the treatment of AD Agitation, if approved for that indication, would compete with off-label use of antipsychotic drugs, including risperidone and quetiapine.

Pimavanserin for the adjunctive treatment of schizophrenia, if approved for that indication, would compete with Rexulti, marketed by Otsuka Pharmaceutical Co., Ltd., Latuda, marketed by Sunovion Pharmaceuticals Inc., and generic drugs, including olanzapine, risperidone, aripiprazole and clozapine.

Pimavanserin for the adjunctive treatment of MDD, if approved for that indication, would compete with Rexulti and generic adjunctive atypical antipsychotics, including aripiprazole, quetiapine and risperidone.

In addition, the companies described above and other competitors may have a variety of drugs in development or awaiting FDA approval that could reach the market and become established before we have a product to sell for the applicable disorder. Our competitors may also develop alternative therapies that could further limit the market for any drugs that we may develop. Many of our competitors are using technologies or methods different or similar to ours to identify and validate drug targets and to discover novel small molecule drugs. Many of our competitors and their collaborators have significantly greater experience than we do in the following:

- identifying and validating targets;
- screening compounds against targets;
- preclinical studies and clinical trials of potential pharmaceutical products;
- obtaining FDA and other regulatory approvals; and
- commercializing pharmaceutical products.

In addition, many of our competitors and their collaborators have substantially greater advantages in the following areas:

- capital resources;
- research and development resources;
- manufacturing capabilities;
- sales and marketing; and
- production facilities.

Smaller companies also may prove to be significant competitors, particularly through proprietary research discoveries and collaborative arrangements with large pharmaceutical and established biotechnology companies. Many of our competitors have products that have been approved or are in advanced development and may develop superior technologies or methods to identify and validate drug targets and to discover novel small molecule drugs. We face competition from other companies, academic institutions, governmental agencies and other public and private research organizations for collaborative arrangements with pharmaceutical and biotechnology companies, in recruiting and retaining highly qualified scientific, sales and marketing, and management personnel and for licenses to additional technologies. Our competitors, either alone or with their collaborators, may succeed in developing technologies or drugs that are more effective, safer, and more affordable, or more easily administered than ours and may achieve patent protection or commercialize drugs sooner than us. Our competitors may also develop alternative therapies that could further limit the market for any drugs that we may develop. Our failure to compete effectively could have a material adverse effect on our business.

Intellectual Property

We currently hold 50 issued U.S. patents and 252 issued foreign patents. All of these patents originated from inventions made by us. In addition, we have 24 provisional and utility U.S. patent applications and 32 foreign patent applications.

Patents and other proprietary intellectual property rights are an essential element of our business. Our strategy is to file patent applications in the United States and any other country that represents an important potential commercial market to us. In addition, we seek to protect our technology, inventions and improvements to inventions that are important to the development of our business. Our patent applications claim proprietary technology, including novel methods of screening for compounds, chemical synthetic or manufacturing methods, novel drug targets and novel compounds, and compositions or methods of treatment identified using our technology.

We also rely upon trade secret rights to protect technologies that may be used to discover and validate targets and that may be used to identify and develop novel drugs. We protect our trade secrets by, among other things, requiring employees and third parties who have access to our proprietary information to sign confidentiality and nondisclosure agreements. We have entered into a license agreement, dated as of November 30, 2006, for certain intellectual property rights from the Ipsen Group that complement the intellectual property portfolio for our serotonin platform, including pimavanserin. In connection with the FDA's acceptance of the filing of the NDA for NUPLAZID in the fourth quarter of 2015, we paid a $2.5 million milestone to the Ipsen Group, adjusted for credits for prior payments made by us to the Ipsen Group, and in connection with the FDA's approval of NUPLAZID in April 2016, we paid a $8.0 million milestone to the Ipsen Group, each pursuant to the terms of the 2006 license agreement. In addition, we are required to pay to the Ipsen Group royalties of up to two percent of net product sales of NUPLAZID pursuant to the agreement. We are a party to various other license agreements that give us rights to use certain technologies in our research and development.

Pimavanserin

Twenty-five U.S. patents have been issued to us that relate to pimavanserin and NUPLAZID, including two that cover the compound generically and 15 that specifically cover pimavanserin, salts or polymorphs thereof, the use thereof for treating PD Psychosis, AD Psychosis, Alzheimer's disease indications, schizophrenia, bipolar disorder, Lewy body disease, sleep disorders, depression, and other methods of treatment. These patents also provide protection for certain methods of producing pimavanserin. The pimavanserin-specific patent and the PD Psychosis treatment patent are currently set to expire in June 2027 and August 2026, respectively. The patent that covers polymorphs of pimavanserin is currently set to expire in June 2028. The patents that cover pimavanserin generically expire in 2021. In the United States, we are permitted to extend the term of one U.S. patent for the pimavanserin product. Our estimation of the above patent terms includes patent term adjustments made by the U.S. Patent and Trademark Office, but not patent term extensions. These patent terms may be subject to change based on any given patent term extension or any terminal disclaimer that reduces patent term. We note that the U.S. patent laws are always changing and thus any modifications or new interpretations of the law may impact our patent terms. We have 56 issued foreign patents that specifically cover pimavanserin, including patents in 38 European countries, Australia, Canada, China, Hong Kong, India, Japan, Mexico, New Zealand, Russia, Singapore and South Africa, which provide patent protection until 2024. We also have 53 issued foreign patents that cover polymorphs of pimavanserin and provide patent protection until 2025. We continue to prosecute patent applications directed to pimavanserin and to methods of treating various diseases using pimavanserin, either alone or in combination with other agents, worldwide.

Collaboration Agreements

Historically, we have been a party to various collaboration agreements with Allergan and other parties to leverage our drug discovery platform and related assets, and to advance development and commercialization of selected product candidates. These collaborations have typically included upfront payments at initiation of the collaboration, research support during the research term, if applicable, milestone payments upon successful completion of specified development objectives and royalties based upon future sales, if any, of drugs developed under the collaboration.

Our prior collaboration agreement with Allergan focused on muscarinic product candidates for the treatment of glaucoma terminated in 2015 and we will not be receiving any further payments under that agreement. Our continuing collaboration agreement with Allergan involves the development of product candidates in the area of chronic pain. Under this continuing agreement, we are eligible to receive payments upon achievement of development and regulatory milestones, as well as royalties on future product sales, if any. We no longer receive research funding from this agreement and additional payments are dependent upon the advancement of an applicable product candidate. Our continuing collaboration agreement with Allergan in chronic pain is subject to termination upon notice by Allergan.

Government Regulation

Our business activities, including the manufacturing and marketing of NUPLAZID and our potential products and our ongoing research and development activities, are subject to extensive regulation by numerous governmental authorities in the United States and other countries. Before marketing in the United States, any new drug developed by us must undergo rigorous preclinical testing, clinical trials and an extensive regulatory clearance process implemented by the FDA under the Federal Food, Drug, and Cosmetic Act, as amended. The FDA regulates, among other things, the development, testing, manufacture, safety, efficacy, record keeping, labeling, storage, approval, advertising, promotion, import, export, sale and distribution of biopharmaceutical products. The regulatory review and approval process, which includes preclinical testing and clinical trials of each product candidate, is lengthy, expensive and uncertain. Moreover, government coverage and reimbursement policies will both directly and indirectly impact our ability to successfully commercialize NUPLAZID and any future approved products, and such coverage and reimbursement policies will be impacted by enacted and any applicable future healthcare reform and drug pricing measures. In addition, we are subject to state and federal laws, including, among others, anti-kickback laws, false claims laws, data privacy and security laws, and transparency laws that restrict certain business practices in the pharmaceutical industry.

In the United States, drug product candidates intended for human use undergo laboratory and animal testing until adequate proof of safety is established. Clinical trials for new product candidates are then typically conducted in humans in three sequential phases that may overlap. Phase I trials involve the initial introduction of the product candidate into healthy human volunteers. The emphasis of Phase I trials is on testing for safety or adverse effects, dosage, tolerance, metabolism, distribution, excretion and clinical pharmacology. Phase II involves studies in a limited patient population to determine the initial efficacy of the compound for specific targeted indications, to determine dosage tolerance and optimal dosage, and to identify possible adverse side effects and safety risks. Once a compound shows evidence of effectiveness and is found to have an acceptable safety profile in Phase II evaluations, Phase III trials are undertaken to more fully evaluate clinical outcomes. Before commencing clinical investigations in humans, we or our collaborators must submit an Investigational New Drug Application, or IND, to the FDA.

Regulatory authorities, Institutional Review Boards and Data Monitoring Committees may require additional data before allowing the clinical studies to commence, continue or proceed from one phase to another, and could demand that the studies be discontinued or suspended at any time if there are significant safety issues. We have in the past and may in the future rely on some of our collaborators to file INDs and generally direct the regulatory approval process for our potential products. Clinical testing must also meet requirements for clinical trial registration, institutional review board oversight, informed consent, health information privacy, and good clinical practices, or GCPs. Additionally, the manufacture of our drug product, must be done in accordance with current good manufacturing practices, or GMPs.

To establish a new product candidate's safety and efficacy, the FDA requires companies seeking approval to market a drug product to submit extensive preclinical and clinical data, along with other information, for each indication for which the product will be labeled. The data and information are submitted to the FDA in the form of a New Drug Application, or NDA, which must be accompanied by payment of a significant user fee unless a waiver or exemption applies. Generating the required data and information for an NDA takes many years and requires the expenditure of substantial resources. Information generated in this process is susceptible to varying interpretations that could delay, limit or prevent regulatory approval at any stage of the process. The failure to demonstrate adequately the quality, safety and efficacy of a product candidate under development would delay or prevent regulatory approval of the product candidate. Under applicable laws and FDA regulations, each NDA submitted for FDA approval is given an internal administrative review within 60 days following submission of the NDA. If deemed sufficiently complete to permit a substantive review, the FDA will "file" the NDA. The FDA can refuse to file any NDA that it deems incomplete or not properly reviewable. The FDA has established internal goals of eight months from submission for priority review of NDAs that cover product candidates that offer major advances in treatment or provide a treatment where no adequate therapy exists, and 12 months from submission for the standard review of NDAs. However, the FDA is not legally required to complete its review within these periods, these performance goals may change over time and the review is often extended by FDA requests for additional information or clarification. Moreover, the outcome of the review, even if generally favorable, may not be an actual approval but a "complete response letter" that describes additional work that must be done before the NDA can be approved. Before approving an NDA, the FDA can choose to inspect the facilities at which the product is manufactured and will not approve the product unless the manufacturing facility complies with GMPs. The FDA may also audit sites at which clinical trials have been conducted to determine compliance with GCPs and data integrity. The FDA's review of an NDA may also involve review and recommendations by an independent FDA advisory committee, particularly for novel indications. The FDA is not bound by the recommendation of an advisory committee.

In addition, delays or rejections may be encountered based upon changes in regulatory policy, regulations or statutes governing product approval during the period of product development and regulatory agency review.

Before receiving FDA approval to market a potential product, we or our collaborators must demonstrate through adequate and well-controlled clinical studies that the potential product is safe and effective in the patient population that will be treated. In addition, under the Pediatric Research Equity Act, or PREA, an NDA or supplement to an NDA must contain data to assess the safety and effectiveness of the drug for the claimed indications in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective, unless a waiver applies. If regulatory approval of a potential product is granted, this approval will be limited to those disease states and conditions for which the product is approved. Marketing or promoting a drug for an unapproved indication is generally prohibited. Furthermore, FDA approval may entail ongoing requirements for risk management, including post-marketing, or Phase IV, studies. Even if approval is obtained, a marketed product, its manufacturer and its manufacturing facilities are subject to payment of significant annual fees and continuing review and periodic inspections by the FDA. Discovery of previously unknown problems with a product, manufacturer or facility may result in restrictions on the product or manufacturer, including labeling changes, warning letters, costly recalls or withdrawal of the product from the market.

Any drug is likely to produce some toxicities or undesirable side effects in animals and in humans when administered at sufficiently high doses and/or for sufficiently long periods of time. Unacceptable toxicities or side effects may occur at any dose level at any time in the course of studies in animals designed to identify unacceptable effects of a product candidate, known as toxicological studies, or during clinical trials of our potential products. The appearance of any unacceptable toxicity or side effect could cause us or regulatory authorities to interrupt, limit, delay or abort the development of any of our product candidates. Further, such unacceptable toxicity or side effects could ultimately prevent a potential product's approval by the FDA or foreign regulatory authorities for any or all targeted indications or limit any labeling claims and market acceptance, even if the product is approved.

In addition, as a condition of approval, the FDA may require an applicant to develop a risk evaluation and mitigation strategy, or REMS. A REMS uses risk minimization strategies beyond the professional labeling to ensure that the benefits of the product outweigh the potential risks. To determine whether a REMS is needed, the FDA will consider the size of the population likely to use the product, seriousness of the disease, expected benefit of the product, expected duration of treatment, seriousness of known or potential adverse events, and whether the product is a new molecular entity. REMS can include medication guides, physician communication plans for healthcare professionals, and elements to assure safe use, or ETASU. ETASU may include, but are not limited to, special training or certification for prescribing or dispensing, dispensing only under certain circumstances, special monitoring, and the use of patient registries. The FDA may require a REMS before approval or post-approval if it becomes aware of a serious risk associated with use of the product. The requirement for a REMS can materially affect the potential market and profitability of a product.

Any trade name that we intend to use for a potential product must be approved by the FDA irrespective of whether we have secured a formal trademark registration from the U.S. Patent and Trademark Office. The FDA conducts a rigorous review of proposed product names, and may reject a product name if it believes that the name inappropriately implies medical claims or if it poses the potential for confusion with other product names. The FDA will not approve a trade name until the NDA for a product is approved. If the FDA determines that the trade names of other products that are approved prior to the approval of our potential products may present a risk of confusion with our proposed trade name, the FDA may elect to not approve our proposed trade name. If our trade name is rejected, we will lose the benefit of any brand equity that may already have been developed for this trade name, as well as the benefit of our existing trademark applications for this trade name.

We and our collaborators and contract manufacturers also are required to comply with the applicable FDA GMP regulations. GMP regulations include requirements relating to quality control and quality assurance as well as the corresponding maintenance of records and documentation. Manufacturing facilities are subject to inspection by the FDA. These facilities must be approved before we can use them in commercial manufacturing of our potential products and must maintain ongoing compliance for commercial product manufacture. The FDA may conclude that we or our collaborators or contract manufacturers are not in compliance with applicable GMP requirements and other FDA regulatory requirements, which may result in delay or failure to approve applications, warning letters, product recalls and/or imposition of fines or penalties.

If a product is approved, we must also comply with post-marketing requirements, including, but not limited to, compliance with advertising and promotion laws enforced by various government agencies, including the FDA's Office of Prescription Drug Promotion, through such laws as the Prescription Drug Marketing Act, federal and state anti-fraud and abuse laws, including anti-kickback and false claims laws, healthcare information privacy and security laws, post-marketing safety surveillance, and disclosure of payments or other transfers of value to healthcare professionals and entities. In addition, we are subject to other federal and state regulation including, for example, the implementation of corporate compliance programs.

In order to distribute products commercially, we must comply with state laws that require the registration of manufacturers and wholesale distributors of pharmaceutical products in a state, including, in certain states, manufacturers and distributors who ship products into the state even if such manufacturers or distributors have no place of business within the state. Some states also impose requirements on manufacturers and distributors to establish the pedigree of product in the chain of distribution, including some states that require manufacturers and others to adopt new technology capable of tracking and tracing product as it moves through the distribution chain.

Outside of the United States, our ability to market a product is contingent upon receiving a marketing authorization from the appropriate regulatory authorities. The requirements governing the conduct of clinical trials, marketing authorization, pricing and reimbursement vary widely from country to country. At present, foreign marketing authorizations are applied for at a national level, although within the European Community, or EC, centralized registration procedures are available to companies wishing to market a product in more than one EC member state. If the regulatory authority is satisfied that adequate evidence of safety, quality and efficacy has been presented, marketing authorization will be granted. This foreign regulatory approval process involves all of the risks associated with FDA marketing approval discussed above. In addition, foreign regulations may include applicable post-marketing requirements, including safety surveillance, anti-fraud and abuse laws, and implementation of corporate compliance programs and reporting of payments or other transfers of value to healthcare professionals and entities.

Drugs for Serious or Life-Threatening Illnesses

FDA law and regulations also provide certain mechanisms to expedite approval of potential products intended to treat serious or life-threatening illnesses which have been studied for safety and effectiveness and which demonstrate the potential to address unmet medical needs. A product may be designated as a breakthrough therapy if it is intended, either alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The FDA may take certain actions with respect to breakthrough therapies, including holding meetings with the sponsor throughout the development process, providing timely advice to the product sponsor regarding development and approval, involving more senior staff in the review process, assigning a cross-disciplinary project lead for the review team, and taking other steps to design the clinical trials in an efficient manner. Under accelerated approval regulations, NDAs may be approved on the basis of valid surrogate markers of product effectiveness, thus accelerating the normal approval process. As a condition of approval, the FDA may require that a sponsor of a product subject to accelerated approval perform adequate and well-controlled post-marketing clinical studies. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product. In addition, the FDA may impose restrictions on distribution and/or promotion in connection with any accelerated approval, and may withdraw approval if post-approval studies do not confirm the intended clinical benefit or safety of the potential product.

Coverage and Reimbursement

Sales of NUPLAZID and of our product candidates, if approved, depend and will depend, in part, on the extent to which such products will be covered by third-party payors, such as government health care programs, commercial insurance and managed healthcare organizations. These third-party payors are increasingly limiting coverage and/or reducing reimbursements for medical products and services. A third-party payor's decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Further, one payor's determination to provide coverage for a drug product does not assure that other payors will also provide coverage for the drug product. In addition, the U.S. government, state legislatures and foreign governments have continued implementing cost-containment programs, including price controls, restrictions on reimbursement and requirements for substitution of generic products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit our net revenue and results. Decreases in third-party reimbursement or a decision by a third-party payor to not cover NUPLAZID or any future approved products could reduce physician usage of our products, and have a material adverse effect on our sales, results of operations and financial condition.

In the United States, the Medicare Part D program provides a voluntary outpatient drug benefit to Medicare beneficiaries for certain products. NUPLAZID is available for coverage under Medicare Part D, but the individual Part D plans offer coverage subject to various factors such as those described above. In addition, while Medicare Part D plans have historically included "all or substantially all" drugs in the following designated classes of "clinical concern" on their formularies: anticonvulsants, antidepressants, antineoplastics, antipsychotics, antiretrovirals, and immunosuppressants, the Centers for Medicare and Medicaid Services, or CMS, has in the past proposed, but not adopted, changes to this policy. If this policy is changed in the future and if CMS no longer considers the antipsychotic class to be of "clinical concern", Medicare Part D plans would have significantly more discretion to reduce the number of products covered in that class, including coverage of NUPLAZID. Furthermore, private payors often follow Medicare coverage policies and payment limitations in setting their own coverage policies.

Healthcare Laws and Regulations

We are subject to healthcare regulation and enforcement by the federal government and the states and foreign governments in which we conduct our business. The healthcare laws and regulations that may affect our ability to operate include the following:

- The federal Anti-Kickback Statute makes it illegal for any person or entity to knowingly and willfully, directly or indirectly, solicit, receive, offer, or pay any remuneration that is in exchange for or to induce the referral of business, including the purchase, order, lease of any good, facility, item or service for which payment may be made under a federal healthcare program, such as Medicare or Medicaid. The term "remuneration" has been broadly interpreted to include anything of value.
- Federal false claims and false statement laws, including the federal civil False Claims Act, prohibits, among other things, any person or entity from knowingly presenting, or causing to be presented, for payment to, or approval by, federal programs, including Medicare and Medicaid, claims for items or services, including drugs, that are false or fraudulent.
- The U.S. federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, created additional federal criminal statutes that prohibit among other actions, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, including private third-party payors or making any false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services.
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH, and their implementing regulations, imposes obligations on certain types of individuals and entities regarding the electronic exchange of information in common healthcare transactions, as well as standards relating to the privacy and security of individually identifiable health information.
- The federal Physician Payments Sunshine Act requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program, with specific exceptions, to report annually to the Centers for Medicare & Medicaid Services, or CMS, information related to payments or other transfers of value made to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members.

Also, many states have similar laws and regulations, such as anti-kickback and false claims laws that may be broader in scope and may apply regardless of payor, in addition to items and services reimbursed under Medicaid and other state programs. Additionally, we may be subject to state laws that require pharmaceutical companies to comply with the federal government's and/or pharmaceutical industry's voluntary compliance guidelines, state laws that require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures, as well as state and foreign laws governing the privacy and security of health information, many of which differ from each other in significant ways and often are not preempted by HIPAA.

Additionally, to the extent that our product is sold in a foreign country, we may be subject to similar foreign laws.

Healthcare Reform

The United States and some foreign jurisdictions are considering or have enacted a number of legislative and regulatory proposals to change the healthcare system in ways that could affect our ability to sell our products profitably. By way of example, in March 2010, the ACA was signed into law, which intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add transparency requirements for the healthcare and health insurance industries, impose taxes and fees on the health industry and impose additional health policy reforms. There have been judicial and Congressional challenges to certain aspects of the ACA, and we expect there will be additional challenges and amendments to the ACA in the future. In early 2017, the U.S. House of Representatives and Senate passed legislation which, if signed into law by President Trump, would repeal certain aspects of the ACA. Congress also could consider subsequent legislation to replace elements of the ACA that are repealed. At this time, the full effect that the ACA will have on our business in the future remains unclear.

Among the provisions of the ACA of importance to NUPLAZID and our product candidates are:

- an annual, nondeductible fee on any entity that manufactures or imports specified branded prescription drugs and biologic agents, apportioned among these entities according to their market share in certain government healthcare programs;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13.0% of the average manufacturer price for branded and generic drugs, respectively;
- extension of a manufacturer's Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to certain individuals with income at or below 133% of the federal poverty level, thereby potentially increasing a manufacturer's Medicaid rebate liability;
- a Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts to negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for a manufacturer's outpatient drugs to be covered under Medicare Part D;
- expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program;
- a requirement to annually report drug samples that manufacturers and distributors provide to physicians; and
- a Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

Other legislative changes have been proposed and adopted in the United States since the ACA. Through the process created by the Budget Control Act of 2011, there are automatic reductions of Medicare payments to providers up to 2% per fiscal year, which went into effect in April 2013 and, following passage of the Bipartisan Budget Act of 2015, will remain in effect through 2025 unless additional Congressional action is taken. In January 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, further reduced Medicare payments to certain providers. Moreover, recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their commercial products. We expect that healthcare reform measures that may be adopted in the future may result in more rigorous coverage criteria and lower reimbursement, and additional downward pressure on the price that we receive for NUPLAZID and any future approved products. We cannot predict what healthcare reform initiatives may be adopted in the future.

Research and Development Expenses

Our research and development expenses were $99.3 million, $73.9 million, and $60.6 million in 2016, 2015, and 2014, respectively.

Manufacturing and Distribution

We currently outsource, and plan to continue to outsource, manufacturing activities for NUPLAZID, as well as for our existing and future product candidates for development and commercial purposes. We believe this manufacturing strategy will enable us to direct our financial resources to our commercial activities and to the ongoing development of pimavanserin without devoting the substantial resources and capital required to build manufacturing facilities.

During 2015, we licensed worldwide intellectual property rights related to pimavanserin in certain indications to ACADIA Pharmaceuticals GmbH, our wholly-owned Swiss subsidiary. Our active pharmaceutical ingredient, or API, has been manufactured in Switzerland for over 10 years and we anticipate continuing to manufacture in Switzerland. ACADIA Pharmaceuticals GmbH manages the worldwide supply chain of pimavanserin API.

ACADIA Pharmaceuticals GmbH has contracted with Siegfried AG, or Siegfried, to manufacture the API to be used in the manufacture of NUPLAZID for commercial use. Under the manufacturing agreement, ACADIA Pharmaceuticals GmbH has agreed to purchase from Siegfried specified percentages of our commercial requirements of API for the United States and Europe. The parties may also agree in the future on additional services under the manufacturing agreement with respect to non-commercial supply or development activities. The term of the manufacturing agreement ends in December 2021 and will automatically renew for subsequent two-year terms unless either party provides timely notice of its intent not to renew, or unless the manufacturing agreement is terminated earlier pursuant to its terms. Either party may terminate the manufacturing agreement prior to expiration upon an uncured material breach by the other party, upon the dissolution or liquidation of the other party, the commencement of insolvency procedures that are not dismissed within a certain period of time, the appointment of any receiver, trustee or assignee to take possession of the properties of the other party or the cessation of all or substantially all of the other party's business operations, upon certain continuing patent infringement, regulatory litigation or other legal proceedings involving the manufacture of API, upon a continuing force majeure affecting the other party, or if no services are currently being provided under the manufacturing agreement. Additionally, if the parties agree on development services under the manufacturing agreement, the parties may terminate such services by mutual agreement if reasonable efforts to achieve the goals of such services fail. ACADIA Pharmaceuticals GmbH also may terminate any services under the manufacturing agreement for any reason on 90 days' prior notice to Siegfried, subject to the requirements of the manufacturing agreement.

We have contracted with Patheon Pharmaceuticals Inc., or Patheon, to manufacture NUPLAZID drug product for commercial use in the United States. Under the manufacturing agreement, we have agreed to purchase from Patheon a specified percentage of our commercial requirements of NUPLAZID for the United States. The term of the manufacturing agreement ends in December 2020 and will automatically renew for subsequent two-year terms unless either party provides timely notice of its intent not to renew, or unless the manufacturing agreement is terminated early pursuant to its terms. Each party may terminate the manufacturing agreement prior to expiration upon the uncured material breach by the other party, upon the bankruptcy or insolvency of the other party or in the event of a continuing force majeure event affecting the other party. The manufacturing agreement will also terminate if we provide notice to Patheon that we no longer require manufacturing services because NUPLAZID has been discontinued. Additionally, we may terminate the manufacturing agreement, subject to certain limitations, if any regulatory authority takes any action or raises any objection that prevents us from continuing to commercialize NUPLAZID or takes an enforcement action against Patheon’s manufacturing site that relates to NUPLAZID or could reasonably be expected to adversely affect Patheon’s ability to supply NUPLAZID, if we determine to discontinue commercialization of NUPLAZID for safety or efficacy reasons, or if Patheon uses any debarred person in performing its service obligations under the manufacturing agreement. We also may terminate the manufacturing agreement for any other reason on three years’ prior notice to Patheon. Additionally, Patheon may terminate the manufacturing agreement if we assign the manufacturing agreement or any of our rights under the manufacturing agreement to a Patheon competitor.

We sell NUPLAZID to a limited number of specialty pharmacies, or SPs, and specialty distributors, or SDs, which we collectively refer to as our customers. SPs subsequently dispense NUPLAZID to patients based on the fulfillment of a prescription and SDs subsequently sell NUPLAZID to government facilities, long-term care pharmacies, and in-patient hospital pharmacies. Four customers, each based in the United States, accounted for approximately 93% of our total revenue for the year ended December 31, 2016. We have retained third-party service providers to perform a variety of functions related to the distribution of NUPLAZID, including warehousing, customer service, order-taking, invoicing, collections, and shipment and returns processing.

Sales and Marketing

During 2016, in connection with FDA approval of NUPLAZID, we hired a U.S. specialty sales force of 133 sales specialists who are focused on promoting NUPLAZID to physicians who treat PD Psychosis patients, including neurologists, psychiatrists and long-term care physicians. This sales force is supported by an experienced sales leadership team comprised of 12 regional sales managers and 8 account managers, and our experienced commercial team comprised of experienced professionals in marketing, access and reimbursement, managed markets, marketing research, commercial operations, and sales force planning and management. In addition, our commercial infrastructure includes capabilities in manufacturing, medical affairs, quality control, and compliance.

We launched NUPLAZID in May 2016, and our focus is to establish NUPLAZID as the first choice, best choice for patients with PD Psychosis. In order to help us achieve this goal, we are expanding our sales force to approximately 155 sales specialists to increase NUPLAZID’s penetration in long-term care and by continuing to increase awareness of NUPLAZID and PD Psychosis with a prescriber and patient education campaign consisting of key opinion leader speaker programs, attendance at medical meetings, multimedia campaigns, and direct-to-patient programs.

In selected markets outside of the United States in which NUPLAZID may be approved, if any, we may choose to commercialize NUPLAZID independently or by establishing one or more strategic alliances.

Long-Lived Assets

Our tangible long-lived assets totaled $3.1 million, $2.2 million, and $553,000 as of December 31, 2016, 2015 and 2014, respectively. All of our tangible long-lived assets are located in the United States.

Employees

At December 31, 2016, we had approximately 370 employees. Of this workforce, approximately 115 employees were engaged in research and development activities, 75 were engaged in administrative activities such as finance, legal, and information technology, and 180 were engaged in sales, commercial operations and marketing. None of our employees is represented by a collective bargaining agreement, nor have we experienced work stoppages. We believe that our relations with our employees are good.

Item 1A. *Risk Factors.*

You should consider carefully the following information about the risks described below, together with the other information contained in this Annual Report and in our other public filings, in evaluating our business. If any of the following risks actually occurs, our business, financial condition, results of operations and future growth prospects would likely be materially and adversely affected. In these circumstances, the market price of our common stock would likely decline.

Risks Related to Our Business

Our prospects are highly dependent on the successful commercialization of NUPLAZID, which received approval in April 2016 from the U.S. Food and Drug Administration, or FDA, as a treatment for hallucinations and delusions associated with Parkinson's disease psychosis, and became available for prescription in the United States in May 2016. To the extent NUPLAZID is not commercially successful, our business, financial condition and results of operations may be materially adversely affected and the price of our common stock may decline.

NUPLAZID is our only drug that has been approved for sale and it has only been approved for the treatment of hallucinations and delusions associated with Parkinson's disease psychosis, or PD Psychosis, in the United States. We are focusing a significant portion of our activities and resources on NUPLAZID, and we believe our prospects are highly dependent on, and a significant portion of the value of our company relates to, our ability to successfully commercialize NUPLAZID in the United States.

Successful commercialization of NUPLAZID is subject to many risks. Prior to NUPLAZID, we had never, as an organization, launched or commercialized any product, and there is no guarantee that we will be able to successfully launch or commercialize NUPLAZID for its approved indication. There are numerous examples of unsuccessful product launches and failures to meet high expectations of market potential, including by pharmaceutical companies with more experience and resources than us. While we have established our commercial team and have hired our U.S. sales force, we will need to maintain and further develop the team in order to successfully coordinate the launch and commercialization of NUPLAZID. Even if we are successful in maintaining and continuing to develop our commercial team, there are many factors that could cause the launch and commercialization of NUPLAZID to be unsuccessful, including a number of factors that are outside our control. Because no drug has previously been approved by the FDA for the treatment of hallucinations and delusions associated with PD Psychosis, it is especially difficult to estimate NUPLAZID's market potential. The commercial success of NUPLAZID depends on the extent to which patients and physicians recognize and diagnose PD Psychosis and accept and adopt NUPLAZID as a treatment for hallucinations and delusions associated with PD Psychosis, and we do not know whether our or others' estimates in this regard will be accurate. For example, if the patient population suffering from hallucinations and delusions associated with PD Psychosis is smaller than we estimate or if physicians are unwilling to prescribe or patients are unwilling to take NUPLAZID due to its "boxed" warning or other reasons, the commercial potential of NUPLAZID will be limited. We have limited information about how physicians, patients and payors will respond to the pricing of NUPLAZID, including because as part of our initial launch strategy we have provided free product as samples and through a 30-day free trial period of NUPLAZID, and do not know whether patients that initially use NUPLAZID will continue to do so after the sample or 30-day free trial period ends. Physicians may not prescribe NUPLAZID and patients may be unwilling to use NUPLAZID if coverage is not provided or reimbursement is inadequate to cover a significant portion of the cost. Additionally, any negative development for NUPLAZID in our post-marketing commitments, in clinical development in additional indications, or in regulatory processes in other jurisdictions, may adversely impact the commercial results and potential of NUPLAZID. Thus, significant uncertainty remains regarding the commercial potential of NUPLAZID.

If the launch or commercialization of NUPLAZID is unsuccessful or perceived as disappointing, our stock price could decline significantly and the long-term success of the product and our company could be harmed.

If we do not obtain regulatory approval of NUPLAZID for other indications in the United States, or for any indications in foreign jurisdictions, we will not be able to market NUPLAZID for other indications or in other jurisdictions, which will limit our commercial revenues.

While NUPLAZID (pimavanserin) has been approved by the FDA for the treatment of hallucinations and delusions associated with PD Psychosis, it has not been approved by the FDA for any other indications, and it has not been approved in any other jurisdiction for this indication or for any other indication. In order to market NUPLAZID for other indications or in other jurisdictions, we must obtain regulatory approval for each of those indications and in each of the applicable jurisdictions, and we may never be able to obtain such approval. Approval of NUPLAZID by the FDA for the treatment of hallucinations and delusions associated with PD Psychosis does not ensure that the foreign jurisdictions will also approve NUPLAZID for that indication, nor does it ensure that NUPLAZID will be approved by the FDA for any other indication. For example, although we recently announced top-line results from a Phase II study in AD Psychosis as well as the initiation of four clinical studies of pimavanserin in several other indications, there is no guarantee that any of these studies will be successful, or that the FDA or any regulatory authority in foreign jurisdictions will approve NUPLAZID for any of those indications. The research, testing, manufacturing, labeling, approval, sale, import, export, marketing, and distribution of pharmaceutical product candidates are subject to extensive regulation by the FDA and other regulatory authorities in the United States and other countries, whose regulations differ from country to country. We will be required to comply with different regulations and policies of the jurisdictions where we seek approval for our product candidates, and we have not yet identified all of the requirements that we will need to satisfy to submit NUPLAZID for approval for other indications or in other jurisdictions. This will require additional time, expertise and expense, including the potential need to conduct additional studies or development work for other jurisdictions beyond the work that we have conducted to support our NDA submission in PD Psychosis. In addition, strategic considerations need to be taken into account when determining whether and when to submit NUPLAZID for approval in other jurisdictions. For example, in the fourth quarter of 2016, the European Medicines Agency, or EMA, approved our proposed pediatric investigation plan related to our planned submission of a marketing authorization application, or MAA, for NUPLAZID in Europe. However, in light of our continuing clinical development of pimavanserin in indications other than in PD Psychosis, and the time-limited data exclusivity currently granted by the EMA that commences on first approval of a product in Europe, we have determined to defer submission of the MAA and we do not yet have a revised estimate of when we will make that filing. If we do not receive marketing approval for NUPLAZID for any other indication or from any regulatory agency other than the FDA, we will never be able to commercialize NUPLAZID for any other indication in the United States or for any indication in any other jurisdiction. Even if we do receive additional regulatory approvals, we may not be successful in commercializing those opportunities.

If the results or timing of regulatory filings, the regulatory process, regulatory developments, clinical trials or preclinical studies, or other activities, actions or decisions related to NUPLAZID do not meet our or others' expectations, the market price of our common stock could decline significantly.

Even though the FDA has granted approval of NUPLAZID for the treatment of hallucinations and delusions associated with PD Psychosis, the terms of the approval may limit its commercial potential. Additionally, NUPLAZID is still subject to substantial, ongoing regulatory requirements.

Even though the FDA has granted approval of NUPLAZID, the scope and terms of the approval may limit our ability to commercialize NUPLAZID and, therefore, our ability to generate substantial sales revenues. The FDA has approved NUPLAZID only for the treatment of hallucinations and delusions associated with PD Psychosis. The label for NUPLAZID also contains a "boxed" warning that elderly patients with dementia-related psychosis treated with antipsychotic drugs are at an increased risk of death, and that NUPLAZID is not approved for the treatment of patients with dementia-related psychosis unrelated to the hallucinations and delusions associated with PD Psychosis.

Additionally, in connection with the FDA approval, we have committed to conduct the following post-marketing studies: (i) a randomized, placebo-controlled withdrawal study in PD Psychosis patients treated with NUPLAZID, (ii) studies to collect additional data to add to the NUPLAZID safety database from an aggregate of at least 500 predominantly frail and elderly subjects on NUPLAZID in one or more randomized, placebo-controlled studies of eight or more weeks duration, (iii) a drug-drug interaction study with NUPLAZID and a strong CYP3A4 inducer, and (iv) re-analysis of tissue samples from certain previously conducted pre-clinical studies. If we fail to comply with our post-marketing commitments, or if the results of the post-marketing studies, or any other ongoing or planned clinical studies of NUPLAZID, are negative, the FDA could decide to withdraw approval, add warnings or narrow the approved indication in the product label.

The manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion and recordkeeping for NUPLAZID will also continue to be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with current good manufacturing processes, good clinical practices, international council for harmonization guidelines and good laboratory practices, which are regulations and guidelines enforced by the FDA for all of our nonclinical and clinical development and for any clinical trials that we conduct post-approval.

Discovery of any issues post-approval, including any safety concerns, such as unexpected side effects or drug-drug interaction problems, adverse events of unanticipated severity or frequency, or concerns over misuse or abuse of the product, problems with the facilities where the product is manufactured, packaged or distributed, or failure to comply with regulatory requirements, may result in, among other things, restrictions on NUPLAZID or on us, including:

- withdrawal of approval, addition of warnings or narrowing of the approved indication in the product label;
- requirement of a Risk Evaluation and Mitigation Strategy to mitigate the risk of off-label use in populations where the FDA may believe that the potential risks of use may outweigh its benefits;
- voluntary or mandatory recalls;
- warning letters;
- suspension of any ongoing clinical studies;
- refusal by the FDA or other regulatory authorities to approve pending applications or supplements to approved applications filed by us, or suspension or revocation of product approvals;
- restrictions on operations, including restrictions on the marketing or manufacturing of the product or the imposition of costly new manufacturing requirements; or
- seizure or detention, or refusal to permit the import or export of products.

If any of these actions were to occur, we may have to discontinue the commercialization of NUPLAZID, limit our sales and marketing efforts, conduct further post-approval studies, and/or discontinue or change any other ongoing or planned clinical studies, which in turn could result in significant expense and delay or limit our ability to generate sales revenues.

NUPLAZID has only been studied in a limited number of patients and in limited populations. As we continue our commercial launch, NUPLAZID is becoming available to a much larger number of patients and in broader populations, and we do not know whether the results of NUPLAZID use in such larger number of patients and broader populations will be consistent with the results from our clinical studies.

Prior to commencing our commercial launch of NUPLAZID in May 2016, NUPLAZID was administered only to a limited number of patients and in limited populations in clinical studies, including our successful pivotal -020 Phase III trial with NUPLAZID for the treatment of PD Psychosis, or the -020 Study. While the FDA granted approval of NUPLAZID based on the data included in the NDA, including data from the -020 Study, we do not know whether the results when a large number of patients and broader populations are exposed to NUPLAZID, including results related to safety and efficacy, will be consistent with the results from earlier clinical studies of NUPLAZID that served as the basis for the approval of NUPLAZID. New data relating to NUPLAZID, including from adverse event reports and post-marketing studies in the United States, and from other ongoing clinical studies, may result in changes to the product label and may adversely affect sales, or result in withdrawal of NUPLAZID from the market. The FDA and regulatory authorities in other jurisdictions may also consider the new data in reviewing NUPLAZID marketing applications for indications other than in PD Psychosis and/or in other jurisdictions, or impose additional post-approval requirements. If any of these actions were to occur, it could result in significant expense and delay or limit our ability to generate sales revenues.

We currently have very limited experience as a company in marketing and distributing pharmaceutical products and rely on a limited network of third party distributors and pharmacies to distribute NUPLAZID. If we are unable to effectively commercialize NUPLAZID, we may not be able to generate product revenues.

NUPLAZID is our only drug that has been approved for sale by any regulatory body, and it became available for prescription in the United States on May 31, 2016. As such, while we have established our commercial team, hired our U.S. sales force and commenced the launch of NUPLAZID in the United States, we currently have limited experience commercializing pharmaceutical products as an organization. In order to successfully market NUPLAZID, we must maintain and continue to develop our sales, marketing, managerial, compliance, and related capabilities or make arrangements with third parties to perform these services. If we are unable to maintain and develop adequate sales, marketing, and distribution capabilities, whether independently or with third parties, we may not be able to appropriately commercialize NUPLAZID and may not become profitable.

We employ our own internal specialty sales force to commercialize NUPLAZID for the treatment of PD Psychosis as part of our commercialization strategy in the United States. We will need to maintain and further develop our sales force as we continue our commercialization efforts, and we will be competing with other pharmaceutical and biotechnology companies to recruit, hire, train and retain marketing and sales personnel. For example, we currently plan to expand our sales force by hiring additional sales representatives to market NUPLAZID to pharmacists and physicians in long-term care facilities. These efforts will continue to be expensive and time-consuming, and we cannot be certain that we will be able to successfully maintain and further develop our sales force.

Additionally, our strategy in the United States includes distributing NUPLAZID solely through a limited network of third-party specialty distributors and specialty pharmacies. While we have entered into agreements with each of these distributors and pharmacies to distribute NUPLAZID in the United States, they may not perform as agreed, or they may terminate their agreements with us. Also, we may need to enter into agreements with additional distributors or pharmacies, and there is no guarantee that we will be able to do so on commercially reasonable terms or at all. If we are unable to maintain and, if needed, expand, our network of specialty distributors and specialty pharmacies, this would expose us to substantial distribution risk.

In the event we are unable to effectively develop and maintain our commercial team, including our U.S. sales force, or maintain and, if needed, expand, our network of specialty distributors and specialty pharmacies, our ability to effectively commercialize NUPLAZID and generate product revenues would be limited.

If we are unable to effectively train and equip our sales force, our ability to successfully commercialize NUPLAZID will be harmed.

NUPLAZID is a newly-marketed drug and, therefore, none of the members of our sales force had ever promoted NUPLAZID prior to its launch. In addition, NUPLAZID is the first drug approved by the FDA for the treatment of hallucinations and delusions associated with PD Psychosis. As a result, we are and will continue to be required to expend significant time and resources to train our sales force to be credible, persuasive, and compliant with applicable laws in marketing NUPLAZID for the treatment of hallucinations and delusions associated with PD Psychosis to neurologists, select psychiatrists, and pharmacists and physicians in long-term care facilities. In addition, we must train our sales force to ensure that a consistent and appropriate message about NUPLAZID is being delivered to our potential customers. If we are unable to effectively train our sales force and equip them with effective materials, including medical and sales literature to help them inform and educate potential customers about the benefits of NUPLAZID and its proper administration, our efforts to successfully commercialize NUPLAZID could be put in jeopardy, which would negatively impact our ability to generate product revenues.

NUPLAZID may not gain acceptance among physicians, patients, and the medical community, thereby limiting our potential to generate revenues.

The degree of market acceptance by physicians, healthcare professionals and third-party payors of NUPLAZID, and any other product for which we obtain regulatory approval, and our profitability and growth, will depend on a number of factors, including:

- the ability to provide acceptable evidence of safety and efficacy;
- the scope of the approved indication(s) for the product;
- the inclusion of any warnings or contraindications in the product label;
- the relative convenience and ease of administration;
- the prevalence and severity of any adverse side effects;
- the availability of alternative treatments;
- pricing and cost effectiveness, which may be subject to regulatory control;
- effectiveness of our or our collaborators' sales and marketing strategy; and
- our ability to obtain sufficient third-party insurance coverage or adequate reimbursement levels.

If a product does not provide a treatment regimen that is at least as beneficial as the current standard of care or otherwise does not provide patient benefit, that product will not achieve market acceptance and will not generate sufficient revenues to achieve or maintain profitability.

With respect to NUPLAZID specifically, successful commercialization will depend on whether and to what extent physicians, long-term care facilities and pharmacies, over whom we have no control, determine to utilize NUPLAZID at the price that we have selected. NUPLAZID is available to treat hallucinations and delusions associated with PD Psychosis, an indication for which no other FDA-approved pharmaceutical treatment exists. Because of this, it is particularly difficult to estimate NUPLAZID's market potential and how physicians, payors and patients will respond to the pricing of NUPLAZID. Industry sources and analysts have a divergence of estimates for the near- and long-term market potential of NUPLAZID, and a variety of assumptions directly impact the estimates for NUPLAZID's market potential, including assumptions regarding the prevalence of PD Psychosis, the rate of diagnosis of PD Psychosis, the prevalence and rate of hallucinations and delusions in patients diagnosed with PD Psychosis, the rate of physician adoption of NUPLAZID, the potential impact of payor restrictions regarding NUPLAZID, and patient adherence and compliance rates. Small differences in these assumptions can lead to widely divergent estimates of the market potential of NUPLAZID. For example, certain research suggests that patients with Parkinson's disease may be hesitant to report symptoms of PD Psychosis to their treating physicians for a variety of reasons, including apprehension about societal stigmas relating to mental illness. Research also suggests that physicians who typically treat patients with Parkinson's disease may not ask about or identify symptoms of PD Psychosis. For these reasons, even if PD Psychosis occurs in high rates among patients with Parkinson's disease, it may be underdiagnosed. Even if PD Psychosis is diagnosed, physicians may not prescribe treatment for hallucinations and delusions associated with PD Psychosis, and if they do prescribe treatment, they may prescribe other drugs, even though they are not approved in PD Psychosis, instead of NUPLAZID. Additionally, NUPLAZID is approved only for the treatment of hallucinations and delusions associated with PD Psychosis, rather than for the treatment of PD Psychosis and/or other symptoms of PD Psychosis, which may cause confusion for prescribing physicians. This confusion could result in physicians not prescribing NUPLAZID for patients diagnosed with PD Psychosis. The label for NUPLAZID also contains a "boxed" warning that elderly patients with dementia-related psychosis treated with antipsychotic drugs are at an increased risk of death, and that NUPLAZID is not approved for the treatment of patients with dementia-related psychosis unrelated to the hallucinations and delusions associated with PD Psychosis. This warning may discourage physicians from prescribing NUPLAZID to patients diagnosed with PD Psychosis, including those with dementia. In addition, even if NUPLAZID is prescribed for the treatment of hallucinations and delusions associated with PD Psychosis, issues may arise with respect to patient adherence and compliance rates. For example, the recommended dosing of NUPLAZID is two 17 mg tablets, taken together once a day. Patients may elect, whether at the direction of their physician or otherwise, to take only one tablet a day instead of two, to take tablets at different times during the day, or to otherwise not adhere to the recommended dosing, any of which could result in far lower efficacy. If patients do not adhere to the recommended dosing of NUPLAZID, patients and physicians may believe that NUPLAZID is less effective, and as a result they may stop taking it and prescribing it. Thus, the commercial success of NUPLAZID depends on acceptance by patients and physicians, and there are a number of factors that could skew our or others' estimates about whether and to what extent NUPLAZID will be prescribed for the treatment of hallucinations and delusions associated with PD Psychosis.

Our ability to generate product revenues will be diminished if NUPLAZID does not receive coverage from payors or sells for inadequate prices, or if patients have unacceptably high co-pay amounts.

Patients who are prescribed medicine for the treatment of their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their prescription drugs. Coverage and adequate reimbursement from governmental healthcare programs, such as Medicare and Medicaid, and commercial payors is critical to new product acceptance. Coverage decisions may depend upon clinical and economic standards that disfavor new drug products when more established or lower cost therapeutic alternatives are already available or subsequently become available. Even if we obtain coverage for NUPLAZID, or other products we may market, the resulting reimbursement payment rates might not be adequate or may require co-payments that patients find unacceptably high. Patients may not use NUPLAZID if coverage is not provided or reimbursement is inadequate to cover a significant portion of its cost.

In addition, the market for NUPLAZID depends significantly on access to third-party payors' drug formularies, or lists of medications for which third-party payors provide coverage and reimbursement. The industry competition to be included in such formularies often leads to downward pricing pressures on pharmaceutical companies. Also, third-party payors may refuse to include a particular branded drug in their formularies or otherwise restrict patient access to a branded drug when a less costly generic equivalent or other alternative is available, even if not approved for the indication for which NUPLAZID is approved.

Third-party payors, whether foreign or domestic, or governmental or commercial, are developing increasingly sophisticated methods of controlling healthcare costs. The current environment is putting pressure on companies to price products below what they may feel is appropriate. Selling NUPLAZID at less than an optimized price could impact our revenues and overall success as a company. We do not know if the price we have selected for NUPLAZID of $1,950 per month for a 34 mg daily dose is the optimized price. In addition, in the United States, no uniform policy of coverage and reimbursement for drug products exists among third-party payors. Therefore, coverage and reimbursement for NUPLAZID may differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of NUPLAZID to each payor separately, with no assurance that coverage will be obtained. If we are unable to obtain coverage of, and adequate payment levels for, NUPLAZID or any other products we may market to third-party payors, physicians may limit how much or under what circumstances they will prescribe or administer them and patients may decline to purchase them. This in turn could affect our ability to successfully commercialize NUPLAZID, or any other products we may market, and thereby adversely impact our profitability, results of operations, financial condition, and future success.

We are subject to federal, state and foreign healthcare laws and regulations and implementation of or changes to such healthcare laws and regulations could adversely affect our business and results of operations.

In both the United States and certain foreign jurisdictions, there have been a number of legislative and regulatory proposals to change the healthcare system in ways that could impact our ability to sell NUPLAZID, and any other potential products, as described in greater detail in the Government Regulation section of this Annual Report. If we are found to be in violation of any of these laws or any other federal or state regulations, we may be subject to administrative, civil and/or criminal penalties, damages, fines, individual imprisonment, exclusion from federal health care programs and the restructuring of our operations. Any of these could have a material adverse effect on our business and financial results. Since many of these laws have not been fully interpreted by the courts, there is an increased risk that we may be found in violation of one or more of their provisions. Any action against us for violation of these laws, even if we ultimately are successful in our defense, will cause us to incur significant legal expenses and divert our management's attention away from the operation of our business.

In addition, in many foreign countries, particularly the countries of the European Union, the pricing of prescription drugs is subject to government control. In some non-U.S. jurisdictions, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing vary widely from country to country. For example, the European Union provides options for its member states to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. A member state may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. We may face competition from lower-priced products in foreign countries that have placed price controls on pharmaceutical products. In addition, there may be importation of foreign products that compete with NUPLAZID, and any other products we may market, which could negatively impact our profitability.

We expect that the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively the ACA, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we may receive for any approved product, including NUPLAZID. There have been judicial and Congressional challenges to certain aspects of the ACA, and we expect there will be additional challenges and amendments to the ACA in the future. Earlier this month, the U.S. House of Representatives and Senate passed legislation which, if signed into law by President Trump, would repeal certain aspects of the ACA. Congress also could consider subsequent legislation to replace elements of the ACA that are repealed. At this time, the full effect that the ACA will have on our business in the future remains unclear. An expansion in the government's role in the U.S. healthcare industry may cause general downward pressure on the prices of prescription drug products, lower reimbursements for providers using NUPLAZID or any other product for which we obtain regulatory approval, reduce product utilization and adversely affect our business and results of operations. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize NUPLAZID or any other products for which we may receive regulatory approval.

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

We are subject, directly and indirectly, to federal and state healthcare fraud and abuse laws, false claims laws, physician payment transparency laws and health information privacy and security laws. If we are unable to comply, or have not fully complied, with such laws, we could face substantial penalties.

We began commercializing NUPLAZID in the United States in May 2016. As a result, our operations are now directly, and indirectly through our customers and third-party payors, subject to various U.S. federal and state healthcare laws and regulations, including, without limitation, the U.S. federal Anti-Kickback Statute, the U.S. federal False Claims Act, and physician sunshine laws and regulations. These laws may impact, among other things, our sales, marketing and education programs and constrain the business or financial arrangements with healthcare providers, physicians and other parties through which we market, sell and distribute our products for which we obtain marketing approval. In addition, we are subject to patient data privacy and security regulation by both the U.S. federal government and the states in which we conduct our business. Finally, we may be subject to additional healthcare, statutory and regulatory requirements and enforcement by foreign regulatory authorities in jurisdictions in which we conduct our business. The laws that may affect our ability to operate include:

- the U.S. federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, offering, receiving or paying any remuneration (including any kickback, bribe, or certain rebates), directly or indirectly, overtly or covertly, in cash or in kind, to induce, or in return for, either the referral of an individual, or the purchase, lease, order or recommendation of any good, facility, item or service, for which payment may be made, in whole or in part, under U.S. federal and state healthcare programs such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the U.S. federal civil and criminal false claims laws and civil monetary penalties laws, including the civil False Claims Act, which impose criminal and civil penalties, through civil whistleblower or qui tam actions, on individuals or entities for, among other things, knowingly presenting, or causing to be presented to the U.S. federal government, claims for payment or approval that are false or fraudulent or from knowingly making a false statement to avoid, decrease or conceal an obligation to pay money to the U.S. federal government. In addition, the government may assert that a claim including items and services resulting from a violation of the U.S. federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act;
- the U.S. federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which imposes criminal and civil liability for, among other things, 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 payor (e.g., public or private) and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statement, in connection with the delivery of, or payment for, healthcare benefits, items or services. Similar to the U.S. federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH, and its implementing regulations, and as amended again by the Final HIPAA Omnibus Rule, Modifications to the HIPAA Privacy, Security, Enforcement and Breach Notification Rules Under HITECH and the Genetic Information Nondiscrimination Act; Other Modifications to the HIPAA Rules, published in January 2013, which imposes certain obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information without appropriate authorization by covered entities subject to the rule, such as health plans, healthcare clearinghouses and healthcare providers as well as their business associates that perform certain services involving the use or disclosure of individually identifiable health information;
- the U.S. Federal Food, Drug and Cosmetic Act, or FDCA, which prohibits, among other things, the adulteration or misbranding of drugs, biologics and medical devices;
- the U.S. federal physician payment transparency requirements, sometimes referred to as the “Physician Payments Sunshine Act”, which was enacted as part of the ACA and its implementing regulations and requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid, or the Children’s Health Insurance Program to report annually to the Centers for Medicare and Medicaid Services, or CMS, information related to certain payments and other transfers of value made to physicians, other healthcare providers, and teaching hospitals, as well as ownership and investment interests held by physicians and other healthcare providers and their immediate family members;

- analogous state laws and regulations, including: state anti-kickback and false claims laws, which may apply to our business practices, including but not limited to, research, distribution, sales and marketing arrangements and claims involving healthcare items or services reimbursed by any third-party payor, including private insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the U.S. federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; and state laws and regulations that require drug manufacturers to file reports relating to pricing and marketing information, which requires tracking gifts and other remuneration and items of value provided to healthcare professionals and entities, 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 often are not preempted by HIPAA, thus complicating compliance efforts; and
- European and other foreign law equivalents of each of the laws, including reporting requirements detailing interactions with and payments to healthcare providers.

Ensuring that our internal operations and future business arrangements with third parties comply with applicable healthcare laws and regulations could involve substantial costs. It is possible that governmental authorities will conclude that our business practices do not comply with current or future statutes, regulations or case law interpreting applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of the laws described above or any other governmental laws and regulations that may apply to us, we may be subject to significant penalties, including civil, criminal and administrative penalties, damages, fines, exclusion from U.S. government funded healthcare programs, such as Medicare and Medicaid, disgorgement, individual imprisonment, contractual damages, reputational harm, diminished profits, and the curtailment or restructuring of our operations. Moreover, while we do not bill third-party payors directly and our customers make the ultimate decision on how to submit claims, from time-to-time, for NUPLAZID, and any other product candidates that may be approved, we may provide reimbursement guidance to patients and healthcare providers. If a government authority were to conclude that we provided improper advice and/or encouraged the submission of a false claim for reimbursement, we could face action against us by government authorities. If any of the physicians or other providers or entities with whom we expect to do business is found to be not in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs and imprisonment. If any of the above occur, it could adversely affect our ability to operate our business and our results of operations. In addition, the approval and commercialization of NUPLAZID, or any other product candidates that may be approved, outside the United States will also likely subject us to foreign equivalents of the healthcare laws mentioned above, among other foreign laws.

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

We participate in the Medicaid Drug Rebate Program, as administered by CMS, and other federal and state government pricing programs in the United States, and we may participate in additional government pricing programs in the future. These programs generally require us to pay rebates or otherwise provide discounts to government payors in connection with drugs that are dispensed to beneficiaries/recipients of these programs. In some cases, such as with the Medicaid Drug Rebate Program, the rebates are based on pricing that we report on a monthly and quarterly basis to the government agencies that administer the programs. Pricing requirements and rebate/discount calculations are complex, vary among products and programs, and are often subject to interpretation by governmental or regulatory agencies and the courts. The requirements of these programs, including, by way of example, their respective terms and scope, change frequently. Responding to current and future changes may increase our costs, and the complexity of compliance will be time consuming. Invoicing for rebates is provided in arrears, and there is frequently a time lag of up to several months between the sales to which rebate notices relate and our receipt of those notices, which further complicates our ability to accurately estimate and accrue for rebates related to the Medicaid program as implemented by individual states. Thus, there can be no assurance that we will be able to identify all factors that may cause our discount and rebate payment obligations to vary from period to period, and our actual results may differ significantly from our estimated allowances for discounts and rebates. Changes in estimates and assumptions may have a material adverse effect on our business, results of operations and financial condition.

In addition, the Office of Inspector General of the Department of Health and Human Services and other Congressional, enforcement and administrative bodies have recently increased their focus on pricing requirements for products, including, but not limited to the methodologies used by manufacturers to calculate average manufacturer price, or AMP, and best price, or BP, for compliance with reporting requirements under the Medicaid Drug Rebate Program. We are liable for errors associated with our submission of pricing data and for any overcharging of government payors. For example, failure to submit monthly/quarterly AMP and BP data on a timely basis could result in a civil monetary penalty of $10,000 per day for each day the submission is late beyond the due date. Failure to make necessary disclosures and/or to identify overpayments could result in allegations against us under the Federal False Claims Act and other laws and regulations. Any required refunds to the U.S. government or responding to a government investigation or enforcement action would be expensive and time consuming and could have a material adverse effect on our business, results of operations and financial condition. In addition, in the event that the CMS were to terminate our rebate agreement, no federal payments would be available under Medicaid or Medicare for our covered outpatient drugs.

The FDA granted marketing approval of NUPLAZID for the treatment of hallucinations and delusions associated with PD Psychosis, and we could face liability if a regulatory authority determines that we are promoting NUPLAZID for any "off-label" uses.

A company may not promote "off-label" uses for its drug products. An off-label use is the use of a product for an indication that is not described in the product's FDA-approved label in the United States or for uses in other jurisdictions that differ from those approved by the applicable regulatory agencies. Physicians, on the other hand, may prescribe products for off-label uses. Although the FDA and other regulatory agencies do not regulate a physician's choice of drug treatment made in the physician's independent medical judgment, they do restrict promotional communications from pharmaceutical companies or their sales force with respect to off-label uses of products for which marketing clearance has not been issued. A company that is found to have promoted off-label use of its product may be subject to significant liability, including civil and criminal sanctions. We intend to comply with the requirements and restrictions of the FDA and other regulatory agencies with respect to our promotion of NUPLAZID, and any other products we may market, but we cannot be sure that the FDA or other regulatory agencies will agree that we have not violated their restrictions. As a result, we may be subject to criminal and civil liability. In addition, our management's attention could be diverted to handle any such alleged violations. A significant number of pharmaceutical companies have been the target of inquiries and investigations by various U.S. federal and state regulatory, investigative, prosecutorial and administrative entities in connection with the promotion of products for unapproved uses and other sales practices, including the Department of Justice and various U.S. Attorneys' Offices, the Office of Inspector General of the Department of Health and Human Services, the FDA, the Federal Trade Commission and various state Attorneys General offices. These investigations have alleged violations of various U.S. federal and state laws and regulations, including claims asserting antitrust violations, violations of the FDCA, the federal False Claims Act, the Prescription Drug Marketing Act, anti-kickback laws, and other alleged violations in connection with the promotion of products for unapproved uses, pricing and Medicare and/or Medicaid reimbursement. If the FDA or any other governmental agency initiates an enforcement action against us or if we are the subject of a qui tam suit and it is determined that we violated prohibitions relating to the promotion of products for unapproved uses, we could be subject to substantial civil or criminal fines or damage awards and other sanctions such as consent decrees and corporate integrity agreements pursuant to which our activities would be subject to ongoing scrutiny and monitoring to ensure compliance with applicable laws and regulations. Any such fines, awards or other sanctions would have an adverse effect on our revenue, business, financial prospects, and reputation.

We expect our net losses to continue for at least the next few years and are unable to predict the extent of future losses or when we will become profitable, if ever.

We have experienced significant net losses since our inception. As of December 31, 2016, we had an accumulated deficit of approximately $934.0 million. We expect to incur net losses over the next few years as we invest in the commercialization of NUPLAZID and advance our development programs.

Even though we began commercializing NUPLAZID in the United States in May 2016, we still expect to incur significant expenses and net losses for at least the next few years as we continue our commercialization efforts for NUPLAZID and pursue the further development of NUPLAZID and our product candidates. Substantially all of our revenues for the twelve months ended December 31, 2016 were from net product sales of NUPLAZID.

The research term of our 2003 research collaboration with Allergan concluded in 2013 and we no longer recognize revenues from this collaboration. In addition, our 1999 muscarinic collaboration focused on glaucoma terminated in 2015 and we will not be receiving any further payments under that agreement. Thus, any payments from Allergan pursuant to our continuing collaboration in chronic pain are dependent upon the advancement of an applicable product candidate, and we cannot be certain that we will receive any additional collaboration payments.

We expect that our near-term revenues will therefore be substantially dependent on our ability to generate net product sales of NUPLAZID. To the extent that we cannot generate significant revenues from the sale of NUPLAZID to cover our expenses, including the significant expenses associated with commercializing NUPLAZID and continuing to develop pimavanserin in additional indications, we may never achieve profitability and/or may have to reduce our commercialization and/or research and development activities to become profitable, which would harm our future growth prospects. Additionally, to obtain revenues from product candidates other than NUPLAZID, we must succeed, either alone or with others, in developing, obtaining regulatory approval for, manufacturing and marketing compounds with significant market potential. We may never succeed in these activities and may never generate revenues from our commercialization of NUPLAZID, or from other product candidates that may be approved, that are significant enough to achieve profitability.

If we fail to obtain the capital necessary to fund our operations, we will be unable to successfully continue the development and commercialization of NUPLAZID or successfully develop and commercialize our product candidates.

We have consumed substantial amounts of capital since our inception. Our cash, cash equivalents and investment securities totaled $529.0 million at December 31, 2016. We raised net proceeds of approximately $281.6 million and $215.9 million in follow-on public offerings in January 2016 and August 2016, respectively. While we believe that our existing cash resources will be sufficient to fund our cash requirements through at least the next twelve months, we may require significant additional financing in the future to continue to fund our operations. Our future capital requirements will depend on, and could increase significantly as a result of, many factors including:

- the progress in, and the costs of, our ongoing and planned development activities for pimavanserin, post-marketing studies for NUPLAZID to be conducted over the next several years, ongoing and planned commercial activities for NUPLAZID, and other research and development programs;
- the costs of maintaining and developing our sales and marketing capabilities for NUPLAZID;
- the costs of establishing, or contracting for, sales and marketing capabilities for other product candidates;
- the amount of U.S. product sales from NUPLAZID;
- the costs of preparing applications for regulatory approvals for NUPLAZID in jurisdictions other than the United States, and potentially in additional indications other than in PD Psychosis, and for other product candidates, as well as the costs required to support review of such applications;
- the costs of manufacturing and distributing NUPLAZID for commercial use in the United States;
- our ability to obtain regulatory approval for, and subsequently generate product sales from, NUPLAZID in jurisdictions other than the United States or in additional indications other than in PD Psychosis, or from other product candidates;
- the costs of acquiring additional product candidates or research and development programs;
- the scope, prioritization and number of our research and development programs;
- the ability of our collaborators and us to reach the milestones and other events or developments triggering payments under our collaboration or license agreements, or our collaborators' ability to make payments under these agreements;
- our ability to enter into new collaboration and license agreements;
- the extent to which we are obligated to reimburse collaborators or collaborators are obligated to reimburse us for costs under collaboration agreements;
- the costs involved in filing, prosecuting, enforcing and defending patent claims and other intellectual property rights;
- the costs of maintaining or securing manufacturing arrangements and supply for clinical or commercial production of pimavanserin or other product candidates; and
- the costs associated with litigation, including the costs incurred in defending against any product liability claims that may be brought against us related to NUPLAZID.

Unless and until we can generate significant cash from our operations, we expect to satisfy our future cash needs through our existing cash, cash equivalents and investment securities, strategic collaborations, public or private sales of our securities, debt financings, grant funding, or by licensing all or a portion of our product candidates or technology. In the past, periods of turmoil and volatility in the financial markets have adversely affected the market capitalizations of many biotechnology companies, and generally made equity and debt financing more difficult to obtain. These events, coupled with other factors, may limit our access to additional financing in the future. This could have a material adverse effect on our ability to access sufficient funding. We cannot be certain that additional funding will be available to us on acceptable terms, or at all. If funds are not available, we will be required to delay, reduce the scope of, or eliminate one or more of our research or development programs or our commercialization efforts. We also may be required to relinquish greater or all rights to product candidates at an earlier stage of development or on less favorable terms than we would otherwise choose. Additional funding, if obtained, may significantly dilute existing stockholders and could negatively impact the price of our stock.

The pivotal Phase III study with NUPLAZID for PD Psychosis, the results of which were announced in November 2012, was our first successful pivotal Phase III trial and there is no guarantee that future studies with pimavanserin will be successful.

The historical rate of failures for product candidates in clinical development is extremely high. In November 2012, we announced results from the -020 Study. Additionally, in December 2016, we announced positive top-line results from our Phase II exploratory study of pimavanserin in patients with Alzheimer's disease psychosis, or AD Psychosis. Even though we successfully completed this Phase II exploratory study, or the -019 Study, and the -020 Study, those results are not predictive of the results of any additional studies that we are currently undertaking or may undertake in the future with pimavanserin, including the post-marketing studies we committed to conduct in connection with FDA approval of NUPLAZID and the ongoing studies of pimavanserin in various indications. We believe that pimavanserin also may have utility in indications other than in PD Psychosis, such as AD Psychosis, Alzheimer's disease agitation and aggression, or collectively AD Agitation, and in schizophrenia and depression. However, prior to the -019 Study, we had never tested pimavanserin in clinical studies for AD Psychosis or any Alzheimer's disease indication, and prior to the efficacy study that we announced we had initiated in October 2016, we had never tested pimavanserin in clinical studies for AD Agitation, and prior to the study in major depressive disorder that we announced we had initiated in December 2016, we had never tested pimavanserin in clinical studies in depression. Additionally, prior to the study in schizophrenia that we announced we had initiated in November 2016, we had only conducted a Phase II trial for pimavanserin as a co-therapy treatment in schizophrenia. There is no guarantee that we will have the same level of success with pimavanserin in other indications that we had with the -020 Study, or that we will have the same level of success with pimavanserin in AD Psychosis or in other indications that we had with the -019 Study. Further, there is no guarantee that we will be successful at all in ongoing or future studies for additional indications or in our post-marketing studies, or that future results of studies of NUPLAZID for the treatment in PD Psychosis or for other indications, including AD Psychosis, will be consistent with those from the -019 Study or -020 Study.

If we do not successfully complete additional development of NUPLAZID, we will be unable to market and sell NUPLAZID or products derived from it for indications other than the treatment of hallucinations and delusions associated with PD Psychosis, or to generate related product revenues.

We do not have a partner for the development of pimavanserin, and are solely responsible for the advancement of this program and commercialization of the product.

We have full responsibility for the pimavanserin program throughout the world. We expect our research and development costs for continued development of pimavanserin to be substantial. While we currently are undertaking the ongoing development work for pimavanserin, including clinical trials of pimavanserin for indications other than in PD Psychosis, in the future we would need to add resources and raise additional funds in order to take this product candidate to market for indications other than in PD Psychosis or in jurisdictions outside the United States, and to conduct the necessary sales and marketing activities, and to conduct further development activities, if we do not secure a partner. Our current strategy is to commercialize NUPLAZID for the treatment of hallucinations and delusions associated with PD Psychosis in the United States using our specialty sales force focused primarily on neurologists, a small group of psychiatrists, and pharmacists and physicians in long-term care facilities who treat PD Psychosis patients. In addition, if we are approved to commercialize NUPLAZID in markets outside of the United States, we will more than likely need to establish one or more strategic alliances in the future for that purpose. Without future collaboration partners in the United States and abroad, we might not be able to realize the full value of NUPLAZID.

We conducted a life-cycle planning project for pimavanserin that was initiated in 2015 and through which we have formulated a multi-year plan to develop pimavanserin in additional indications other than in PD Psychosis, including within Alzheimer's disease, schizophrenia and depression, as described above. Given the unique profile of pimavanserin, together with the list of potential indications we could pursue, this has been a substantial and important undertaking. Our life-cycle planning process will be ongoing as we evaluate appropriate indications for pimavanserin to pursue as we seek to maximize the opportunities for this compound. If our life-cycle planning and execution is not conducted successfully, then we may not realize the full value from pimavanserin or may devote substantial resources to develop pimavanserin for indications that are ultimately not successful or do not yield adequate returns. Furthermore, even though NUPLAZID is approved for the treatment of hallucinations and delusions associated with PD Psychosis, a failure in a subsequent study for another indication, including the studies we recently initiated in AD Agitation, schizophrenia and depression, or a failure in our post-marketing studies could harm our ability to successfully market NUPLAZID for the treatment of hallucinations and delusions associated with PD Psychosis or could lead to it being withdrawn from the market. If we are unable to develop pimavanserin for other indications, we may not be able to maximize the potential of the compound and that could have a material adverse effect on our future revenues and our success as a company.

Pimavanserin is currently in development for several additional indications other than PD Psychosis, and development is a long, expensive and unpredictable process with a high risk of failure.

Preclinical testing and clinical trials are long, expensive and unpredictable processes that can be subject to delays. It may take several years to complete the preclinical testing and clinical development necessary to commercialize a drug, and delays or failure can occur at any stage. Interim results of clinical trials do not necessarily predict final results, and success in preclinical testing and early clinical trials does not ensure that later clinical trials will be successful. A number of companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in advanced clinical trials even after promising results in earlier trials.

Our drug development programs are at various stages of development and the historical rate of failures for product candidates is extremely high. In fact, we had an unsuccessful Phase III trial with NUPLAZID in 2009. An unfavorable outcome in any of our ongoing or future development efforts or in the post-marketing studies for NUPLAZID could be a major set-back for the program and for us, generally. In particular, an unfavorable outcome in our NUPLAZID program or in the post-marketing studies may require us to delay, devote additional substantial resources to, reduce the scope of, or eliminate this program and could have a material adverse effect on us and the value of our common stock. In October 2016, we announced we had initiated a Phase II study of pimavanserin in patients with AD Agitation, and in November 2016 we announced we had initiated both a Phase II and a Phase III study of pimavanserin as an adjunctive treatment in patients with schizophrenia. Additionally, in December 2016, we announced we had initiated a Phase II study of pimavanserin as an adjunctive treatment in patients with major depressive disorder. We may plan and conduct additional studies in other indications in the future, including our plans to continue to study pimavanserin in patients with AD Psychosis.

In connection with clinical trials, we face risks that:

- a product candidate may not prove to be efficacious or safe;
- patients may die or suffer other adverse effects for reasons that may or may not be related to the product candidate being tested;
- the results may not be consistent with positive results of earlier trials; and
- the results may not meet the level of statistical significance required by the FDA or other regulatory agencies.

If we do not successfully complete preclinical and clinical development, we will be unable to market and sell products derived from our product candidates and to generate product revenues. Even if we do successfully complete clinical trials, those results are not necessarily predictive of results of additional trials that may be needed before an NDA may be submitted to the FDA. Of the large number of drugs in development, only a small percentage result in the submission of an NDA to the FDA and even fewer are approved for commercialization.

Delays, suspensions and terminations in our clinical trials could result in increased costs to us and delay our ability to generate product revenues.

The commencement of clinical trials can be delayed for a variety of reasons, including delays in:

- demonstrating sufficient safety and efficacy to obtain regulatory approval to commence a clinical trial;
- reaching agreement on acceptable terms with prospective contract research organizations and clinical trial sites;
- manufacturing sufficient quantities of a product candidate;

- obtaining clearance from the FDA to commence clinical trials pursuant to an Investigational New Drug application;
- obtaining institutional review board approval to conduct a clinical trial at a prospective clinical trial site; and
- patient recruitment, which is a function of many factors, including the size of the patient population, the nature of the protocol, the proximity of patients to clinical trial sites, the availability of effective treatments for the relevant disease and the eligibility criteria for the clinical trial.

Once a clinical trial has begun, it may be delayed, suspended or terminated due to a number of factors, including:

- ongoing discussions with regulatory authorities regarding the scope or design of our clinical trials or requests by them for supplemental information with respect to our clinical trial results;
- imposition of clinical holds by regulatory authorities or institutional review boards;
- failure to conduct clinical trials in accordance with regulatory requirements;
- patient enrollment, which is a function of many factors, including the size of the patient population, the nature of the protocol, the proximity of patients to clinical trial sites, the availability of effective treatments for the relevant disease and the eligibility criteria for the clinical trial;
- lower than anticipated screening or retention rates of patients in clinical trials;
- serious adverse events or side effects experienced by participants; and
- insufficient supply or deficient quality of product candidates or other materials necessary for the conduct of our clinical trials.

Many of these factors may also ultimately lead to denial of regulatory approval of a current or potential product candidate. If we experience delays, suspensions or terminations in a clinical trial, the commercial prospects for the related product candidate will be harmed, and our ability to generate product revenues will be delayed.

We depend on collaborations with third parties to develop and commercialize selected product candidates other than pimavanserin, and we have limited control over how those third parties conduct development and commercialization activities for such product candidates.

One aspect of our strategy is to selectively enter into collaboration agreements with third parties. We currently rely, and will continue to rely, on our collaborators for financial resources and for development, regulatory, and commercialization expertise for selected product candidates, other than pimavanserin, and we have limited control over the amount and timing of resources that our collaborators may devote to our product candidates. We may choose to rely on collaborations in the future for certain portions of our pimavanserin program or for the commercialization of NUPLAZID in certain territories outside of the United States. The research term of our 2003 research collaboration with Allergan concluded in 2013 and we no longer recognize revenues from this collaboration. In addition, our 1999 muscarinic collaboration focused on glaucoma terminated in 2015 and we will not be receiving any further payments under that agreement. Any additional payments from our continuing collaboration agreement with Allergan in chronic pain are dependent upon further advancement of an applicable product candidate. Unless these milestones are met, we will not receive future revenues from our continuing collaboration with Allergan.

Our collaborators may fail to develop or effectively commercialize products using our product candidates or technologies because they:

- do not have sufficient resources or decide not to devote the necessary resources due to internal constraints such as limited cash or human resources or a change in strategic focus;
- decide to pursue a competitive product developed outside of the collaboration; or
- cannot obtain the necessary regulatory approvals.

In July 2014, Allergan announced that it would be reducing its worldwide headcount by approximately 13% and that it would be restructuring its operations. In March 2015, Actavis plc acquired Allergan. Allergan also previously has announced that it was seeking a partner for further development and commercialization of drug candidates in our chronic pain program under our continuing collaboration. In connection with Actavis' acquisition of Allergan, and any related restructuring, Allergan elected to terminate our collaboration focused on muscarinic product candidates, including the glaucoma program covered by such collaboration, and, it may choose to devote substantially less resources to the chronic pain program or could discontinue such program entirely. If Allergan is unable to successfully partner our chronic pain program, it may elect to not pursue further development. In addition, any partner that Allergan does identify may devote substantially less resources than Allergan has devoted to this program to date. In addition, Allergan can terminate our existing chronic pain collaboration upon prior notice to us, as it did with the glaucoma collaboration.

If Allergan elects to devote substantially less resources to the chronic pain program, absent circumstances giving rise to our right to terminate, our remedies against Allergan are limited, and we may not be able to regain rights to such program. If Allergan elects to discontinue the chronic pain program and terminates our collaboration agreement, as was the case with the glaucoma program, the discontinued program may revert to us, in which case we would need to evaluate whether to continue advancing such program alone or with a new collaborator. Either advancing such program alone or seeking a new collaborator would divert our management's attention and involve expending additional resources that are currently devoted to our other programs, including our pimavanserin program. We have not yet made a determination with regard to any further development of the glaucoma program that returned to us under the collaboration focused on muscarinic product candidates.

We also face competition in our search for new collaborators, if we seek a new partner for our pimavanserin program or other programs, including any programs that may revert to us from Allergan. Given the current economic and industry environment, it is possible that competition for new collaborators may increase. If we are unable to find new collaborations, we may not be able to continue advancing our programs alone.

If conflicts arise with our collaborators, they may act in their self-interests, which may be adverse to our interests.

Conflicts may arise in our collaborations due to one or more of the following:

- disputes or breaches with respect to payments that we believe are due under the applicable agreements, particularly in the current environment when companies, including large established ones, may be seeking to reduce external payments;
- disputes on strategy as to what development or commercialization activities should be pursued under the applicable agreements;
- disputes as to the responsibility for conducting development and commercialization activities pursuant to the applicable collaboration, including the payment of costs related thereto;
- disagreements with respect to ownership of intellectual property rights;
- unwillingness on the part of a collaborator to keep us informed regarding the progress of its development and commercialization activities, or to permit public disclosure of these activities;
- delay or reduction of a collaborator's development or commercialization efforts with respect to our product candidates; or
- termination or non-renewal of the collaboration.

Conflicts arising with our collaborators could impair the progress of our product candidates, harm our reputation, result in a loss of revenues, reduce our cash position, and cause a decline in our stock price.

In addition, in our collaborations, we generally have agreed not to conduct independently, or with any third party, any research that is directly competitive with the research conducted under the applicable program. Our collaborations may have the effect of limiting the areas of research that we may pursue, either alone or with others. Our collaborators, however, may develop, either alone or with others, products in related fields that are competitive with the products or potential products that are the subject of these collaborations. Competing products, either developed by our collaborators or to which our collaborators have rights, may result in the allocation of resources by our collaborators to competing products and their withdrawal of support for our product candidates or may otherwise result in lower demand for our potential products.

We have a continuing collaboration with Allergan for the development of product candidates related to chronic pain. Allergan may also pursue other research programs related to pain management that are independent from our collaboration in this therapeutic area. In March 2015, Actavis acquired Allergan. Actavis may have, or acquire rights to, additional programs related to chronic pain, which could impact the strategy with respect to the development of product candidates covered by our continuing collaboration.

We rely on third parties to conduct our clinical trials and perform data collection and analysis, which may result in costs and delays that prevent us from successfully commercializing product candidates.

Although we design and manage our current preclinical studies and clinical trials, we currently do not have the ability to conduct clinical trials for our product candidates on our own. In addition to our collaborators, we rely on contract research organizations, medical institutions, clinical investigators, and contract laboratories to perform data collection and analysis and other aspects of our clinical trials. In addition, we also rely on third parties to assist with our preclinical studies, including studies regarding biological activity, safety, absorption, metabolism, and excretion of product candidates.

Our preclinical activities or clinical trials may be delayed, suspended, or terminated if:

- these third parties do not successfully carry out their contractual duties or fail to meet regulatory obligations or expected deadlines;
- these third parties need to be replaced; or
- the quality or accuracy of the data obtained by these third parties is compromised due to their failure to adhere to our clinical protocols or regulatory requirements or for other reasons.

Failure to perform by these third parties may increase our development costs, delay our ability to obtain regulatory approval, and delay or prevent the commercialization of our product candidates. We currently use several contract research organizations to perform services for our preclinical studies and clinical trials. While we believe that there are numerous alternative sources to provide these services, in the event that we seek such alternative sources, we may not be able to enter into replacement arrangements without delays or additional expenditures.

Even if we or our collaborators successfully complete the clinical trials of product candidates, the product candidates may fail for other reasons.

Of the large number of product candidates in development, only a small percentage result in the submission of an NDA to the FDA or comparable regulatory filing to regulatory authorities in other jurisdictions, and even fewer are approved for marketing. We cannot assure you that, even if clinical trials are completed, either we or our collaborators will submit applications for required authorizations to manufacture and/or market potential products or that any such application will be reviewed and approved by the appropriate regulatory authorities in a timely manner, if at all. Even if we or our collaborators successfully complete the clinical trials of product candidates and apply for such required authorizations, the product candidates, such as pimavanserin, may fail for other reasons, including the possibility that the product candidates will:

- fail to receive the regulatory clearances required to market them as drugs;
- be subject to proprietary rights held by others requiring the negotiation of a license agreement prior to marketing;
- be difficult or expensive to manufacture on a commercial scale;
- have adverse side effects that make their use less desirable; or
- fail to compete with product candidates or other treatments commercialized by competitors.

We currently depend, and in the future will continue to depend, on third parties to manufacture NUPLAZID and our product candidates. If these manufacturers fail to provide us or our collaborators with adequate supplies of clinical trial materials and commercial product or fail to comply with the requirements of regulatory authorities, we may be unable to develop or commercialize NUPLAZID or our product candidates.

We have no manufacturing facilities and only limited experience as an organization in the manufacturing of drugs or in designing drug-manufacturing processes. We have contracted with third-party manufacturers to produce, in collaboration with us, NUPLAZID and our product candidates.

In August 2015, we contracted with Patheon Pharmaceuticals Inc. to manufacture NUPLAZID drug product for commercial use in the United States following the commercial launch of NUPLAZID. Additionally, in August 2015 we contracted with BASF Pharma (Evionnaz) SA, which was subsequently acquired by Siegfried Pharma Evionnaz SA in October 2015, to manufacture active pharmaceutical ingredient, or API, to be used in the manufacture of NUPLAZID drug product for commercial use. In December 2016 we entered into an updated agreement with Siegfried AG for the manufacture of API to be used in the manufacture of NUPLAZID drug product for commercial use, which replaced the agreement from August 2015 between us and Siegfried. However, we have not entered into any agreements with any alternate suppliers for NUPLAZID drug product or NUPLAZID API. Even if we are able to enter into other long-term agreements with manufacturers for commercial supply on reasonable terms, we may face delays or increased costs in our supply chain that could jeopardize the commercialization of NUPLAZID. Additionally, if any of our product candidates in addition to NUPLAZID are approved by the FDA or other regulatory agencies for commercial sale, or if NUPLAZID is approved for commercial sale in jurisdictions outside the United States, we will need to contract with a third party to manufacture such products for commercial sale in the United States and/or in such other jurisdictions.

Even though we entered into an agreement with Patheon for the manufacture of NUPLAZID drug product and with Siegfried for the manufacture of NUPLAZID API for commercial use, and even if we successfully enter into long-term agreements with other manufacturers, the FDA may not approve the facilities of such manufacturers, the manufacturers may not perform as agreed, or the manufacturers may terminate their agreements with us. Presently, we only have one supplier of API and one supplier of drug product for our NUPLAZID (pimavanserin) program. If any of the foregoing circumstances occur, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, maintain or obtain, as applicable, regulatory approval for or market NUPLAZID or any of our product candidates. While we believe that there will be alternative sources available to manufacture NUPLAZID and our product candidates, in the event that we seek such alternative sources, we may not be able to enter into replacement arrangements without delays or additional expenditures. We cannot estimate these delays or costs with certainty but, if they were to occur, they could cause a delay in our development and commercialization efforts.

The manufacturers of NUPLAZID and our product candidates, including Patheon and Siegfried, are obliged to operate in accordance with FDA-mandated current good manufacturing practices, or cGMPs, and we have no control over the ability of third-party manufacturers to maintain adequate quality control, quality assurance and qualified personnel to ensure compliance with cGMPs. In addition, the facilities used by our third-party manufacturers to manufacture NUPLAZID and our product candidates must be approved by the FDA pursuant to inspections that will be conducted prior to any grant of regulatory approval by the FDA. If any of our third-party manufacturers are unable to successfully manufacture material that conforms to our specifications and the FDA's strict regulatory requirements, or pass regulatory inspection, they will not be able to secure or maintain approval for the manufacturing facilities. Additionally, a failure by any of our third-party manufacturers to establish and follow cGMPs or to document their adherence to such practices may lead to significant delays in clinical trials or in obtaining regulatory approval of product candidates, or result in issues maintaining regulatory approval of NUPLAZID and any other product candidate that receives regulatory approval, negatively impact our commercialization of NUPLAZID, or lead to significant delays in the launch and commercialization of any other products we may have in the future. Failure by our third-party manufacturers or us to comply with applicable regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, failure of the government to grant pre-market approval of drugs, delays, suspension or withdrawal of approvals, seizures or recalls of products, operating restrictions, and criminal prosecutions.

The manufacture of pharmaceutical products requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of pharmaceutical products often encounter difficulties in production. These problems include difficulties with production costs and yields, quality control, including stability of the product, quality assurance testing, shortages of qualified personnel, as well as compliance with strictly-enforced federal, state and foreign regulations. We cannot assure you that any issues relating to the manufacture of NUPLAZID or our product candidates will not occur in the future. Additionally, our manufacturers may experience manufacturing difficulties due to resource constraints or as a result of labor disputes or unstable political environments. If our manufacturers were to encounter any of these difficulties, or otherwise fail to comply with their contractual obligations, our ability to commercialize NUPLAZID in the United States, or provide any product candidates to patients in clinical trials, would be jeopardized. Any delay or interruption in our ability to meet commercial demand for NUPLAZID and any other approved products will result in the loss of potential revenues and could adversely affect our ability to gain market acceptance for these products. In addition, any delay or interruption in the supply of clinical trial supplies could delay the completion of clinical trials, increase the costs associated with maintaining clinical trial programs and, depending upon the period of delay, require us to commence new clinical trials at additional expense or terminate clinical trials completely.

Failures or difficulties faced at any level of our supply chain could materially adversely affect our business and delay or impede the development and commercialization of NUPLAZID or our product candidates and could have a material adverse effect on our business, results of operations, financial condition and prospects.

If we are unable to attract, retain, and motivate key management, research and development, and sales and marketing personnel, our drug development programs, our research and discovery efforts, and our commercialization plans may be delayed and we may be unable to successfully commercialize our products, including NUPLAZID, or develop our product candidates, including pimavanserin for indications beyond PD Psychosis.

Our success depends on our ability to attract, retain, and motivate highly qualified management, scientific, and commercial personnel. In particular, our development programs depend on our ability to attract and retain highly skilled development personnel, especially in the fields of central nervous system disorders, including neuropsychiatric and related disorders. We are currently hiring, and in the future we expect to need to continue to hire, additional personnel as we expand our research and development efforts for pimavanserin and commercial activities for NUPLAZID. We face competition for experienced scientists, clinical operations personnel, commercial and other personnel from numerous companies and academic and other research institutions. Competition for qualified personnel is particularly intense in the San Diego, California area. Many of the other biotechnology and pharmaceutical companies with whom we compete for qualified personnel have greater financial and other resources, different risk profiles and longer histories in the industry than we do. They also may provide more diverse opportunities and better chances for career advancement. Some of these characteristics may be more appealing to high quality candidates than that which we have to offer. If we are unable to continue to attract and retain high quality personnel, the rate and success at which we can develop and commercialize products and product candidates will be limited. If we are unable to attract and retain the necessary personnel, it will significantly impede our commercialization efforts for NUPLAZID and the achievement of our research and development objectives.

All of our employees are “at will” employees, which means that any employee may quit at any time and we may terminate any employee at any time. We do not carry “key person” insurance covering members of senior management.

We have recently increased the size of our organization, and will need to continue to increase the size of our organization. We may encounter difficulties with managing our growth, which could adversely affect our results of operations.

As of December 31, 2016, we employed approximately 370 employees. Although we have already added several capabilities, we will need to add additional qualified personnel and resources, especially now that we have a commercial sales force, which we currently plan to expand by approximately 20 sales specialists, and are commencing several new clinical studies of pimavanserin. Our current infrastructure may be inadequate to support our development and commercialization efforts and expected growth. Future growth will impose significant added responsibilities on members of management, including the need to identify, recruit, maintain and integrate additional employees, and may take time away from running other aspects of our business, including development and commercialization of our product candidates.

Our future financial performance and our ability to commercialize NUPLAZID and any other product candidates that receive regulatory approval and to compete effectively will depend, in part, on our ability to manage any future growth effectively. In particular, as we commercialize NUPLAZID, we will need to support the training and ongoing activities of our sales force and expect to need to expand the size of our employee base for managerial, operational, financial and other resources. To that end, we must be able to:

- manage our development efforts effectively;
- integrate additional management, administrative and manufacturing personnel;
- develop our marketing and sales organization; and
- maintain sufficient administrative, accounting and management information systems and controls.

We may not be able to accomplish these tasks or successfully manage our operations and, accordingly, may not achieve our research, development, and commercialization goals. Our failure to accomplish any of these goals could harm our financial results and prospects.

As we grow as an organization and expand as a commercial-stage company, we may make certain changes to our organization in order to properly manage our growth, which may include changes to the composition of our board of directors and management. Any such changes may be disruptive to us as an organization, which could harm our business.

As we continue to grow as an organization, including by expanding our development efforts and building out our capabilities for the ongoing commercialization of NUPLAZID, we have implemented, and will continue to evaluate and may implement additional, changes to our organization that may be appropriate in order to properly manage and direct our growth as a commercial-stage company. These changes may include changes to the size and composition of our management and/or board of directors, as appropriate, to include individuals with substantial experience in managing or serving on the boards of directors of commercial-stage pharmaceutical companies. For example, during 2015 and 2016, five long-standing board members either resigned from the board or did not stand for re-election, and during approximately the same timeframe our board elected three new board members. In September 2015, we named Steve Davis, who had been serving as our Interim CEO since March 2015, to be our President and Chief Executive Officer and to be a member of our Board of Directors. We also named Dr. Serge Stankovic as our new Executive Vice President, Head of Research and Development, to replace our previous Executive Vice President, Development and Chief Medical Officer who resigned in November 2015. We also hired a new Chief Medical Officer in January 2016 and a new Chief Financial Officer in August 2016, and may decide to hire other executive level employees as we grow. Any such significant changes to the organization may distract management or otherwise be disruptive to us as a company, which could harm our business.

If we fail to develop, acquire or in-license other product candidates or products, our business and prospects would be limited. Even if we obtain rights to other product candidates or products, we will incur a variety of costs and may never realize the anticipated benefits.

A key element of our strategy is to develop, acquire or in-license businesses, technologies, product candidates or products that we believe are a strategic fit with our business. The success of this strategy depends in large part on the combination of our regulatory, development and commercial capabilities and expertise and our ability to identify, select and acquire or in-license clinically-enabled product candidates for the treatment of neurological disorders, or for therapeutic indications that complement or augment our current product candidates, or that otherwise fit into our development or strategic plans on terms that are acceptable to us. Identifying, selecting and acquiring or in-licensing promising product candidates requires substantial technical, financial and human resources expertise, and we have limited experience in identifying acquisition targets, successfully completing proposed acquisitions and integrating any acquired businesses, technologies, services or products into our current infrastructure. Efforts to do so may not result in the actual acquisition or in-license of a particular product candidate, potentially resulting in a diversion of our management's time and the expenditure of our resources with no resulting benefit. If we are unable to identify, select and acquire or license suitable product candidates from third parties on terms acceptable to us, our business and prospects will be limited. In particular, if we are unable to add additional commercial products to our portfolio, we may not be able to successfully leverage our commercial organization that we have assembled for the marketing and sale of NUPLAZID.

The process of integrating any acquired business, technology, service, or product may result in unforeseen operating difficulties and expenditures and may divert significant management attention from our ongoing business operations. As a result, we will incur a variety of costs in connection with an acquisition and may never realize its anticipated benefits. Moreover, any product candidate we identify, select and acquire or license may require additional, time-consuming development or regulatory efforts prior to commercial sale, including preclinical studies, if applicable, and extensive clinical testing and approval by the FDA and applicable foreign regulatory authorities. All product candidates are prone to the risk of failure that is inherent in pharmaceutical product development, including the possibility that the product candidate will not be shown to be sufficiently safe and/or effective for approval by regulatory authorities. In addition, we cannot assure you that any such products that are approved will be manufactured or produced economically, successfully commercialized or widely accepted in the marketplace or be more effective or desired than other commercially available alternatives.

In addition, if we fail to successfully commercialize and further develop NUPLAZID or our product candidates, there is a greater likelihood that we will fail to successfully develop a pipeline of other product candidates, and our business and prospects would therefore be harmed.

We expect that our results of operations will fluctuate, which may make it difficult to predict our future performance from period to period.

Our operating results have fluctuated in the past and are likely to do so in future periods. Some of the factors that could cause our operating results to fluctuate from period to period include:

- the success of our launch and commercialization of NUPLAZID in the United States for the treatment of hallucinations and delusions associated with PD Psychosis;
- the status and cost of our post-marketing commitments for NUPLAZID;
- our gross-to-net adjustments will vary quarter to quarter, primarily because our share of the donut hole for Medicare Part D patients will fluctuate;
- the status and cost of development and commercialization of pimavanserin for indications other than in PD Psychosis and in jurisdictions other than the United States;
- the status and cost of development and commercialization of our product candidates, including compounds being developed under our collaborations;
- whether we acquire or in-license additional product candidates or products, and the status of development and commercialization of such product candidates or products;
- whether we generate revenues or reimbursements by achieving specified research, development or commercialization milestones under any agreements or otherwise receive potential payments under these agreements;
- whether we are required to make payments due to achieving specified milestones under any licensing or similar agreements or otherwise make payments under these agreements;
- the incurrence of preclinical or clinical expenses that could fluctuate significantly from period to period, including reimbursement obligations pursuant to our collaboration agreements;
- the initiation, termination, or reduction in the scope of our collaborations or any disputes regarding these collaborations;
- the timing of our satisfaction of applicable regulatory requirements;
- the rate of expansion of our clinical development, other internal research and development efforts, and pre-commercial and commercial efforts;
- the effect of competing technologies and products and market developments;
- the costs associated with litigation, including the costs incurred in defending against any product liability claims that may be brought against us related to NUPLAZID; and
- general and industry-specific economic conditions.

We believe that comparisons from period to period of our financial results are not necessarily meaningful and should not be relied upon as indications of our future performance.

Future changes to U.S. and non-U.S. tax laws could materially adversely affect us.

During 2015, we licensed worldwide intellectual property rights related to pimavanserin in certain indications to ACADIA Pharmaceuticals GmbH, our wholly-owned Swiss subsidiary. Our goals for the establishment of ACADIA Pharmaceuticals GmbH, and the licensing of worldwide intellectual property rights for pimavanserin, include building a platform for long-term operational and financial efficiencies, including tax-related efficiencies. Future changes in U.S. and non-U.S. tax laws, including implementation of international tax reform relating to the tax treatment of multinational corporations, if enacted, may reduce or eliminate any potential financial efficiencies that we hope to achieve by establishing this operational structure. Additionally, taxing authorities, such as the U.S. Internal Revenue Service, may audit and otherwise challenge these types of arrangements, and have done so with other companies in the pharmaceutical industry. If any such changes in tax law are enacted, or our licensing of worldwide intellectual property rights for pimavanserin to our Swiss subsidiary is otherwise challenged, this could materially adversely affect our business.

We may not be able to continue or fully exploit our collaborations with outside scientific and clinical advisors, which could impair the progress of our clinical trials and our research and development efforts.

We work with scientific and clinical advisors at academic and other institutions who are experts in the field of central nervous system disorders. They assist us in our research and development efforts and advise us with respect to our clinical trials. These advisors are not our employees and may have other commitments that would limit their future availability to us. Although our scientific and clinical advisors generally agree not to engage in competing work, if a conflict of interest arises between their work for us and their work for another entity, we may lose their services, which may impair our reputation in the industry and delay the development or commercialization of our product candidates.

We do not know whether our drug discovery platform will lead to the discovery or development of commercially viable product candidates.

Our drug discovery platform uses unproven methods to identify and develop product candidates, including NUPLAZID. With the exception of NUPLAZID for the treatment of hallucinations and delusions associated with PD Psychosis, we have never successfully completed clinical development of any of our product candidates, and, except for NUPLAZID, there are no drugs on the market that have been discovered using our drug discovery platform.

Our research and development focuses on small molecule drugs for the treatment of central nervous system disorders. Due to our limited resources, we may have to forego potential opportunities with respect to discovering product candidates to treat diseases or conditions in other therapeutic areas. If we are not able to use our technologies to discover and develop product candidates that can be commercialized, we may not achieve profitability. In the future, as noted above, we will likely find it necessary to license the technology of others or acquire additional product candidates to augment the results of our internal discovery activities. If we are unable to identify new product candidates using our drug discovery platform, we may be unable to establish or maintain a clinical development pipeline or generate product revenues.

Our management has broad discretion over the use of our cash and we may not use our cash effectively, which could adversely affect our results of operations.

Our management has significant flexibility in applying our cash resources and could use these resources for corporate purposes that do not increase our market value, or in ways with which our stockholders may not agree. We may use our cash resources for corporate purposes that do not yield a significant return or any return at all for our stockholders, which may cause our stock price to decline.

We have incurred, and expect to continue to incur, significant costs as a result of laws and regulations relating to corporate governance and other matters.

Laws and regulations affecting public companies, including provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act that was enacted in July 2010, the provisions of the Sarbanes-Oxley Act of 2002, or SOX, and rules adopted or proposed by the SEC and by The NASDAQ Stock Market, have resulted in, and will continue to result in, significant costs to us as we evaluate the implications of these rules and respond to their requirements. We issued an evaluation of our internal control over financial reporting under Section 404 of SOX with this Annual Report. In the future, if we are not able to issue an evaluation of our internal control over financial reporting as required or we or our independent registered public accounting firm determine that our internal control over financial reporting is not effective, this shortcoming could have an adverse effect on our business and financial results and the price of our common stock could be negatively affected. New rules could make it more difficult or more costly for us to obtain certain types of insurance, including director and officer liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the coverage that is the same or similar to our current coverage. The impact of these events could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors and board committees, and as our executive officers. We cannot predict or estimate the total amount of the costs we may incur or the timing of such costs to comply with these rules and regulations.

Earthquake or fire damage to our facilities could delay our research and development efforts and adversely affect our business.

Our headquarters and research and development facilities in San Diego are located in a seismic zone, and there is the possibility of an earthquake, which could be disruptive to our operations and result in delays in our research and development efforts. In addition, while our facilities have not been adversely impacted by local wildfires, there is the possibility of future fires in the area. In the event of an earthquake or fire, if our facilities or the equipment in our facilities is significantly damaged or destroyed for any reason, we may not be able to rebuild or relocate our facilities or replace any damaged equipment in a timely manner and our business, financial condition, and results of operations could be materially and adversely affected. We do not have insurance for damages resulting from earthquakes. While we do have fire insurance for our property and equipment located in San Diego, any damage sustained in a fire could cause a delay in our research and development efforts and our results of operations could be materially and adversely affected.

Risks Related to Our Intellectual Property

Our ability to compete may decline if we do not adequately protect our proprietary rights.

Our commercial success depends on obtaining and maintaining intellectual property rights to our products and product candidates, including NUPLAZID, and technologies, as well as successfully defending these rights against third-party challenges. Any misappropriation of our intellectual property could enable competitors to quickly duplicate or surpass our technological achievements, thus eroding our competitive position in our market. To protect our intellectual property, we rely on a combination of patents, trade secret protection and contracts requiring confidentiality and nondisclosure.

With regard to patents, although we have filed numerous patent applications worldwide with respect to pimavanserin, not all of our patent applications resulted in an issued patent, or they resulted in an issued patent that is susceptible to challenge by a third party. Our ability to obtain, maintain, and/or defend our patents covering our product candidates and technologies is uncertain due to a number of factors, including:

- we may not have been the first to make the inventions covered by our pending patent applications or issued patents;
- we may not have been the first to file patent applications for our product candidates or the technologies we rely upon;
- others may develop similar or alternative technologies or design around our patent claims to produce competitive products that fall outside of the scope of our patents;
- our disclosures in patent applications may not be sufficient to meet the statutory requirements for patentability;
- we may not seek or obtain patent protection in all countries that will eventually provide a significant business opportunity;
- any patents issued to us or our collaborators may not provide a basis for commercially viable products, may not provide us with any competitive advantages, or are easily susceptible to challenges by third parties;
- our proprietary technologies may not be patentable;
- changes to patent laws that limit the exclusivity rights of patent holders or make it easier to render a patent invalid;
- recent decisions by the United States Supreme Court limiting patent-eligible subject matter;
- the passage of The Leahy-Smith America Invents Act, or the America Invents Act, introduced new procedures for challenging pending patent applications and issued patents; and
- technology that we may in-license may become important to some aspects of our business, however, we generally would not control the patent prosecution, maintenance or enforcement of any such in-licensed technology.

Even if we have or obtain patents covering our product candidates or technologies, we may still be barred from making, using and selling our product candidates or technologies because of the patent rights of others. Others have or may have filed, and in the future are likely to file, patent applications covering compounds, assays, genes, gene products or therapeutic products that are similar or identical to ours. There are many issued U.S. and foreign patents relating to genes, nucleic acids, polypeptides, chemical compounds or therapeutic products, and some of these may encompass reagents utilized in the identification of candidate drug compounds or compounds that we desire to commercialize. Numerous U.S. and foreign issued patents and pending patent applications owned by others exist in the area of central nervous system disorders and the other fields in which we are developing products. These could materially affect our freedom to operate. Moreover, because patent applications can take many years to issue, there may be currently pending applications, unknown to us, that may later result in issued patents that our product candidates or technologies may infringe. These patent applications may have priority over patent applications filed by us.

We regularly conduct searches to identify patents or patent applications that may prevent us from obtaining patent protection for our proprietary compounds or that could limit the rights we have claimed in our patents and patent applications. Disputes may arise regarding the ownership or inventorship of our inventions. For applications in which all claims are entitled to a priority date before March 16, 2013, an interference proceeding can be provoked by a third-party or instituted by the United States Patent and Trademark Office, or United States PTO, to determine who was the first to invent the invention at issue. It is difficult to determine how such disputes would be resolved. Applications containing a claim not entitled to priority before March 16, 2013, are not subject to interference proceedings due the change brought by the America Invents Act to a “first to file” system. However, a derivation proceeding can be brought by a third-party alleging that the inventor derived the invention from another.

Periodic maintenance fees on any issued patent are due to be paid to the United States PTO and foreign patent agencies in several stages over the lifetime of the patent. The United States PTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. In such an event, our competitors might be able to enter the market, which would have a material adverse effect on our business.

Some of our academic institutional licensors, research collaborators and scientific advisors have rights to publish data and information to which we have rights. We generally seek to prevent our collaborators from disclosing scientific discoveries until we have the opportunity to file patent applications on such discoveries, but in some cases, we are limited to relatively short periods to review a proposed publication and file a patent application. If we cannot maintain the confidentiality of our technology and other confidential information in connection with our collaborations, then our ability to receive patent protection or protect our proprietary information may be impaired.

Confidentiality agreements with employees and others may not adequately prevent disclosure of our trade secrets and other proprietary information and may not adequately protect our intellectual property, which could limit our ability to compete.

Because we operate in the highly technical field of drug discovery and development of small molecule drugs, we rely in part on trade secret protection in order to protect our proprietary technology and processes. However, trade secrets are difficult to protect. We enter into confidentiality, nondisclosure, and intellectual property assignment agreements with our corporate partners, employees, consultants, outside scientific collaborators, sponsored researchers, and other advisors. These agreements generally require that the other party keep confidential and not disclose to third parties all confidential information developed by the party or made known to the party by us during the course of the party's relationship with us. These agreements also generally provide that inventions conceived by the party in the course of rendering services to us will be our exclusive property. However, these agreements may not be honored and may not effectively assign intellectual property rights to us. Enforcing a claim that a party illegally obtained and is using our trade secrets is difficult, expensive and time consuming and the outcome is unpredictable. In addition, courts outside the United States may be less willing to protect trade secrets. We also have not entered into any noncompete agreements with any of our employees. Although each of our employees is required to sign a confidentiality agreement with us at the time of hire, we cannot guarantee that the confidential nature of our proprietary information will be maintained in the course of future employment with any of our competitors. If we are unable to prevent unauthorized material disclosure of our intellectual property to third parties, we will not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, operating results and financial condition.

A dispute concerning the infringement or misappropriation of our proprietary rights or the proprietary rights of others could be time-consuming and costly, and an unfavorable outcome could harm our business.

There is a substantial amount of litigation involving patents and other intellectual property rights in the biotechnology and pharmaceutical industries, as well as administrative proceedings for challenging patents, including post-issuance review proceedings before the United States PTO or oppositions and other comparable proceedings in foreign jurisdictions.

Central provisions of the America Invents Act went into effect on September 16, 2012 and on March 16, 2013. The America Invents Act includes a number of significant changes to U.S. patent law. These changes include provisions that affect the way patent applications are being filed, prosecuted and litigated. For example, the America Invents Act enacted proceedings involving post-issuance patent review procedures, such as inter partes review, or IPR, and post-grant review, that allow third parties to challenge the validity of an issued patent in front of the United States PTO Patent Trial and Appeal Board. Each proceeding has different eligibility criteria and different patentability challenges that can be raised. IPRs permit any person (except a party who has been litigating the patent for more than a year) to challenge the validity of the patent on the grounds that it was anticipated or made obvious by prior art. Patents covering pharmaceutical products have been subject to attack in IPRs from generic drug companies and from hedge funds. If it is within nine months of the issuance of the challenged patent, a third party can petition the United States PTO for post-grant review, which can be based on any invalidity grounds and is not limited to prior art patents or printed publications.

In post-issuance proceedings, United States PTO rules and regulations generally tend to favor patent challengers over patent owners. For example, unlike in district court litigation, claims challenged in post-issuance proceedings are given their broadest reasonable meaning, which increases the chance a claim might be invalidated by prior art or lack support in the patent specification. As another example, unlike in district court litigation, there is no presumption of validity for an issued patent, and thus, a challenger's burden to prove invalidity is by a preponderance of the evidence, as opposed to the heightened clear and convincing evidence standard. As a result of these rules and others, statistics released by the United States PTO show a high percentage of claims being invalidated in post-issuance proceedings. Moreover, with few exceptions, there is no standing requirement to petition the United States PTO for inter partes review or post-grant review. In other words, companies that have not been charged with infringement or that lack commercial interest in the patented subject matter can still petition the United States PTO for review of an issued patent. Thus, even where we have issued patents, our rights under those patents may be challenged and ultimately not provide us with sufficient protection against competitive products or processes.

While we are not currently subject to any pending intellectual property litigation or patent challenges, and are not aware of any such threatened litigation or patent challenges, we may be exposed to future litigation by third parties based on claims that our product candidates, technologies or activities infringe the intellectual property rights of others. In particular, there are many patents relating to specific genes, nucleic acids, polypeptides or the uses thereof to identify product candidates. Some of these may encompass genes or polypeptides that we utilize in our drug development activities. If our drug development activities are found to infringe any such patents, and such patents are held to be valid and enforceable, we may have to pay significant damages or seek licenses to such patents. A patentee could prevent us from using the patented genes or polypeptides for the identification or development of drug compounds. There are also many patents relating to chemical compounds and the uses thereof. If our compounds are found to infringe any such patents, and such patents are held to be valid and enforceable, we may have to pay significant damages or seek licenses to such patents. A patentee could prevent us from making, using or selling the patented compounds.

We may need to resort to litigation to enforce a patent issued to us, protect our trade secrets or determine the scope and validity of third-party proprietary rights. From time to time, we may hire scientific personnel formerly employed by other companies involved in one or more areas similar to the activities conducted by us. Either we or these individuals may be subject to allegations of trade secret misappropriation or other similar claims as a result of their prior affiliations. If we become involved in litigation, it could consume a substantial portion of our managerial and financial resources, regardless of whether we win or lose. We may not be able to afford the costs of litigation. Any legal action against us or our collaborators could lead to:

- payment of damages, which could potentially be trebled if we are found to have willfully infringed a party's patent rights;
- injunctive or other equitable relief that may effectively block our ability to further develop, commercialize, and sell products; or
- we or our collaborators having to enter into license arrangements that may not be available on commercially acceptable terms, or at all.

As a result, we could be prevented from commercializing current or future products.

Furthermore, because of the substantial amount of pre-trial document and witness discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, during the course of this kind of litigation, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the trading price of our common stock.

The patent applications of pharmaceutical and biotechnology companies involve highly complex legal and factual questions, which, if determined adversely to us, could negatively impact our patent position.

The strength of patents in the pharmaceutical and biotechnology field can be highly uncertain and involve complex legal and factual questions. For example, some of our patent applications may cover the uses of gene sequences. The patentability of gene sequences and the use of gene sequences has been seriously undermined by recent decisions of the United States Supreme Court. The United States PTO's interpretation of the Supreme Court's decisions and the standards for patentability it sets forth are uncertain and could change in the future. Consequently, the issuance and scope of patents cannot be predicted with certainty. Patents, if issued, may be challenged, invalidated or circumvented. U.S. patents and patent applications may also be subject to interference proceedings as mentioned above, and U.S. patents may be subject to reexamination and post-issuance proceedings in the United States PTO (and foreign patents may be subject to opposition or comparable proceedings in the corresponding foreign patent office), which proceedings could result in either loss of the patent or denial of the patent application or loss or reduction in the scope of one or more of the claims of the patent or patent application. Similarly, opposition or invalidity proceedings could result in loss of rights or reduction in the scope of one or more claims of a patent in foreign jurisdictions. In addition, such interference, reexamination, post-issuance and opposition proceedings may be costly. Accordingly, rights under any issued patents may not provide us with sufficient protection against competitive products or processes.

In addition, changes in or different interpretations of patent laws in the United States and foreign countries may permit others to use our discoveries or to develop and commercialize our technology and products without providing any compensation to us or may limit the number of patents or claims we can obtain. In particular, there have been proposals to shorten the exclusivity periods available under U.S. patent law that, if adopted, could substantially harm our business. The product candidates that we are developing are protected by intellectual property rights, including patents and patent applications. If any of our product candidates becomes a marketable product, we will rely on our exclusivity under patents to sell the compound and recoup our investments in the research and development of the compound. If the exclusivity period for patents is shortened, then our ability to generate revenues without competition will be reduced and our business could be materially adversely impacted. The laws of some countries do not protect intellectual property rights to the same extent as U.S. laws and those countries may lack adequate rules and procedures for defending our intellectual property rights. For example, some countries, including many in Europe, do not grant patent claims directed to methods of treating humans and, in these countries, patent protection may not be available at all to protect our product candidates. In addition, U.S. patent laws may change which could prevent or limit us from filing patent applications or patent claims to protect our products and/or technologies or limit the exclusivity periods that are available to patent holders. For example, the America Invents Act (2012) included a number of significant changes to U.S. patent law. These included changes to transition from a "first-to-invent" system to a "first-to-file" system and to the way issued patents are challenged. These changes may favor larger and more established companies that have more resources to devote to patent application filing and prosecution. It is still not clear what, if any, impact the America Invents Act will ultimately have on the cost of prosecuting our patent applications, our ability to obtain patents based on our discoveries and our ability to enforce or defend our issued patents.

If we fail to obtain and maintain patent protection and trade secret protection of our product candidates, proprietary technologies and their uses, we could lose our competitive advantage and competition we face would increase, reducing our potential revenues and adversely affecting our ability to attain or maintain profitability.

Risks Related to Our Industry

We are subject to stringent regulation in connection with the marketing of NUPLAZID and any other products derived from our product candidates, which could delay the development and commercialization of our products.

The pharmaceutical industry is subject to stringent regulation by the FDA and other regulatory agencies in the United States and by comparable authorities in other countries. Neither we nor our collaborators can market a pharmaceutical product, including NUPLAZID, in the United States until it has completed rigorous preclinical testing and clinical trials and an extensive regulatory clearance process implemented by the FDA. Satisfaction of regulatory requirements typically takes many years, depends upon the type, complexity and novelty of the product, and requires substantial resources. Even if regulatory approval is obtained, the FDA and other regulatory agencies may impose significant restrictions on the indicated uses, conditions for use, labeling, advertising, promotion, and/or marketing of such products, and requirements for post-approval studies, including additional research and development and clinical trials. These limitations may limit the size of the market for the product or result in the incurrence of additional costs. Any delay or failure in obtaining required approvals could have a material adverse effect on our ability to generate revenues from the particular product candidate.

Outside the United States, the ability to market a product is contingent upon receiving approval from the appropriate regulatory authorities. The requirements governing the conduct of clinical trials, marketing authorization, pricing, and reimbursement vary widely from country to country. Only after the appropriate regulatory authority is satisfied that adequate evidence of safety, quality, and efficacy has been presented will it grant a marketing authorization. Approval by the FDA does not automatically lead to the approval by regulatory authorities outside the United States and, similarly, approval by regulatory authorities outside the United States will not automatically lead to FDA approval.

In addition, U.S. and foreign government regulations control access to and use of some human or other tissue samples in our research and development efforts. U.S. and foreign government agencies may also impose restrictions on the use of data derived from human or other tissue samples. Accordingly, if we fail to comply with these regulations and restrictions, the commercialization of our product candidates may be delayed or suspended, which may delay or impede our ability to generate product revenues.

If our competitors develop and market products that are more effective than NUPLAZID or our product candidates, they may reduce or eliminate our commercial opportunity.

Competition in the pharmaceutical and biotechnology industries is intense and expected to increase. We face competition from pharmaceutical and biotechnology companies, as well as numerous academic and research institutions and governmental agencies, both in the United States and abroad. Some of these competitors have products or are pursuing the development of drugs that target the same diseases and conditions that are the focus of our drug development programs.

For example, the use of NUPLAZID for the treatment of hallucinations and delusions associated with PD Psychosis competes with off-label use of antipsychotic drugs, including generic drugs quetiapine and clozapine. If approved, pimavanserin for the treatment of AD Psychosis would compete with off-label use of antipsychotic drugs, including risperidone and quetiapine, and drugs indicated for the treatment of Alzheimer's disease and dementia in patients with Alzheimer's disease, including Aricept, marketed by Eisai Inc. and Pfizer Inc., and Namenda, marketed by Forest Laboratories, LLC, a wholly-owned subsidiary of Actavis. Pimavanserin for the treatment of AD Agitation, if approved for that indication, would compete with off-label use of antipsychotic drugs, including risperidone and quetiapine. Pimavanserin for the adjunctive treatment of schizophrenia, if approved for that indication, would compete with Rexulti, marketed by Otsuka Pharmaceutical Co., Ltd., Latuda, marketed by Sunovion Pharmaceuticals Inc., and generic drugs, including olanzapine, risperidone, aripiprazole and clozapine. In the area of chronic pain, potential products would compete with Lyrica, marketed by Pfizer, and Cymbalta, marketed by Eli Lilly, as well as a variety of generic or proprietary opioids. Pimavanserin for the adjunctive treatment of MDD, if approved for that indication, would compete with Rexulti, off-label use of antipsychotic drugs and generic drugs olanzapine, risperidone, aripiprazole and clozapine. Our potential products for the treatment of glaucoma, if approved, would compete with Xalatan, marketed by Pfizer, and Lumigan and Alphagan, marketed by Allergan.

Many of our competitors and their collaborators have significantly greater experience than we do in the following:

- identifying and validating targets;
- screening compounds against targets;
- preclinical studies and clinical trials of potential pharmaceutical products;
- obtaining FDA and other regulatory approvals; and
- commercializing pharmaceutical products.

In addition, many of our competitors and their collaborators have substantially greater capital and research and development resources, manufacturing, sales and marketing capabilities, and production facilities. Smaller companies also may prove to be significant competitors, particularly through proprietary research discoveries and collaboration arrangements with large pharmaceutical and established biotechnology companies. Many of our competitors have products that have been approved or are in advanced development and may develop superior technologies or methods to identify and validate drug targets and to discover novel small molecule drugs. Our competitors, either alone or with their collaborators, may succeed in developing drugs that are more effective, safer, more affordable, or more easily administered than ours and may achieve patent protection or commercialize drugs sooner than us. Our competitors may also develop alternative therapies that could further limit the market for any drugs that we may develop. Our failure to compete effectively could have a material adverse effect on our business.

If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of NUPLAZID or any other product for which we obtain regulatory approval, or development or commercialization of our product candidates.

We face an inherent risk of product liability as a result of the commercial sales of NUPLAZID in the United States and the clinical testing of our product candidates, and will face an even greater risk following commercial launch of NUPLAZID in additional jurisdictions, if approved, or if we engage in the clinical testing of new product candidates or commercialize any additional products. For example, we may be sued if NUPLAZID or any other product we develop allegedly causes injury or is found to be otherwise unsuitable for administration in humans. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability or a breach of warranties. Claims could also be asserted under state consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our product candidates. Even successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our products or product candidates that we may develop;
- injury to our reputation;
- withdrawal of clinical trial participants;
- initiation of investigations by regulators;
- costs to defend the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenue;
- exhaustion of any available insurance and our capital resources;
- the inability to commercialize our products or product candidates; and
- a decline in our stock price.

Although we currently have product liability insurance that covers our clinical trials and the commercialization of NUPLAZID, we may need to increase and expand this coverage, including if we commence larger scale trials and if other product candidates are approved for commercial sale. This insurance may be prohibitively expensive or may not fully cover our potential liabilities. Inability to obtain sufficient insurance coverage at an acceptable cost or otherwise to protect against potential product liability claims could prevent or inhibit the commercialization of products that we or our collaborators develop. If we determine that it is prudent to increase our product liability coverage, we may be unable to obtain such increased coverage on acceptable terms or at all. Our insurance policies also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. Our liability could exceed our total assets if we do not prevail in a lawsuit from any injury caused by our drug products. Product liability claims could have a material adverse effect on our business and results of operations.

Any claims relating to improper handling, storage, or disposal of biological, hazardous, and radioactive materials used in our business could be costly and delay our research and development efforts.

Our research and development activities involve the controlled use of potentially harmful hazardous materials, including volatile solvents, biological materials such as blood from patients that has the potential to transmit disease, chemicals that cause cancer, and various radioactive compounds. Our operations also produce hazardous waste products. We face the risk of contamination or injury from the use, storage, handling or disposal of these materials. We are subject to federal, state and local laws and regulations governing the use, storage, handling, and disposal of these materials and specified waste products. The cost of compliance with these laws and regulations could be significant, and current or future environmental regulations may impair our research, development, or production efforts. If one of our employees were accidentally injured from the use, storage, handling, or disposal of these materials, the medical costs related to his or her treatment would be covered by our workers' compensation insurance policy. However, we do not carry specific biological or hazardous waste insurance coverage and our general liability insurance policy specifically excludes coverage for damages and fines arising from biological or hazardous waste exposure or contamination. Accordingly, in the event of contamination or injury, we could be subject to criminal sanctions or fines or be held liable for damages, our operating licenses could be revoked, or we could be required to suspend or modify our operations and our research and development efforts.

Risks Related to Our Common Stock

Our stock price historically has been, and is likely to remain, highly volatile.

The market prices for securities of biotechnology companies in general, and drug discovery and development companies in particular, have been highly volatile and may continue to be highly volatile in the future. The following factors, in addition to other risk factors described in this section, may have a significant impact on the market price of our common stock:

- the success of our launch and commercialization of NUPLAZID in the United States for the treatment of hallucinations and delusions associated with PD Psychosis;
- the status and cost of our post-marketing commitments for NUPLAZID;
- the status and cost of development and commercialization of pimavanserin for indications other than in PD Psychosis and in jurisdictions other than the United States;
- the status and cost of development and commercialization of our product candidates, including compounds being developed under our collaborations;
- whether we acquire or in-license additional product candidates or products, and the status of development and commercialization of such product candidates or products;
- any other communications or guidance from the FDA or other regulatory authorities that pertain to NUPLAZID or our product candidates;
- the initiation, termination, or reduction in the scope of our collaborations or any disputes or developments regarding our collaborations;
- market conditions or trends related to biotechnology and pharmaceutical industries, or the market in general;
- announcements of technological innovations, new products, or other material events by our competitors or us, including any new products that we may acquire or in-license;
- disputes or other developments concerning our proprietary and intellectual property rights;
- changes in, or failure to meet, securities analysts' or investors' expectations of our financial performance;
- our failure to meet applicable NASDAQ listing standards and the possible delisting of our common stock from the NASDAQ Stock Market;
- additions or departures of key personnel;
- discussions of our business, products, financial performance, prospects, or stock price by the financial and scientific press and online investor communities such as blogs and chat rooms;
- public concern as to, and legislative action with respect to, genetic testing or other research areas of biopharmaceutical companies, the pricing and availability of prescription drugs, or the safety of drugs and drug delivery techniques;
- regulatory developments in the United States and in foreign countries;
- the announcement of, or developments in, any litigation matters; and
- economic and political factors, including but not limited to economic and financial crises, wars, terrorism, and political unrest.

In the past, following periods of volatility in the market price of a particular company's securities, securities class action litigation has often been brought against that company. For example, in March 2015, following our announcement of the update to the timing of our planned NDA submission to the FDA for NUPLAZID for the treatment of PD Psychosis and the subsequent decline of the price of our common stock, two putative securities class action complaints were filed against us and certain of our current and former officers, which complaints were subsequently consolidated into one complaint. The complaint generally alleged that the defendants violated Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 by making materially false and misleading statements regarding the timing of our planned NDA submission to the FDA for NUPLAZID, thereby artificially inflating the price of our common stock. The parties have agreed in principle to a settlement in that case. However, if we are not successful in defense of other future claims, we may have to make significant payments to, or other settlements with, our stockholders and their attorneys. Even if such future claims are not successful, the litigation could result in substantial costs and divert our management's attention and resources, which could have a material adverse effect on our business, operating results or financial condition.

If we or our stockholders sell substantial amounts of our common stock, the market price of our common stock may decline.

A significant number of shares of our common stock are held by a small number of stockholders. Sales of a significant number of shares of our common stock, or the expectation that such sales may occur, could significantly reduce the market price of our common stock. In connection with our March 2014 public offering of common stock, we agreed to provide resale registration rights for the shares of our common stock held by entities affiliated with one of our principal stockholders and two of our directors, Julian C. Baker and Dr. Stephen R. Biggar, which we refer to as the Baker Entities. In connection with our January 2016 public offering of common stock, we entered into a formal registration rights agreement with the Baker Entities to provide for these rights. Under the registration rights agreement we have agreed that, if at any time and from time to time, the Baker Entities demand that we register their shares of our common stock for resale under the Securities Act, we would be obligated to effect such registration. On April 1, 2016, we filed a registration statement covering the sale of up to 26,179,806 shares of our common stock, which includes 1,965,968 shares of our common stock issuable upon the exercise of warrants that were owned by the Baker Entities as of March 31, 2016, and which represent approximately 22% of our outstanding shares. Our registration obligations under this registration rights agreement cover all shares now held or later acquired by the Baker Entities (including approximately $43.0 million of shares that the Baker Entities purchased at the public offering price in our August 2016 public offering), will be in effect for up to 10 years, and include our obligation to facilitate certain underwritten public offerings of our common stock by the Baker Entities in the future. If the Baker Entities sell a large number of our shares, or the market perceives that the Baker Entities intend to sell a large number of our shares, this could adversely affect the market price of our common stock. We also have an effective registration statement to sell shares of our common stock on our own behalf, and may elect to sell shares pursuant to such registration statement, or an indeterminate number of shares pursuant to a new registration statement or in a private placement, from time to time. Our stock price may decline as a result of the sale of the shares of our common stock included in any of these registration statements or future financings.

If our officers, directors, and largest stockholders choose to act together, they may be able to significantly influence our management and operations, acting in their best interests and not necessarily those of our other stockholders.

Our directors, executive officers and holders of five percent or more of our outstanding common stock and their affiliates beneficially own a substantial portion of our outstanding common stock. As a result, these stockholders, acting together, have the ability to significantly influence all matters requiring approval by our stockholders, including the election of all of our board members, amendments to our certificate of incorporation, going-private transactions, and the approval of mergers or other business combination transactions. The interests of this group of stockholders may not always coincide with our interests or the interests of other stockholders and they may act in a manner that advances their best interests and not necessarily those of our other stockholders.

Anti-takeover provisions in our charter documents and under Delaware law may make an acquisition of us more complicated and may make the removal and replacement of our directors and management more difficult.

Our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that may delay or prevent a change in control, discourage bids at a premium over the market price of our common stock and adversely affect the market price of our common stock and the voting and other rights of the holders of our common stock. These provisions may also make it difficult for stockholders to remove and replace our board of directors and management. These provisions:

- establish that members of the board of directors may be removed only for cause upon the affirmative vote of stockholders owning at least a majority of our capital stock;
- authorize the issuance of “blank check” preferred stock that could be issued by our board of directors to increase the number of outstanding shares and prevent or delay a takeover attempt;
- limit who may call a special meeting of stockholders;
- establish advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted upon at stockholder meetings;
- prohibit our stockholders from making certain changes to our amended and restated certificate of incorporation or amended and restated bylaws except with 66 2/3 percent stockholder approval; and
- provide for a board of directors with staggered terms.

We are also subject to provisions of the Delaware corporation law that, in general, prohibit any business combination with a beneficial owner of 15 percent or more of our common stock for three years unless the holder’s acquisition of our stock was approved in advance by our board of directors. Although we believe these provisions collectively provide for an opportunity to receive higher bids by requiring potential acquirors to negotiate with our board of directors, they would apply even if the offer may be considered beneficial by some stockholders.

Adverse securities and credit market conditions may significantly affect our ability to raise capital.

Historically, turmoil and volatility in the financial markets have adversely affected the market capitalizations of many biotechnology companies, and generally made equity and debt financing more difficult to obtain. These events, coupled with other factors, may limit our access to financing in the future. This could have a material adverse effect on our ability to access funding on acceptable terms, or at all, and our stock price may suffer further as a result.

We do not intend to pay dividends on our common stock in the foreseeable future; as such, you must rely on stock appreciation for any return on your investment.

To date, we have not paid any cash dividends on our common stock, and we do not intend to pay any dividends in the foreseeable future. Instead, we intend to retain any future earnings to fund the development and growth of our business. For this reason, the success of an investment in our common stock, if any, will depend on the appreciation of our common stock, which may not occur. There is no guarantee that our common stock will appreciate, and therefore, a holder of our common stock may not realize a return on his or her investment.

Item 1B. ***Unresolved Staff Comments.***

This item is not applicable.

Item 2. ***Properties.***

As of December 31, 2016, our primary facility consists of approximately 51,000 square feet of leased office space located in San Diego, California, which is leased through February 2019. We lease one facility in Princeton, New Jersey and two facilities in San Diego related to our research and development activities that cover an aggregate of approximately 24,000 square feet of laboratory and office space. We believe that any additional space we may require to accommodate our growing organization will be available on commercially reasonable terms.

Item 3. ***Legal Proceedings.***

In March 2015, following our announcement of the update to the timing of our planned NDA submission to the FDA for NUPLAZID for the treatment of PD Psychosis and the subsequent decline of the price of our common stock, two putative securities class action complaints (captioned *Rihn v. ACADIA Pharmaceuticals Inc.*, Case No. 15-cv-0575-BTM-DHB, and *Wright v. ACADIA Pharmaceuticals Inc.*, Case No. 15-cv-0593- BTM-DHB) were filed in the U.S. District Court for the Southern District of California, or the Court, against us and certain of our current and former officers. The complaints generally alleged that the defendants violated Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 by making materially false and misleading statements regarding the timing of our planned NDA submission to the FDA for NUPLAZID, thereby artificially inflating the price of our common stock. The complaints sought unspecified monetary damages and other relief. On April 10 and June 1, 2015, the Court entered orders deferring the defendants' response to the Rihn and Wright complaints until after the Court appointed a lead plaintiff and assigned lead counsel. On May 12, 2015, several putative stockholders filed separate motions to consolidate the two actions and be appointed lead plaintiff. On September 8, 2015, the Court issued an order consolidating the two actions, appointing lead plaintiff, and assigning lead counsel. On November 16, 2015, lead plaintiff filed a consolidated complaint with the Court which, like the prior complaints, accuses the defendants of making materially false and misleading statements regarding the anticipated timing of our planned NDA submission to the FDA for NUPLAZID. On January 15, 2016, we filed a motion to dismiss the consolidated complaint. On September 19, 2016, the Court issued an order denying the motion to dismiss the consolidated complaint. On December 6, 2016, the parties had a mediation and agreed in principle to settle the action.

Item 4. ***Mine Safety Disclosures.***

This item is not applicable.

PART II

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

Our common stock is traded on the NASDAQ Global Select Market under the symbol "ACAD". The following table sets forth the high and low per share sale prices for our common stock as reported on the NASDAQ Global Select Market for the periods indicated.

2016	High	Low
First Quarter	$ 35.20	$ 16.64
Second Quarter	$ 42.49	$ 26.50
Third Quarter	$ 38.08	$ 30.50
Fourth Quarter	$ 31.70	$ 20.68

2015	High	Low
First Quarter	$ 46.48	$ 29.45
Second Quarter	$ 43.24	$ 31.00
Third Quarter	$ 51.99	$ 30.03
Fourth Quarter	$ 43.30	$ 30.51

As of January 31, 2017, there were 121,407,626 shares of common stock outstanding held by approximately 40 stockholders of record. Many stockholders hold their shares in street name and we believe that there are approximately 43,000 beneficial owners of our common stock. We have not paid any cash dividends to date and do not anticipate any being paid in the foreseeable future.

Performance Graph

The following graph shows a comparison of the total cumulative returns of an investment of $100 in cash from December 31, 2011 through December 31, 2016 in (i) our common stock, (ii) the NASDAQ Biotechnology Index, and (iii) the NASDAQ U.S. Benchmark TR Index. The comparisons in the graph are required by the SEC and are not intended to forecast or be indicative of the possible future performance of our common stock. The graph assumes that all dividends have been reinvested (to date, we have not declared any dividends).

Item 6. ***Selected Financial Data.***

The following data has been derived from our audited financial statements, including the consolidated balance sheets at December 31, 2016 and 2015 and the related consolidated statements of operations for each of the three years ended December 31, 2016 and related notes appearing elsewhere in this report. The consolidated statement of operations data for the years ended December 31, 2013 and 2012 and the consolidated balance sheet data as of December 31, 2014, 2013 and 2012 are derived from our audited consolidated financial statements that are not included in this report. You should read the selected financial data set forth below in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and related notes included elsewhere in this report.

	Years Ended December 31,				
	2016	2015	2014	2013	2012
	(in thousands, except per share amounts)				
Consolidated Statement of Operations Data:					
Revenues:					
Product sales, net	$ 17,327	$ —	$ —	$ —	$ —
Collaborative revenue	4	61	120	1,145	4,907
Total revenues	17,331	61	120	1,145	4,907
Operating expenses:					
Cost of product sales	3,075	—	—	—	—
License fees and royalties	1,331	2,500	—	—	—
Research and development	99,284	73,869	60,602	26,722	18,794
Selling, general and administrative	186,456	88,304	32,748	12,720	6,999
Total operating expenses	290,146	164,673	93,350	39,442	25,793
Loss from operations	(272,815)	(164,612)	(93,230)	(38,297)	(20,886)
Interest income, net	2,763	499	755	349	37
Loss before income taxes	(270,052)	(164,113)	(92,475)	(37,948)	(20,849)
Income tax expense	1,341	330	—	—	—
Net loss	$ (271,393)	$ (164,443)	$ (92,475)	$ (37,948)	$ (20,849)
Net loss per common share, basic and diluted	$ (2.34)	$ (1.63)	$ (0.95)	$ (0.44)	$ (0.38)
Weighted average common shares outstanding, basic and diluted	115,858	100,630	97,248	85,715	55,116

	At December 31,				
	2016	2015	2014	2013	2012
	(in thousands)				
Consolidated Balance Sheet Data:					
Cash, cash equivalents and investment securities	$ 529,036	$ 215,132	$ 322,486	$ 185,790	$ 107,967
Working capital	505,312	197,087	308,784	181,381	102,600
Total assets	561,153	221,896	325,458	189,118	108,590
Total stockholders' equity	518,411	199,762	309,489	182,131	84,984

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

The following discussion and analysis of our consolidated financial condition and results of operations should be read in conjunction with our consolidated financial statements and related notes included elsewhere in this report. Past operating results are not necessarily indicative of results that may occur in future periods. This discussion contains forward-looking statements, which involve a number of risks and uncertainties. Such forward-looking statements include statements about the benefits to be derived from NUPLAZID (pimavanserin) and from our drug candidates, the potential market opportunities for pimavanserin and our drug candidates, our strategy for the commercialization of NUPLAZID, our plans for exploring and developing pimavanserin for indications other than Parkinson's disease psychosis, our plans and timing with respect to seeking regulatory approvals, the potential commercialization of any of our drug candidates that receive regulatory approval, the progress, timing, results or implications of clinical trials and other development activities involving NUPLAZID and our drug candidates, our strategy for discovering, developing and, if approved, commercializing drug candidates, our existing and potential future collaborations, our estimates of future payments, revenues and profitability, our estimates regarding our capital requirements, future expenses and need for additional financing, possible changes in legislation, and other statements that are not historical facts, including statements which may be preceded by the words "believes," "expects," "hopes," "may," "will," "plans," "intends," "estimates," "could," "should," "would," "continues," "seeks," "aims," "projects," "predicts," "pro forma," "anticipates," "potential" or similar words. For forward-looking statements, we claim the protection of the Private Securities Litigation Reform Act of 1995. Readers of this report are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date on which they are made. We undertake no obligation to update or revise publicly any forward-looking statements. Forward-looking statements are not guarantees of performance. Actual results or events may differ materially from those anticipated in our forward-looking statements as a result of various factors, including those set forth under the section captioned "Risk Factors" elsewhere in this report. Information in the following discussion for a yearly period means for the year ended December 31 of the indicated year.

Overview

Background

We are a biopharmaceutical company focused on the development and commercialization of innovative medicines to address unmet medical needs in central nervous system disorders. We have a portfolio of product opportunities led by our novel drug, NUPLAZID® (pimavanserin), which was approved by the U.S. Food and Drug Administration, or FDA, on April 29, 2016 for the treatment of hallucinations and delusions associated with Parkinson's disease psychosis, or PD Psychosis, and is the only drug approved in the United States for this condition. NUPLAZID is a selective serotonin inverse agonist, or SSIA, preferentially targeting 5-HT_{2A} receptors. Through this novel mechanism, NUPLAZID demonstrated significant efficacy in reducing the hallucinations and delusions associated with PD Psychosis in our Phase III pivotal trial and has the potential to avoid many of the debilitating side effects of existing antipsychotics, none of which are approved by the FDA in the treatment of PD Psychosis. We hold worldwide commercialization rights to pimavanserin. We launched NUPLAZID in the United States in May 2016.

We believe that pimavanserin has the potential to address important unmet medical needs in neurological and psychiatric disorders in addition to PD Psychosis and we plan to continue to study the use of pimavanserin in multiple disease states.

For example, we believe Alzheimer's disease represents one of our most important opportunities for further exploration. In December 2016, we announced positive top-line results from our Phase II study exploring the utility of pimavanserin for the treatment of Alzheimer's disease psychosis, or AD Psychosis, a disorder for which no drug is currently approved by the FDA. We plan to continue to advance the evaluation of pimavanserin in this patient population in a Phase III study planned to begin in the second half of 2017. Additionally, in October 2016, we announced that we initiated another study, SERENE, for Alzheimer's patients. SERENE is a Phase II study evaluating pimavanserin for the treatment of Alzheimer's disease agitation, or AD Agitation, a debilitating condition for which there is no drug approved by the FDA.

We also believe schizophrenia represents a disease with multiple unmet or ill-served needs and we are currently exploring the utility of pimavanserin in this area. Despite a large number of FDA-approved therapies for schizophrenia, current drugs do not adequately address some very important symptoms of schizophrenia, such as the inadequate response to current antipsychotic treatment of psychotic symptoms and negative symptoms. In November 2016, we announced that we initiated two studies evaluating the adjunctive use of pimavanserin in patients with schizophrenia. ENHANCE-1 is a Phase III study evaluating pimavanserin for adjunctive treatment of schizophrenia in patients with an inadequate response to their current antipsychotic therapy. ADVANCE is a Phase II study evaluating pimavanserin for adjunctive treatment in patients with negative symptoms of schizophrenia.

Depression is another disorder with a high unmet need that we believe represents an attractive development opportunity for pimavanserin. Preclinical and clinical studies have shown that patients with depression often do not receive adequate relief from an antidepressant medication, and, due to side effects of currently available therapies, many patients discontinue their medication, significantly increasing their chance of relapse. Preclinical and clinical evidence suggests 5-HT_{2A} antagonism may be an effective

adjunctive therapy to first-line antidepressants. In December 2016, we announced that we initiated CLARITY, a Phase II study evaluating pimavanserin for adjunctive treatment in patients with major depressive disorder, or MDD, who have an inadequate response to standard antidepressant therapy.

During 2015, we licensed worldwide intellectual property rights related to pimavanserin in certain indications to ACADIA Pharmaceuticals GmbH, our wholly-owned Swiss subsidiary. Our active pharmaceutical ingredient, or API, for our NUPLAZID (pimavanserin) program has been manufactured in Switzerland for over 10 years and we anticipate continuing to manufacture our API in Switzerland. ACADIA Pharmaceuticals GmbH manages the worldwide supply chain of pimavanserin API. We believe the establishment of ACADIA Pharmaceuticals GmbH, as well as the licensing of worldwide intellectual property rights for pimavanserin, will allow us to build a platform for long-term operational and financial efficiencies.

We have incurred substantial operating losses since our inception due in large part to expenditures for our research and development activities. Our selling, general and administrative expenses have also increased significantly in connection with the preparation for, and support of, the launch of our first product, NUPLAZID. As of December 31, 2016, we had an accumulated deficit of $934.0 million. We expect to continue to incur operating losses for at least the next few years as we advance our programs and incur significant development and commercialization costs.

Financial Operations Overview

Product and Collaborative Revenues

Net product sales consist of sales of NUPLAZID, which was approved by the FDA on April 29, 2016 and launched in the United States in May 2016.

Prior to the generation of revenue from NUPLAZID, our revenues had been generated substantially from payments under our current and past collaboration agreements. Our prior collaboration agreement with Allergan focused on muscarinic product candidates for the treatment of glaucoma terminated in 2015 and we will not be receiving any further payments under that agreement. Our continuing collaboration agreement with Allergan involves the development of product candidates in the area of chronic pain. Under this continuing agreement, we are eligible to receive payments upon achievement of development and regulatory milestones, as well as royalties on future product sales, if any. We no longer receive research funding from this agreement and additional payments are dependent upon the advancement of an applicable product candidate. Our continuing collaboration agreement with Allergan in chronic pain is subject to termination upon notice by Allergan.

Cost of Product Sales

Cost of product sales consists of third-party manufacturing costs, freight, and indirect overhead costs associated with sales of NUPLAZID. Cost of product sales may also include period costs related to certain inventory manufacturing services, inventory adjustment charges, unabsorbed manufacturing and overhead costs, and manufacturing variances.

License Fees and Royalties

License fees and royalties consist of milestone payments expensed or capitalized and subsequently amortized under our 2006 license agreement with the Ipsen Group. License fees and royalties also include royalties of two percent due to the Ipsen Group based upon net sales of NUPLAZID.

Research and Development Expenses

Our research and development expenses have consisted primarily of fees paid to external service providers, salaries and related personnel expenses, facilities and equipment expenses, and other costs incurred related to pre-commercial product candidates. We charge all research and development expenses to operations as incurred. Our research and development activities have primarily focused on NUPLAZID (pimavanserin) which was approved by the FDA for the treatment of hallucinations and delusions associated with PD Psychosis on April 29, 2016. We currently are responsible for all costs incurred in the ongoing development of pimavanserin and we expect to continue to make substantial investments in clinical studies of pimavanserin for indications other than PD Psychosis. Additionally, in connection with the FDA approval of NUPLAZID, we committed to conduct post-marketing studies, including a randomized, placebo-controlled withdrawal study in PD Psychosis patients treated with NUPLAZID and randomized, placebo-controlled eight-week studies in predominantly frail and elderly patients that would add to the NUPLAZID safety database by exposing an aggregate of at least 500 patients to NUPLAZID. We will be responsible for all costs incurred for these post-marketing studies.

We use external service providers to manufacture our product candidates and for the majority of the services performed in connection with the preclinical and clinical development of pimavanserin. Historically, we have used our internal research and development resources, including our employees and discovery infrastructure, across several projects and many of our costs have not been attributable to a specific project. Accordingly, we have not reported our internal research and development costs on a project basis. To the extent that external expenses are not attributable to a specific project, they are included in other programs. The following table summarizes our research and development expenses by project for the years ended December 31, 2016, 2015, and 2014 (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Costs of external service providers:			
NUPLAZID (pimavanserin)	$ 53,622	$ 40,506	$ 43,161
Other programs	518	890	723
Subtotal	54,140	41,396	43,884
Internal costs	27,094	20,302	11,527
Stock-based compensation	18,050	12,171	5,191
Total research and development	$ 99,284	$ 73,869	$ 60,602

Although NUPLAZID was approved by the FDA for the treatment of hallucinations and delusions associated with PD Psychosis, at this time, due to the risks inherent in clinical development, we are unable to estimate with certainty the costs we will incur for the ongoing development of pimavanserin in additional indications, including those within Alzheimer's disease, schizophrenia and depression. Due to these same factors, we are unable to determine with any certainty the anticipated completion dates for our current research and development programs. Clinical development and regulatory approval timelines, probability of success, and development costs vary widely. While our current development efforts are primarily focused on advancing the development of pimavanserin in additional indications other than PD Psychosis, we anticipate that we will make determinations as to which programs to pursue and how much funding to direct to each program on an ongoing basis in response to the scientific and clinical success of each product candidate, as well as an ongoing assessment of the commercial potential of each opportunity and our financial position. We cannot forecast with any degree of certainty which product opportunities will be subject to future collaborative or licensing arrangements, when such arrangements will be secured, if at all, and to what degree any such arrangements would affect our development plans and capital requirements. Similarly, we are unable to estimate with certainty the costs we will incur for post-marketing studies that we committed to conduct in connection with FDA approval of NUPLAZID.

We expect our research and development expenses to increase and continue to be substantial as we conduct studies pursuant to our post-marketing commitments and pursue the development of pimavanserin in additional indications other than PD Psychosis, including our studies within Alzheimer's disease, schizophrenia and depression indications. The lengthy process of completing clinical trials and supporting development activities and seeking regulatory approval for our product opportunities requires the expenditure of substantial resources. Any failure by us or delay in completing clinical trials, or in obtaining regulatory approvals, could cause our research and development expenses to increase and, in turn, have a material adverse effect on our results of operations.

Selling, General and Administrative Expenses

Our selling, general and administrative expenses consist of salaries and other related costs, including stock-based compensation expense, for our commercial personnel, including our specialty sales force, our medical education professionals, and our personnel serving in executive, finance, business development, and business operations functions. Also included in selling, general and administrative expenses are fees paid to external service providers to support our commercial activities associated with NUPLAZID, professional fees associated with legal and accounting services, and costs associated with patents and patent applications for our intellectual property. We expect our selling, general and administrative expenses to increase in future periods to support commercial activities associated with NUPLAZID and our further development of pimavanserin in additional indications other than PD Psychosis.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements. We have identified the accounting policies that we believe require application of management's most subjective judgments, often requiring the need to make estimates about the effect of matters that are inherently uncertain and may change in subsequent periods. Our actual results may differ substantially from these estimates under different assumptions or conditions.

Revenue Recognition

Product Sales, Net

Our net product sales consist of U.S. sales of NUPLAZID and are recognized when (i) persuasive evidence of an arrangement exists, (ii) delivery has occurred and title to the product and associated risk of loss has passed to the customer, (iii) the price is fixed or determinable, and (iv) collectability is reasonably assured. NUPLAZID was approved by the FDA on April 29, 2016 and we commenced shipments of NUPLAZID to specialty pharmacies, or SPs, and specialty distributors, or SDs, in May 2016. Through December 31, 2016, we have determined we do not have the necessary volume of activity to reasonably estimate our allowances for rebates and chargebacks at the time title and risk of loss transfers to the SP or SD. Accordingly, the price is not considered fixed or determinable at that time. Therefore, we recognize revenue using the "sell-through" revenue recognition model. Under the sell-through approach, revenue is recognized when the SP dispenses product to a patient based on the fulfillment of a prescription or the SD sells product to a government facility, long-term care pharmacy or in-patient hospital pharmacy. As of December 31, 2016, we had a deferred revenue balance of $2.6 million, net of distribution fees, related to NUPLAZID product sales not yet sold through by the SPs and SDs. Product shipping and handling costs are included in cost of product sales.

We recognize revenue from product sales net of the following allowances and reflect each of these as either a reduction to the related account receivable or as an accrued liability, depending on how the amount is settled:

Distribution Fees: Distribution fees include distribution service fees paid to our SPs and SDs based on a contractually fixed percentage of the wholesale acquisition cost, or WAC, fees for data, and prompt payment discounts. Distribution fees are recorded as an offset to revenue based on contractual terms at the time revenue from the sale is recognized.

Rebates: Rebates include mandated discounts under the Medicaid Drug Rebate Program and the Medicare Part D prescription drug benefit. Rebates are amounts owed after the final dispensing of the product to a benefit plan participant and are based upon contractual agreements with, or statutory requirements pertaining to, Medicaid and Medicare benefit providers. The allowance for rebates is based on statutory discount rates and expected utilization. Our expected utilization of rebates is based on data received from the SPs and SDs.

Chargebacks: Chargebacks are discounts that relate to contracts with government and other entities purchasing from our SDs at a discounted price. The SDs charge back to us the difference between the price initially paid by the SDs and the discounted price paid to the SDs by these entities. The allowance for chargebacks is based on known SD sales to contracted entities.

Co-Payment Assistance: We offer co-payment assistance to commercially insured patients meeting certain eligibility requirements. Co-payment assistance is recorded at the time revenue from the sale is recognized based on actual program participation.

Product Returns: Consistent with industry practice, we offer the SPs and SDs limited product return rights for damages, shipment errors and within a period of time around the product expiration date as defined in the individual distribution agreements. We do not allow product returns for product that has been dispensed to a patient. As we receive inventory reports from the SPs and SDs and have the ability to control the amount of product that is sold to the SPs and SDs, we are able to make a reasonable estimate of future potential product returns based on this on-hand channel inventory data and sell-through data obtained from the SPs and SDs. In arriving at our estimate, we also consider historical product returns, the underlying product demand, and industry data specific to the specialty pharmaceutical distribution industry.

Research and Development Accruals

We estimate certain costs and expenses and accrue for these liabilities as part of our process of preparing financial statements. Examples of areas in which subjective judgments may be required include, among other things, costs associated with services provided by contract organizations for preclinical development, manufacturing of our product candidates and clinical trials. We accrue for costs incurred as the services are being provided by monitoring the status of the trial or services provided, and the invoices received from our external service providers. In the case of clinical trials, a portion of the estimated cost normally relates to the projected cost to treat a patient in the trials, and this cost is recognized based on the number of patients enrolled in the trial. Other indirect costs are generally recognized on a straight-line basis over the estimated period of the study. As actual costs become known to us, we adjust our accruals. To date, our estimates have not differed materially from the actual costs incurred. However, subsequent changes in estimates may result in a material change in our accruals, which could also materially affect our balance sheet and results of operations.

Stock-Based Compensation

The fair value of each employee stock option and each employee stock purchase plan right granted is estimated on the grant date under the fair value method using the Black-Scholes valuation model, which requires us to make a number of assumptions including the estimated expected life of the award and related volatility. The estimated fair values of stock options or purchase plan rights, including the effect of estimated forfeitures, are then expensed over the vesting period.

Results of Operations

Fluctuations in Operating Results

Our results of operations have fluctuated significantly from period to period in the past and are likely to continue to do so in the future. We anticipate that our quarterly and annual results of operations will be impacted for the foreseeable future by several factors, including the progress and timing of expenditures related to our commercial activities associated with NUPLAZID and the extent to which we generate revenue from product sales, our development of pimavanserin in additional indications other than PD Psychosis, the progress and timing of expenditures related to studies pursuant to our post-marketing commitments, and the timing and amount of payments received pursuant to our current collaboration and any potential future collaborations. Due to these fluctuations, we believe that the period-to-period comparisons of our operating results are not a good indication of our future performance.

In addition, we anticipate that certain underlying dynamics may impact our product sales in the first half of each year, including annual managed care plan changes and benefit re-authorizations. Further, we expect our sales allowances to vary from quarter to quarter due to fluctuations in our Medicare Part D Coverage Gap liability and the volume of purchases eligible for government mandated discounts and rebates, as well as changes in discount percentages that are impacted by potential future price increases and other factors.

Comparison of the Years Ended December 31, 2016 and 2015

Product Sales, Net

Net product sales were $17.3 million in 2016 and were comprised of sales of NUPLAZID which was approved by the FDA on April 29, 2016 and launched in May 2016. No similar net product sales were recognized in 2015.

During the initial launch period, we defer the recognition of revenue from sales of NUPLAZID until product is dispensed to patients by the SPs or sold to government facilities and long-term care and in-patient hospital pharmacies by the SDs. At December 31, 2016, deferred product revenue of $2.6 million was recorded as a liability on our consolidated balance sheet, net of distribution fees.

The following table provides a summary of activity with respect to our sales allowances and accruals for the year ended December 31, 2016 (in thousands):

	Distribution Fees, Discounts & Chargebacks	Rebates, Co-Pay Assistance & Returns	Total
Balance at December 31, 2015	$ —	$ —	$ —
Provision related to current period sales	2,163	2,703	4,866
Credits/payments made	(1,962)	(905)	(2,867)
Balance at December 31, 2016	$ 201	$ 1,798	$ 1,999

Cost of Product Sales

Cost of product sales was $3.1 million for the year ended December 31, 2016, or approximately 18% of net product sales. Product sold during 2016 was manufactured with raw material that was previously charged to research and development expense prior to FDA approval of NUPLAZID. This zero cost raw material did not materially impact our cost of product sales and related product gross margins in 2016. No similar cost of product sales was recognized in 2015.

License Fees and Royalties

License fees and royalties decreased to $1.3 million in 2016 compared to $2.5 million in 2015. The decrease in license fees and royalties was due to a license fee of $2.5 million incurred in 2015 in connection with the FDA's acceptance for filing of our NDA for

NUPLAZID pursuant to our 2006 license agreement with the Ipsen Group. For the year ended December 31, 2016, license fees and royalties included the amortization of the $8.0 million milestone paid to the Ipsen Group upon the FDA approval of NUPLAZID. The $8.0 million milestone was recorded as an intangible asset and is being amortized over the estimated useful life of the asset through the second half of 2021. Also included in 2016 were royalties due to the Ipsen Group of two percent of net sales of NUPLAZID. No similar royalty expense was recorded in 2015.

Research and Development Expenses

Research and development expenses increased to $99.3 million in 2016, including $18.1 million in stock-based compensation, from $73.9 million in 2015, including $12.2 million in stock-based compensation. The increase in research and development expense was due to an increase of $12.7 million in personnel and related costs and stock compensation expense associated with our expanded research and development organization and an increase of $12.7 million in external service costs. The increase in external service costs was due to increased clinical costs related to the development of pimavanserin in indications other than PD Psychosis as well as costs associated with the FDA's Psychopharmacologic Drugs Advisory Committee meeting that occurred in the first quarter of 2016. These increases were partially offset by a decrease in manufacturing development costs.

Selling, General and Administrative Expenses

Selling, general and administrative expenses increased to $186.5 million in 2016, including $36.0 million in stock-based compensation, from $88.3 million in 2015, including $28.0 million in stock-based compensation. The increase in selling, general and administrative expenses was due to an increase of $53.8 million in external service costs and an increase of $44.4 million in personnel and related costs and stock compensation expense. The increase in external service costs was primarily due to preparations for, and support of, the launch of NUPLAZID and related commercial activities, as well as additional medical education programs. The increase in personnel and related costs was primarily driven by costs associated with the hiring of our specialty sales force in April 2016. These increases were partially offset by a one-time expense of $9.6 million incurred in 2015 in connection with the transition agreement with our former Chief Executive Officer entered into upon his retirement in March 2015. Included in this compensation expense of $9.6 million was $9.0 million in stock-based compensation expense.

Comparison of the Years Ended December 31, 2015 and 2014

License Fees and Royalties

We incurred license fees of $2.5 million in connection with the FDA's acceptance of the filing of the NDA for NUPLAZID in 2015, adjusted for credits for prior payments made by us, pursuant to our 2006 license agreement with the Ipsen Group. We did not incur any similar license fees in 2014.

Research and Development Expenses

Research and development expenses increased to $73.9 million in 2015, including $12.2 million in stock-based compensation, from $60.6 million in 2014, including $5.2 million in stock-based compensation. The increase in research and development expenses was primarily due to an increase of $15.8 million in personnel and related costs and stock compensation expense associated with our expanded research and development organization, partially offset by a decrease in manufacturing development costs.

Selling, General and Administrative Expenses

Selling, general and administrative expenses increased to $88.3 million in 2015, including $28.0 million in stock-based compensation, from $32.7 million in 2014, including $10.8 million in stock-based compensation. The increase in selling, general and administrative expenses was due to increases in personnel and related costs of $35.3 million and increases in external services costs of $20.3 million. Contributing to the increase in personnel costs was $9.6 million in expense incurred in connection with the transition agreement with our former Chief Executive Officer entered into upon his retirement in March 2015. Included in this compensation expense of $9.6 million was $9.0 million in stock-based compensation expense. Excluding the expense incurred in connection with the transition agreement with our former Chief Executive Officer, the increases in personnel costs and external services costs were largely related to our commercial preparations for the launch of NUPLAZID.

Liquidity and Capital Resources

Since inception, we have funded our operations primarily through sales of our equity securities, payments received under our collaboration agreements, debt financings, and interest income. For example, in January and August 2016, we raised total net proceeds of approximately $497.5 million in follow-on public offerings, and in 2014 we raised net proceeds of $196.8 million in a public

offering of our common stock. We anticipate that the level of cash used in our operations will increase in future periods in order to fund our ongoing and planned commercial activities for NUPLAZID, our ongoing and planned development activities for pimavanserin in additional indications other than PD Psychosis, and studies to be conducted pursuant to our post-marketing commitments. We expect that our cash, cash equivalents, and investment securities will be sufficient to fund our planned operations through at least the next twelve months.

We may require significant additional financing in the future to fund our operations. Our future capital requirements will depend on, and could increase significantly as a result of, many factors, including:

- the progress in, and the costs of, our ongoing and planned development activities for pimavanserin, post-marketing studies for NUPLAZID to be conducted over the next several years, ongoing and planned commercial activities for NUPLAZID, and other research and development programs;
- the costs of maintaining and developing our sales and marketing capabilities for NUPLAZID;
- the costs of establishing, or contracting for, sales and marketing capabilities for other product candidates;
- the amount of U.S. product sales from NUPLAZID;
- the costs of preparing applications for regulatory approvals for NUPLAZID in jurisdictions other than the United States, and potentially in additional indications other than PD Psychosis and for other product candidates, as well as the costs required to support review of such applications;
- the costs of manufacturing and distributing NUPLAZID;our ability to obtain regulatory approval for, and subsequently generate product sales from, NUPLAZID in jurisdictions other than the United States or in additional indications other than PD Psychosis, or from other product candidates;
- the costs of acquiring additional product candidates or research and development programs;
- the scope, prioritization and number of our research and development programs;
- our ability to enter into new collaboration and license agreements;
- the extent to which we are obligated to reimburse collaborators or collaborators are obligated to reimburse us for costs under collaboration agreements;
- the costs involved in filing, prosecuting, enforcing and defending patent claims and other intellectual property rights;
- the costs of securing manufacturing arrangements for clinical or commercial production of NUPLAZID or other product candidates; and
- the costs associated with litigation, including the costs incurred in defending against any product liability claims that may be brought against us related to NUPLAZID.

Unless and until we can generate significant cash from our operations, we expect to satisfy our future cash needs through our existing cash, cash equivalents and investment securities, public or private sales of our securities, debt financings, strategic collaborations, or by licensing all or a portion of our product candidates or technology. In the past, periods of turmoil and volatility in the financial markets have adversely affected the market capitalizations of many biotechnology companies, and generally made equity and debt financing more difficult to obtain. These events, coupled with other factors, may limit our access to additional financing in the future. This could have a material adverse effect on our ability to access sufficient funding. We cannot be certain that additional funding will be available to us on acceptable terms, or at all. If funds are not available, we will be required to delay, reduce the scope of, or eliminate one or more of our research or development programs or our commercialization efforts. We also may be required to relinquish greater or all rights to product candidates at an earlier stage of development or on less favorable terms than we would otherwise choose. Additional funding, if obtained, may significantly dilute existing stockholders and could negatively impact the price of our stock

We have invested a substantial portion of our available cash in a money market fund, U.S. Treasury notes, and high quality, marketable debt instruments of corporations and government sponsored enterprises in accordance with our investment policy. Our investment policy defines allowable investments and establishes guidelines relating to credit quality, diversification, and maturities of our investments to preserve principal and maintain liquidity. All investment securities have a credit rating of at least A3/A- or better, or P-1/A-1 or better, as determined by Moody’s Investors Service or Standard & Poor’s. Our investment portfolio has not been adversely impacted by the disruptions in the credit markets that have occurred in the past. However, if there are future disruptions in the credit markets, there can be no assurance that our investment portfolio will not be adversely affected.

At December 31, 2016, we had $529.0 million in cash, cash equivalents, and investment securities, compared to $215.1 million at December 31, 2015. This $313.9 million increase in cash, cash equivalents, and investment securities during 2016 was primarily due to our January and August 2016 follow-on public offerings which raised total net proceeds of approximately $497.5 million, partially offset by cash used in operations. Net cash used in operating activities increased to $210.4 million in 2016 compared to $121.8 million in 2015 and $66.4 million in 2014. The increase in net cash used in operating activities in 2016 relative to 2015 was primarily due to the increase in our net loss, offset by an increase of $15.1 million in non-cash stock-based compensation expense.

The increase in net cash used in operating activities in 2015 relative to 2014 was primarily due to the increase in our net loss, offset by an increase of $24.2 million in non-cash stock-based compensation expense, together with changes in our operating assets and liabilities, including accounts payable and accrued liabilities. Accounts payable and accrued liabilities increased by $5.9 million in 2015 compared to an increase of $8.9 million during 2014. The increases in accounts payable and accrued liabilities were due to increases in external service costs related to our commercial preparations for the launch of NUPLAZID.

Net cash used in investing activities totaled $261.9 million in 2016 compared to net cash provided by investing activities of $147.6 million in 2015 and net cash used in investing activities of $87.3 million in 2014. Net cash used in investing activities in 2016 compared to the net cash provided by investing activities in 2015 was primarily due to an increase in purchases of investment securities attributable to the January and August 2016 follow-on public offerings that contributed approximately $497.5 million in total net proceeds available for investment. The net cash provided by investing activities in 2015 relative to the net cash used by investing activities in 2014 was due to increased maturities of investment securities relative to purchases of investment securities.

Net cash provided by financing activities increased to $533.8 million in 2016 compared to $14.5 million in 2015 and $203.9 million in 2014. The increase in net cash provided by financing activities in 2016 relative to 2015 was primarily attributable to the January and August 2016 follow-on public offerings that contributed approximately $497.5 million in total net proceeds. Also contributing to the increase in net cash provided by financing activities in 2016 was an increase of $6.6 million in proceeds from stock option exercises and purchases under our employee stock purchase plan, and $14.3 million received pursuant to a settlement agreement with prior 10% stockholders who sold shares of our stock in 2013, as described in Item 15 of Part IV, “Notes to Consolidated Financial Statements — Note 6 — Stockholders’ Equity”. The decrease in net cash provided by financing activities in 2015 relative to 2014 was primarily attributable to the $196.8 million in net proceeds received from our public offering of common stock in March 2014.

Contractual Obligations

The following is a summary of our long-term contractual obligations as of December 31, 2016 (in thousands):

	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
Operating leases	$ 3,999	$ 1,943	$ 2,056	$ —	$ —
Other long-term contractual obligations	2,274	1,036	1,238	—	—
Total	$ 6,273	$ 2,979	$ 3,294	$ —	$ —

In addition to operating leases, we enter into certain other long-term commitments for goods and services that are outstanding for periods greater than one year. To the extent these long-term commitments are noncancelable, they are reflected in the above table. We also enter into short-term agreements with various vendors and suppliers of goods and services in the normal course of operations through purchase orders or other documentation, or that are undocumented except for an invoice. Such short-term agreements are generally outstanding for periods less than a year and are settled by cash payments upon delivery of goods and services. The nature of the work being conducted under these agreements is such that, in most cases, the services may be stopped on short notice. In such event, we would not be liable for the full amount of the agreement and therefore are not reflected in the above table.

In addition, pursuant to the terms of our 2006 license agreement with the Ipsen Group, we are required to make royalty payments based upon net sales of NUPLAZID of two percent. Royalty payments are contingent upon net product sales and accordingly these amounts are not included in the above table.

Off-Balance Sheet Arrangements

To date, we have not had any relationships with unconsolidated entities or financial partnerships, such as entities referred to as structured finance or special purpose entities, which are established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. As such, we are not materially exposed to any financing, liquidity, market or credit risk that could arise if we had engaged in these relationships.

Recent Accounting Pronouncements

See Item 15 of Part IV, "Notes to Consolidated Financial Statements—Note 2—Summary of Significant Accounting Policies."

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

Interest Rate Risk

We invest our excess cash in investment-grade, interest-bearing securities. The primary objective of our investment activities is to preserve principal and liquidity. To achieve this objective, we invest in a money market fund, U.S. Treasury notes, and high quality marketable debt instruments of corporations and government sponsored enterprises with contractual maturity dates of generally less than two years. All investment securities have a credit rating of at least A3/A- or better, or P-1/A-1 or better, as determined by Moody's Investors Service or Standard & Poor's. We do not have any direct investments in auction-rate securities or securities that are collateralized by assets that include mortgages or subprime debt. If a 10 percent change in interest rates were to have occurred on December 31, 2016, this change would not have had a material effect on the fair value of our investment portfolio as of that date.

Item 8. ***Financial Statements and Supplementary Data.***

The consolidated financial statements required pursuant to this item are included in Item 15 of this report and are presented beginning on page F-1.

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

None.

Item 9A. ***Controls and Procedures.***

Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our periodic and current reports that we file with the SEC is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable and not absolute assurance of achieving the desired control objectives. In reaching a reasonable level of assurance, management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. In addition, the design of any system of controls is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

As of December 31, 2016, we carried out an evaluation, under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of December 31, 2016.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is a process designed under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America.

As of December 31, 2016, our management assessed the effectiveness of our internal control over financial reporting using the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework (2013). Based on this assessment, management, under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, concluded that, as of December 31, 2016, our internal control over financial reporting was effective based on those criteria.

The effectiveness of our internal control over financial reporting as of December 31, 2016 has been audited by Ernst & Young LLP, an independent registered public accounting firm, as stated in its report, which is included herein.

Changes in Internal Control Over Financial Reporting

An evaluation was also performed under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of any changes in our internal control over financial reporting that occurred during our last fiscal quarter and that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. That evaluation did not identify any change in our internal control over financial reporting that occurred during our latest fiscal quarter and that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of
ACADIA Pharmaceuticals Inc.

We have audited ACADIA Pharmaceuticals Inc.'s internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework) (the COSO criteria). ACADIA Pharmaceuticals Inc.'s management is responsible for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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

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

In our opinion, ACADIA Pharmaceuticals Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of ACADIA Pharmaceuticals Inc. as of December 31, 2016 and 2015, and the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for the years then ended of ACADIA Pharmaceuticals Inc. and our report dated February 28, 2017 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

San Diego, California
February 28, 2017

PART III

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

The information required by this Item and not set forth below will be set forth in the section headed "—Election of Directors" and "Information Regarding the Board of Directors and Corporate Governance" in our definitive Proxy Statement for our 2017 Annual Meeting of Stockholders to be filed with the SEC by May 1, 2017 (our "Proxy Statement") and is incorporated in this report by reference.

We have adopted a code of ethics for directors, officers (including our principal executive officer, principal financial officer and principal accounting officer) and employees, known as the Code of Business Conduct and Ethics. The Code of Business Conduct and Ethics is available on our website at *http://www.acadia-pharm.com* under the Corporate Governance section of our Investors page. We will promptly disclose on our website (i) the nature of any amendment to the policy that applies to our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions and (ii) the nature of any waiver, including an implicit waiver, from a provision of the policy that is granted to one of these specified individuals, the name of such person who is granted the waiver and the date of the waiver. Stockholders may request a free copy of the Code of Business Conduct and Ethics from our chief compliance officer, Ryan E. Brown c/o ACADIA Pharmaceuticals Inc., 3611 Valley Centre Drive, Suite 300, San Diego, CA 92130.

Item 11. ***Executive Compensation.***

The information required by this Item will be set forth in the section headed "Executive Compensation" in our Proxy Statement and is incorporated in this report by reference.

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

The information required by this Item will be set forth in the section headed "Security Ownership of Certain Beneficial Owners and Management" in our Proxy Statement and is incorporated in this report by reference.

Information regarding our equity compensation plans will be set forth in the section headed "Executive Compensation" in our Proxy Statement and is incorporated in this report by reference.

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

The information required by this Item will be set forth in the section headed "Transactions With Related Persons" in our Proxy Statement and is incorporated in this report by reference.

Item 14. ***Principal Accountant Fees and Services.***

The information required by this Item will be set forth in the section headed "—Ratification of Selection of Independent Registered Public Accounting Firm" in our Proxy Statement and is incorporated in this report by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

(a) Documents filed as part of this report.

1. The following financial statements of ACADIA Pharmaceuticals Inc. and Reports of Ernst & Young LLP and PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firms, are included in this report:

2. List of financial statement schedules:

Schedule II – Valuation and Qualifying Accounts

Schedules not listed above have been omitted because they are not applicable or the required information is shown in the financial statements or notes thereto.

3. List of Exhibits required by Item 601 of Regulation S-K. See part (b) below.

(b) Exhibits. See the Exhibit Index and Exhibits filed as part of this report.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities and Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

ACADIA PHARMACEUTICALS INC.

/s/ STEPHEN R. DAVIS

Stephen R. Davis
President and Chief Executive Officer
(on behalf of the registrant and as the registrant's Principal Executive Officer)

Date: February 28, 2017

KNOW ALL PERSONS BY THESE PRESENTS, that each individual whose signature appears below constitutes and appoints Stephen R. Davis, his true and lawful attorney-in-fact and agent with full power of substitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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

Signature	Title	Date
/s/ STEPHEN R. DAVIS **Stephen R. Davis**	Chief Executive Officer and Director (Principal Executive Officer)	February 28, 2017
/s/ TODD S. YOUNG **Todd S. Young**	Chief Financial Officer (Principal Financial and Accounting Officer)	February 28, 2017
/s/ STEPHEN BIGGAR **Stephen Biggar**	Chairman of the Board	February 28, 2017
/s/ JULIAN BAKER **Julian Baker**	Director	February 28, 2017
/s/ LAURA BREGE **Laura Brege**	Director	February 28, 2017
/s/ JAMES DALY **James Daly**	Director	February 28, 2017
/s/ EDMUND HARRIGAN **Edmund Harrigan**	Director	February 28, 2017
/s/ DANIEL SOLAND **Daniel Soland**	Director	February 28, 2017

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Stockholders of
ACADIA Pharmaceuticals Inc.

We have audited the accompanying consolidated balance sheets of ACADIA Pharmaceuticals Inc. as of December 31, 2016 and 2015, and the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for the years then ended. Our audits also included the financial schedule listed in the Index at Item 15(a). These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of ACADIA Pharmaceuticals Inc. at December 31, 2016 and 2015, and the consolidated results of its operations and its cash flows for each of the years then ended, in conformity with U.S. generally accepted accounting principles. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), ACADIA Pharmaceuticals Inc.’s internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), and our report dated February 28, 2017 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

San Diego, California
February 28, 2017

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of ACADIA Pharmaceuticals Inc.:

In our opinion, the consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for the year ended December 31, 2014 present fairly, in all material respects, the results of operations and cash flows of ACADIA Pharmaceuticals Inc. and its subsidiaries for the year ended December 31, 2014, in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit of these financial statements in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

/s/ PricewaterhouseCoopers LLP

San Diego, California
February 26, 2015

ACADIA PHARMACEUTICALS INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share amounts)

	December 31,	
	2016	2015
Assets		
Cash and cash equivalents	$ 163,620	$ 102,138
Investment securities, available-for-sale	365,416	112,994
Accounts receivable, net	5,903	—
Interest and other receivables	1,237	1,638
Inventory	4,175	—
Prepaid expenses and other current assets	7,546	2,219
Total current assets	547,897	218,989
Property and equipment, net	3,081	2,203
Intangible assets, net	7,015	—
Restricted cash	2,375	375
Other assets	785	329
Total assets	$ 561,153	$ 221,896
Liabilities and stockholders' equity		
Accounts payable	$ 3,912	$ 1,672
Accrued liabilities	36,029	20,230
Deferred revenue	2,644	—
Total current liabilities	42,585	21,902
Long-term liabilities	157	232
Total liabilities	42,742	22,134
Commitments and contingencies (Note 9)		
Stockholders' equity:		
Preferred stock, $0.0001 par value; 5,000,000 shares authorized at December 31, 2016 and 2015; no shares issued and outstanding at December 31, 2016 and 2015	—	—
Common stock, $0.0001 par value; 225,000,000 shares authorized at December 31, 2016 and December 31, 2015; 121,367,169 shares and 101,938,702 shares issued and outstanding at December 31, 2016 and December 31, 2015, respectively	12	10
Additional paid-in capital	1,452,272	862,327
Accumulated deficit	(933,979)	(662,586)
Accumulated other comprehensive income	106	11
Total stockholders' equity	518,411	199,762
Total liabilities and stockholders' equity	$ 561,153	$ 221,896

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

ACADIA PHARMACEUTICALS INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share amounts)

	Years Ended December 31,		
	2016	2015	2014
Revenues			
Product sales, net	$ 17,327	$ —	$ —
Collaborative revenue	4	61	120
Total revenues	17,331	61	120
Operating expenses			
Cost of product sales	3,075	—	—
License fees and royalties	1,331	2,500	—
Research and development	99,284	73,869	60,602
Selling, general and administrative	186,456	88,304	32,748
Total operating expenses	290,146	164,673	93,350
Loss from operations	(272,815)	(164,612)	(93,230)
Interest income, net	2,763	499	755
Loss before income taxes	(270,052)	(164,113)	(92,475)
Income tax expense	1,341	330	—
Net loss	$ (271,393)	$ (164,443)	$ (92,475)
Net loss per common share, basic and diluted	$ (2.34)	$ (1.63)	$ (0.95)
Weighted average common shares outstanding, basic and diluted	115,858	100,630	97,248

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

ACADIA PHARMACEUTICALS INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	Years Ended December 31,		
	2016	2015	2014
Net loss	$ (271,393)	$ (164,443)	$ (92,475)
Other comprehensive gain (loss):			
Unrealized gain (loss) on investment securities	94	13	(60)
Foreign currency translation adjustments	1	7	3
Comprehensive loss	$ (271,298)	$ (164,423)	$ (92,532)

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

ACADIA PHARMACEUTICALS INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Years Ended December 31,		
	2016	**2015**	**2014**
Cash flows from operating activities			
Net loss	$ (271,393)	$ (164,443)	$ (92,475)
Adjustments to reconcile net loss to net cash used in operating activities:			
Stock-based compensation	55,265	40,194	16,039
Amortization of premiums and accretion of discounts on investment securities, available for sale	89	(2,060)	484
Amortization of intangible assets	985	—	—
Depreciation	843	647	206
Income tax benefit from exercise of stock options	(596)	(247)	—
Loss on disposal of assets	5	—	—
Changes in operating assets and liabilities:			
Accounts receivable, net	(5,903)	—	—
Interest and other receivables	401	(674)	(214)
Inventory	(3,305)	—	—
Prepaid expenses and other current assets	(4,731)	(804)	652
Restricted cash	(2,000)	(375)	—
Other assets	(456)	(42)	(108)
Accounts payable	2,240	(344)	1,644
Accrued liabilities	15,579	6,256	7,266
Deferred revenue	2,644	—	(55)
Long-term liabilities	(75)	97	127
Net cash used in operating activities	(210,408)	(121,795)	(66,434)
Cash flows from investing activities			
Purchases of investment securities	(683,355)	(269,486)	(335,361)
Maturities of investment securities	430,937	419,197	248,268
Milestone payment for license fee	(8,000)	—	—
Purchases of property and equipment	(1,506)	(2,141)	(180)
Net cash (used in) provided by investing activities	(261,924)	147,570	(87,273)
Cash flows from financing activities			
Proceeds from issuances of equity securities, net of issuance costs	518,896	14,547	203,851
Proceeds from settlement agreement	14,320	—	—
Deferred offering costs	—	(292)	—
Income tax benefit from exercise of stock options	596	247	—
Net cash provided by financing activities	533,812	14,502	203,851
Effect of exchange rate changes on cash	2	7	3
Net increase in cash and cash equivalents	61,482	40,284	50,147
Cash and cash equivalents at beginning of period	102,138	61,854	11,707
Cash and cash equivalents at end of period	$ 163,620	$ 102,138	$ 61,854
Supplemental disclosure of cash flow information:			
Cash paid for income taxes	$ 365	$ 415	$ —
Supplemental disclosure of noncash information:			
Property and equipment purchases in accrued liabilities	$ 220	$ 156	$ —
Stock-based compensation capitalized in inventory	$ 870	$ —	$ —

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

ACADIA PHARMACEUTICALS INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands, except share amounts)

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity
	Shares	Amount				
Balances at December 31, 2013	91,102,618	$ 9	$ 587,742	$ (405,668)	$ 48	$ 182,131
Issuance of common stock in public offering, net of issuance costs	7,360,000	1	196,778	—	—	196,779
Issuance of common stock from exercise of stock options	1,486,802	—	6,408	—	—	6,408
Issuance of common stock pursuant to employee stock purchase plan	97,911	—	664	—	—	664
Net loss	—	—	—	(92,475)	—	(92,475)
Stock-based compensation	—	—	16,039	—	—	16,039
Other comprehensive loss	—	—	—	—	(57)	(57)
Balances at December 31, 2014	100,047,331	$ 10	$ 807,631	$ (498,143)	$ (9)	$ 309,489
Issuance of common stock from exercise of stock options	1,822,578	—	12,991	—	—	12,991
Issuance of common stock pursuant to employee stock purchase plan	68,793	—	1,556	—	—	1,556
Income tax benefit from exercise of stock options	—	—	247	—	—	247
Deferred offering costs	—	—	(292)	—	—	(292)
Net loss	—	—	—	(164,443)	—	(164,443)
Stock-based compensation	—	—	40,194	—	—	40,194
Other comprehensive income	—	—	—	—	20	20
Balances at December 31, 2015	101,938,702	$ 10	$ 862,327	$ (662,586)	$ 11	$ 199,762
Issuance of common stock in public offering, net of issuance costs	17,314,523	2	497,763	—	—	497,765
Issuance of common stock from exercise of stock options	1,977,661	—	18,000	—	—	18,000
Issuance of common stock pursuant to employee stock purchase plan	136,283	—	3,131	—	—	3,131
Income tax benefit from exercise of stock options	—	—	596	—	—	596
Proceeds from settlement agreement	—	—	14,320	—	—	14,320
Net loss	—	—	—	(271,393)	—	(271,393)
Stock-based compensation	—	—	56,135	—	—	56,135
Other comprehensive income	—	—	—	—	95	95
Balances at December 31, 2016	121,367,169	$ 12	$ 1,452,272	$ (933,979)	$ 106	$ 518,411

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

1. Organization and Business

ACADIA Pharmaceuticals Inc. (the "Company"), based in San Diego, California, is a biopharmaceutical company focused on the development and commercialization of innovative medicines to address unmet medical needs in central nervous system disorders. The Company was originally incorporated in Vermont in 1993 as Receptor Technologies, Inc. and reincorporated in Delaware in 1997.

On April 29, 2016, the U.S. Food and Drug Administration ("FDA") approved the Company's first drug, NUPLAZID (pimavanserin), for the treatment of hallucinations and delusions associated with Parkinson's disease psychosis ("PD Psychosis"). The Company commenced commercial sales of the product in the United States in May 2016. Accordingly, the Company's financial statements for 2016 include product revenue and other transactions related to the commercialization of NUPLAZID that did not exist in prior years.

2. Summary of Significant Accounting Policies

Significant accounting policies followed in the preparation of these financial statements are as follows:

Principles of Consolidation

The accompanying consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries located in Europe. All intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from these estimates.

Cash and Cash Equivalents

The Company considers all highly liquid investments with a maturity date at the date of purchase of three months or less to be cash equivalents.

Investment Securities

The Company has classified all of its investment securities as available-for-sale as the sale of such securities may be required prior to maturity to implement management strategies, and accordingly, carries these investments at fair value. Unrealized gains and losses, if any, are reported as a separate component of stockholders' equity. The cost of investment securities classified as available-for-sale is adjusted for amortization of premiums and accretion of discounts to maturity. Such amortization and accretion are included in interest income. Realized gains and losses, if any, are also included in interest income. The cost of securities sold is based on the specific identification method.

Fair Value of Financial Instruments

The carrying values of the Company's financial instruments, consisting of cash and cash equivalents, trade receivables, interest and other receivables, restricted cash, and accounts payable and accrued liabilities, approximate fair value due to the relative short-term nature of these instruments.

As disclosed in Note 4, the Company classifies its cash equivalents and available-for-sale investment securities within the fair value hierarchy as defined by authoritative guidance:

Level 1 Inputs — Quoted prices for identical instruments in active markets.

Level 2 Inputs — Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs and significant value drivers are observable.

Level 3 Inputs — Valuation derived from valuation techniques in which one or more significant inputs or significant value drivers are unobservable.

Accounts Receivable

Accounts receivable are recorded net of customer allowances for distribution fees, prompt payment discounts, chargebacks, and doubtful accounts. Allowances for distribution fees, prompt payment discounts and chargebacks are based on contractual terms. The Company estimates the allowance for doubtful accounts based on existing contractual payment terms, actual payment patterns of its customers and individual customer circumstances. At December 31, 2016, the Company determined that an allowance for doubtful accounts was not required. No accounts were written off during the year ended December 31, 2016.

Inventory

Inventory, consisting of raw material and finished goods, is stated at the lower of cost or estimated net realizable value. The Company uses a combination of standard and actual costing methodologies to determine the cost basis for its inventories which approximates actual costs. Inventory is valued on a first-in, first-out basis and includes third-party manufacturing costs, freight, and indirect overhead costs. The Company capitalizes inventory costs associated with its products upon regulatory approval when, based on management's judgment, future commercialization is considered probable and the future economic benefit is expected to be realized; otherwise, such costs are expensed. Prior to FDA approval of NUPLAZID, all costs related to the manufacturing of NUPLAZID were charged to research and development expense in the period incurred. At December 31, 2016 the Company had an immaterial amount of zero-cost raw material that was available for use in the manufacturing of commercial product. The Company reduces its inventory to net realizable value for potentially excess, dated or obsolete inventory based on an analysis of forecasted demand compared to quantities on hand and any firm purchase orders, as well as product shelf life. At December 31, 2016, the Company determined that a reserve for potentially excess, dated or obsolete inventory was not required.

Property and Equipment

Property and equipment are recorded at cost and depreciated over their estimated useful lives using the straight-line method. Leasehold improvements are amortized over the shorter of their estimated useful lives or the term of the lease by use of the straight-line method. Construction-in-process reflects amounts incurred for property, equipment or improvements that have not been placed in service. Maintenance and repair costs are expensed as incurred. When assets are retired or sold, the assets and accumulated depreciation are removed from the respective accounts and any gain or loss is recognized.

Estimated useful lives by major asset category are as follows:

	Useful Lives
Machinery and equipment	5 to 7 years
Computers and software	3 years
Furniture and fixtures	10 years

Impairment of Long-Lived Assets

The Company reviews its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized by the amount by which the carrying amount of the asset exceeds the fair value of the asset. Through December 31, 2016, no such impairment losses have been recorded by the Company.

License Fees and Royalties

The Company expenses amounts paid to acquire licenses associated with products under development when the ultimate recoverability of the amounts paid is uncertain and the technology has no alternative future use when acquired. Acquisitions of technology licenses are charged to expense or capitalized based upon management's assessment regarding the ultimate recoverability of the amounts paid and the potential for alternative future use. The Company has determined that technological feasibility for its product candidates is reached when the requisite regulatory approvals are obtained to make the product available for sale.

In connection with the FDA approval of NUPLAZID in April 2016, the Company made a one-time milestone payment of $8.0 million pursuant to its 2006 license agreement with the Ipsen Group in which the Company licensed certain intellectual property rights that complement its patent portfolio for its serotonin platform, including NUPLAZID. The Company has capitalized the $8.0 million payment as an intangible asset and is amortizing the asset on a straight-line basis over the estimated useful life of the licensed patents through the second half of 2021. The Company recorded amortization expense related to its intangible asset of $985,000 for the year ended December 31, 2016. No such amortization was incurred during the years ended December 31, 2015 and 2014. As of December 31, 2016, estimated future amortization expense related to the Company's intangible asset was $1.5 million for each of 2017, 2018, 2019 and 2020, and $1.0 million for 2021.

Royalties incurred in connection with the Company's license agreement with the Ipsen Group, as disclosed in Note 9, are expensed to license fees and royalties as revenue from product sales is recognized.

Advertising Expense

In connection with the FDA approval and commercial launch of NUPLAZID in 2016, the Company began to incur advertising costs. Advertising costs are expensed when services are performed or goods are delivered. The Company incurred $1.6 million in advertising costs in 2016 related to its marketed product, NUPLAZID. No advertising costs were capitalized as prepaid expenses at December 31, 2016.

Revenue Recognition

Product Sales, Net

The Company's net product sales consist of U.S. sales of NUPLAZID and are recognized when (i) persuasive evidence of an arrangement exists, (ii) delivery has occurred and title to the product and associated risk of loss has passed to the customer, (iii) the price is fixed or determinable, and (iv) collectability is reasonably assured.

NUPLAZID was approved by the FDA on April 29, 2016 and the Company commenced shipments of NUPLAZID to specialty pharmacies ("SPs") and specialty distributors ("SDs") in late May 2016. Through December 31, 2016, the Company has determined it does not have the necessary volume of activity to reasonably estimate its allowances for rebates and chargebacks at the time title and risk of loss transfers to the SP or SD. Accordingly, the price is not considered fixed or determinable at that time. Therefore, the Company recognizes revenue using the "sell-through" revenue recognition model. Under the sell-through approach, revenue is recognized when the SP dispenses product to a patient based on the fulfillment of a prescription or the SD sells product to a government facility, long-term care pharmacy or in-patient hospital pharmacy. As of December 31, 2016, the Company had a deferred revenue balance of $2.6 million, net of distribution fees, related to NUPLAZID product sales not yet sold through by the SPs and SDs. Product shipping and handling costs are included in cost of product sales.

The Company recognizes revenue from product sales net of the following allowances and reflects each of these as either a reduction to the related account receivable or as an accrued liability, depending on how the amount is settled:

Distribution Fees: Distribution fees include distribution service fees paid to the Company's SPs and SDs based on a contractually fixed percentage of the wholesale acquisition cost ("WAC), fees for data, and prompt payment discounts. Distribution fees are recorded as an offset to revenue based on contractual terms at the time revenue from the sale is recognized.

Rebates: Rebates include mandated discounts under the Medicaid Drug Rebate Program and the Medicare Part D prescription drug benefit. Rebates are amounts owed after the final dispensing of the product to a benefit plan participant and are based upon contractual agreements with, or statutory requirements pertaining to, Medicaid and Medicare benefit providers. The allowance for rebates is based on statutory discount rates and expected utilization. The Company's expected utilization of rebates is based on data received from the SPs and SDs.

Chargebacks: Chargebacks are discounts that relate to contracts with government and other entities purchasing from the SDs at a discounted price. The SDs charge back to the Company the difference between the price initially paid by the SDs and the discounted price paid to the SDs by these entities. The allowance for chargebacks is based on known SD sales to contracted entities.

Co-Payment Assistance: The Company offers co-payment assistance to commercially insured patients meeting certain eligibility requirements. Co-payment assistance is recorded at the time revenue from the sale is recognized based on actual program participation.

Product Returns: Consistent with industry practice, the Company offers the SPs and SDs limited product return rights for damages, shipment errors and within a period of time around the product expiration date as defined in the individual distribution agreements. The Company does not allow product returns for product that has been dispensed to a patient. As the Company receives inventory reports from the SPs and SDs and has the ability to control the amount of product that is sold to the SPs and SDs, it is able to make a reasonable estimate of future potential product returns based on this on-hand channel inventory data and sell-through data obtained from the SPs and SDs. In arriving at its estimate, the Company also considers historical product returns, the underlying product demand, and industry data specific to the specialty pharmaceutical distribution industry.

Research and Development Expenses

Research and development expenses are charged to operations as incurred. Research and development expenses include, among other things, costs associated with services provided by contract organizations for preclinical development, pre-commercialization manufacturing expenses, and clinical trials. The Company accrues for costs incurred as the services are being provided by monitoring the status of the trial or services provided and the invoices received from its external service providers. In the case of clinical trials, a portion of the estimated cost normally relates to the projected cost to treat a patient in the trials, and this cost is recognized based on the number of patients enrolled in the trial. Other indirect costs are generally recognized on a straight-line basis over the estimated period of the study. As actual costs become known, the Company adjusts its accruals accordingly.

Concentration Risk

Financial instruments, which potentially subject the Company to concentrations of credit risk, principally consist of cash, cash equivalents, investment securities, accounts receivable, and restricted cash. The Company invests its excess cash primarily in a money market fund, U.S. Treasury notes, and high quality, marketable debt instruments of corporations and government sponsored enterprises in accordance with the Company's investment policy. The Company's investment policy defines allowable investments and establishes guidelines relating to credit quality, diversification, and maturities of its investments to preserve principal and maintain liquidity. All investment securities have a credit rating of at least A3/A- or better, or P-1/A-1 or better, as determined by Moody's Investors Service or Standard & Poor's. Further, the Company specifies credit quality standards for its customers that are designed to limit the Company's credit exposure to any single party.

The Company does not currently have any of its own manufacturing facilities, and therefore it depends on an outsourced manufacturing strategy for the production of NUPLAZID for commercial use and for the production of its product candidates for clinical trials. The Company has contracts in place with one third-party manufacturer that is approved for the commercial production of NUPLAZID and one third-party manufacturer that is approved for the production of NUPLAZID active pharmaceutical ingredient ("API"). Although there are potential sources of supply other than the Company's existing suppliers, any new supplier would be required to qualify under applicable regulatory requirements.

The Company has entered into distribution agreements with a limited number of SPs and SDs, and all of the Company's product sales are to these customers. The Company's four largest customers represented approximately 93% of the Company's product revenue for the year ended December 31, 2016 and 91% of the Company's accounts receivable balance at December 31, 2016.

Stock-Based Compensation

The fair value of each employee stock option and each employee stock purchase right granted is estimated on the grant date under the fair value method using the Black-Scholes valuation model. The estimated fair value of each stock option and purchase right, including the effect of estimated forfeitures, is then expensed over the requisite service period, which is generally the vesting period. The following assumptions were used during these periods:

	Years Ended December 31,		
	2016	2015	2014
Stock Options:			
Expected volatility	78%	89%	93%
Risk-free interest rate	1-2%	1-2%	1-2%
Expected dividend yield	0%	0%	0%
Expected life of options in years	5.7	5.7	5.7

	Years Ended December 31,		
	2016	2015	2014
Employee Stock Purchase Plan:			
Expected volatility	60-77%	51-59%	44-95%
Risk-free interest rate	0.4-1.0%	0.1-0.9%	0.1-0.5%
Expected dividend yield	0%	0%	0%
Expected life in years	0.5-2.0	0.5-2.0	0.5-2.0

Expected Volatility. The Company considers its historical volatility and implied volatility when determining the expected volatility.

Risk-Free Interest Rate. The Company determines its risk-free interest rate assumption based on the U.S. Treasury yield for obligations with contractual terms similar to the expected term of the stock option or purchase right being valued.

Expected Dividend Yield. The Company has never paid any dividends and currently has no plans to do so.

Expected Life. In determining the expected life for stock options, the Company considers, among other factors, its historical exercise experience to date as well as the mean time remaining to full vesting of all outstanding options and the mean time remaining to the end of the contractual term of all outstanding options. The estimated life for the Company's employee stock purchase rights is based upon the terms of each offering period.

Stock-based awards issued to non-employees other than directors are accounted for under the fair value method using the Black-Scholes valuation model and are re-measured to fair value at each period end until the earlier of the date that performance by the non-employee is complete or a performance commitment has been obtained. The stock-based compensation expense related to the grant of stock options to non-employees, including expense recognized in 2016 related to stock option grants that vested in 2016 upon the attainment of Company-specific performance criteria, was not significant for the years ended December 31, 2016, 2015 and 2014.

The table below summarizes the total stock-based compensation expense included in the Company's statements of operations for the periods presented (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Cost of product sales	$ 1,218	$ —	$ —
Research and development	18,050	12,171	5,191
Sales, general and administrative	35,997	28,023	10,848
	$ 55,265	$ 40,194	$ 16,039

Stock-based compensation expense for the year ended December 31, 2015 included a one-time $9.0 million charge related to the transition agreement with the Company's former Chief Executive Officer entered into in connection with his retirement from the Company in March 2015.

Income Taxes

Current income tax expense or benefit represents the amount of income taxes expected to be payable or refundable for the current year. A deferred income tax asset or liability is computed for the expected future impact of differences between the financial reporting and income tax bases of assets and liabilities and for the expected future tax benefit to be derived from tax credits and loss carryforwards. Deferred income tax expense or benefit represents the net change during the year in the deferred income tax asset or liability. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized.

The Company recognizes excess tax benefits associated with stock-based compensation to stockholders' equity only when realized. When assessing whether excess tax benefits relating to stock-based compensation have been realized, the Company follows the with-and-without approach excluding any indirect effects of the excess tax deductions. Under this approach, excess tax benefits related to stock-based compensation are not deemed to be realized until after the utilization of all other tax benefits available to the Company.

The Company recognizes the impact of a tax position in the financial statements only if that position is more likely than not of being sustained upon examination by taxing authorities, based on the technical merits of the position. Any interest and penalties related to uncertain tax positions will be reflected in income tax expense.

Net Loss Per Share

Basic net loss per share is calculated by dividing the net loss by the weighted average number of common shares outstanding for the period, without consideration for common stock equivalents. Diluted net loss per share is computed by dividing the net loss by the weighted average number of common shares and common stock equivalents outstanding for the period determined using the treasury stock method. For purposes of this calculation, stock options, employee stock purchase rights, and warrants are considered to be common stock equivalents but are not included in the calculations of diluted net loss per share for the periods presented as their effect would be antidilutive. The Company incurred net losses for all periods presented and there were no reconciling items for potentially dilutive securities. More specifically, at December 31, 2016, 2015 and 2014, options, employee stock purchase rights, and warrants totaling approximately 14,739,000 shares, 11,525,000 shares and 9,902,000 shares, respectively, were excluded from the calculation of diluted net loss per share as their effect would have been anti-dilutive.

Segment Reporting

Management has determined that the Company operates in one business segment which is the development and commercialization of innovative medicines. All revenues for the years ended December 31, 2016, 2015 and 2014 were generated in the United States.

Recently Issued Accounting Standards

In November 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2016-18, *Statement of Cash Flows: Restricted Cash*, which requires that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. Therefore, amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. This guidance is effective for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years. Early adoption is permitted. The Company is currently evaluating when it will adopt this guidance. The adoption of this ASU will modify the Company's current classification within the consolidated statement of cash flows but is not expected to materially impact the Company's consolidated financial statements.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments-Credit Losses: Measurement of Credit Losses on Financial Instruments*, which changes the impairment model for most financial assets and certain other instruments. For trade receivables and other instruments, entities will be required to use a new forward-looking expected loss model that generally will result in the earlier recognition of allowances for losses. For available-for-sale debt securities with unrealized losses, the losses will be recognized as allowances rather than as reductions in the amortized cost of the securities. This guidance is effective for annual reporting periods beginning after December 15, 2019, including interim periods within those years, with early adoption permitted only as of annual reporting periods beginning after December 15, 2018. The Company is currently evaluating the timing and impact of the adoption of this guidance on the Company's consolidated financial statements.

In March 2016, the FASB issued ASU 2016-09, *Compensation-Stock Compensation: Improvements to Employee Share-Based Payment Accounting*, which is intended to simplify several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, classification on the statement of cash flows, and accounting for forfeitures. This guidance is effective for annual reporting periods beginning after December 15, 2016, including interim periods within those years. The Company intends to adopt this guidance in the first quarter of 2017. The Company expects that the adoption of this guidance will increase its deferred tax assets by approximately $36.8 million with a corresponding increase to its valuation allowance. The Company maintained a full valuation allowance against its deferred tax assets at December 31, 2016.

In February 2016, the FASB issued ASU 2016-02, *Leases*, which requires a lessee to recognize a lease liability and a right-of-use asset for all leases with lease terms of more than 12 months. This guidance is effective for annual reporting periods beginning after December 15, 2018, including interim periods within those years, and early adoption is permitted. Companies are required to adopt this guidance using a modified retrospective approach for leases that exist or are entered into after the beginning of the earliest comparative period in the financial statements. As disclosed in Note 9, *Commitments and Contingencies*, the Company leases facilities under operating leases. While the Company is still evaluating the timing and impact of the adoption of this guidance on its consolidated financial statements, it anticipates that the adoption could result in an increase in the assets and liabilities recorded on its consolidated balance sheet.

In August 2014, the FASB issued ASU 2014-15, *Presentation of Financial Statements-Going Concern: Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern*, which explicitly requires management to assess an entity's ability to continue as a going concern, and to provide related footnote disclosures in certain circumstances. The new standard is effective for annual reporting periods ending after December 15, 2016, and for interim periods thereafter, with early adoption permitted. The Company early adopted this guidance in the first quarter of 2016 with no impact to its consolidated financial statements or related disclosures.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers*, which supersedes nearly all existing revenue recognition guidance under generally accepted accounting principles. This ASU, as amended, is a comprehensive new revenue recognition model that requires a company to recognize revenue to depict the transfer of goods or services to a customer at an amount that reflects the consideration it expects to receive in exchange for those goods or services. This ASU also requires additional disclosure about the nature, amount, timing, and uncertainty of revenue and cash flows arising from customer contracts. The original guidance was effective for annual reporting periods beginning after December 15, 2016. However, in July 2015, the FASB agreed to delay the effective date by one year, with early adoption permitted, but not before the original effective date of the standard. Companies may use either a full retrospective or a modified retrospective approach to adopt this guidance. The Company anticipates adopting ASU 2014-09 on January 1, 2018 on a full-retrospective basis. Although the Company's evaluation of the guidance is ongoing, including the evaluation of the Company's contracts with its customers and the evaluation of information necessary to restate prior period financial statements, the Company expects the adoption of this guidance to have a material impact on its consolidated financial statements and related disclosures. Specifically, as disclosed above in its revenue recognition policy, the Company recognized revenue using the sell-through approach through December 31, 2016. Under ASU 2014-09 the Company will be required to estimate is sales allowances at the time of sale, resulting in earlier recognition of revenue.

3. Investment Securities

Investment securities, all classified as available-for-sale, consisted of the following (in thousands):

	December 31, 2016			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
U.S. Treasury notes	$ 82,484	$ 6	$ (3)	$ 82,487
Government sponsored enterprise securities	73,789	1	(5)	73,785
Corporate debt securities	79,190	—	(72)	79,118
Commercial paper	129,861	165	—	130,026
	$ 365,324	$ 172	$ (80)	$ 365,416

	December 31, 2015			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
U.S. Treasury notes	$ 9,000	$ —	$ (1)	$ 8,999
Government sponsored enterprise securities	103,996	12	(13)	103,995
	$ 112,996	$ 12	$ (14)	$ 112,994

At each reporting date, the Company performs an evaluation of impairment to determine if the unrealized losses are other-than-temporary. Factors considered in determining whether a loss is other-than-temporary include the length of time and extent to which fair value has been less than the cost basis, the financial condition of the issuer, and the Company's intent and ability to hold the investment until recovery of its amortized cost basis. The Company intends, and has the ability, to hold its investments in unrealized loss positions until their amortized cost basis has been recovered. Based on its evaluation, the Company determined that its unrealized losses were not other-than-temporary at December 31, 2016 and 2015. As of December 31, 2016 and 2015, all of the Company's available-for-sale investment securities had contractual maturity dates of less than one year.

4. Fair Value Measurements

As of December 31, 2016, the Company held $523.4 million of cash equivalents and available-for-sale investment securities consisting of a money market fund, U.S. Treasury notes, and high quality, marketable debt instruments of government sponsored enterprises in accordance with the Company's investment policy. The Company's investment policy defines allowable investments and establishes guidelines relating to credit quality, diversification, and maturities of its investments to preserve principal and maintain liquidity. All investment securities have a credit rating of at least A3/A- or better, or P-1/A-1 or better, as determined by Moody's Investors Service or Standard & Poor's.

The Company's cash equivalents and available-for-sale investment securities are classified within the fair value hierarchy as defined by authoritative guidance. The Company's investment securities classified as Level 1 are valued using quoted market prices. The Company obtains the fair value of its Level 2 financial instruments from third-party pricing services. The pricing services utilize industry standard valuation models whereby all significant inputs, including benchmark yields, reported trades, broker/dealer quotes, issuer spreads, bids, offers, or other market-related data, are observable. The Company validates the prices provided by the third-party pricing services by reviewing their pricing methods and matrices, and obtaining market values from other pricing sources. After completing the validation procedures, the Company did not adjust or override any fair value measurements provided by these pricing services as of December 31, 2016 and 2015, respectively.

The Company does not hold any securities classified as Level 3, which are securities valued using unobservable inputs. The Company has not transferred any investment securities between the classifications.

The fair value measurements of the Company's cash equivalents and available-for-sale investment securities are identified in the following tables (in thousands):

		Fair Value Measurements at Reporting Date Using		
	December 31, 2016	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Money market fund	$ 129,292	$ 129,292	$ —	$ —
U.S. Treasury notes	82,487	82,487	—	—
Government sponsored enterprise securities	88,773	—	88,773	—
Corporate debt securities	82,857	—	82,857	—
Commercial paper	140,024	—	140,024	—
	$ 523,433	$ 211,779	$ 311,654	$ —

	December 31, 2015	Fair Value Measurements at Reporting Date Using: Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Money market fund	$ 46,437	$ 46,437	$ —	$ —
U.S. Treasury notes	8,999	8,999	—	—
Government sponsored enterprise securities	157,623	—	157,623	—
	$ 213,059	$ 55,436	$ 157,623	$ —

5. Balance Sheet Components

Inventory consisted of the following (in thousands):

	December 31, 2016	December 31, 2015
Finished goods	$ 2,355	$ —
Raw material	1,820	—
	$ 4,175	$ —

Property and equipment, net, consisted of the following (in thousands):

	December 31, 2016	December 31, 2015
Machinery and equipment	$ 1,087	$ 1,017
Computers and software	2,718	1,336
Leasehold improvements	1,317	1,413
Furniture and fixtures	1,141	724
Construction-in-process	226	500
	6,489	4,990
Accumulated depreciation	(3,408)	(2,787)
	$ 3,081	$ 2,203

Depreciation of property and equipment was $843,000, $647,000, and $206,000 for the years ended December 31, 2016, 2015, and 2014, respectively. During 2016, 2015 and 2014, the Company retired $150,000, $72,000 and $40,000, respectively, of fully depreciated property and equipment.

Accrued liabilities consisted of the following (in thousands):

	December 31, 2016	December 31, 2015
Accrued compensation and benefits	$ 14,382	$ 5,722
Accrued consulting and professional fees	9,488	4,508
Accrued research and development services	8,551	8,805
Other	3,608	1,195
	$ 36,029	$ 20,230

6. Stockholders' Equity

Public Offerings

In August 2016, the Company raised net proceeds of approximately $215.9 million from the sale of 6,969,696 shares of its common stock in a follow-on public offering, including 909,090 shares sold pursuant to the exercise in full of the underwriters' option to purchase additional shares.

In January 2016, the Company raised net proceeds of approximately $281.6 million from the sale of 10,344,827 shares of its common stock in a follow-on public offering. In connection with the January 2016 offering, the Company entered into a registration rights agreement (the "Registration Rights Agreement") with 667, L.P., Baker Brothers Life Sciences, L.P. and 14159, L.P. (the "Baker Entities"), all of which are existing stockholders of the Company and are affiliated with two of its directors, Julian C. Baker and Dr. Stephen R. Biggar. Under the Registration Rights Agreement, the Company agreed that, if the Baker Entities demand that the Company register their shares of its common stock, par value $0.0001 per share, for resale under the Securities Act of 1933, as amended (the "Securities Act"), the Company would be obligated to effect such registration. The Company's registration obligations under the Registration Rights Agreement cover all shares of its common stock now held or later acquired by the Baker Entities (including approximately $75.0 million and $43.0 million of shares that the Baker Entities purchased at the public offering price in the January 2016 and August 2016 offerings, respectively), will continue in effect for up to 10 years, and include the Company's obligation to facilitate certain underwritten public offerings of its common stock by the Baker Entities in the future. The Company has agreed to bear all expenses incurred by it in effecting any registration pursuant to the Registration Rights Agreement as well as the legal expenses of the Baker Entities of up to $50,000 per underwritten public offering effected pursuant to the Registration Rights Agreement. On April 1, 2016, pursuant to the Registration Rights Agreement, the Company filed a registration statement covering all shares owned by the Baker Entities as of March 31, 2016.

Private Equity Financings

In December 2012, the Company raised net proceeds of $80.5 million through the sale of 19,000,000 shares of its common stock at a price of $4.43 per share and the sale of warrants to purchase 500,000 shares of its common stock at a price of $4.42 per warrant share in a private equity financing. The warrants have an exercise price of $0.01 per share and will expire on December 17, 2019. In accordance with authoritative accounting guidance, the warrants' value of $2.2 million was determined on the date of grant using the Black-Scholes model with the following assumptions: risk free interest rate of 1.1 percent, volatility of 105.8 percent, a 7.0 year term and no dividend yield. These warrants were recorded as a component of stockholders' equity within additional paid-in capital. Per their terms, the warrants to purchase 500,000 shares of common stock, all of which remained outstanding at December 31, 2016, may not be exercised if the holder's ownership of the Company's common stock would exceed 19.99 percent following such exercise. Pursuant to the terms of the private financing, the Company has an effective resale registration statement on file with the Securities and Exchange Commission ("SEC") covering shares of common stock sold and shares of common stock issuable upon the exercise of the warrants.

In January 2011, the Company raised net proceeds of $13.9 million through the sale of 12,565,446 units at a price of $1.19375 per unit in a private equity financing. Each unit consisted of one share of the Company's common stock and a warrant to purchase 0.35 shares of common stock. The warrants have an exercise price of $1.38 per share and will expire on January 11, 2018. In accordance with authoritative accounting guidance, the warrants' value of $3.3 million was determined on the date of grant using the Black-Scholes model with the following assumptions: risk free interest rate of 2.8 percent, volatility of 99.0 percent, a 7.0 year term and no dividend yield. These warrants were recorded as a component of stockholders' equity with an equal offsetting amount to stockholders' equity because the value of the warrants was considered a financing cost. During the year ended December 31, 2013, warrants to purchase 1,759,162 shares of common stock were exercised on a net issuance basis, resulting in the issuance of 1,643,006 shares of common stock. During the year ended December 31, 2012, warrants to purchase 1,172,774 shares of common stock were exercised on a net issuance basis, resulting in the issuance of 874,719 shares of common stock. At December 31, 2016, warrants to purchase 1,465,968 shares of common stock remained outstanding. Pursuant to the terms of the private financing, the Company has an effective resale registration statement on file with the SEC covering shares of common stock sold and shares of common stock issuable upon the exercise of the warrants.

Stock Option Plans

The Company's 2010 Equity Incentive Plan, as amended to date (the "2010 Plan"), permits the grant of options to employees, directors and consultants. In addition, the 2010 Plan permits the grant of stock bonuses, rights to purchase restricted stock, and other stock awards. The exercise price of options granted under the 2010 Plan cannot be less than 100 percent of the fair market value of the common stock on the date of grant and the maximum term of any option is 10 years. Options granted under the 2010 Plan generally vest over a four-year period. All shares that remained eligible for grant under the Company's 2004 Equity Incentive Plan (the "2004 Plan") at the time of approval of the 2010 Plan were transferred to the 2010 Plan. The 2010 Plan share reserve also has been, and may be, increased by the number of shares that otherwise would have reverted to the 2004 Plan reserve after June 2010. In June 2015 and June 2016, the Company's stockholders approved amendments to its 2010 Plan to, among other things, increase the aggregate number of shares of common stock authorized for issuance under the plan by 5,000,000 shares and 3,000,000 shares, respectively, and at December 31, 2016, there were 16,761,196 shares of common stock authorized for issuance, of which 4,017,319 shares were available for new grants under the 2010 Plan.

The 2004 Plan provided for the grant of options to employees, directors and consultants. The exercise price of options granted under the 2004 Plan was at 100 percent of the fair market value of the common stock on the date of grant and the maximum term of any option was 10 years. Options granted under the 2004 Plan generally vested over a four-year period.

Stock option transactions during the year ended December 31, 2016 are presented below:

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (years)	Aggregate Intrinsic Value (in thousands)
Outstanding at December 31, 2015	9,543,076	$ 22.64		
Granted	5,721,335	$ 26.98		
Exercised	(1,977,661)	$ 9.10		
Cancelled/forfeited	(542,873)	$ 29.07		
Outstanding at December 31, 2016	12,743,877	$ 26.41	8.0	$ 65,526
Vested and expected to vest at December 31, 2016	11,859,427	$ 26.22	7.9	$ 63,136
Exercisable at December 31, 2016	4,477,719	$ 21.91	6.4	$ 42,438

The aggregate intrinsic value of options exercisable as of December 31, 2016 is calculated as the difference between the exercise price of the underlying options and the closing market price of the Company's common stock on that date, which was $28.84 per share. The aggregate intrinsic value of options exercised during the years ended December 31, 2016, 2015, and 2014 was approximately $43.2 million, $55.9 million, and $30.6 million, respectively, determined as of the date of exercise. The Company received $18.0 million in cash from options exercised during the year ended December 31, 2016.

The weighted average per share fair value of options granted during the years ended December 31, 2016, 2015, and 2014 was approximately $17.65, $25.80, and $18.90, respectively. As of December 31, 2016, total unrecognized compensation cost related to stock options and purchase rights was approximately $129.9 million, and the weighted average period over which this cost is expected to be recognized is approximately 2.9 years.

Employee Stock Purchase Plan

The Company's 2004 Employee Stock Purchase Plan (the "Purchase Plan") became effective upon the closing of the Company's initial public offering in June 2004. The Purchase Plan included an "evergreen" provision providing that a limited number of additional shares may be added to the shares authorized for issuance on the date of each annual meeting of stockholders for a period of 10 years, which ended with the meeting in 2014. In June 2016, the Company's stockholders approved an amendment to the Purchase Plan to, among other things, increase the aggregate number of shares of common stock authorized for issuance under the plan by 400,000 shares, and at December 31, 2016, a total of 1,925,000 shares of common stock had been reserved for issuance under the Purchase Plan. At December 31, 2016, 580,413 shares of common stock remained available for issuance pursuant to the Purchase Plan. Eligible employees who elect to participate in an offering under the Purchase Plan may have up to 15 percent of their earnings withheld, subject to certain limitations, to purchase shares of common stock pursuant to the Purchase Plan. The price of common stock purchased under the Purchase Plan is equal to 85 percent of the lower of the fair market value of the common stock at the commencement date of each offering period or the relevant purchase date. During the years ended December 31, 2016, 2015, and 2014, a total of 136,283, 68,793, and 97,911 shares of common stock were issued under the Purchase Plan at average per share prices of $22.97, $22.62, and $6.78, respectively. The weighted average per share fair value of purchase rights granted during the years ended December 31, 2016, 2015, and 2014 was $12.34, $14.31, and $11.09, respectively. During the years ended December 31, 2016, 2015, and 2014, the Company recorded cash received from the exercise of purchase rights of $3.1 million, $1.6 million, and $664,000, respectively.

Settlement Agreement Proceeds

In April 2016, the Company received a payment of $14.3 million pursuant to a settlement agreement with prior 10% stockholders who sold shares of the Company's stock in 2013 that may have resulted in short-swing profits by the stockholders pursuant to Section 16(b) of the Securities Exchange Act of 1934, as amended. The Company recognized these proceeds as a capital contribution from stockholders and reflected a corresponding increase to additional paid-in capital.

7. 401(k) Plan

Effective January 1997, the Company established a deferred compensation plan (the "401(k) Plan") pursuant to Section 401(k) of the Internal Revenue Code of 1986, as amended (the "Code"), whereby substantially all employees are eligible to contribute up to 60 percent of their pretax earnings, not to exceed amounts allowed under the Code. The Company makes discretionary contributions to the 401(k) Plan equal to 100 percent of each employee's pretax contributions up to 5 percent of his or her eligible compensation, subject to limitations under the Code. The Company's total contributions to the 401(k) Plan were $2.1 million, $993,000, and $489,000 for the years ended December 31, 2016, 2015, and 2014, respectively.

8. Income Taxes

Domestic and foreign pre-tax income (loss) is as follows (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Domestic	$ (18,419)	$ 25,854	$ (92,447)
Foreign	(251,633)	(189,967)	(28)
	$ (270,052)	$ (164,113)	$ (92,475)

At December 31, 2016, the Company had federal, state, and foreign net operating loss ("NOL") carryforwards of approximately $438.5 million, $380.8 million, and $427.0 million, respectively. The Company recognized state income tax provisions of $1.3 million and $330,000 for the years ended December 31, 2016 and 2015, respectively. These tax liabilities were associated with California state alternative minimum tax obligations and the apportionment of income to certain state jurisdictions in which the Company did not have corresponding NOLs. No similar state income tax provision was recognized for the year ended December 31, 2014. Utilization of the domestic NOL and research and development ("R&D") credit carryforwards may be subject to a substantial annual limitation due to ownership change limitations that have occurred or that could occur in the future, as required by Section 382 of the Code, as well as similar state and foreign provisions. These ownership changes may limit the amount of NOL and R&D credit carryforwards that can be utilized annually to offset future taxable income and tax, respectively. In general, an "ownership change" as defined by Section 382 of the Code results from a transaction or series of transactions over a three-year period resulting in an ownership change of more than 50 percentage points of the outstanding stock of a company by certain stockholders or public groups.

The Company previously completed a study to assess whether an ownership change, as defined by Section 382 of the Code, had occurred from the Company's formation through December 31, 2013. Based upon this study, the Company determined that several ownership changes had occurred. Accordingly, the Company reduced its deferred tax assets related to the federal NOL carryforwards and the federal R&D credit carryforwards that are anticipated to expire unused as a result of these ownership changes. These tax attributes were excluded from deferred tax assets with a corresponding reduction of the valuation allowance with no net effect on income tax expense or the effective tax rate. The Company completed a study through December 31, 2016 and concluded no additional ownership changes occurred. Future ownership changes may further limit the Company's ability to utilize its remaining tax attributes.

Federal and state NOL carryforwards of $2.3 million and $39.4 million will expire in 2018 and 2017, respectively, unless utilized. The remaining federal and state NOL carryforwards will begin to expire in 2019 and 2018, respectively. At December 31, 2016, the Company had $15.1 million of federal R&D credit carryforwards of which $119,000 will expire in 2018 unless utilized, and the remaining federal R&D credit carryforwards will begin to expire in 2019. At December 31, 2016, the Company had $9.0 million of state R&D credit carryforwards that have no expiration date. At December 31, 2016, the Company had foreign NOL carryforwards of approximately $423.9 million that will expire in 2022 and $3.1 million that have no expiration date. The Company continues to record the deferred tax assets related to these attributes, subject to valuation allowance, until expiration occurs.

Approximately $99.3 million of the NOL carryforwards relate to excess tax deductions for stock compensation, the income tax benefit of which will be recorded as additional paid-in capital if and when realized. Upon adoption of ASU 2016-09 in the first quarter of 2017, as discussed in Note 2, the balance of the unrecognized excess tax benefits will be reversed with the impact recorded to accumulated deficit, including any change to the valuation allowance as a result of the adoption. As the Company maintained a full valuation allowance against its deferred tax assets at December 31, 2016, it does not expect the adoption of this guidance in the first quarter of 2017 to impact its consolidated financial statements.

The components of the deferred tax assets are as follows (in thousands):

	December 31,	
	2016	2015
NOL carryforwards	$ 168,753	$ 161,277
R&D credit carryforwards	21,016	17,624
Capitalized R&D	3,977	4,901
Stock-based compensation	27,576	15,260
Other	6,102	2,126
	227,424	201,188
Valuation allowance	(227,424)	(201,188)
	$ —	$ —

Realization of deferred tax assets is dependent upon future earnings, if any, the timing and amount of which are uncertain. Accordingly, the deferred tax assets have been fully offset by a valuation allowance. The valuation allowance increased by approximately $26.2 million in 2016 primarily due to an increase in deferred tax assets generated from net operating losses, R&D credits and stock-based compensation expense, partially offset by the expiration of NOL carryforwards in 2016.

A reconciliation of income taxes to the amount computed by applying the statutory federal income tax rate to the net loss is summarized as follows (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Amounts computed at statutory federal rate	$ (91,818)	$ (55,799)	$ (31,441)
Stock-based compensation and other permanent differences	3,065	1,752	1,417
R&D credits	(3,390)	(3,782)	(2,420)
Change in valuation allowance	27,583	4,580	37,106
State taxes	272	742	(5,092)
Contingencies	361	2,247	—
Foreign rate differential	64,065	48,456	4
Other	1,203	2,134	426
Income tax expense	$ 1,341	$ 330	$ —

The tax years 1998-2015 remain open to examination by the major taxing jurisdictions to which the Company is subject.

The Company recognizes a tax benefit from an uncertain tax position when it is more likely than not that the position will be sustained upon examination. The Company recorded an uncertain tax position reserve of $363,000 and $2.3 million for the years ended December 31, 2016 and 2015, respectively. No similar reserve was recorded for the year ended December 31, 2014. Due to the valuation allowance recorded against the Company's deferred tax assets, none of the total unrecognized tax benefits as of December 31, 2016 would reduce the annual effective tax rate if recognized. The Company does not anticipate that the amount of unrecognized tax benefits as of December 31, 2016 will significantly change within the next twelve months. The Company's practice is to recognize interest and/or penalties related to uncertain income tax positions in income tax expense. The Company had no interest and/or penalties accrued on the Company's consolidated balance sheets at December 31, 2016 and 2015, and the Company did not recognize any interest and/or penalties in the statement of operations for the years ended December 31, 2016, 2015 and 2014 related to uncertain tax positions.

The following table provides a reconciliation of changes in unrecognized tax benefits (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Balance at beginning of period	$ 2,301	$ —	$ —
Additions related to current period tax positions	363	2,301	—
Balance at end of period	$ 2,664	$ 2,301	$ —

9. Commitments and Contingencies

Leases and Other Long-Term Commitments

The Company leases facilities and certain equipment under noncancelable operating leases that expire at various dates through July 2019. Under the terms of the facilities leases, the Company is required to pay its proportionate share of property taxes, insurance and normal maintenance costs. Rent expense for operating leases is recorded on a straight-line basis over the life of the lease term. If an operating lease contains fixed and determinable escalation clauses, the difference between the rent expense and the rent paid is recorded as deferred rent. Rent expense under the Company's facility and equipment leases was $2.8 million, $2.9 million, and $1.2 million, for the years ended December 31, 2016, 2015, and 2014, respectively.

In 2015, the Company entered into a master lease agreement giving the Company the ability to lease vehicles under operating leases with initial terms of 36 months from the date of delivery. In connection with this lease agreement, the Company established a letter of credit for $375,000, which has automatic annual extensions and is fully secured by restricted cash.

The Company also enters into certain other long-term commitments for goods and services that are outstanding for periods greater than one year. To the extent these long-term commitments are noncancelable, they are reflected in the table below.

Estimated annual future minimum payments related to the Company's operating leases and other long-term contractual obligations were as follows at December 31, 2016 (in thousands):

2017	$	2,979
2018		2,892
2019		402
2020		—
2021		—
Thereafter		—
	$	6,273

The Company also enters into short-term agreements with various vendors and suppliers of goods and services in the normal course of operations through purchase orders or other documentation, or that are undocumented except for an invoice. Such short-term agreements are generally outstanding for periods less than a year and are settled by cash payments upon delivery of goods and services. The nature of the work being conducted under these agreements is such that, in most cases, the services may be stopped on short notice. In such event, the Company would not be liable for the full amount of the agreement and are therefore not reflected in the above table.

Royalty Payments

Pursuant to the terms of its 2006 license agreement with the Ipsen Group, the Company is required to make royalty payments of two percent of net sales of NUPLAZID.

Corporate Credit Card Program

In connection with the Company's credit card program, the Company established a letter of credit in 2016 for $2.0 million, which has automatic annual extensions and is fully secured by restricted cash.

Legal Proceedings

In March 2015, following the Company's announcement of the update to the timing of its planned NDA submission to the FDA for NUPLAZID for the treatment of PD Psychosis and the subsequent decline of the price of its common stock, two putative securities class action complaints (captioned *Rihn v. ACADIA Pharmaceuticals Inc.*, Case No. 15-cv-0575-BTM-DHB, and *Wright v. ACADIA Pharmaceuticals Inc.*, Case No. 15-cv-0593- BTM-DHB) were filed in the U.S. District Court for the Southern District of California (the "Court") against the Company and certain of its current and former officers. The complaints generally alleged that the defendants violated Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 by making materially false and misleading statements regarding the timing of the Company's planned NDA submission to the FDA for NUPLAZID, thereby artificially inflating the price of its common stock. The complaints sought unspecified monetary damages and other relief. On April 10 and June 1, 2015, the Court entered orders deferring the defendants' response to the Rihn and Wright complaints until after the Court appointed a lead plaintiff and assigned lead counsel. On May 12, 2015, several putative stockholders filed separate motions to consolidate the two actions and be appointed lead plaintiff. On September 8, 2015, the Court issued an order consolidating the two actions, appointing lead plaintiff, and assigning lead counsel. On November 16, 2015, lead plaintiff filed a consolidated complaint with the Court which, like the prior complaints, accuses the defendants of making materially false and misleading statements regarding the anticipated timing of the Company's planned NDA submission to the FDA for NUPLAZID. On January 15, 2016, the defendants filed a motion to dismiss the consolidated complaint. On September 19, 2016, the Court issued an order denying the motion to dismiss the consolidated complaint. On December 6, 2016, the parties had a mediation and agreed in principle to settle the action. The Company has assessed such legal proceedings, and based on the Company's preliminary settlement discussions, it has accrued an additional $483,000 at December 31, 2016 for anticipated settlement costs.

10. Selected Quarterly Financial Data (Unaudited)

The following financial information reflects all normal recurring adjustments, which are, in the opinion of management, necessary for a fair statement of the results of the interim periods. Summarized quarterly data for the years ended December 31, 2016 and 2015 are as follows (in thousands, except per share data):

	Fiscal Year 2016 Quarters				
	1st	2nd	3rd	4th	Total
Revenues(1)	$ 4	$ 97	$ 5,268	$ 11,962	$ 17,331
Gross profit(2)	$ —	$ (429)	$ 4,423	$ 10,258	$ 14,252
Net loss	$ (49,762)	$ (71,322)	$ (71,613)	$ (78,696)	$ (271,393)
Basic and diluted net loss per share(3)	$ (0.45)	$ (0.63)	$ (0.61)	$ (0.65)	$ (2.34)

	Fiscal Year 2015 Quarters				
	1st	2nd	3rd	4th	Total
Revenues	$ 4	$ 1	$ 39	$ 17	$ 61
Gross profit	$ —	$ —	$ —	$ —	$ —
Net loss	$ (40,375)	$ (39,378)	$ (38,906)	$ (45,784)	$ (164,443)
Basic and diluted net loss per share(3)	$ (0.40)	$ (0.39)	$ (0.39)	$ (0.45)	$ (1.63)

(1) The Company commenced commercial sales of NUPLAZID in May 2016. The quarters ended June 30, 2016, September 30, 2016, and December 31, 2016 reflect net product revenue related to NUPLAZID.

(2) Determined by subtracting cost of product sales from product sales, net.

(3) Net loss per common share, basic and diluted, are computed independently for each quarter and the full year based upon respective average shares outstanding. Therefore, the sum of the quarterly net loss per common share amounts may not equal the annual amounts reported.

SCHEDULE II – Valuation and Qualifying Accounts
(in thousands)

	Balance at Beginning of Period	Additions: Provision Related to Current Period Sales	Deductions: Actual Distribution Fees, Discounts and Chargebacks Related to Current Period Sales	Deductions: Actual Distribution Fees, Discounts and Chargebacks Related to Prior Period Sales	Balance at End of Period
Allowance for distribution fees, discounts and chargebacks:					
For the year ended December 31, 2016	$ —	$ 2,163	$ (1,962)	$ —	$ 201

INDEX TO EXHIBITS

Exhibit Number	Description
3.1	Amended and Restated Certificate of Incorporation, as Amended (incorporated by reference to Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q, filed August 6, 2015).
3.2	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K, filed September 12, 2013).
4.1	Form of common stock certificate of the Registrant (incorporated by reference to Exhibit 4.1 to Registration Statement No. 333-52492).
4.2	Form of Warrant to Purchase Common Stock issued to purchasers in a private placement on January 12, 2011 (incorporated by reference to Exhibit 4.5 to Registration Statement No. 333-171722).
4.3	Form of Warrant to Purchase Common Stock issued to certain purchasers in a private placement on December 17, 2012 (incorporated by reference to Exhibit 4.4 to Registration Statement No. 333-185639).
10.1[a]	Form of Indemnity Agreement for directors and officers (incorporated by reference to Exhibit 10.1 to Registration Statement No. 333-113137).
10.2[a]	2004 Equity Incentive Plan and forms of agreement thereunder (incorporated by reference to Exhibit 10.3 to Registration Statement No. 333-113137).
10.3[a]	2010 Equity Incentive Plan, as amended (incorporated by reference to Exhibit 99.2 to the Registrant's Current Report on Form 8-K, filed June 10, 2016).
10.4[a]	Forms of agreement under the 2010 Equity Incentive Plan (incorporated by reference to Exhibit 10.4 to the Registrant's Annual Report on Form 10-K, filed February 29, 2016).
10.5[a]	2004 Employee Stock Purchase Plan, as amended (incorporated by reference to Exhibit 99.1 to the Registrant's Current Report on Form 8-K, filed June 10, 2016).
10.6[a]	Offerings under the 2004 Employee Stock Purchase Plan, as amended.
10.7[a]	Employment Letter Agreement, dated December 21, 1998, between the Registrant and Uli Hacksell, Ph.D. (incorporated by reference to Exhibit 10.7 to Registration Statement No. 333-52492).
10.8[a]	Employment Offer Letter, dated July 25, 2016, between the Registrant and Todd S. Young (incorporated by reference to the Registrant's Quarterly Report on Form 10-Q, filed November 7, 2016).
10.9[a]	Employment Agreement, dated March 16, 2010, between the Registrant and Glenn F. Baity (incorporated by reference to Exhibit 10.13 to the Registrant's Annual Report on Form 10-K, filed March 10, 2011).
10.10[a]	Employment Agreement, dated August 19, 2013, between the Registrant and Terrence Moore (incorporated by reference to Exhibit 10.13 to the Registrant's Annual Report on Form 10-K, filed February 27, 2014).
10.11[a]	Employment Agreement, dated September 1, 2015, between the Registrant and Stephen Davis (incorporated by reference to Exhibit 99.1 to the Registrant's Current Report on Form 8-K, filed September 3, 2015).
10.12[a]	Employment Offer Letter, dated October 28, 2015, between the Registrant and Srdjan Stankovic (incorporated by reference to Exhibit 10.10 to the Registrant's Annual Report on Form 10-K, filed February 29, 2016).
10.13[a]	Description of Executive Officer Annual Incentive Cash Compensation Program (incorporated by reference to Exhibit 99.1 to the Registrant's Current Report on Form 8-K, filed March 18, 2016).
10.14[a]	Management Severance Benefit Plan (incorporated by reference to Exhibit 99.1 to the Registrant's Current Report on Form 8-K, filed December 15, 2015).
10.15[a]	Amended and Restated Change in Control Severance Benefit Plan (incorporated by reference to Exhibit 99.2 to the Registrant's Current Report on Form 8-K, filed December 15, 2015).
10.16[a]	Description of Outside Director Compensation Program (incorporated by reference to Exhibit 10.13 to the Registrant's Annual Report on Form 10-K, filed March 12, 2013).

10.17[b]	Master Manufacturing Services Agreement and Product Agreement, dated August 3, 2015, by and between the Registrant and Patheon Pharmaceuticals Inc. (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q, filed November 5, 2015).
10.18[b]	First Amendment to Product Agreement, dated April 25, 2016, by and between the Registrant and Patheon Pharmaceuticals Inc. (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q, filed August 4, 2016).
10.19[b]	Second Amendment to Product Agreement, dated October 6, 2016, by and between the Registrant and Patheon Pharmaceuticals Inc. (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q, filed November 7, 2016).
10.20[b]	Master Services Agreement, dated December 15, 2016, by and between ACADIA Pharmaceuticals GmbH and Siegfried AG and its affiliates.
10.21[b]	Change Order #1 to Master Services Agreement Attachment #1, dated January 3, 2017, by and between ACADIA Pharmaceuticals GmbH and Siegfried AG.
10.22	Registration Rights Agreement, dated January 6, 2016, between the Registrant and the investors listed on Schedule A thereto (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K, filed January 7, 2016).
10.23[b]	Sublease Agreement, effective November 13, 2014, between the Registrant and Trion Worlds, Inc. (incorporated by reference to Exhibit 10.28 to the Registrant's Annual Report on Form 10-K, filed February 26, 2015).
10.24	Assignment of Brann Intellectual Property Rights, dated January 29, 1997, by Mark R. Brann in favor of the Registrant (incorporated by reference to Exhibit 10.17 to Registration Statement No. 333-52492).
10.25[b]	License Agreement, dated November 30, 2006, by and between the Registrant and Société de Conseils, de Recherches et d'Applications Scientifiques SAS, a French corporation member of the Ipsen Group (incorporated by reference to Exhibit 99.1 to the Registrant's Current Report on Form 8-K, filed December 4, 2006).
21.1	List of subsidiaries of the Registrant.
23.1	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm.
23.2	Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm.
24.1	Power of Attorney (see signature page hereto).
31.1	Certification of Stephen Davis, Chief Executive Officer, pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Todd Young, Chief Financial Officer, pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of Stephen Davis, Chief Executive Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Todd Young, Chief Financial Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101	The following financial statements from this Annual Report, formatted in XBRL (Extensible Business Reporting Language), are filed herewith: (i) Consolidated Balance Sheets, (ii) Consolidated Statements of Operations, (iii) Consolidated Statements of Comprehensive Loss, (iv) Consolidated Statements of Cash Flows, (v) Consolidated Statements of Stockholders' Equity, and (vi) Notes to Consolidated Financial Statements.

[a] Indicates management contract or compensatory plan or arrangement.

[b] We have requested or received confidential treatment of certain portions of this agreement, which have been omitted and filed separately with the SEC pursuant to Rule 406 under the Securities Act of 1933, as amended, or Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

ACADIA Pharmaceuticals Inc.

2004 Employee Stock Purchase Plan

Offering

Adopted by the Board of Directors on February 25, 2004

In this document, capitalized terms not otherwise defined shall have the same definitions of such terms as in the ACADIA Pharmaceuticals Inc. 2004 Employee Stock Purchase Plan.

1. Grant; Offering Date.

(a) The Board hereby authorizes a series of Offerings pursuant to the terms of this Offering document.

(b) The first Offering hereunder (the "Initial Offering") shall begin on the IPO Date and shall end twenty-four (24) months following the IPO Date, unless terminated earlier as provided below. After the Initial Offering, an Offering shall begin on the day after the first Purchase Date of the immediately preceding Offering. The first day of an Offering is that Offering's "Offering Date." Except as provided below, each Offering shall be approximately twenty-four (24) months in duration and include four (4) Purchase Periods which, except for the first Purchase Period of the Initial Offering (which may be longer or shorter than six (6) months) shall be approximately six (6) months in length. Except as provided below, a Purchase Date is the last day of a Purchase Period or of an Offering, as the case may be. The Initial Offering shall consist of four (4) Purchase Periods with the first Purchase Period of the Initial Offering ending on November 30, 2004.

(c) Notwithstanding the foregoing: (i) if any Offering Date falls on a day that is not a Trading Day, then such Offering Date shall instead fall on the next subsequent Trading Day, and (ii) if any Purchase Date falls on a day that is not a Trading Day, then such Purchase Date shall instead fall on the immediately preceding Trading Day.

(d) Prior to the commencement of any Offering, the Board may change any or all terms of such Offering and any subsequent Offerings. The granting of Purchase Rights pursuant to each Offering hereunder shall occur on each respective Offering Date unless prior to such date (i) the Board determines that such Offering shall not occur, or (ii) no shares of Common Stock remain available for issuance under the Plan in connection with the Offering.

(e) Notwithstanding anything in this Section 1 to the contrary, if on the first day of a Purchase Period during an Offering the Fair Market Value of the shares of Common Stock is less than it was on the Offering Date for that Offering, that day shall become the next Offering Date, and the Offering that would otherwise have continued in effect shall immediately terminate and the Employees who were enrolled in the terminated Offering shall automatically be enrolled in the new Offering that starts such day.

(f) If the Company's accountants advise the Company that the accounting treatment of purchases under the Plan will change or has changed in a manner that the Company determines is detrimental to its best interests, then the Company may, in its discretion, take any or all of the following actions: (i) terminate each ongoing Offering as of the next Purchase Date (after the purchase of stock on such Purchase Date) under such Offering; (ii) set a new Purchase Date for each ongoing Offering and terminate each such Offering after the purchase of stock on such Purchase Date; (iii) amend the Plan and each ongoing Offering to reduce or eliminate an accounting treatment that is detrimental to the Company's best interests; and (iv) terminate each ongoing Offering and refund any money contributed by the participants.

2. Eligible Employees.

(a) Each Employee who meets the employment requirements of Section 6(a) of the Plan, is employed as provided in this Section 2(a) prior to an Offering Date and who is (i) an employee of the Company that resides in the United States; (ii) an employee of a Related Corporation incorporated in the United States; (iii) an employee of the Company that resides outside of the United States; or (iv) an employee of a Related Corporation that is not incorporated in the United States, shall be granted a Purchase Right on the Offering Date of such Offering, provided, in the case of clause (iii) or (iv), that the Board or Committee has designated that such employees are eligible to participate in the Offering.

(b) Notwithstanding the foregoing, the following Employees shall not be Eligible Employees or be granted Purchase Rights under an Offering:

(i) part-time or seasonal Employees whose customary employment is twenty (20) hours per week or less or five (5) months per calendar year or less;

(ii) five percent (5%) stockholders (including ownership through unexercised and/or unvested stock options) as described in Section 6(c) of the Plan; or

(iii) Employees in jurisdictions outside of the United States if, as of the Offering Date of the Offering, the grant of such Purchase Rights would not be in compliance with the applicable laws of any jurisdiction in which the Employee resides or is employed.

(c) Notwithstanding the foregoing, each person who first becomes an Eligible Employee during an ongoing Offering shall not be able to participate in such Offering, but shall be eligible to participate, pursuant to the terms of this Section 2 and the Plan, in the first Offering that commences on or after the first day of his or her employment.

3. Purchase Rights.

(a) Subject to the limitations herein and in the Plan, a Participant's Purchase Right shall permit the purchase of the number of shares of Common Stock purchasable with up to fifteen percent (15%) of such Participant's Earnings paid during the period of such Offering beginning immediately after such Participant first commences participation; *provided, however*, that no Participant may have more than fifteen percent (15%) of such Participant's Earnings applied to purchase shares of Common Stock under all ongoing Offerings under the Plan and all other plans of the Company and Related Corporations that are intended to qualify as Employee Stock Purchase Plans.

(b) For Offerings hereunder, "Earnings" means the base compensation paid to a Participant, including all salary and wages (including amounts elected to be deferred by the Participant, that would otherwise have been paid, under any cash or deferred arrangement or other deferred compensation program established by the Company or a Related Corporation), overtime pay, commissions, bonuses; but excluding all other remuneration paid directly to such Participant, profit sharing, the cost of employee benefits paid for by the Company or a Related Corporation, education or tuition reimbursements, imputed income arising under any Company or Related Corporation group insurance or benefit program, traveling expenses, business and moving expense reimbursements, income received in connection with stock options, contributions made by the Company or a Related Corporation under any employee benefit plan, and similar items of compensation.

(c) Notwithstanding the foregoing, the maximum number of shares of Common Stock that a Participant may purchase on any Purchase Date in an Offering shall be such number of shares as has a Fair Market Value (determined as of the Offering Date for such Offering) equal to (x) twenty five thousand dollars ($25,000) multiplied by the number of calendar years in which the Purchase Right under such Offering has been outstanding at any time, minus (y) the Fair Market Value of any other shares of Common Stock (determined as of the relevant Offering Date with respect to such shares) that, for purposes of the limitation of Section 423(b)(8) of the Code, are attributed to any of such calendar years in which the Purchase Right is outstanding. The amount in clause (y) of the previous sentence shall be determined in accordance with regulations applicable under Section 423(b)(8) of the Code based on (i) the number of shares previously purchased with respect to such calendar years pursuant to such Offering or any other Offering under the Plan, or pursuant to any other Company or Related Corporation plans intended to qualify as Employee Stock Purchase Plans, and (ii) the number of shares subject to other Purchase Rights outstanding on the Offering Date for such Offering pursuant to the Plan or any other such Company or Related Corporation Employee Stock Purchase Plan.

(d) The maximum aggregate number of shares of Common Stock available to be purchased by all Participants on a Purchase Date shall be the number of shares of Common Stock then remaining available under the Plan. If the aggregate purchase of shares of Common Stock upon exercise of Purchase Rights granted under the Offering would exceed the maximum aggregate number of shares available, the Board shall make a pro rata allocation of the shares available in a uniform and equitable manner.

(e) Notwithstanding the foregoing, the maximum number of shares of Common Stock that a Participant may purchase on any Purchase Date during any Offering shall not exceed ten thousand (10,000) shares.

4. Purchase Price.

The purchase price of shares of Common Stock under an Offering shall be the lesser of: (i) eighty-five percent (85%) of the Fair Market Value of such shares of Common Stock on the applicable Offering Date, or (ii) eighty-five percent (85%) of the Fair Market Value of such shares of Common Stock on the applicable Purchase Date, in each case rounded up to the nearest whole cent per share. For the Initial Offering, the Fair Market Value of the shares of Common Stock at the time when the Offering commences shall be the price per share at which shares are first sold to the public in the Company's initial public offering as specified in the final prospectus for that initial public offering.

5. Participation.

(a) An Eligible Employee may elect to participate in an Offering on the Offering Date or as of the first day following any Purchase Date; provided, however, that a person who first becomes an Eligible Employee during an Offering may elect to participate at the Offering Date applicable to such Eligible Employee in accordance with Section 2(c) herein. An Eligible Employee shall become a Participant in an Offering by delivering an enrollment form authorizing payroll deductions. Such deductions must be in whole percentages of Earnings, with a minimum percentage of one percent (1%) and a maximum percentage of fifteen percent (15%). Except as provided in paragraph (e) below, Contributions may be made only by way of payroll deductions and a Participant may not make additional payments into his or her account. The agreement shall be made on such enrollment form as the Company provides, and must be delivered to the Company prior to the date participation is to be effective, unless a later time for filing the enrollment form is set by the Company for all Eligible Employees with respect to a given Offering.

(b) A Participant may increase or reduce (including to zero percent) his or her participation level once during each Purchase Period, excluding only each ten (10) business day period immediately preceding a Purchase Date (or such shorter period of time as determined by the Company and communicated to Participants). In addition, a Participant may reduce his or her participation level to zero percent (0%) at any time during the course of an Offering, excluding only each ten (10) business day period immediately preceding a Purchase Date (or such shorter period of time as determined by the Company and communicated to Participants). Any such change in participation shall be made by delivering a notice to the Company or a designated Related Corporation in such form and at such time as the Company provides.

(c) A Participant may withdraw from an Offering and receive a refund of his or her Contributions (reduced to the extent, if any, such Contributions have been used to acquire shares of Common Stock for the Participant on any prior Purchase Date) without interest, at any time prior to the end of the Offering, excluding only each ten (10) business day period immediately preceding a Purchase Date (or such shorter period of time determined by the Company and communicated to Participants), by delivering a withdrawal notice to the Company or a designated Related Corporation in such form as the Company provides. A Participant who has withdrawn from an Offering shall not again participate in such Offering, but may participate in subsequent Offerings under the Plan in accordance with the terms of the Plan and the terms of such subsequent Offerings.

(d) Notwithstanding the foregoing or any other provision of this Offering document or of the Plan to the contrary, neither the enrollment of any Eligible Employee in the Plan nor any forms relating to participation in the Plan shall be given effect until such time as a registration statement covering the registration of the shares under the Plan that are subject to the Offering has been filed by the Company and has become effective.

(e) Notwithstanding the foregoing or any other provision of this Offering document or of the Plan to the contrary, with respect to the Initial Offering only, each Eligible Employee who is employed on the IPO Date automatically shall be enrolled in the Initial Offering, with a Purchase Right to purchase up to the number of shares of Common Stock that are purchasable with fifteen percent (15%) of the Eligible Employee's Earnings, subject to the limitations set forth in Section 3 above. Following the filing of an effective registration statement pursuant to a Form S-8, such Eligible Employee shall be provided a certain period of time, as determined by the Company in its sole discretion, within which to elect to authorize payroll deductions for the purchase of shares during the Initial Offering (which may be for a percentage that is less than fifteen percent (15%) of the Eligible Employee's Earnings). If such Eligible Employee elects not to authorize such payroll deductions, the Eligible Employee instead may purchase shares of Common Stock under the Plan by delivering a single cash payment for the purchase of such shares to the Company or a designated Related Corporation prior to the ten (10) business day period (or such shorter period of time as determined by the Company and communicated to Participants) immediately preceding the first Purchase Date under the Initial Offering. If an Eligible Employee neither elects to authorize payroll deductions (or fails to do so in a timely manner) nor chooses to make a cash payment in accordance with the foregoing sentence, then the Eligible Employee shall not purchase any shares of Common Stock during the Initial Offering. After the end of the Initial Offering, in order to participate in any subsequent Offerings, an Eligible Employee must enroll and authorize payroll deductions prior to the commencement of the Offering, in accordance with paragraph (a) above; *provided, however,* that once an Eligible Employee enrolls in an Offering and authorizes payroll deductions (including in connection with the Initial Offering), the Eligible Employee automatically shall be enrolled for all subsequent Offerings until he or she elects to withdraw from an Offering pursuant to paragraph (c) above or terminates his or her participation in the Plan.

6. Purchases.

Subject to the limitations contained herein, on each Purchase Date, each Participant's Contributions (without any increase for interest) shall be applied to the purchase of whole shares, up to the maximum number of shares permitted under the Plan and the Offering.

7. Notices and Agreements.

Any notices or agreements provided for in an Offering or the Plan shall be given in writing, in a form provided by the Company, and unless specifically provided for in the Plan or this Offering, shall be deemed effectively given upon receipt or, in the case of notices and agreements delivered by the Company, five (5) days after deposit in the United States mail, postage prepaid.

8. Exercise Contingent on Stockholder Approval.

The Purchase Rights granted under an Offering are subject to the approval of the Plan by the stockholders of the Company as required for the Plan to obtain treatment as an Employee Stock Purchase Plan.

9. Offering Subject to Plan.

Each Offering is subject to all the provisions of the Plan, and the provisions of the Plan are hereby made a part of the Offering. The Offering is further subject to all interpretations, amendments, rules and regulations which may from time to time be promulgated and adopted pursuant to the Plan. In the event of any conflict between the provisions of an Offering and those of the Plan (including interpretations, amendments, rules and regulations which may from time to time be promulgated and adopted pursuant to the Plan), the provisions of the Plan shall control.

ACADIA Pharmaceuticals Inc.

2004 Employee Stock Purchase Plan, As Amended

Offering

Adopted by the Board of Directors on February 25, 2004
Amended by the Compensation Committee of the Board of Directors on November 14, 2016

In this document, capitalized terms not otherwise defined shall have the same definitions of such terms as in the ACADIA Pharmaceuticals Inc. 2004 Employee Stock Purchase Plan, as amended.

1. Grant; Offering Date.

(a) The Board hereby authorizes a series of Offerings pursuant to the terms of this Offering document.

(b) The first Offering hereunder (the "Initial Offering") shall begin on November 16 and shall end 24 months thereafter, unless terminated earlier as provided below. After the Initial Offering, an Offering shall begin on the day after the first Purchase Date of the immediately preceding Offering. The first day of an Offering is that Offering's "Offering Date." Except as provided below, each Offering shall be approximately 24 months in duration and include four Purchase Periods which shall be approximately six months in length. Except as provided below, a Purchase Date is the last day of a Purchase Period or of an Offering, as the case may be. The Initial Offering shall consist of four Purchase Periods with the first Purchase Period of the Initial Offering ending on May 15, 2017.

(c) Notwithstanding the foregoing: (i) if any Offering Date falls on a day that is not a Trading Day, then such Offering Date shall instead fall on the next subsequent Trading Day, and (ii) if any Purchase Date falls on a day that is not a Trading Day, then such Purchase Date shall instead fall on the immediately preceding Trading Day.

(d) Prior to the commencement of any Offering, the Board may change any or all terms of such Offering and any subsequent Offerings. The granting of Purchase Rights pursuant to each Offering hereunder shall occur on each respective Offering Date unless prior to such date (i) the Board determines that such Offering shall not occur, or (ii) no shares of Common Stock remain available for issuance under the Plan in connection with the Offering.

(e) Notwithstanding anything in this Section 1 to the contrary, if the Fair Market Value of a share of Common Stock on any Offering Date of an Offering (the "New Offering") is less than or equal to the Fair Market Value of a share of Common Stock on the Offering Date for an ongoing Offering (the "Ongoing Offering"), then such Ongoing Offering shall terminate immediately following the purchase of shares of Common Stock on the Purchase Date immediately preceding the New Offering and Participants in the terminated Ongoing Offering automatically shall be enrolled in the New Offering.

2. Eligible Employees.

(a) Each Employee who meets the employment requirements of Section 6(a) of the Plan, is employed as provided in this Section 2(a) prior to an Offering Date and who is (i) an employee of the Company that resides in the United States; (ii) an employee of a Related Corporation incorporated in the United States; (iii) an employee of the Company that resides outside of the United States; or (iv) an employee of a Related Corporation that is not incorporated in the United States, shall be granted a Purchase Right on the Offering Date of such Offering, provided, in the case of clause (iii) or (iv), that the Board or Committee has designated that such employees are eligible to participate in the Offering.

(b) Notwithstanding the foregoing, the following Employees shall not be Eligible Employees or be granted Purchase Rights under an Offering:

(i) part-time or seasonal Employees whose customary employment is less than 20 hours per week or less than five months per calendar year;

(ii) five percent stockholders (including ownership through unexercised and/or unvested stock options) as described in Section 6(c) of the Plan; or

(iii) Employees in jurisdictions outside of the United States if, as of the Offering Date of the Offering, the grant of such Purchase Rights would not be in compliance with the applicable laws of any jurisdiction in which the Employee resides or is employed.

(c) Notwithstanding the foregoing, each person who first becomes an Eligible Employee during an ongoing Offering shall not be able to participate in such Offering, but shall be eligible to participate, pursuant to the terms of this Section 2 and the Plan, in the first Offering that commences on or after the first day of his or her employment.

3. Purchase Rights.

(a) Subject to the limitations herein and in the Plan, a Participant's Purchase Right shall permit the purchase of the number of shares of Common Stock purchasable with up to 15% of such Participant's Earnings paid during the period of such Offering beginning immediately after such Participant first commences participation; *provided*, *however*, that no Participant may have more than 15% of such Participant's Earnings applied to purchase shares of Common Stock under all ongoing Offerings under the Plan and all other plans of the Company and Related Corporations that are intended to qualify as Employee Stock Purchase Plans.

(b) For Offerings hereunder, "Earnings" means the base compensation paid to a Participant, including all salary and wages (including amounts elected to be deferred by the Participant, that would otherwise have been paid, under any cash or deferred arrangement or other deferred compensation program established by the Company or a Related Corporation), overtime pay, commissions, bonuses; but excluding all other remuneration paid directly to such Participant, profit sharing, the cost of employee benefits paid for by the Company or a Related Corporation, education or tuition reimbursements, imputed income arising under any Company or Related Corporation group insurance or benefit program, traveling expenses, business and moving expense reimbursements, income received in connection with the vesting or exercise of any equity awards (such as stock options or restricted stock), contributions made by the Company or a Related Corporation under any employee benefit plan, and similar items of compensation.

(c) Notwithstanding the foregoing, the maximum number of shares of Common Stock that a Participant may purchase on any Purchase Date in an Offering shall be such number of shares as has a Fair Market Value (determined as of the Offering Date for such Offering) equal to (x) $25,000 multiplied by the number of calendar years in which the Purchase Right under such Offering has been outstanding at any time, minus (y) the Fair Market Value of any other shares of Common Stock (determined as of the relevant Offering Date with respect to such shares) that, for purposes of the limitation of Section 423(b)(8) of the Code, are attributed to any of such calendar years in which the Purchase Right is outstanding. The amount in clause (y) of the previous sentence shall be determined in accordance with regulations applicable under Section 423(b)(8) of the Code based on (i) the number of shares previously purchased with respect to such calendar years pursuant to such Offering or any other Offering under the Plan, or pursuant to any other Company or Related Corporation plans intended to qualify as Employee Stock Purchase Plans, and (ii) the number of shares subject to other Purchase Rights outstanding on the Offering Date for such Offering pursuant to the Plan or any other such Company or Related Corporation Employee Stock Purchase Plan.

(d) The maximum aggregate number of shares of Common Stock available to be purchased by all Participants on a Purchase Date shall be the number of shares of Common Stock then remaining available under the Plan. If the aggregate purchase of shares of Common Stock upon exercise of Purchase Rights granted under the Offering would exceed the maximum aggregate number of shares available, the Board shall make a pro rata allocation of the shares available in a uniform and equitable manner.

(e) Notwithstanding the foregoing, the maximum number of shares of Common Stock that a Participant may purchase on any Purchase Date during any Offering shall not exceed 10,000 shares.

(f) Except as otherwise provided in Section 9(b) of the Plan, any Contributions not applied to the purchase of shares of Common Stock on the final Purchase Date of an Offering as a result of the application of the limits set forth in this Section 3 will be refunded to the Participants following the purchase on such last Purchase Date without interest.

4. Purchase Price.

The purchase price of shares of Common Stock under an Offering shall be the lesser of: (i) 85% of the Fair Market Value of such shares of Common Stock on the applicable Offering Date, or (ii) 85% of the Fair Market Value of such shares of Common Stock on the applicable Purchase Date, in each case rounded to the nearest whole cent per share.

5. Participation.

(a) An Eligible Employee may elect to participate in an Offering on the Offering Date or as of the first day following any Purchase Date; provided, however, that a person who first becomes an Eligible Employee during an Offering may elect to participate at the Offering Date applicable to such Eligible Employee in accordance with Section 2(c) herein. An Eligible Employee shall become a Participant in an Offering by delivering an enrollment form authorizing payroll deductions. Such deductions must be in whole percentages of Earnings, with a minimum percentage of one percent and a maximum percentage of 15%. Contributions may be made only by way of payroll deductions and a Participant may not make additional payments into his or her account. The agreement shall be made on such enrollment form as the Company provides, and must be delivered to the Company prior to the date participation is to be effective, unless a later time for filing the enrollment form is set by the Company for all Eligible Employees with respect to a given Offering.

(b) A Participant may increase once and/or reduce once (including to zero percent) his or her participation level during each Purchase Period, excluding only each ten business day period immediately preceding a Purchase Date (or such shorter period of time as determined by the Company and communicated to Participants). A Participant may reset his or her participation level to be effective as of the first day of any subsequent Purchase Period or Offering (as applicable) provided that the Participant provides notice of such change (in a form acceptable to the Company) prior to the commencement of such Purchase Period or Offering (or at such other deadline as may be set by the Company). In addition, a Participant may reduce his or her participation level to zero percent at any time during the course of an Offering, excluding only each ten business day period immediately preceding a Purchase Date (or such shorter period of time as determined by the Company and communicated to Participants). Any such changes in participation shall be made by delivering a notice to the Company or a designated Related Corporation in such form and at such time as the Company provides.

(c) A Participant may withdraw from an Offering and receive a refund of his or her Contributions (reduced to the extent, if any, such Contributions have been used to acquire shares of Common Stock for the Participant on any prior Purchase Date) without interest, at any time prior to the end of the Offering, excluding only each ten business day period immediately preceding a Purchase Date (or such shorter period of time determined by the Company and communicated to Participants), by delivering a withdrawal notice to the Company or a designated Related Corporation in such form as the Company provides. A Participant who has withdrawn from an Offering shall not again participate in such Offering, but may participate in subsequent Offerings under the Plan in accordance with the terms of the Plan and the terms of such subsequent Offerings.

(d) In order to participate in an Offering, an Eligible Employee must enroll and authorize payroll deductions prior to the commencement of the applicable Offering, in accordance with paragraph (a) above; *provided*, *however,* that once an Eligible Employee enrolls in an Offering and authorizes payroll deductions, the Eligible Employee automatically shall be enrolled for subsequent Offerings until he or she elects to withdraw from an Offering pursuant to paragraph (c) above or terminates his or her participation in the Plan.

6. Purchases.

Subject to the limitations contained herein, on each Purchase Date, each Participant's Contributions (without any increase for interest) shall be applied to the purchase of whole shares, up to the maximum number of shares permitted under the Plan and the Offering.

7. Notices and Agreements.

Any notices or agreements provided for in an Offering or the Plan shall be given in writing, in a form provided by the Company, and unless specifically provided for in the Plan or this Offering, shall be deemed effectively given upon receipt or, in the case of notices and agreements delivered by the Company, five days after deposit in the United States mail, postage prepaid.

8. Exercise Contingent on Stockholder Approval.

The Purchase Rights granted under an Offering are subject to the approval of the Plan by the stockholders of the Company as required for the Plan to obtain treatment as an Employee Stock Purchase Plan.

9. Offering Subject to Plan.

Each Offering is subject to all the provisions of the Plan, and the provisions of the Plan are hereby made a part of the Offering. The Offering is further subject to all interpretations, amendments, rules and regulations which may from time to time be promulgated and adopted pursuant to the Plan. In the event of any conflict between the provisions of an Offering and those of the Plan (including interpretations, amendments, rules and regulations which may from time to time be promulgated and adopted pursuant to the Plan), the provisions of the Plan shall control.

10. Changes to Ongoing Offerings.

Notwithstanding anything in this Offering document to the contrary, the Board is entitled to: (i) establish the exchange ratio applicable to Contributions in a currency other than U.S. dollars, if applicable; (ii) permit Contributions in excess of the amount designated by a Participant to adjust for mistakes in the Company's processing of properly completed Contribution elections; (iii) establish reasonable waiting and adjustment periods and/or accounting and crediting procedures to ensure that amounts applied toward the purchase of Common Stock for each Participant properly correspond with that Participant's Contributions; and (iv) establish other limitations or procedures as the Board determines in its sole discretion advisable that are consistent with the Plan. The actions of the Board pursuant to this paragraph will not be considered to alter or impair the Purchase Rights granted under this Offering as they are part of the initial terms of each Purchase Period and the Purchase Rights granted under this Offering document.

MASTER SERVICES AGREEMENT

This Agreement is entered into as of December 15, 2016 (the **Effective Date**) between

Siegfried AG
Untere Bruehlstrasse 4, 4800 Zofingen, Switzerland

(**Siegfried**)

and

ACADIA Pharmaceuticals GmbH
c/o KENDRIS AG, Seidenhofstrasse 14, 6003 Luzern, Switzerland

(**ACADIA**)

Preamble

A. ACADIA (and its Affiliates) engages in the business of research, development and commercialization of pharmaceutical compounds and products;

B. Siegfried (and its Affiliates) has substantial expertise in process and/or formulation development, scale-up and manufacturing of active pharmaceutical ingredients and drug products;

C. ACADIA (or its Affiliate) and Siegfried (or its Affiliate) have entered into various agreements, including the Co-operation Agreement, effective as of August 17, 2015 and related Product Schedule No. 1 thereunder (the “Existing Agreement”);

D. ACADIA and Siegfried desire to terminate the Existing Agreement and enter into this Agreement to provide the terms and conditions upon which Siegfried shall conduct certain development and/or manufacturing services for ACADIA from and after the Effective Date.

Now, therefore, the Parties agree as follows:

1. **Definitions**

Unless otherwise defined in this Agreement, each of the capitalized terms used in this Agreement (other than the headings of the Articles and Sections) shall have the meanings indicated below. Such meanings shall apply equally to all forms of such terms, including singular and plural forms, unless otherwise clearly indicated.

1.1 **ACADIA** shall have the meaning set forth on the front page of this Agreement.

1.2 **Affiliate** shall mean with respect to any Party any person or entity controlling, controlled by, or under common control with such Party at any time during the term of this Agreement. For purposes of this definition, the term control shall mean the power to direct or cause the direction of the management and policies of an entity, whether through the ownership of voting stock, by contract or otherwise, including, in the case of a corporation or limited liability company, through the direct or indirect ownership of at least fifty percent (50%) of the outstanding voting equity.

1.3 **Agreement** shall mean this Master Services Agreement including its Annexes (and appendices, if applicable), as amended from time to time according to the terms and conditions of this Agreement.

1.4 **Business Day** shall mean a day (not being a Saturday or Sunday) on which banks are open for business in Zurich (Switzerland).

1.5 **Change Order** shall mean a separate agreement between the Parties setting out the specific details of any change to the scope of a MSA Attachment and any consequences thereof, such Change Order being in substantially the form attached hereto as in the sample form attached hereto as ANNEX B.

1.6 **Claims** shall have the meaning set forth in Section 10.2.

1.7 **cGMP Regulations** shall mean the regulations defining and regulating current Good Manufacturing Practice (cGMP) guidelines and in particular the latest edition of the GMP guideline of the Pharmaceutical Inspection Convention (PIC/S) and further guidelines issued by the EMA, FDA, PIC/S, the International Conference on Harmonization (ICH) or any relevant Regulatory Authority as further defined in the Quality Agreement.

1.8 **Confidential Information** shall mean any information of whatever kind, and all tangible and intangible embodiments of any kind whatsoever, whether in written form or disclosed orally, visually and/or in other form, which has been or will be disclosed or otherwise made accessible by one Party (**Disclosing Party**) to the other Party (**Receiving Party**) in connection with this Agreement or the Existing Agreement, and which is confidential or proprietary to the Disclosing Party or an Affiliate thereof, including, without limitation, any and all information pertaining to this Agreement, the Product or the Services and other information which relates to the business of either Party, including business plans, strategies, operations, pricing, policies, procedures, techniques, accounts, marketing plans, financial plans and status, and personnel of either Party.

1.9 **Consigned Materials** shall mean any of the consigned materials, if any, that are to be provided to Siegfried (or its Affiliate) by or on behalf of ACADIA, as set forth in a MSA Attachment applicable to any particular Services.

1.10 **Effective Date** shall have the meaning set forth on the front page of this Agreement.

1.11 **EMA** shall mean the European Medicines Agency or any successors to its responsibilities with respect to pharmaceutical products.

1.12 **Entitled Person** shall have the meaning set forth in Section 11.2.

1.13 **Existing Agreement** shall have the meaning set forth in the Preamble to this Agreement.

1.14 **FDA** shall mean the US Food and Drug Administration or any successors to its responsibilities with respect to pharmaceutical products.

1.15 **Force Majeure Event** shall have the meaning set forth in Section 13.3.

1.16 **Hidden Defects** shall mean any failure of a Product to conform to the Specifications, such failure not being discoverable upon reasonable physical inspection or standard testing upon receipt of the Product.

1.17 **Initial Period** shall have the meaning set forth in Section 12.1.

1.18 **Improvement** shall mean any result, data, documentation, invention, improvement, modification, adaptation, enhancement or new application which is conceived, derived, reduced to practice, made or developed by or on behalf of Siegfried or any of its Affiliates in the performance of the Services to the extent [*…***…].

1.19 **Independent Improvement** shall mean any result, data, documentation, invention, improvement, modification, adaptation, enhancement or new application which is conceived, derived, reduced to practice, made or developed by or on behalf of Siegfried or any of its Affiliates in the performance of the Services to the extent […***…].

1.20 **Intellectual Property Rights** shall mean all inventions, patent applications, patents, registered or unregistered design rights, copyrights, database rights, trademarks, trade names, know-how, trade secrets and other industrial or intellectual property rights of whatever kind.

1.21 **Losses** shall have the meaning set forth in Section 10.2.

1.22 **Marketing Authorization** shall mean any formal documentation filed with a Regulatory Authority for registration and/or approval necessary for the marketing and sale of the Product in the respective country(ies) of the Territory.

1.23 **Materials** shall mean the Consigned Materials and the Raw Materials.

1.24 **MSA Attachment** shall mean any separate agreement setting out the specific details of given development, testing and/or manufacturing services to be conducted by Siegfried in accordance with this Agreement, such MSA Attachment being in substantially the form attached hereto as ANNEX A, as amended from time to time according to the terms and conditions of this Agreement.

1.25 **Party, Parties** shall mean either ACADIA or Siegfried, or both, as the context may require.

1.26 **Product** shall mean any pharmaceutical product, active pharmaceutical ingredient, starting material, intermediate, precursor, finished dosage form, or packaged material to be manufactured by Siegfried pursuant to this Agreement and a particular MSA Attachment.

1.27 **Quality Agreement** shall mean any of the written agreement(s) between Siegfried (or its Affiliate) and ACADIA (or its Affiliate), which defines the responsibilities of each Party (Delimitation of Pharmaceutical Responsibility) with respect to the practices to be followed to ensure Product quality and compliance with cGMP Regulations.

1.28 **Raw Materials** shall mean all raw materials, excluding any Consigned Materials, which are necessary or used to manufacture the Product, as set forth in the respective MSA Attachment.

1.29 **Recall** shall have the meaning set forth in Section 8.4.

1.30 **Regulatory Authority** shall mean the EMA, the FDA and any other national or supranational authorities who are responsible for approving the conduct of clinical trials, marketing and sale of pharmaceutical products in the Territory.

1.31 **Services** shall mean the development, testing and/or manufacturing services to be performed by Siegfried under the terms of this Agreement and one or more individual MSA Attachments.

1.32 **Siegfried** shall have the meaning set forth on the front page of this Agreement.

1.33 **Specifications** shall mean the detailed description of technical requirements the Material or Product has to conform to, as separately agreed by the Parties in writing.

1.34 **Territory** shall mean the United States of America (with its territories, possessions, and protectorates, such as the Commonwealth of Puerto Rico), the member states of the European Union and/or European Economic Area (EU/EEA) (including the United Kingdom even if it ceases to be a member state), Switzerland, and any other country, which the parties agree in writing to add to this definition of Territory in an amendment to this Agreement.

2. Provision of Services and MSA Attachments

2.1 The Parties conduct business around the globe in their own names or through their respective Affiliates. Affiliates of ACADIA and/or Affiliates of Siegfried may opt into the terms of this Agreement through a MSA Attachment signed by the respective parties that may comprise additional terms to comply with local law or practice. References to Siegfried or ACADIA, respectively, under this Agreement shall be deemed to refer to the corresponding Party or its Affiliate that entered into respective MSA Attachment.

2.2 ACADIA hereby retains Siegfried to perform the Services specified in the written MSA Attachment(s) in accordance with the terms of this Agreement.

2.3 Services performed under this Agreement, including, without limitation, the quantities of Product to be manufactured and supplied, shall be provided on a development, validation and/or industrial scale pursuant to the applicable MSA Attachment.

2.4 For Services to be performed in accordance with cGMP Regulations, the Parties agree to enter in a Quality Agreement between the Parties (or its Affiliates) that shall be incorporated herein by reference, as same may be amended from time to time by written agreement between the Parties.

2.5 The specific details of all Services to be performed by Siegfried hereunder shall be separately negotiated and specified in written MSA Attachments. Each MSA Attachment shall include, as appropriate, a description of the Services to be provided, including, if applicable, the Specifications for Product to be manufactured as part of such Services and a timeline, budget and payment schedule for such Services, the scope of the reports of the Services as well as special provisions governing quality matters relating to such Services, as far as such quality matters are not already defined in the Quality Agreement. The terms of this Agreement, including the Quality Agreement, shall be deemed incorporated by reference into each MSA Attachment.

2.6 The Parties may mutually agree, from time to time, to change or expand a particular MSA Attachment by executing a Change Order describing such changes. Each such Change Order is hereby integrated by reference into the respective MSA Attachment.

2.7 Each Party shall:

(a) conduct its activities hereunder in compliance with this Agreement, including the applicable Quality Agreement, the applicable MSA Attachment, and all applicable laws, rules and regulations, including any cGMP Regulations in case it has been agreed by the Parties in a particular MSA Attachment to perform any Services under cGMP Regulations (it being acknowledged that all activities relating to manufacture and supply of Product that may be used in humans, including Product for clinical trials, validation and commercial use, shall be under cGMP Regulations); and

(b) have and maintain in its own name at all times during its activities hereunder all authorizations, permits, licenses, accreditations and certifications required to perform such activities lawfully; and

(c) provide all personnel, facilities and resources necessary to perform its activities hereunder in accordance with this Agreement and the applicable MSA Attachments.

2.8 ACADIA shall disclose and deliver to Siegfried such information in ACADIA's possession relating to the Services or Product which may be reasonably useful or necessary for Siegfried in performing the Services, including in particular information concerning any potential hazards or other safety, health or environment related information relating to the Product, Raw Materials, or Services.

2.9 In case circumstances outside of Siegfried's reasonable control which could not have been foreseen or which were excluded from the assumptions made by both Parties render the completion of any MSA Attachment considerably more difficult than expected, or if this completion will cause substantially more labor and external costs to Siegfried than had been foreseen, Siegfried shall notify ACADIA accordingly and shall have the right to request from ACADIA an extension of deadlines or an adjustment of Siegfried's compensation, and any such notice and request shall provide reasonable detail regarding the circumstances and the reason for the proposed extension or adjustment. Deadlines shall only be extended and/or Siegfried's compensation adjusted by a Change Order agreed in writing by both Siegfried and ACADIA in accordance with Section 2.6.

2.10 Siegfried shall furnish to ACADIA a written report that includes the results of the Services within the timeframe set forth in the applicable MSA Attachment. ACADIA shall have the right to use such written reports, any and all results of the Services and other information relating to the Services provided by Siegfried for any purpose, and all such reports, results and other information shall be Confidential Information of ACADIA and subject to Section 11.

2.11 Sections 2.11 and 2.12 shall apply to development Services (other than manufacture and supply of Product under cGMP Regulations, which is addressed in Sections 3.9 and 3.10). Upon receipt of a written report of the results of the Services performed pursuant to a MSA Attachment, ACADIA shall examine the report within [*…***…] days in order to determine compliance with the MSA Attachment. If, in ACADIA's opinion, the Services do not comply in whole or in part with the MSA Attachment, ACADIA shall notify Siegfried in writing thereof within […***…] days of receipt of the report. If ACADIA does not notify Siegfried accordingly within the specified time set forth above, the Services shall be deemed to be accepted. Any claims by ACADIA regarding the Services shall specify in reasonable detail the nature and basis for the claim and cite Siegfried's relevant Services. Siegfried agrees to review any written claim made by ACADIA regarding the quality of the Services and to provide ACADIA with the results of such review within […***…] days of receipt of such claim. If Siegfried does not notify ACADIA in writing that, based on such review, Siegfried disagrees with ACADIA's claim that certain Services did not meet the MSA Attachment within […***…] days of receipt of such claim, specifying in reasonable detail the reason that Siegfried believes such Services met the MSA Attachment, ACADIA shall have the right to reject such Services. In this case the Parties shall proceed according to Section 10.1.

**** ***Confidential Treatment Requested***

Siegfried ACADIA

2.12 If Siegfried notifies ACADIA in writing that it disagrees with ACADIA's claim that certain Services do not comply with the MSA Attachment in accordance with Section 2.11, the Parties agree to have such Services further analyzed by an independent expert in the field selected by agreement between the Parties. The decision of the independent expert shall be deemed final as to any dispute over the compliance of Services with the MSA Attachment. Should the expert determine that the Services performed did not comply with the MSA Attachment in whole or in part, then (i) Siegfried shall bear all costs for the independent expert and (ii) ACADIA shall have the right to reject the noncompliant Services, and (iii) the Parties shall proceed according to Section 10.1. However, if the expert determines that the Services were performed in compliance with the MSA Attachment, then ACADIA shall bear all costs of the independent expert and compensate Siegfried for the Services in question as set out in this Agreement.

3. Manufacture, Purchase and Supply of Product

3.1 Siegfried shall manufacture the Product in accordance with the cGMP Regulations, the Quality Agreement, and the Specifications.

3.2 During the term of this Agreement, ACADIA shall purchase the requirements of the Product from Siegfried as set forth in the respective MSA Attachment. Unless otherwise agreed in the respective MSA Attachment, and provided that Siegfried is not in material breach of its obligations under this Agreement and/or the applicable MSA Attachment, ACADIA agrees that Siegfried is ACADIA's [*…***…], meaning that, during the […***…], ACADIA shall order and purchase from Siegfried the following of ACADIA's commercial requirements for the Product for sale by ACADIA or its Affiliates (and not, for clarity, any licensee, distributor or other partner of ACADIA or its Affiliates) of the drug product containing the Product in the Territory: […***…]. Siegfried acknowledges that ACADIA may elect (but has no obligation) to purchase additional Product quantities from Siegfried hereunder in excess of the purchase requirements set above.

3.3 To the extent the relevant MSA Attachment does not set forth other terms for forecasts and delivery dates for Product, ACADIA shall provide to Siegfried by the […***…] day of the last month in a given calendar quarter (or by the immediately preceding Business Day if the […***…] day of the last month of such calendar quarter is not a Business Day), a good-faith rolling forecast ("**Rolling Forecast**") of ACADIA's requirements of each Product for the next […***…] months showing:

(i) the required amounts and delivery dates of Product in each month for the immediately subsequent […***…] months […***…], which shall be binding on ACADIA and Siegfried ("**Binding Part**"); and

(ii) a […***…] estimate of the required amounts of Product for each of the next […***…] immediately following the Binding Part, provided that, for Siegfried planning purposes, the first […***…] shall be set out on a […***…], which shall not be binding on ACADIA or Siegfried and shall be for purposes of reference only.

ACADIA acknowledges that Siegfried will rely on the accuracy of ACADIA's Rolling Forecasts in planning its acquisitions of Raw Materials and managing its inventory levels.

3.4 To the extent the relevant MSA Attachment does not set forth specific delivery dates for Product, ACADIA shall, from time to time, submit specific purchase orders for Product (the "**Firm POs**") in accordance with the Binding Part set forth on the applicable Rolling Forecast. Each Firm PO shall be in writing and shall specify (i) the Product ordered, (ii) the quantity ordered in full batches or respective minimum order quantity (MOQ) pursuant to the the relevant MSA Attachment, (iii) the price pursuant to the MSA Attachment, and (iv) the requested delivery date, giving Siegfried a lead time of not less than [*…***…] months, or as otherwise set forth in the MSA Attachment, in advance of requested delivery to ACADIA. Shorter lead times for Product deliveries, if deemed necessary by ACADIA, shall be agreed upon between the Parties in good faith.

3.5 Each Firm PO placed shall constitute a firm obligation by ACADIA to purchase the ordered Product. Within […***…] Business Days from the date of the receipt of a Firm PO from ACADIA, Siegfried shall confirm to ACADIA by way of an order confirmation that it will meet ACADIA's quantity requirements in accordance with the delivery date(s). For clarity, Siegfried may not reject any Firm POs placed in accordance with the applicable Binding Part and such Firm POs shall be deemed to be confirmed, final, and binding on Siegfried (if Siegfried fails to issues an order confirmation within the above mentioned period). Upon confirmation, Siegfried shall supply all Products ordered in Firm POs in accordance with this Agreement. Orders exceeding […***…] percent […***…]%) of the corresponding forecast shall be discussed between the Parties, but are only binding upon confirmation by Siegfried. To clarify, an Order shall be considered fulfilled if Siegfried […***…] of Product and ACADIA agrees to purchase such Product quantities; provided, that, solely for Product manufactured under MSA Attachment No. 1 for process validation at Siegfried's Zofingen site, […***…].

3.6 Unless expressly set forth otherwise in a MSA Attachment, delivery of Product shall be FCA (as per Incoterms 2010) premises of Siegfried in Zofingen, Switzerland, Siegfried's Affiliate in Evionnaz, Switzerland or such other premises of Siegfried or its Affiliate as agreed in writing by the Parties. Unless otherwise agreed in writing between the Parties, Siegfried shall ensure that the Product is packaged and delivered in accordance with the Quality Agreement. ACADIA assumes all responsibilities and liability arising out of the storage, handling and distribution of the Product after delivery by Siegfried to ACADIA.

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3.7 With each shipment of any batch of Product, Siegfried shall also provide ACADIA or its designee with a […***…] and a […***…], which may be integrated in the […***…], with respect to such batch. In addition, upon request and at ACADIA's cost, Siegfried shall promptly supply copies of the […***…] for any batch of Product delivered to ACADIA.

3.8 Siegfried shall promptly notify ACADIA in writing of any anticipated delay or of any circumstance(s) outside of Siegfried's reasonable control rendering it unable to manufacture and/or supply Product in accordance with the delivery date(s) and the estimated duration of such delay/circumstance(s), including without limitation, with regard to the supply of Materials according to Section 6. Upon such written notice, the Parties will work together to agree in good faith upon a revised delivery schedule and the Parties shall proceed according to Section 10.1. For clarity, neither Party shall be obligated to agree to a revised delivery scheduled under this Section 3.8, but the Parties shall act reasonably and in good faith in order to find a solution in both Parties' interest.

3.9 Upon receipt of the Product and batch documentation (as described in the Quality Agreement) at ACADIA's facilities, ACADIA shall examine the Product and Product batch documentation within [*…***…] days in order to determine compliance with the Specifications. If, in ACADIA's opinion, the Product delivered does not conform to the warranties in Section 9.2, then ACADIA shall notify Siegfried in writing thereof. If ACADIA does not notify within […***…] days after receipt of the Product by ACADIA, the Product shall be deemed accepted, provided that ACADIA retains the right to reject the Product in case of Hidden Defects at a later time during […***…], in which case ACADIA shall notify Siegfried in writing within […***…] Business Days of discovering the Hidden Defect. Any claims by ACADIA regarding Product delivered shall specify in reasonable detail the nature and basis for the claim and cite Siegfried's relevant batch numbers or other information to enable specific identification of the Product involved. Siegfried shall review any written claim made by ACADIA regarding the quality of the Product and to provide ACADIA with the results of such review. If Siegfried does not notify ACADIA in writing that, based on such review, Siegfried disagrees with ACADIA's claim that the identified Product did not conform to the warranties in Section 9.2 within […***…] days of receipt of such claim, specifying in reasonable detail the reason that Siegfried believes that the identified Product does conform to the warranties in Section 9.2, ACADIA shall have the right to reject such Product, in which case the Parties shall proceed according to Section 10.1. ACADIA shall, at Siegfried's expense and written direction, dispose of the noncompliant Product or deliver it to such destination as Siegfried shall specify in writing, provided that such directions are in compliance with applicable environmental laws and regulations. ACADIA shall not use or dispose of any Product that does not, or of which ACADIA claims that it does not, conform to the warranties in Section 9.2 without Siegfried's prior written consent.

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3.10 If Siegfried notifies ACADIA in writing that it disagrees with ACADIA's claim that any identified Product does not conform to the warranties in Section 9.2 in accordance with Section 3.9, unless the Parties reach agreement on the matter within […***…] days after Siegfried's notice to ACADIA of disagreement, then as promptly as practicable, and in any event within […***…] days after ACADIA receives Siegfried's notice of disagreement, the Parties shall have the batch in dispute further tested and analyzed by an independent third party testing laboratory (with regard to conformity to Specifications or other warranties in Section 9.2) selected by agreement between the Parties. The decision of the independent third party shall be deemed final and binding on both Parties as to any dispute over Product compliance with the warranties in Section 9.2. Should the independent third party's testing determine that the delivered Product does not conform to the Specifications or other warranties in Section 9.2, then (i) Siegfried shall bear all costs for the independent laboratory testing, (ii) ACADIA shall have the right to reject such batch of Product, and (iii) the Parties shall proceed according to Section 10.1. However, if said quantity of Product is determined by the independent third party to conform to the Specifications and other warranties in Section 9.2, then ACADIA shall bear all costs of the independent laboratory and compensate Siegfried for the rejected Products (if ACADIA has not previously paid for it), the replacement delivery (if any), and the transportation costs stated in Section 3.9 as set out in this Agreement.

3.11 A storage fee shall apply for any Product stored by Siegfried or on behalf of Siegfried for more than [*…***…] months from the date of release of the Product, such storage fee as set forth in the applicable MSA Attachment.

4. Compensation and Terms of Payment

4.1 The compensation payable to Siegfried in connection with the Services and supply of Product, and the payment schedule therefore, shall be as set forth in the applicable MSA Attachment, subject to this Section 4.

4.2 All pricing, payments, credits, allowances or other monetary adjustments under this Agreement shall be in Swiss Francs (CHF), unless otherwise agreed. If a different currency will apply for a particular MSA Attachment, then the Parties shall agree on a mechanism to deal with exchange rate variations (with regard to Swiss Francs [CHF] and such currency).

4.3 Invoices will be issued by Siegfried and sent to ACADIA after completing of milestones or delivery of Product and all documentation to be delivered with respect to Product under the Quality Agreement, if applicable, or as otherwise set out in a MSA Attachment. ACADIA shall pay such invoices to Siegfried within […***…] calendar days after the date of such invoice (which invoice will be provided upon delivery of Product and documentation, if applicable), unless ACADIA in good faith makes a claim regarding non-compliance of the Services pursuant to Section 2.11 or non-conformity of Product with the warranties in Section 9.2 pursuant to Section 3.9 within […***…] days from the date of such delivery, provided that, if Siegfried disagrees in good faith with ACADIA's claim, payment shall still be required by ACADIA within […***…] days after ACADIA's receipt of Siegfried's notice of disagreement. If the applicable documentation is not provided with or prior to the delivery of the Product, ACADIA will promptly notify Siegfried and Siegfried will send ACADIA such documentation.

4.4 Unless set out otherwise in any particular MSA Attachment or this Agreement, any and all payments made to Siegfried pursuant to any MSA Attachment(s) shall be final and non-refundable. The Parties further agree that the expiration or termination of this Agreement or any MSA Attachment(s) shall not relieve ACADIA of its obligation to pay any outstanding amounts due to Siegfried on or prior to the effective date of such expiration or termination, unless otherwise stated in this Agreement.

5. Regulatory Affairs and Records

5.1 ACADIA shall have the responsibility for preparing and submitting any application for Marketing Authorization to the Regulatory Authority (including responding to any questions and inquires of the Regulatory Authority subsequent to filing) and for maintaining any granted Marketing Authorization. Siegfried shall, and shall ensure that its Affiliates, as applicable, agree to reasonably cooperate with any inspection by any Regulatory Authority.

5.2 If set out in any particular MSA Attachment, Siegfried shall provide ACADIA with the documentation, as available to Siegfried or any of its Affiliates, required for completing, submitting and obtaining any application for Marketing Authorization, including all the subsequent information necessary for maintaining such Marketing Authorization.

5.3 If set out in any particular MSA Attachment, Siegfried shall further provide ACADIA with reasonable assistance in preparing or reviewing the application for Marketing Authorization or formulating responses to any questions and/or inquiries (i.e., deficiency letters) with respect to the above submissions. ACADIA will reimburse Siegfried for its (or its Affiliates') reasonable expenses and cost incurred in connection with any such assistance provided under this Section 5.3.

5.4 ACADIA shall provide, and Siegfried shall review those portions of ACADIA's proposed regulatory filings relating to Siegfried's manufacturing procedures or otherwise related to Siegfried's key obligations hereunder before the regulatory filings are submitted with relevant Regulatory Authorities and ACADIA shall consider Siegfried's comments thereto in good faith.

5.5 The Parties acknowledge that the ultimate decision of whether any Product (or drug product comprising Product) will be approved for marketing and sale in the markets rests with the Regulatory Authority of the respective market and that Siegfried will not be liable for the failure of the Regulatory Authority to issue such approval provided that such failure is not due in whole or in part to Siegfried's or its Affiliates' material breach of this Agreement or gross negligence or willful misconduct.

5.6 Siegfried shall keep and shall ensure that its Affiliates keep complete, accurate, up-to-date, and authentic accounts, notes, data and records of the Services performed. Siegfried shall keep samples of Product and maintain manufacturing records, laboratory notebooks containing experimental descriptions and other data as required by cGMP Regulations or as set forth in the Quality Agreement. Upon ACADIA's written request, Siegfried shall allow ACADIA to review any such records or other information for the purposes of assuring quality and compliance with cGMP Regulations, as applicable, during an audit set forth in Section 8.1. To clarify, ACADIA shall not be entitled to review any financial data or documents of Siegfried. Siegfried shall be entitled to keep copies of all documents and records relating to any requirements of the Regulatory Authority and for archival purposes.

6. Materials

6.1 Siegfried shall obtain sufficient quantities of all Raw Materials to manufacture and supply Product in accordance with ACADIA's forecast, set forth in Section 3.1, and shall ensure that such Raw Materials comply with the agreed Specifications. ACADIA shall reimburse Siegfried all reasonable costs and expenses reasonably incurred as a result of a change in the Specifications of such Raw Materials to the extent Siegfried has obtained such Raw Materials for manufacture of Product forecasted in the Binding Part.

6.2 If ACADIA designates certain vendors in accordance with and if set forth in the Quality Agreement, then Siegfried shall obtain respective Raw Material(s) or services only from such designated vendors. ACADIA shall reimburse Siegfried all reasonable costs and expenses reasonably incurred as a result of the appointment or change of a designated vendor. In the event of any acts or omissions of such designated vendor, including without limitation, a delayed delivery, delivery of non-conforming Raw Material or other supply failure, outside of Siegfried's reasonable control, Siegfried and ACADIA shall promptly discuss in good faith regarding a solution including, if appropriate, changing such designated vendor by mutual agreement, and, if appropriate, a revised delivery schedule

in accordance with Section 3.8.

6.3 ACADIA shall procure supply of Consigned Materials in sufficient quantities and of the quality set forth in Section 9.2, as necessary to enable Siegfried to manufacture and supply Product in accordance with this Agreement and the applicable MSA Attachment, at ACADIA's costs and expenses. At ACADIA's option, the Consigned Materials may be delivered directly from ACADIA's vendor to Siegfried at the vendor's or ACADIA's costs and expenses.

6.4 Consigned Materials shall be delivered to Siegfried by the delivery date or timeframe as mutually agreed by the Parties. Any delay in performing the manufacture and supply of Product under this Agreement caused by activities under Sections 6.3 and/or 6.4 shall not be deemed a breach of this Agreement by Siegfried and the timelines shall be adjusted in accordance with Section 2.7 and ACADIA shall reimburse Siegfried any reasonable costs and expenses incurred caused by activities under Sections 6.3 and/or 6.4.

6.5 Siegfried agrees that, without prior written consent by ACADIA, Consigned Materials shall: (i) be used solely for the purpose of the manufacture and supply of Product; (ii) be used in compliance with all applicable laws and regulations; and (iii) not be transferred to any third party, except to any Affiliate or subcontractor of Siegfried to which ACADIA has consented in writing pursuant to Section 2.1, unless otherwise agreed by the Parties in writing.

6.6 ACADIA shall retain all right, title and interest in and to all Consigned Material delivered to Siegfried and ACADIA shall be responsible to insure the Consigned Materials against loss and damage. Siegfried shall be liable for any loss of or damage to Consigned Material after delivery to Siegfried, if such loss or damage was caused by Siegfried's willful misconduct or gross negligence.

7. Intellectual Property

7.1 ACADIA shall at all times remain the sole and exclusive owner of all right, title and interest in and to the Product (including, without limitation, all Intellectual Property Rights claiming the Product or its manufacture, use or sale). Nothing in this Agreement shall be deemed to be an assignment or license to the other Party any Intellectual Property Rights owned or licensed to a Party prior to the Effective Date. Subject to Section 7.3, and unless otherwise required by law or agreed by the Parties in writing, the results of the Services performed pursuant to and during the term of this Agreement, including, but not limited to, any Intellectual Property Right(s) arising out of any Improvements shall be the property of ACADIA and all rights, title and interest therein shall be vested in ACADIA. Siegfried shall have no responsibility for prosecuting, maintaining and enforcing any patents or other Intellectual Property Rights that ACADIA obtains pursuant to this Agreement.

7.2 Siegfried shall, and hereby does, assign to ACADIA all title and interest it may have in the Improvements and any Intellectual Property Right(s) arising out of any Improvements. ACADIA shall have the sole right to file and seek protection for any Intellectual Property Right(s) arising out of any Improvements. To the extent that ACADIA deems it reasonable to seek protection for Improvements, ACADIA shall bear the costs (including, but not limited to attorney's fees) and the responsibility associated with developing, applying for, and maintaining such protection. In the event ACADIA decides to file and prosecute patent applications on any Improvement, if requested by ACADIA, Siegfried shall, and shall cause its Affiliates to, provide ACADIA with reasonable assistance to obtain and defend such patents at ACADIA's cost and expenses.

7.3 All rights related to the production methodology developed by Siegfried in performing the Services under this Agreement (to the extent that it is not an Improvement) and to any Independent Improvements shall be the sole property of Siegfried. Siegfried shall, and hereby does, grant ACADIA a non-exclusive, worldwide, perpetual (to the extent permitted by applicable law), irrevocable, royalty-free license, with the right to allow third party manufacturer(s) to manufacture the Product (provided that ACADIA notifies Siegfried of any such manufacturer) and to sublicense to its licensees with respect to the Product, to use such production methodology and any Independent Improvements and any Intellectual Property Right(s) arising out of such Independent Improvements limited to the manufacturing, sale, commercialization or any other use of the Product.

7.4 In the event of patent infringement or regulatory litigation or other legal proceedings involving the manufacture of the Product, Siegfried shall have the right to suspend further supply of the Product to the extent this is required or by a court order or arbitral award or order (whether interim or final). Such suspension shall be deemed a temporary suspension of Siegfried's supply obligations under this Agreement; provided, that if such suspension continues for more than [*…***…] days, the Parties shall jointly attempt in good faith to modify this Agreement to resolve the situation but if they are unable to do so within the following […***…] Business Days either Party may terminate this Agreement by notice to the other Party.

8. Audits, Inspections, Notification and Recall

8.1 ACADIA has the right to carry out compliance and cGMP Regulations audits on the respective site of manufacture as set forth in the relevant Quality Agreement. While conducting such audit at the site of manufacture, ACADIA shall comply with all of Siegfried's policies regarding, safety, health, data protection, confidentiality (consistent with the terms in this Agreement) and the like which Siegfried, in its sole discretion, deems relevant.

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8.2 Siegfried shall permit Regulatory Authorities to inspect relevant facilities, equipment and records at their request and shall resolve any issues raised by a Regulatory Authority, if and to the extent such issues are relevant for the provision of the Services or manufacture of a Product, as set forth in the relevant Quality Agreement.

8.3 Each Party shall notify the other Party promptly of any serious or unexpected adverse reaction from the use of the Material or Product, as set forth in the relevant Quality Agreement.

8.4 In the event either Party believes it may be necessary to conduct a recall or other similar action with respect to the Product (**Recall**), the Parties shall consult with each other as to how best to proceed. For clarity, ACADIA will have the sole right, in its discretion, to determine whether to conduct a Recall, and shall notify Siegfried of any decision of ACADIA to conduct a Recall. Under no circumstances shall Siegfried be prohibited hereunder from taking any action that it is required to take by applicable law.

9. Representations and Warranties

9.1 Each Party represents and warrants to the other Party that (i) it has the legal power, authority and right to enter into this Agreement and to perform its respective obligations set forth herein; (ii) this Agreement has been duly executed and delivered by such Party and constitutes the valid and binding obligation of such Party, enforceable against such Party in accordance with its terms; (iii) it is not and will not become a party to any agreement, contract, arrangement or the like with any third party, which in any way limits or conflicts with its ability to fulfill any of its obligations under this Agreement, and (iv) is not and will not be under any obligation or restriction, including, without limitation, pursuant to its charter document(s) or by-laws, which in any way limits or conflicts with its ability to fulfill any of its obligations under this Agreement.

9.2 Siegfried warrants that the Products, if any, delivered to ACADIA shall (i) be manufactured in compliance with applicable regulatory approvals for the Product (to the extent such approvals have been provided to Siegfried), cGMP Regulations and all other applicable laws and regulations in the Territory that bear on Siegfried's performance of this Agreement, (ii) conform to the Specifications of such Product upon delivery to ACADIA, (iii) not be adulterated or misbranded within the meaning of the U.S. Federal Food, Drug & Cosmetic Act, as amended from time to time, and/or any analogous regulations in any other applicable jurisdiction, (iv) not contain any contamination (including, without limitation, any process contamination or cross-contamination), and (v) at the time of delivery, be free and clear of any lien or encumbrance.

9.3 ACADIA warrants that (i) all quantities of Consigned Material, if any, delivered to Siegfried shall conform to the Specifications of such Consigned Material at the time of delivery or shall be free from defects, respectively, and (ii) except as set out otherwise in any particular MSA Attachment, to ACADIA's knowledge, none of the processes, procedures, substances or materials, including any Consigned Material, supplied by ACADIA or its designee for use by Siegfried in the performance of the Services or the manufacture of Product and used by Siegfried in the performance of the Services or the manufacture of Product infringes or misappropriates or will infringe or misappropriate the Intellectual Property Rights of any third party.

9.4 Each Party represents and warrants to the other Party that it shall not employ, contract with, or retain any person directly or indirectly to perform its obligations under this Agreement if such a person (a) is under investigation by the FDA for debarment or is presently debarred by the FDA pursuant to 21 U.S.C. § 335a or its successor provisions, or (b) has a disqualification hearing pending or has been disqualified by the FDA pursuant to 21 C.F.R. § 312.70 or its successor provisions. In addition, each Party represents and warrants to the other Party that it has not engaged in any conduct or activity which could lead to any of the above-mentioned disqualification or debarment actions. If, during the term of this Agreement, either Party or any person employed or retained by it to perform under this Agreement (i) comes under investigation by the FDA for a debarment action or disqualification, (ii) is debarred or disqualified, or (iii) engages in any conduct or activity that could lead to any of the above-mentioned disqualification or debarment actions, such Party shall immediately notify the other Party of same.

9.5 EXCEPT AS STATED IN SECTION 9 OF THIS AGREEMENT, NEITHER PARTY MAKES ANY WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCT, MATERIALS OR SERVICES AND DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

10. **Liability and Indemnity**

10.1 If Siegfried is unable to meet the agreed time lines regarding the delivery of Product or the rendering of the Services, or in case the Service or Product is rejected by ACADIA in accordance with Section 2.11 or Section 3.9 of this Agreement, Siegfried shall (i) in the case of delay, deliver the delayed Product or render the delayed Services respectively, or (ii) in the case of rejection of the Services or Product, shall replace the rejected Services with Services that conform to the applicable MSA Attachment or replace the rejected Product with Product that conforms with the warranties in Section 9.2, in either case of clause (i) or (ii) as soon as possible, at no additional cost to ACADIA (it being understood that Siegfried shall bear the full manufacturing cost of replacement of any rejected Product, including (a) the purchasing cost of raw materials and (b) the cost of destruction of any non-conforming Product), and if delivery of conforming Product or rendering of conforming Services is not possible within reasonable additional time (but in any event within [*…***…] days from the date the notice of rejection is provided), or if ACADIA no longer requires such Services or Product subject to the delay or rejection, refund or credit to ACADIA, as applicable, within […***…] Business Days all amounts theretofore paid by ACADIA to Siegfried for such late or rejected Product or Service, on a pro-rata basis, for the portion of Product or Service that is not delivered or replaced. Except in the case of Siegfried's gross negligence or willful misconduct, such delivery, replacement or refund, shall be the only remedy available to ACADIA in case of late deliveries of Product or Services or non-conforming Product or Services.

10.2 Siegfried shall indemnify, defend and hold harmless ACADIA and its Affiliates, and its and their directors, officers and employees, against all losses, liabilities damages, settlements, fines, costs and expenses, including reasonable legal expenses and attorneys' fees (collectively **Losses**) arising out of or in connection with third party claims, suits, actions, demands or judgments (collectively **Claims**) to the extent arising out of or in connection with (i) the manufacture or supply of the Product by Siegfried or its Affiliates (except to the extent resulting from practice by Siegfried or its Affiliates of ACADIA's intellectual property and know-how to manufacture the Product in accordance with the manufacturing process agreed and provided by ACADIA), (ii) the breach of any of Siegfried's obligations, warranties or representations under this Agreement, or (iii) the negligence or willful misconduct of Siegfried or its Affiliates, except, in each case, except to the extent such Losses are caused by ACADIA negligence or willful misconduct or by its breach of this Agreement.

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10.3 ACADIA shall indemnify, defend and hold harmless Siegfried and its Affiliates, and its and their directors, officers and employees, against all Losses, arising out of or in connection with any Claim to the extent arising out of or in connection with (i) the marketing, promotion, distribution and/or sale by or on behalf of ACADIA of the Product supplied by Siegfried to ACADIA, (ii) a breach of ACADIA's obligations, representations, or warranties under this Agreement, or (iii) the negligence or willful misconduct of ACADIA, except, in each case, to the extent such Losses are caused by Siegfried's negligence or willful misconduct or by its breach of the Agreement.

10.4 With respect to any indemnification obligation under this Agreement, the following conditions shall be applicable:

(a) The party seeking to be indemnified shall notify the indemnifying Party promptly in writing of any claim which may give rise to an obligation on the part of the indemnifying Party hereunder;

(b) the indemnifying Party shall be allowed to timely take the sole control of the defense of any such action and claim, including all negotiations for the settlement, or compromise of such claim or action at its sole expense and with counsel reasonably satisfactory to the indemnified party; and if such defense is assumed by the indemnifying party with counsel so selected, the indemnifying Party will not be subject to any liability for any settlement of such Claim made by the indemnified party without the indemnifying Party's consent (but such consent will not be unreasonably withheld or delayed), and will not be obligated to pay the fees and expenses of any separate counsel retained by the indemnified party with respect to such Claim;

(c) the party to be indemnified shall, at the expense of the indemnifying Party, render reasonable assistance, information, co-operation and authority to permit the indemnifying Party to defend such action; and

(d) no settlement or compromise shall be binding on a Party hereto without its prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed.

10.5 NOTWITHSTANDING ANY OTHER LANGUAGE HEREIN, IN NO EVENT SHALL EITHER PARTY BE LIABLE TO THE OTHER PARTY FOR INCIDENTAL, INDIRECT, PUNITIVE, SPECIAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THIS AGREEMENT OR ANY RIGHTS OR OBLIGATIONS HEREUNDER, INCLUDING BUT NOT LIMITED TO CLAIMS BASED ON LOST PROFITS, LOSS OF TIME, LOSS OF OPPORTUNITY OR ANY OTHER ECONOMIC LOSS SUFFERED OR INCURRED AS A RESULT OF THIS AGREEMENT, WHETHER SUCH LOSS OR DAMAGE MAY BE BASED UPON PRINCIPLES OF CONTRACT, WARRANTY, NEGLIGENCE OR OTHER TORT, BREACH OF ANY STATUTORY DUTY, PRINCIPLES OF INDEMNITY OR CONTRIBUTION, THE FAILURE OF ANY LIMITED OR EXCLUSIVE REMEDY TO

ACHIEVE ITS ESSENTIAL PURPOSE OR OTHERWISE; PROVIDED, HOWEVER, THAT THIS SECTION 10.5 SHALL NOT BE CONSTRUED TO LIMIT EITHER PARTY'S INDEMNIFICATION OBLIGATIONS UNDER SECTION 10.2 OR 10.3 OR LIABILITY FOR BREACH OF SECTION 11.

10.6 Except for any liability arising from gross negligence or wilful misconduct, to the fullest extent permitted by law, and notwithstanding any other provision of this Agreement, Siegfried's total liability, in the aggregate, for any and all claims and losses occurring in a particular calendar year, including without limitation, attorneys' fees and costs of any nature whatsoever or expenses, resulting from or in any way related to this Agreement from any cause or causes shall not exceed [*…***…]. Notwithstanding the foregoing, (a) in no event shall this Section 10.6 apply to liability for breach of Section 11; and (b) with respect to Siegfried's indemnification obligations under Section 10.2, Siegfried's total liability, in the aggregate, for any and all claims and losses occurring in a particular calendar year shall not exceed […***…], whichever is greater.

10.7 Before the commencement of any Services under this Agreement Siegfried and ACADIA shall each obtain and carry in full force and effect adequate commercial, general liability insurance as common in the industry, including product liability insurance, which shall protect Siegfried and ACADIA with respect to liability claims covered by Section 10.2 or 10.3 Such insurance shall be written by a reputable insurance company and shall be endorsed to include liability coverage for Product used for human clinical trials. Both Parties shall provide each other on request with a copy of certificates of insurance evidencing the same.

11. Confidentiality

11.1 Each Receiving Party agrees to retain in strict confidence any Confidential Information of the Disclosing Party (or its Affiliate), whether disclosed prior to, or after the Effective Date or the date of prior secrecy agreements and not to use any such Confidential Information for any purpose except pursuant to, and in order to carry out, the terms and objectives of this Agreement, nor to disclose, divulge or otherwise communicate any such Confidential Information to any third party except as permitted by this Agreement. For purposes of clarification, all material and information disclosed by ACADIA or its Affiliate to Siegfried or its Affiliate that directly and specifically relates to the Product and all data generated as a result that are considered Improvements shall be included within the Confidential Information of ACADIA and ACADIA shall be considered the Disclosing Party and Siegfried the Receiving Party with respect thereto**.**

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11.2 The Receiving Party may disclose Confidential Information of the Disclosing Party to its (or its Affiliate's) officers, directors, employees, agents, consultants, subcontractors or representatives and in the case of ACADIA to any permitted sublicensees or other strategic partners or in connection with financings (each an **Entitled Person**), who, in each case, (i) need to know such information for purposes of the implementation and performance by the Receiving Party of this Agreement (or for corporate diligence review as described above with respect to ACADIA's sublicensees or other strategic partners or in connection with financings), (ii) will use the Information only for such limited purposes and (iii) are subject to confidentiality restrictions covering the Confidential Information that are at least as stringent at those contained herein.

11.3 The provisions of this Section 11 shall not apply to any Confidential Information disclosed hereunder which

(a) was independently developed or known by the Receiving Party without the use of the Disclosing Party's Confidential Information, as evidenced by written records; or

(b) was before or after the date of such disclosure in the public domain through no fault of the Receiving Party or lawfully disclosed to the Receiving Party by an independent, unaffiliated third party rightfully in possession of the Confidential Information and not under any confidentiality obligation towards the Disclosing Party with regard to such Confidential Information; or

(c) is published or otherwise becomes part of the public domain through no fault of the Receiving Party;

Disclosure of Confidential Information of the Disclosing Party shall not be precluded to the extent such disclosure is required to be disclosed by the Receiving Party to the officials of a Regulatory Authority or to comply with applicable laws, to defend or prosecute litigation or to comply with governmental laws or regulations, judicial orders or valid subpoenas, provided that the Receiving Party provides the Disclosing Party with prior written notice of such intended disclosure and takes reasonable and lawful actions to avoid and/or minimize the degree of such disclosure and to limit the use of the Confidential Information to the purpose for which such disclosure was required to be made by the Receiving Party.
The burden of proof of the foregoing exceptions and permitted disclosure shall lie with the Receiving Party. Unless required by law, the Receiving Party in the foregoing circumstances shall not disclose that the same Confidential Information was also acquired from the Disclosing Party. Specific information disclosed as part of the Confidential Information shall not be deemed to be in the public domain or in prior possession of the Receiving Party merely because it is included in more general information in the public domain or in the prior possession of the Receiving Party.

Siegfried ACADIA

11.4 The Parties acknowledge that any breach of this Section 11 will cause the other Party irreparable harm, and that the non-breaching Party shall be entitled to specific performance or injunctive relief to enforce this Section 11 in addition to whatever remedies such Party may otherwise be entitled to at law or in equity.

11.5 Except as otherwise provided in this Section 11, each Party agrees not to disclose to any third party the existence of this Agreement or the terms of this Agreement without the prior written consent of the other Party hereto, except that each Party may disclose the terms of this Agreement that are not otherwise made public as contemplated by this Section 11.5 as permitted under Section 11.2 or 0. Additionally, ACADIA shall have the right, upon consultation with Siegfried, to issue press releases relating to future events occurring in connection with this Agreement as reasonable determined by ACADIA; subject to ACADIA's confidentiality obligations with respect to Siegfried's Confidential Information as set forth above. Each Party shall have the right to disclose the terms of this Agreement and any MSA Attachment as required by applicable laws and regulations including disclosure requirements of the U.S. Securities and Exchange Commission (**SEC**) or any stock exchange on which securities issued by ACADIA or its Affiliates are traded. The Parties will coordinate in advance with each other in connection with the filing of this Agreement (including redaction of certain provisions of this Agreement) with the SEC or any stock exchange on which securities issued by a Party or its affiliate are traded, and each Party will use reasonable efforts to seek confidential treatment for the terms proposed to be redacted; provided that each Party will ultimately retain control over what information to disclose to the SEC or any stock exchange as the case may be.

11.6 Upon termination or expiration of this Agreement, each Party shall, upon the other Party's request, immediately deliver to the other (and cause any of its employees, agents or Entitled Persons, consultants to so deliver), at such Party's expense, all Confidential Information of the other Party, including without limitation any and all copies, duplications, summaries and/or notes thereof or derived thereof, regardless of the format, and all remaining samples of Product or Materials, provided however, that both Parties may keep original documents, copies and samples as required by law or for archival purposes subject to a continuing obligation of confidentiality.

11.7 The Receiving Party shall not obtain, and shall not attempt to obtain, patent coverage or any other sort of proprietary right protection on the Confidential Information of the Disclosing Party or on any invention that could not have been made without practicing or infringing the Disclosing Party's Intellectual Property Rights.

11.8 All terms of this Section 11 are subject to ACADIA's and Siegfried's rights under Section 7.

11.9 Neither Party shall be deemed by this Agreement to have granted to the other Party any right or license under any patent application, issued patent, know-how or other proprietary information of such Party except as expressly set forth herein.

Siegfried ACADIA

12. **Term and Termination**

12.1 This Agreement shall become effective on the Effective Date and, unless earlier terminated in accordance with this Agreement, shall continue in full force and effect for an initial period of five (5) years (the **Initial Period**).

12.2 This Agreement shall automatically renew for consecutive two (2) years periods each, unless one of the Parties notifies the other of its election not to renew this Agreement at least [*…***…] months prior to the end of the Initial Period or any renewal period then in effect, in which case this Agreement shall terminate upon the expiration of such term.

12.3 Each Party may terminate this Agreement or any outstanding MSA Attachment (i) for material breach by the other Party, (ii) upon […***…] calendar days written notice to the other Party specifying the nature of such material breach and (iii) if such breach has not been substantially cured within such […***…] day period.

12.4 At any time in which no MSA Attachment remains outstanding, either Party may terminate this Agreement upon [*…***…] calendar days prior written notice to the other Party.

12.5 ACADIA may, with or without cause, fully or partially cancel any MSA Attachment without terminating this Agreement, upon […***…] calendar days written notice to Siegfried, provided, that in such case, to the extent the relevant MSA Attachment does not set forth specific terms for amounts payable for cancellation of such MSA Attachment (in particular without limitation any cancellation or stand-still fees), ACADIA shall,

(a) pay Siegfried for work actually performed and completed up to such termination date, at the full rate applicable under the MSA Attachment;

(b) reimburse Siegfried in full for any Products for which firm and binding forecasts or purchase orders were delivered to Siegfried by or on behalf of ACADIA in accordance applicable MSA Attachment.

(c) reimburse Siegfried for all costs incurred or irrevocably committed by Siegfried prior to the notification date; and

(d) reimburse Siegfried for the full costs of any non-returnable auxiliary material (including, without limitation, Raw Materials and packaging material) purchased by Siegfried for manufacture and release of the Product that cannot be used for the manufacture of other products.

ACADIA shall pay Siegfried's invoice for the aggregate amount payable under this Section 12.5 within […***…] calendar days from the date of the invoice.

12.6 This Section 12.6 shall apply to development Services only (and shall not, for clarity, apply to any MSA Attachment covering validation or other manufacture and supply of Products for clinical or commercial use). Any MSA Attachment may be terminated by mutual agreement of the Parties, if reasonable efforts to achieve any development goals as set forth in such MSA Attachment fail, such as, for example, if the Parties experience a general scientific failure in achieving any milestones. For clarity, in the event any amounts have been prepaid by ACADIA for such development Services, Siegfried shall, within […***…] days of such termination, refund to ACADIA any amounts that have been paid but not earned for work actually performed prior to such termination.

12.7 Either Party may terminate this Agreement immediately, but not later than […***…] months after becoming aware of such event, by providing written notice to the other Party:

(a) upon the liquidation or dissolution of the other Party, or the commencement of insolvency procedures or any proceeding under any bankruptcy, insolvency or moratorium law, or any other law or laws for the relief of debtors which proceeding is not dismissed within […***…] days, or the appointment of any receiver, trustee or assignee to take possession of the properties of the other Party; or

(b) the cessation of all or substantially all of the other Party's business operations.

12.8 Neither the expiration nor the termination of this Agreement or any MSA Attachment or Services shall relieve the Parties of their obligations incurred prior to such expiration or termination. All provisions that, by their express or implied terms, are meant to survive termination of this Agreement, in particular all rights and obligations set forth in this Section 12.8 and in Sections 1 (Definitions), 4 (Compensation and Terms of Payment), 7 (Intellectual Property), 9 (Representations and Warranties), 10 (Liability and Indemnity), 11 (Confidentiality) 13 (Miscellaneous) and 14 (Applicable Law and Dispute Resolution) shall continue irrespective of such termination.

13. Miscellaneous

13.1 *No set-off.* Neither Party shall be entitled to set off any of its rights or obligations under this Agreement against the rights or obligations of another Party without having first obtained the prior written consent of that other Party.

13.2 *Subcontractor.* Siegfried shall be entitled to engage any subcontractor for conducting any portion of the Services with the prior written consent of ACADIA and in accordance with the respective Quality Agreement. If a subcontractor is appointed, Siegfried shall be responsible for all work performed by such subcontractor as if performed by itself.

Siegfried ACADIA

13.3 *Force Majeure.* A Party shall be excused from performing its obligations under this Agreement (other than obligations of payment) to the extent that its performance is delayed or prevented by any cause beyond such Party's control, including, but not limited to fire, explosion, weather, disease, war, terrorist act, insurrection, civil strike, riots, government action power failure or energy shortages (each, a **Force Majeure Event**). Performance shall be excused only to the extent of and during the reasonable continuance of such Force Majeure Event. Any deadline or time for performance specified in this Agreement that falls due during or subsequent to the occurrence of any of the Force Majeure Event shall be automatically extended for a period of time equal to the period of such Force Majeure Event. The prevented Party shall immediately notify the other Party if, by reason of any Force Majeure Event, the prevented Party is unable to meet any deadline or time for performance specified in this Agreement. In the event that such Force Majeure Event cannot be removed or overcome within [*…***…] days (or such other period as the Parties jointly shall determine) from the date the Party affected first became affected, then either Party may at any time after the expiration of such period, by written notice to the other Party, either (i) suspend this Agreement for as long as such Force Majeure Event continues to exist, or (ii) terminate this Agreement with immediate effect.

13.4 *Precedence of Agreement*. Unless expressly agreed otherwise in writing (including as expressly provided in any MSA Attachment), the terms outlined in this Agreement shall prevail over any terms and conditions outlined in any MSA Attachment or purchase order for Services or Product and any general terms and conditions of a Party, and such terms and conditions are hereby expressly excluded. In case of discrepancies between this Agreement and an Annex hereto, the provisions of this Agreement shall prevail.

13.5 *No assignment.* This Agreement and each MSA Attachment is binding upon and shall inure to the benefit of the Parties hereto and their successors and permitted assigns. This Agreement, each MSA Attachment, and any rights or obligations hereunder may be assigned or delegated only with the prior written consent of the other Party, not to be unreasonably withheld, conditioned or delayed, except that either Party may make such an assignment without the other Party's consent to an Affiliate or to a successor to substantially all of its business to which this Agreement relates, whether in merger, sale of stock, sale of assets or other transaction; provided that with regard to any such transfer to an Affiliate, the transferring Party will continue to remain liable under this Agreement. Any other assignment or delegation by either Party without the prior written consent of the other Party is void.

* ******Confidential Treatment Requested***

13.6 *No waiver.* The failure by either Party at any time to enforce any of the terms, provisions or conditions of this Agreement or to exercise any right hereunder shall not constitute or be construed to constitute a waiver of the same or affect that Party's rights thereafter to enforce or exercise the same.

13.7 *Independent Parties.* Nothing in this Agreement shall be deemed or construed to constitute or create between the Parties hereto a partnership, joint venture, agency, or other relationship other than as expressly set forth herein. Neither Party shall be responsible for the acts or omissions of the other Party, and neither Party shall have authority to speak for, represent or obligate the other Party in any way without prior written consent of the other Party.

13.8 *Entire Agreement.* This Agreement, together with the MSA Attachments, the Quality Agreement, contains the full understanding of the Parties with respect to the subject matter hereof and supersedes all prior understandings and writings relating thereto. ACADIA and Siegfried agree that the Existing Agreement is hereby terminated upon the Effective Date and the terms specified in Section 8.2 of the Existing Agreement shall survive such termination as provided therein. No waiver, alteration or modification of any of the provisions hereof shall be binding unless made in writing and signed by the Parties.

13.9 *Severability.* If any portion of this Agreement is held invalid by a court of competent jurisdiction, such portion shall be deemed to be of no force and effect and this Agreement shall be construed as if such portion had not been included herein, provided however, if the deletion of such provision materially impairs the commercial value of this Agreement to either Party, the Parties shall attempt to renegotiate such provision in good faith. The fact that any provision of this Agreement shall be prohibited or unenforceable in any jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction. To the extent permitted by applicable law, the Parties to this Agreement waive any provision of law that renders any provision of this Agreement prohibited or unenforceable in any respect.

13.10 *Notices.* Any notice required under this Agreement shall be effective only if it is in writing and (i) delivered in person or (ii) deposited with a nationally recognized overnight courier service, or (iii) sent by registered mail or (iv) dispatched by e-mail (pdf), in which case such notice is to be confirmed by registered mail within five (5) Business Days; in either case any notice is to be addressed to the applicable address set forth below or any other address as designated by either Party.

if to Siegfried: **Siegfried USA, LLC**
33 Industrial Park Road, Pennsville, New Jersey 08070, U.S.A.
Attention:
e-mail:

Siegfried ACADIA

with a copy to: **Siegfried AG**
Legal Department
Untere Bruehlstrasse 4,4800 Zofingen, Switzerland
Email:

if to ACADIA: **ACADIA Pharmaceuticals GmbH**
c/o KENDRIS AG, Seidenhofstrasse 14, 6003 Luzern, Switzerland
Attention:
e-mail:

with a copy to: **ACADIA Pharmaceuticals Inc.**
3611 Valley Centre Drive, Suite 300, San Diego, California 92130, U.S.A.
Attention: Legal Department
Email:

Either Party may change the above addresses, but no such change shall have any effect until the other Party has been properly notified with written notice of the change of the address.

13.11 *Compliance with Laws*. Each Party shall comply with all applicable laws, statutes, rules and regulations governing its performance of the terms of this Agreement, including, but not limited to, those relating to health, safety and the environment, fair labor practices, unlawful discrimination, debarment, anti-corruption and anti-bribery laws.

13.12 *Hardship*. If during the term of this Agreement, the performance of the Agreement should lead to unreasonable hardship for the one or the other Party, both Parties shall undertake reasonable endeavors to discuss a possible amicable resolution or possible amendment to this Agreement in light of the change in circumstances; provided, however, that neither Party shall have any obligation to amend this Agreement or to waive or modify any of its rights under this Agreement.

13.13 *Counterparts*. This Agreement (including any MSA Attachments) may be executed in counterparts, including by transmission PDF copies of signature pages to the Parties or their representative legal counsel, each of which shall be deemed an original document, and all of which, together with this writing, shall be deemed one instrument. The Parties additionally agree to exchange hard copy signature pages of the Agreement promptly following execution.

14. Applicable Law and Dispute Resolution

14.1 This Agreement shall be governed by Swiss Law without regard to (a) its conflict of laws provisions and (b) the provisions of the UN-Convention regarding Contracts on the International Sale of Goods (Vienna Convention).

Siegfried ACADIA

14.2 Any dispute, controversy or claim, arising out of or in relation to this Agreement, including the validity, invalidity, breach or termination thereof, shall be resolved by arbitration in accordance with the Swiss Rules of International Arbitration of the Swiss Chambers of Commerce in force on the date when the Notice of Arbitration is submitted in accordance with these Rules. The number of arbitrators shall be one. The seat of arbitration shall be [*…***…]. The arbitral proceedings shall be conducted in English.

**** ***Confidential Treatment Requested***

Siegfried ACADIA

List of Annexes

Annex	Description
A	Sample MSA Attachment
B	Sample Change Order

Siegfried AG

/s/ Marianne Spane
Name: Marianne Spane

Function: EVP, Global Business Development

/s/ Luca Parlanti
Name: Luca Parlanti

Function: Global Exclusives Sales

ACADIA Pharmaceuticals GmbH

/s/ Glenn F. Baity
Name: Glenn F. Baity

Function: Director

ANNEX A – Sample MSA Attachment

MSA Attachment No. [#]

This MSA Attachment (**MSA Attachment**) is entered into between Siegfried **[Entity]** (**Siegfried**) and ACADIA **[Entity]** (**ACADIA**) under the Master Services Agreement dated ……. (the **Agreement**). Pursuant to the Agreement, Siegfried has agreed to perform certain Services in accordance with written MSA Attachments, such as this one, entered into from time to time. Capitalized terms used in this MSA Attachment and not otherwise defined have the meanings given to them in the Agreement.

The Parties hereby agree as follows:

1. MSA Attachment

This document constitutes a **MSA Attachment** under the Agreement and this MSA Attachment and the Services contemplated herein are subject to the terms and provisions of the Agreement. Except if expressly modified in this MSA Attachment, the terms of the Agreement are hereby incorporated by reference herein.

2. Services, Product, and Materials

Services:	[TBD]
Product:	[TBD]
Consigned Material:	[TBD]
Raw Materials:	[TBD]

3. Commercial Terms

Purchase requirements:	[All (100%) of ACADIA's requirement of API/Product]
Minimal order quantity:	One batch of ___kg
Sales price:	CHF .00 per kg
Price increase:	[TBD]
Storage Fee:	[TBD]

Siegfried ACADIA

Siegfried [Entity]

…… ……
Name / function Name / function

ACADIA [Entity]

…… ……
Name / function Name / function

Siegfried ACADIA

ANNEX B – Sample Change Order

CHANGE ORDER NO. [#]

This Change Order is made to the MSA Attachment No [#] dated [Date], between Siegfried **[Entity]** (**Siegfried**) and ACADIA **[Entity]** (**ACADIA**) under the Master Services Agreement dated ……. (the **Agreement**).

The following changes are hereby made to the MSA Attachment (attach additional pages if necessary):

I. Change to Fees and Expenses

How will additional expense be billed? ☐ Time and Material Basis ☐ Lump Sum

MSA Attachment fee due to this Change Order will be increased/decreased by:

$_____

The new fee due to this Change Order will be:

$_____

II. Change to Timeline:

The timeline for performance will be increased/decreased by _____calendar days.

The date for completion of all work under this Change Order will be _____.

Siegfried [Entity]

……. ……
Name / function Name / function

ACADIA [Entity]

……. ……
Name / function Name / function

_____ _____
Siegfried ACADIA

MSA Attachment No. 1

This MSA Attachment (**MSA Attachment**) is entered into between Siegfried AG, Untere Bruehlstrasse 4, 4800 Zofingen, Switzerland (**Siegfried**) and ACADIA Pharmaceuticals GmbH, c/o KENDRIS AG, Seidenhofstrasse 14, 6003 Luzern, Switzerland (**ACADIA**) under the Master Services Agreement dated December 15, 2016 (the **Agreement**). Pursuant to the Agreement, Siegfried has agreed to perform certain Services in accordance with written MSA Attachments, such as this one, entered into from time to time. Capitalized terms used in this MSA Attachment and not otherwise defined have the meanings given to them in the Agreement.

The Parties hereby agree as follows:

1. MSA Attachment

This document constitutes a MSA Attachment under the Agreement and this MSA Attachment No.1 and the Services contemplated herein are subject to the terms and provisions of the Agreement. Except if expressly modified in this MSA Attachment No.1, the terms of the Agreement are hereby incorporated by reference herein.

2. Services, Product, and Materials

2.1. Scope of Work

[*…*…]**

[*…***…]

* ***Confidential Treatment Requested***

[*…***…]

* ***Confidential Treatment Requested***

[*…***…]

* ***Confidential Treatment Requested***

[*…***…]

2.2. Key Milestone Summary and Delivery

The main deliverables are:

[…***…]

[…***…]

[…***…]

[…***…]

[…***…]

[…***…]

[…***…]

[…***…]

[…***…]

[…***…]

[…***…]

2.3. ACADIA Deliverables

[*…***…]

2.4. Project Assumptions

[…***…]

2.5. Out of Scope

[…***…]

3. Commercial Terms

[*…***…]

Amounts paid under this quotation for the purchase of raw materials shall be credited against other subsequent payments owed by ACADIA to Siegfried in connection with the services performed pursuant to this quotation.

If applicable, […***…]. Services will be invoiced upon defined milestone payments.

[…***…]

All work discussed herein will be conducted at Siegfried's Zofingen, Switzerland facility.

This MSA Attachment No.1 shall become effective on December 15, 2016 and, unless earlier terminated in accordance with the Agreement, shall continue in full force and effect until completion of the services described herein.

[Signatures on Following Page]

* ***Confidential Treatment Requested***

Siegfried AG

/s/ Marianne Spane
Name: Marianne Spane

Function: EVP, Global Business Development

/s/ Luca Parlanti
Name: Luca Parlanti

Function: Global Exclusives Sales

ACADIA Pharmaceuticals GmbH

/s/ Glenn F. Baity
Name: Glenn F. Baity

Function: Director

MSA Attachment No.2

This MSA Attachment No.2 (**MSA Attachment No.2**) is entered into between Siegfried Evionnaz SA, route du Simplon 1, 1902 Evionnaz, Switzerland (**Siegfried**) and ACADIA Pharmaceuticals GmbH, c/o KENDRIS AG, Seidenhofstrasse 14, 6003 Luzern, Switzerland (**ACADIA**) under the Master Services Agreement dated December 15, 2016 (the **Agreement**). Pursuant to the Agreement, Siegfried has agreed to perform certain Services in accordance with written MSA Attachments, such as this one, entered into from time to time. Capitalized terms used in this MSA Attachment and not otherwise defined have the meanings given to them in the Agreement.

The Parties hereby agree as follows:

1. MSA Attachment

This document constitutes a MSA Attachment under the Agreement and this MSA Attachment No.2 and the Services contemplated herein are subject to the terms and provisions of the Agreement. Except if expressly modified in this MSA Attachment No.2, the terms of the Agreement are hereby incorporated by reference herein.

4. Services, Product, and Materials

Services:	Commercial Manufacturing Program; Services under this MSA Attachment No.2 shall be performed at Siegfried's Evionnaz site (Evionnaz)
Product:	Pimavanserin (API)
Consigned Material:	None
Raw Materials:	As set forth in the Quality Agreement

5. Commercial Terms

Purchase requirements: As set forth in Section 3.2 of the Agreement

Minimum order quantity per Firm PO:[*…***…]

Sales price:	[*…***…] Note: […***…] All Product prices as set forth in the table above ("**Prices**") are calculated based on volume of Product ordered and purchased in a calendar year in each Firm PO. All Prices shall be […***…]. Payment shall be made to account stated on the invoice. Invoices shall be paid in accordance with the terms set forth in the Agreement, notwithstanding anything to the contrary indicated on the invoice provided.
Price adjustment:	At either Party's request, Siegfried and ACADIA will jointly review cost saving factors at the end of each calendar year, in relation to Siegfried's or ACADIA's investments and make any necessary adjustments to the price with regard to the benefits coming from such cost savings. In principle, any cost saving arising out of any investment made by a Party shall be passed along to the Party responsible for cost savings. In the event of any substantial increase [*…***…] in the manufacturing cost of the Product, such as prices of raw materials, energy or utilities, the Parties shall[…***…] forthwith meet and negotiate in good faith to mutually agree on a revision to the Price consistent with the substantial increase in manufacturing cost of the Product. Siegfried agrees to provide supporting information and documentation as reasonably requested by ACADIA to evidence such substantial increase in manufacturing costs. Siegfried shall have the right to request negotiations as described in this paragraph no more than once per calendar year during the term of this MSA Attachment No.2. The parties will both use commercially reasonable efforts to reach agreement on the revision to the Price within […***…] days after receipt by ACADIA of the request and such information and documentation.
Cancellation fees:	If ACADIA terminates the Agreement or this MSA Attachment No.2 other than in accordance with Section 12.3 or Section 12.7 of the Agreement, then ACADIA shall pay […***…] If ACADIA is […***…], Siegfried shall [*…***…] in accordance with this MSA Attachment No.2 and the Agreement unless ACADIA provides written notice to Siegfried that it elects […***…]. As described in Section 12.5 of the Agreement, the amounts described above shall be in lieu of any termination amounts described in the Agreement including Section 12.5(a) – (d).

* ******Confidential Treatment Requested***

Storage Fee:	CHF […***…] per pallet/month; provided, that storage for the first […***…] months after release of the Product is considered free storage (in accordance with Section 3.11 of the Agreement).
Term:	This MSA Attachment No.2 shall become effective on December 15, 2016 and, unless earlier terminated in accordance with the Agreement, shall continue in full force and effect for an initial period of five (5) years (the **Initial Period**). After the Initial Period, this MSA Attachment No.2 shall automatically renew for consecutive two (2) years periods each, unless one of the Parties notifies the other of its election not to renew this MSA Attachment No.2 at least […***…] months prior to the end of the Initial Period or any renewal period then in effect, in which case this MSA Attachment No.2 shall terminate upon the expiration of such term. This MSA Attachment No.2 may be terminated earlier subject to and in accordance with the terms and conditions contained in the Agreement.

[Signatures on Following Page]

Siegfried Evionnaz SA

/s/ Marianne Spane
Name: Marianne Spane

Function: EVP, Global Business Development

/s/ Luca Parlanti
Name: Luca Parlanti

Function: Global Exclusives Sales

ACADIA Pharmaceuticals GmbH

/s/ Glenn F. Baity
Name: Glenn F. Baity

Function: Director

MSA ATTACHMENT NO.3

This MSA Attachment No.3 (**MSA Attachment No.3**) is entered into between Siegfried AG, Untere Bruehlstrasse 4, 4800 Zofingen, Switzerland (**Siegfried**) and ACADIA Pharmaceuticals GmbH, c/o KENDRIS AG, Seidenhofstrasse 14, 6003 Luzern, Switzerland (**ACADIA**) under the Master Services Agreement dated December 15, 2016 (the **Agreement**). Pursuant to the Agreement, Siegfried has agreed to perform certain Services in accordance with written MSA Attachments, such as this one, entered into from time to time. Capitalized terms used in this MSA Attachment and not otherwise defined have the meanings given to them in the Agreement.

The Parties hereby agree as follows:

1. MSA Attachment

This document constitutes a MSA Attachment under the Agreement and this MSA Attachment No.3 and the Services contemplated herein are subject to the terms and provisions of the Agreement. Except if expressly modified in this MSA Attachment No.3, the terms of the Agreement are hereby incorporated by reference herein.

6. Services, Product, and Materials

Services:	Commercial Manufacturing Program; Services under this MSA Attachment No.3 shall be performed at Siegfried's Zofingen site (Zofingen)
Product:	Pimavanserin (API)
Consigned Material:	None
Raw Materials:	As set forth in the Quality Agreement

7. Commercial Terms

Purchase requirements:	As set forth in Section 3.2 of the Agreement
Minimum order quantity per Firm PO:	[*…***…]
Sales price:	[*…***…]

* ******Confidential Treatment Requested***

	* Note: […***…]
	All Product prices as set forth in the table above ("**Prices**") are calculated based on volume of Product ordered and purchased in a calendar year in each Firm PO.
	All Prices shall be […***…].
	Payment shall be made to account stated on the invoice. Invoices shall be paid in accordance with the terms set forth in the Agreement, notwithstanding anything to the contrary indicated on the invoice provided.
Price adjustment:	At either Party's request, Siegfried and ACADIA will jointly review cost saving factors at the end of each calendar year, in relation to Siegfried's or ACADIA's investments and make any necessary adjustments to the price with regard to the benefits coming from such cost savings. In principle, any cost saving arising out of any investment made by a Party shall be passed along to the Party responsible for cost savings.
	In the event of any substantial increase [*…***…] in the manufacturing cost of the Product, such as prices of raw materials, energy or utilities, the Parties shall[…***…] forthwith meet and negotiate in good faith to mutually agree on a revision to the Price consistent with the substantial increase in manufacturing cost of the Product. Siegfried agrees to provide supporting information and documentation as reasonably requested by ACADIA to evidence such substantial increase in manufacturing costs. Siegfried shall have the right to request negotiations as described in this paragraph no more than once per calendar year during the term of this MSA Attachment No.3. The parties will both use commercially reasonable efforts to reach agreement on the revision to the Price within […***…] days after receipt by ACADIA of the request and such information and documentation.
Cancellation fees:	If ACADIA terminates the Agreement or this MSA Attachment No.3 other than in accordance with Section 12.3 or Section 12.7 of the Agreement, then ACADIA shall pay […***…]
	If ACADIA is [* ***], Siegfried shall […***…] in accordance with this MSA Attachment No.3 and the Agreement unless ACADIA provides written notice to Siegfried that it elects […***…]. As described in Section 12.5 of the Agreement, the amounts described above shall be in lieu of any termination amounts described in the Agreement including Section 12.5(a) – (d).
Storage Fee:	CHF […***…] per pallet/month; provided, that storage for the first […***…] months after release of the Product is considered free storage (in accordance with Section 3.11 of the Agreement).

Term:	This MSA Attachment No.3 shall become effective on December 15, 2016 and, unless earlier terminated in accordance with the Agreement, shall continue in full force and effect for an initial period of five (5) years (the **Initial Period**). After the Initial Period, this MSA Attachment No.3 shall automatically renew for consecutive two (2) years periods each, unless one of the Parties notifies the other of its election not to renew this MSA Attachment No.3 at least […***…] months prior to the end of the Initial Period or any renewal period then in effect, in which case this MSA Attachment No.3 shall terminate upon the expiration of such term. This MSA Attachment No.3 may be terminated earlier subject to and in accordance with the terms and conditions contained in the Agreement.

[Signatures on Following Page]

Siegfried AG

/s/ Marianne Spane
Name: Marianne Spane

Function: EVP, Global Business Development

/s/ Luca Parlanti
Name: Luca Parlanti

Function: Global Exclusives Sales

ACADIA Pharmaceuticals GmbH

/s/ Glenn F. Baity
Name: Glenn F. Baity

Function: Director

Exhibit 10.21
*****Text Omitted and Filed Separately**
with the Securities and Exchange Commission.
Confidential Treatment Requested
Under 17 C.F.R. Sections 200.80(b)(4)
and 240.24b-2.

CHANGE ORDER # 1 to MSA Attachment No. 1

[*…*…]**

This Change Order #1 to MSA Attachment No. 1 ("Change Order"), is effective as of January 3, 2017, and amends certain provisions of the MSA Attachment No. 1 effective December 15, 2016 (the "Original MSA Attachment" and collectively with this Change Order, the "MSA Attachment"), between ACADIA Pharmaceuticals GmbH ("ACADIA") and Siegfried AG ("SIEGFRIED"). The MSA Attachment is governed by the Master Services Agreement dated December 15, 2016 between ACADIA and SIEGFRIED.

The parties hereby agree as follows:

1. Except as expressly amended hereby, the Original MSA Attachment shall remain in full force and effect.
2. The following services will be added to the current scope of services in Section 2.1 of the Original MSA Attachment:
   a. […***…] ("Additional Services").
3. The total costs […***…] are hereby increased by […***…] CHF for the Additional Services. […***…]
4. This Change Order may be executed in counterparts, each of which shall be deemed an original, and which all together with this writing shall be deemed a single, binding document. PDF copies of a counterpart delivered by email shall have the same force and effect as an original signature.

Change to Fees and Expenses

How will additional expense be billed?

[…*…]**

Quotation fee due to this Change Order under PO […*…]**

will be increased by : […*…] CHF**

[…*…]**

This certifies that the authorized signatories below have reviewed and approved the information provided in this Change Order and that SIEGFRIED and ACADIA have agreed to complete the revised scope of work based on the price revisions listed above.

SIEGFRIED AG:

/s/ Dr. Maurits Janssen	Head Business Development	1/12/2017
SIEGFRIED Business Manager	Title	Date
/s/ Anders Sjoberg	Project Manager	1/12/2017
SIEGFRIED Project Manager	Title	Date

ACADIA PHARMACEUTICALS GMBH:

/s/ Glenn F. Baity	Director	1/6/2017
Glenn F. Baity	Title	Date

Exhibit 21.1

List of Subsidiaries

NAME OF SUBSIDIARY	JURISDICTION OF INCORPORATION
ACADIA Pharmaceuticals A/S	Denmark
ACADIA Pharmaceuticals GmbH	Switzerland
ACADIA Pharma Limited	United Kingdom

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the following Registration Statements:

(1) Registration Statements (Form S-3 Nos. 333-171722, 333-185639, 333-194273, 333-210571 and 333-178748) of ACADIA Pharmaceuticals Inc.,

(2) Registration Statement (Form S-8 No. 333-115956) pertaining to the 1997 Stock Option Plan, 2004 Equity Incentive Plan, and 2004 Employee Stock Purchase Plan of ACADIA Pharmaceuticals Inc.,

(3) Registration Statements (Form S-8 Nos. 333-128290, 333-137557, 333-146398, 333-153346, and 333-161057) pertaining to the 2004 Equity Incentive Plan and 2004 Employee Stock Purchase Plan of ACADIA Pharmaceuticals Inc.,

(4) Registration Statements (Form S-8 Nos. 333-168667 and 333-190400) pertaining to the 2010 Equity Incentive Plan and the 2004 Employee Stock Purchase Plan of ACADIA Pharmaceuticals Inc.,

(5) Registration Statements (Form S-8 Nos. 333-176212, 333-183151, 333-197872) pertaining to the 2004 Employee Stock Purchase Plan of ACADIA Pharmaceuticals Inc.,

(6) Registration Statement (Form S-8 No. 333-207971) pertaining to the 2010 Equity Incentive Plan of ACADIA Pharmaceuticals Inc., and

(7) Registration Statement (Form S-8 Nos. 333- 213109) pertaining to the 2010 Equity Incentive Plan and the 2004 Employee Stock Purchase Plan of ACADIA Pharmaceuticals Inc.;

of our reports dated February 28, 2017, with respect to the consolidated financial statements and schedule of ACADIA Pharmaceuticals Inc. and the effectiveness of internal control over financial reporting of ACADIA Pharmaceuticals Inc., included in this Annual Report (Form 10-K) of ACADIA Pharmaceuticals Inc. for the year ended December 31, 2016.

/s/ Ernst & Young LLP

San Diego, California
February 28, 2017

Exhibit 23.2

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (Nos. 333-210571, 333-171722, 333-185639, and 333-194273) and the Registration Statements on Form S-8 (Nos. 333-213109, 333-115956, 333-128290, 333-137557, 333-146398, 333-153346, 333-161057, 333-168667, 333-176212, 333-183151, 333-190400, 333-197872, and 333-207971) of ACADIA Pharmaceuticals Inc. of our report dated February 26, 2015 relating to the financial statements which appears in this Form 10 K.

PricewaterhouseCoopers LLP
San Diego, California
February 28, 2017

EXHIBIT 31.1

CERTIFICATION
Pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934,
as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Stephen R. Davis, certify that:

1. I have reviewed this annual report on Form 10-K for the year ended December 31, 2016 of ACADIA Pharmaceuticals Inc.

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2017

/s/ STEPHEN R. DAVIS
Stephen R. Davis
President and Chief Executive Officer
(Registrant's Principal Executive Officer)

EXHIBIT 31.2

CERTIFICATION
Pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934,
as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Todd S. Young, certify that:

1. I have reviewed this annual report on Form 10-K for the year ended December 31, 2016 of ACADIA Pharmaceuticals Inc.

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2017

/s/ Todd S. Young
Todd S. Young
Executive Vice President and Chief Financial Officer
(Registrant's Principal
Financial and Accounting Officer)

EXHIBIT 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of ACADIA Pharmaceuticals Inc. (the "Company") on Form 10-K for the period ended December 31, 2016, as filed with the Securities and Exchange Commission on or about the date hereof (the "Report"), I, Stephen R. Davis, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

(1) the Report fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"); and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition of the Company at the end of the period covered by the Report and results of operations of the Company for the period covered by the Report.

Date: February 28, 2017

/s/ STEPHEN R. DAVIS
Stephen R. Davis
President and Chief Executive Officer
(Registrant's Principal Executive Officer)

This certification shall not be deemed "filed" for purposes of Section 18 of the Exchange Act or otherwise subject to the liability of Section 18 of the Exchange Act. Such certification shall not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Exchange Act, except to the extent that the Company specifically incorporates it by reference.

EXHIBIT 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of ACADIA Pharmaceuticals Inc. (the "Company") on Form 10-K for the period ended December 31, 2016, as filed with the Securities and Exchange Commission on or about the date hereof (the "Report"), I, Todd S. Young, Executive Vice President and Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

(1) the Report fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"); and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition of the Company at the end of the period covered by the Report and results of operations of the Company for the period covered by the Report.

Date: February 28, 2017

/s/ Todd S. Young
Todd S. Young
Executive Vice President and Chief Financial Officer
(Registrant's Principal
Financial and Accounting Officer)

This certification shall not be deemed "filed" for purposes of Section 18 of the Exchange Act or otherwise subject to the liability of Section 18 of the Exchange Act. Such certification shall not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Exchange Act, except to the extent that the Company specifically incorporates it by reference.