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ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 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

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

For the transition period from to

COMMISSION FILE NO. 001-36714

JAGUAR ANIMAL HEALTH, INC.
(Exact name of registrant as specified in its charter)

Delaware	**46-2956775**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

201 Mission Street, Suite 2375
San Francisco, California 94105
(Address of principal executive offices)

Registrant's telephone number, including area code:
(415) 371-8300

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 Capital 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 o No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes o 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 o

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 o

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

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

Large accelerated filer o	Accelerated filer o	Non-accelerated filer o (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 Exchange Act). Yes o No ☒

As of June 30, 2016, the aggregate market value of the registrant's common stock held by non-affiliates was approximately $11,289,717 based upon the closing sales price of the registrant's common stock on The NASDAQ Global Market on such date.

The number of shares of the registrant's Common Stock outstanding as of February 14, 2017 was 14,007,132.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the proxy statement for the registrant's 2017 Annual Meeting of Stockholders, or Proxy Statement, to be filed within 120 days of the end of the fiscal year ended December 31, 2016 are incorporated by reference in Part III hereof. Except with respect to information specifically incorporated by reference in this Form 10-K, the Proxy Statement is not deemed to be filed as a part hereof.

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PART I

Forward-looking statements

This Form 10-K contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. All statements other than statements of historical facts contained in this Form 10-K, including statements regarding our future results of operations and financial position, business strategy, prospective products, product approvals, research and development costs, timing of receipt of clinical trial, field study and other study data, and likelihood of success, commercialization plans and timing, other plans and objectives of management for future operations, and future results of current and anticipated products are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as "may," "will," "should," "expect," "plan," "aim," "anticipate," "could," "intend," "target," "project," "contemplate," "believe," "estimate," "predict," "potential" or "continue" or the negative of these terms or other similar expressions. The forward-looking statements in this Form 10-K are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this Form 10-K and are subject to a number of risks, uncertainties and assumptions described under the sections in this Form 10-K titled "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and elsewhere in this Form 10-K. Forward-looking statements are subject to inherent risks and uncertainties, some of which cannot be predicted or quantified and some of which are beyond our control. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Moreover, we operate in a dynamic industry and economy. New risk factors and uncertainties may emerge from time to time, and it is not possible for management to predict all risk factors and uncertainties that we may face. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise.

Jaguar Animal Health, our logo, Canalevia and Neonorm are our trademarks that are used in this Form 10-K. This Form 10-K also includes trademarks, tradenames and service marks that are the property of other organizations. Solely for convenience, trademarks and tradenames referred to in this Form 10-K appear without the ©, ® or ™ symbols, but those references are not intended to indicate that we will not assert, to the fullest extent under applicable law, our rights or that the applicable owner will not assert its rights, to these trademarks and tradenames.

Recent Developments

Proposed Merger with Napo Pharmaceuticals, Inc.

On February 8, 2017, we entered into a binding agreement of terms, or Binding Agreement of Terms, for the acquisition of Napo Pharmaceuticals, Inc., or Napo, which was our parent company until May 13, 2015. Following the merger, Napo will operate as our wholly-owned subsidiary, focused on human health. The binding financial terms of the merger include a 3-to-1 Napo-to-Jaguar value ratio to calculate the relative ownership of the combined entity. As of January 31, 2017, Napo owned approximately 19% of the outstanding shares of our common stock.

The Binding Agreement of Terms sets forth the financial terms of the merger and customary conditions to closing, which include but are not limited to completion of due diligence, receipt of a fairness

opinion, and stockholder and other approvals. Additionally, the financial terms of the merger and conditions to closing include provisions that (i) Napo's secured convertible debt shall not exceed $10.0 million and its unsecured debt shall not exceed $3.0 million, and (ii) a third party will invest $3.0 million in us for approximately four million shares of our newly issued common stock with the investment proceeds loaned to Napo immediately prior to the consummation of the merger. The Binding Agreement of Terms also provides that if the merger fails to close for any reason on or prior to July 31, 2017, other than as a result directly or indirectly of (x) lack of stockholder approval by either party or (y) Napo (i) failing to perform in accordance with the terms and conditions of the agreement or (ii) failing to abide by or breaching the provisions or representations, warranties and covenants of the agreement or the merger documents, then, on or before the close of business on August 7, 2017, we will be required to issue 2,000,000 shares of our restricted common stock to Napo.

Collaboration with Elanco for Development and Co-Promotion of Canalevia

On January 27, 2017, we entered into a licensing, development, co-promotion and commercialization agreement, or the Elanco Agreement, with Elanco US Inc., or Elanco, to license, develop and commercialize Canalevia, our drug product candidate under investigation for treatment of acute and chemotherapy-induced diarrhea in dogs, and other drug product formulations of crofelemer for treatment of gastrointestinal diseases, conditions and symptoms in cats and other companion animals, or collectively, the Licensed Products. The Elanco Agreement grants Elanco exclusive global rights to Canalevia, a product whose active pharmaceutical ingredient is sustainably isolated and purified from the Croton lechleri tree, for use in companion animals. Pursuant to the Elanco Agreement, Elanco will have exclusive rights globally outside the U.S. and co-exclusive rights with us in the U.S. to direct all marketing, advertising, promotion, launch and sales activities related to the Licensed Products.

Under the terms of the Elanco Agreement, we received a $1.5 million upfront payment and will receive additional payments upon achievement of certain development, regulatory and sales milestones in an aggregate amount of up to $61.0 million payable throughout the term of the Elanco Agreement, as well as product development expense reimbursement, and royalty payments on global sales. The Elanco Agreement specifies that we will supply the Licensed Products to Elanco, and that the parties will agree to set a minimum sales requirement that Elanco must meet to maintain exclusivity. Elanco will also reimburse us for Canalevia-related expenses, including reimbursement for Canalevia-related expenses in Q4 2016, certain development and regulatory expenses related to our planned target animal safety study and the completion of our field study of Canalevia for acute diarrhea in dogs.

The Elanco Agreement became effective on January 27, 2017, and the term of the collaboration will continue throughout the development and commercialization of the product candidates, on a country-by-country and Licensed Product-by- Licensed Product basis, until the latest of (i) the date on which no valid claim of certain issued or granted patents specified in the Elanco Agreement in the respective country exists, (ii) the expiration of any regulatory exclusivity in such country covering such Licensed Product, or (iii) the fifteenth anniversary of the first commercial sale of a Licensed Product in such country.

The Elanco Agreement may be terminated by Elanco on a voluntary basis upon completion of the dose ranging study or at any time upon 90 days' written notice to us, or for cause for our failure to complete a quality assessment of a certain facility of Glenmark Pharmaceutical Limited to Elanco's satisfaction within six months of the effective date of the Elanco Agreement. The Elanco Agreement may also be terminated by either party (i) for the other party's material breach, where such breach is not cured within the timeframe specified by the agreement, (ii) upon the bankruptcy, insolvency or dissolution of the other party, or (iii) for certain activities involving the challenge of certain patents licensed by us to Elanco. Upon expiration of the term of the Elanco Agreement or termination for our breach, among other things, we have agreed to assign to Elanco all registrations and trademarks obtained in connection with the

Licensed Products. Upon termination for Elanco's breach, among other things, Elanco has agreed to assign to us all registrations obtained in connection with the Licensed Products.

ITEM 1. BUSINESS

BUSINESS

Overview

We are an animal health company focused on developing and commercializing first-in-class gastrointestinal products for companion and production animals, foals, and high value horses. Canalevia is our lead prescription drug product candidate, intended for treatment of various forms of diarrhea in dogs. We achieved statistically significant results in a multicenter canine proof-of-concept study completed in February 2015, supporting the conclusion that Canalevia treatment is superior to placebo. As we announced in December 2015, the pivotal clinical field study to evaluate the safety and effectiveness of Canalevia for acute diarrhea in dogs is underway. Two-hundred dogs were enrolled in the Canalevia pivotal study, which completed enrollment in January 2017. Jaguar has received Minor Use in a Minor Species (MUMS) designation for Canalevia for Chemotherapy-Induced Diarrhea (CID) in dogs. Canalevia is a canine-specific formulation of crofelemer, an active pharmaceutical ingredient isolated and purified from the *Croton lechleri* tree, which is sustainably harvested. A human-specific formulation of crofelemer, Mytesi (formerly known as Fulyzaq), was approved by the FDA in 2012 for the symptomatic relief of noninfectious diarrhea in adults with HIV/AIDS on antiretroviral therapy. Members of our management team developed crofelemer while at Napo. The reception among users of our lead non-prescription products—Neonorm Calf and Neonorm Foal, an anti-diarrheal product we launched for newborn horses in early 2016—has been quite positive. The clinically-proven performance of Neonorm Foal, in combination with our heightened understanding of market needs within the global equine space, is driving our increased focus on equine product development. Equilevia (formerly referred to as SB-300) is Jaguar's prescription drug product candidate for treatment of gastrointestinal ulcers in horses. Equilevia is a pharmaceutical formulation of a standardized botanical extract. Neonorm is a standardized botanical extract derived from the *Croton lechleri* tree. We launched Neonorm Calf in the United States at the end of 2014 for preweaned dairy calves. Canalevia, Equilevia and Neonorm are distinct products formulated to address specific species and market channels. We have filed nine investigational new animal drug applications, or INADs, with the FDA and intend to develop species-specific formulations of Neonorm in six additional target species, and Canalevia for both cats and dogs. In July 2016 we released data from two China-based studies sponsored by Fresno, California-based Integrated Animal Nutrition and Health Inc. showing remarkable resolution of diarrhea and cure of piglets afflicted with diarrhea following treatment with a *Croton lechleri* botanical extract administered in water.

As we announced in December 2016, Jaguar has signed a distribution agreement with Henry Schein, Inc., the world's largest provider of health care products and services to office-based dental, animal health and medical practitioners, for exclusive distribution of Neonorm Foal product to all segments of the U.S. equine market. Henry Schein's animal health business, Dublin, Ohio-based Henry Schein Animal Health, employs approximately 900 team members and had 2015 net sales of $2.9 billion. The agreement became effective on December 9, 2016, and, subject to provisions specified in the agreement, shall continue in force for an initial period of one year. Thereafter, unless either party notifies the other of its intent not to renew the term of the agreement at least 30 days prior to the end of the then current term, the term shall be automatically renewed upon expiration for successive renewal terms of one year.

As we announced in September 2016, we have signed an exclusive supply and distribution agreement for this botanical extract with Integrated Animal Nutrition and Health Inc. for dairy cattle and pigs in the Chinese marketplace. According to the Minnesota-based Institute for Agriculture and Trade Policy, swine production was expected to reach 723 million head in 2014 in China, where pork is still the main protein source for many consumers. In 2015 there were an estimated 15.6 million dairy cattle in China, according

to Index Muni. Integrated Animal Nutrition and Health, Inc. has minimum purchase requirements of the botanical extract to maintain their exclusivity.

Since inception, we have been primarily focused on designing and conducting studies of Canalevia to treat diarrhea in dogs and of Neonorm to help retain fluid in calves and to function as an anti-diarrheal in foals. We are also focused on developing a full suite of equine products to support and improve gastrointestinal health in foals and adult horses. Gastrointestinal conditions such as acute diarrhea, ulcers and diarrhea associated with acute colitis can be extremely debilitating for horses, and present a significant economic and emotional burden for veterinarians and owners around the world. A portion of our activities has also been focused on other efforts associated with being a recently formed company, including securing necessary intellectual property, recruiting management and key employees, and financing activities.

In January 2016 we announced positive topline results from the proof-of-concept study we initiated in November 2015 to evaluate the safety and effectiveness of Equilevia, our investigational new animal drug for treatment of gastrointestinal ulcers in horses. In April 2016, we announced that standard drug testing in race horses having received Equilevia did not detect any substances commonly disallowed by horse racing authorities. The results of this initial study show that Equilevia may offer horse owners an additional advantage in the competition horse world, where requirements exist for animals to compete free from the effect of any drugs. Future work is being planned to confirm these results. The study also provided visual evidence suggesting that feed does not interfere with the product candidate's local availability in the gut. In November 2016 we completed enrollment in a dose determination study of the target commercial paste formulation of Equilevia, with both a placebo control arm and a positive control comparator, Merial's GASTROGARD® product. The randomized, blinded, controlled, multisite dose determination study enrolled 121 racehorses two years of age or older. All enrolled horses were diagnosed with glandular and squamous gastric ulcers. The primary objective of the study is to select the minimally effective dose of Equilevia for the treatment of equine gastric ulcers in a future pivotal field study.

Horses on treatment with Equilevia in the dose determination study had higher average winnings as a percent of purse in races during the study treatment period compared with the period in which they raced prior to the study. Horses on placebo or on the positive control had a reduction in their average winnings as a percent of purse during the study treatment period compared with the period in which they raced prior to the study.

Additionally, horses on treatment with Equilevia had higher average total dollar winnings in races during the study period compared with the period in which they raced prior to the study. However, horses on placebo had a reduction in total earnings in races during the study period compared with the period in which they raced prior to the study, whereas horses on GASTROGARD® had essentially no change in their earnings in races compared with the period in which they raced prior to the study.

When analyzing data according to whether or not a horse finished a race in the top 3 or in the top 5, there was also an improvement seen for horses treated with Equilevia during the study treatment period compared with the period in which they raced prior to the study. Horses treated with placebo, however, had a reduction in frequency of finishing in the top 3 or in the top 5 in the study period compared with the period in which they raced prior to the study.

No statistically significant comparisons were generated for the aforementioned exploratory analyses. Racing results in horses treated with Equilevia during our dose determination study are of interest because ulcers are a particular problem in equine athletes. This study was not powered for this type of result nor would we expect to have such a result listed in a product label.

A full analysis of the dose determination study data with scoring of squamous and glandular ulcers is awaiting an independent, blinded review by an equine veterinarian experienced in gastric ulcer disease, and is expected to be available in early Q1, 2017.

Ulcers are lesions of the lining of the digestive tract and are very common in horses used for many competitive activities. We believe that because *Croton lechleri*-derived products have been shown to act locally in the gut and have traditional use and rodent model benefit for ulcers, Equilevia has the potential to address ulcers in horses, as well as diarrhea. We are initially developing this product for the indication of equine gastric ulcer syndrome (EGUS), and we plan to potentially investigate the possible efficacy of this product candidate for treatment of colonic ulcers in horses as a potential follow on indication following the anticipated launch of Equilevia. EGUS results from both squamous and glandular gastric ulceration. Ulcers can negatively impact the performance of horses which are expected to perform at peak efficiency, including show horses and race horses. We believe a significant market exists for a product that treats both squamous and glandular ulcers in horses without altering stomach pH. According to a 2005 study, 54% of performance horses have both colonic and gastric ulcers and 97% of performance horses have either a gastric (87%) or a colonic (63%) ulcer. Data from the American Horse Council states that there are currently 9.2 million horses in the U.S., a population that includes 844,531 race horses, more than 2.7 million show horses, and more than 3.9 million recreational horses. Data from the Food and Agriculture Organization of the United Nations indicate that there were approximately 5.7 million horses in Europe in 2013 and nearly 60.0 million horses in 2013 worldwide. Our goal is to see Equilevia serve as an important tool in the standard of care for equine ulcers.

Diarrhea is one of the most common reasons for veterinary office visits for dogs and is the second most common reason for visits to the veterinary emergency room, yet to our knowledge there are currently no FDA-approved anti-secretory agents to treat canine diarrhea. We estimate that in the United States, veterinarians see approximately 6.0 million annual cases of acute and chronic watery diarrhea in dogs, approximately two-thirds of which are acute diarrhea. We believe that Canalevia will be effective in treating acute diarrhea because it acts at the last physiological step, conserved across mammalian species, in the manifestation of acute diarrhea, regardless of cause, by normalizing ion and water flow in the intestinal lumen. We have received MUMS designation for Canalevia for the treatment of CID in dogs. We plan to market Canalevia for the MUMS indication in 2017, if approved, and for acute diarrhea in early 2018, if approved, through our focused commercial efforts and to complement our relationships with distribution partners.

According to the *Dairy 2007* study conducted by the USDA, almost one in four preweaned dairy heifers, or female calves, suffers from diarrhea or other digestive problems. The preweaning period is generally the first 60 days after birth. Scours, diarrhea or other digestive problems are responsible for more than half of all preweaned heifer calf deaths, and result in impaired weight gain and long-term reduction in milk production. We believe that the incidence rate of scours and its corresponding financial impact represent a health and business opportunity and that Neonorm Calf has the potential to effectively meet this need.

A challenge clinical study was completed in May 2014 by researchers from Cornell, and published in 2015 in the official journal of the American Dairy Science Association, *Journal of Dairy Science*. The results of this study suggest that Neonorm Calf can significantly increase the fecal dry matter of neonatal calves with experimentally-induced enterotoxigenic *E. coli* diarrhea, and suggest a potential benefit of Neonorm Calf in supporting weight gain in calves.

A further analysis, completed in October 2015, of the above-referenced Cornell study supports a benefit of Neonorm Calf on the optimization of the intestinal microbiome profile in preweaned dairy calves, a potential prebiotic benefit. The microbiome is a community of microorganisms that live normally in the gut and are vital to maintenance of gut health.

In January 2016 we announced the initiation of a placebo-controlled study in conjunction with researchers from Cornell to evaluate the efficacy of the prophylactic use of a second-generation formulation of Neonorm Calf administered in liquid on naturally occurring diarrhea and dehydration in preweaned dairy calves and investigate the possible prebiotic benefit of the product. This double-blinded,

randomized study involved 40 Holstein bull calves affected with naturally occurring diarrhea. The study results, announced in June and September of 2016, show that calves under prophylactic administration of Neonorm Calf had significantly lower water content in fecal samples at multiple measurement points, lower incidence of diarrhea, and had fewer fluid therapy interventions. We are developing a second generation Neonorm Calf product formulation to be administered in liquid for total herd prophylactic management of diarrhea, or scours. A paper on this study, titled "Prophylactic use of a standardized botanical extract for the prevention of naturally occurring diarrhea in newborn Holstein calves", was recently published in the official journal of the American Dairy Science Association, *Journal of Dairy Science*—a leading peer-reviewed general dairy research journal.

In November 2015 we completed an initial proof-of-concept study (NEO101) of Neonorm Foal that involved 60 foals. The objective of this randomized, multi-site, blinded, placebo-controlled study was to evaluate the safety and performance of the product for treatment of foals suffering from secretory diarrhea, and the treated animals received Neonorm Foal in combination with a third-party probiotic. In December 2015 we announced positive results for an exploratory, investigator-initiated follow-up study (ARG102) which assessed the safety and performance of Neonorm Foal, without inclusion of a probiotic, in preweaned foals with watery diarrhea. The results of a meta-analysis between the two studies demonstrated a significantly higher percentage of foals with clinical response and resolution of diarrhea for Neonorm Foal, from either ARG102 or NEO101, compared with the placebo group in NEO101.

During the 72-hour administration period, 35% of foals receiving the placebo in NEO101 were identified as clinical responders, compared with 85% of foals treated with Neonorm Foal in ARG102. For the purposes of both studies, clinical responders were defined as foals that achieved a formed stool by the end of the reported period.

During the 72-hour administration period, resolution of diarrhea was observed in 41% of placebo-treated foals in NEO101 compared with 85% of foals receiving Neonorm Foal in ARG102. For the purposes of both studies, resolution of diarrhea was defined as a foal that produced a formed stool at any point during the reported period.

The reception among users of Neonorm Foal, the anti-diarrheal for newborn horses that we launched in early 2016 with a nationwide campaign offering samples, has been overwhelmingly positive. User feedback regarding Neonorm Calf also continues to be very favorable. Commercialization of these two non-prescription products has provided numerous benefits that we intend to leverage during our expected introductions of high value, first-in-class prescription drug products into the U.S. marketplace and beyond. The commercialization process has allowed us to extend to animals the clinical utility of the novel mechanism of action of *Croton lechleri*-derived anti-secretory products, refine messaging to veterinarians, fine-tune internal processes, forge commercial manufacturing relationships, and develop commercial infrastructure with important distributors relevant to both prescription and non-prescription products.

As we announced on February 2, 2017, Jaguar has begun entry into the organic market with Neonorm Calf, following listing of Neonorm Calf with an organization that evaluates livestock products in accordance with the U.S. Department of Agriculture (USDA) National Organic Standards on behalf of specified producers in New York state. Additionally, Jaguar is applying to have Neonorm Calf listed by the Organic Materials Review Institute (OMRI). OMRI is an international nonprofit organization that determines which input products are allowed for use in organic production and processing. OMRI Listed® products are allowed for use in certified organic operations under the USDA National Organic Program. According to the Organic Trade Association's (OTA) 2016 Organic Industry Survey, the U.S. organic industry posted new records in 2015, with total organic product sales hitting a new benchmark of $43.3 billion, up 11% from the previous year's record level and outpacing the overall food market's growth rate of 3%. According to OTA, dairy, the second biggest organic food category, accounted for $6.0 billion in sales, an increase of over 10%, and dairy accounts for 15% of total organic food sales.

Organic livestock production plays a vital role in support of a sustainable and safe farm and food system, both in the U.S. and internationally. According to a report published by Allied Market Research, the global market for organic dairy food and drinks—organic milk, yogurt, cheese, and others—is expected to grow at a compound annual growth rate of 14.25% from 2016 to reach $36.7 billion by 2022 from $14.5 billion in 2015. We believe Neonorm Calf will qualify as allowable for use on certified organic dairies throughout the U.S., and we're currently working to obtain additional required listings.

Canalevia utilizes the same mechanism of action as Neonorm Foal and Neonorm Calf—and of Mytesi (formerly known as Fulyzaq), the human drug approved by the FDA in 2012 for the symptomatic relief of noninfectious diarrhea in adults with HIV/AIDS on antiretroviral therapy. Each of these products normalizes ion and water flow into the intestinal lumen. Because this is a physiological pathway generally present in mammals, we have validated our low risk strategy of extending the clinical success in humans to preweaned dairy calves, foals, piglets, and dogs; and we believe these clinical benefits will continue to be confirmed in other mammalian species.

We have an exclusive worldwide license to Napo's intellectual property rights and technology related to our products and product candidates, including rights to its library of over 2,300 medicinal plants, for all veterinary treatment uses and indications for all species of animals. This includes rights to Neonorm, Canalevia, and other distinct prescription drug product candidates in our pipeline along with the corresponding existing preclinical and clinical data packages. We also recently expanded our intellectual property portfolio to include combinations of our proprietary anti-secretory product lines, Canalevia and Neonorm, with the non-absorbed antibiotic, rifaximin, for gastrointestinal indications in all animals.

Our management team has significant experience in gastrointestinal and animal health product development. This experience includes the development of crofelemer for human use, from discovery and preclinical and clinical toxicity studies, including the existing animal studies to be used for Canalevia regulatory approvals, through human clinical development. Our team also includes individuals who have prior animal health experience at major pharmaceutical companies.

Product Pipeline

We are developing a pipeline of prescription drug product candidates and non-prescription (non-drug) products to address unmet needs in animal health. Our pipeline currently includes prescription drug product candidates for nine indications across multiple species, and non-prescription products targeting seven species.

Prescription Drug Product Candidates

Product Candidates	Species	Indication	Recent Developments	Anticipated Near-Term Milestones
Canalevia	Dogs	CID	• Completed safety study with commercial formulation in June 2015	• Initiate pilot study for TKI associated diarrhea management • Commercial launch in 2017
	Dogs	Acute diarrhea	• Concurred protocol • Initiated pivotal field trial to evaluate safety and effectiveness • Entered into License, Development, Co-Promotion and Commercilization Agreement with Elanco in January 2017	• Pivotal field trial completes enrollment • File all major sections of NADA in mid-2017 • Commercial launch in early 2018 • Development, co-promote and distribution partner • Initiate development of second generation chew formulation for chronic administration
Species-specific formulations of crofelemer	Horses	Diarrhea associated with acute colitis	• Completed pilot safety study in December 2015	• Seek MUMS designation and product development 2017
Equilevia	Horses	Ulcers	• Proof-of-concept safety and effectiveness results in January 2016 • Product development meeting with FDA in first half 2016 • Initiated dose confirmation study • Positive racing results	• Product development meeting with FDA in first half of 2017 • Minimum dose results, commercial dose selection, and commence pivotal field trial

Product Candidates	Species	Indication	Recent Developments	Anticipated Near-Term Milestones
	Cats	Acute diarrhea	• INAD opened in 2014 • Entered into License, Development, Co-Promotion and Commercilization Agreement with Elanco in January 2017	• Initiate safety and proof-of-concept
Virend (topical)	Cats	Herpes virus	• INAD opened in 2014	• Initiate safety and proof-of-concept
Species-specific formulations of NP-500	Dogs	Obesity-related metabolic dysfunction	• INAD opened in 2014	
	Horses	Metabolic syndrome	• INAD opened in 2014	
	Cats	Type II diabetes	• INAD opened in 2014	

Non-Prescription Products

Products	Species	Use	Recent Developments	Anticipated Near-Term Milestones
Neonorm Calf	Dairy & beef calves	Helps proactively retain fluids in calves—aiding the animals in avoiding debilitating, dangerous levels of dehydration	• Field study supports beneficial effect on prewean weight gain • Positive prophylactic results • Distribution deal China	• Launch second generation formulation for administration in liquid, prophylaxis • Commercial launch in South America • Business development activities
Species-specific formulations of Neonorm	Horse foals	Anti-diarrheal for newborn horses	• Completed proof-of-concept study in November 2015 • Soft-launched product in December 2015 • Commercial launch with exclusive Schein distribution deal at AAEP, 2016	• Evaluation of Neonorm Horse product

Products	Species	Use	Recent Developments	Anticipated Near-Term Milestones
	Piglets	Normalize fecal formation in piglets	• Positive preliminary topline results of two studies by Integrated Animal Nutrition and Health Inc. to evaluate the safety and effectiveness of Neonorm in piglets	• Expansion of distribution in China
	Other farm/production animals	Supports gut health normalizing fecal formation	• Selected clinical research	• Initiate proof-of-concept studies and partnering discussions, multiple species; multiple geographies

Canalevia is our lead prescription drug product candidate, intended for the treatment of various forms of diarrhea in dogs. Equilevia is our prescription drug product candidate for the treatment of gastrointestinal ulcers in horses. Canalevia and Equilevia contain ingredients isolated and purified from the *Croton lechleri* tree, which is sustainably harvested. Neonorm Calf and Neonorm Foal are our lead non-prescription products. Neonorm is a standardized botanical extract derived from the *Croton lechleri* tree, which is also provided as botanical extract for piglets and dairy calves to China, under an exclusive distribution agreement. Canalevia and Neonorm are distinct products that act at the same last step in a physiological pathway generally present in mammals.

We are developing Canalevia as a prescription drug product and Neonorm as a non-prescription product due to differences between the companion, horse and production animal markets. Owners of companion animals and equine athletes generally visit veterinarians, who prescribe a product to treat a disease or condition. We believe the ability to make a disease treatment claim is important in this market, and such a claim is only possible with FDA approval as a prescription product. In contrast, dairy farmers and other production animal owners generally make purchasing decisions based on a product's ability to demonstrate an economic benefit from health endpoints, such as weight gain.

For our prescription product line, we are seeking protocol concurrences with the FDA where appropriate. A protocol concurrence in animal drug development means that the FDA agrees that the design and analyses proposed in a protocol are acceptable to support regulatory approval of the product candidate with respect to effectiveness of the indication studied and will not change its view of these matters, unless public or animal health concerns arise that were not recognized at the time of concurrence or we change the protocol. We plan to seek concurrence on all major regulatory trials.

We have licensed intellectual property from Napo to develop prescription drug product candidates for diabetes and metabolic syndrome for dogs, cats and horses, as well as a topical herpes product for cats. Similar to our lead prescription drug product candidate, these products were tested in animals for safety to support their development for use in humans. We recently expanded our gastrointestinal product line to include combinations of our proprietary anti-secretory products derived from *Croton lechleri* with the non-absorbed antibiotic, rifaximin, a human approved product, for gastrointestinal indications in all animals. We are leveraging the data and knowledge gained during the development of human therapeutics into veterinary applications.

Business Strategy

Our goal is to become a leading animal health company with first-in-class products that address unmet medical needs in both the companion and production animal markets, and the equine market. To accomplish this goal, we plan to:

Leverage our significant gastrointestinal knowledge, experience and intellectual property portfolio to develop a line of *Croton lechleri*-derived products for production and companion animals, and horses.

Our management team collectively has more than 100 years of experience in the development of gastrointestinal prescription drug and non-prescription products. This experience covers all aspects of product development, including discovery, preclinical and clinical development and regulatory strategy.

In addition to our near-term development efforts advancing Canalevia for dogs, Neonorm Calf for preweaned dairy calves, and Neonorm Foal for young horses, we are developing formulations of Canalevia and Neonorm to address the unmet medical need for the treatment of acute diarrhea and to improve gut health and normalize fecal formation across multiple animal species and market channels. The development of a full suite of products to support and improve gastrointestinal health in adult horses is one of our core focus areas. Gastrointestinal conditions such as acute diarrhea, ulcers and diarrhea associated with acute colitis can be extremely debilitating for horses, and present a significant economic and emotional burden for veterinarians and horse owners around the world. Our products are designed with a thorough understanding of not only species-specific health issues, but also market practices, the economics of current treatment strategies, competitive dynamics, government initiatives such as concern for extensive antibiotic usage, and effective channels for new product introductions. Many of our products are being formulated into separate and distinct gastrointestinal products accounting for multiple specific species, markets and regulatory dynamics.

Establish commercial capabilities, including third-party sales and distribution networks and our own targeted commercial efforts, through the launch of Neonorm Calf and Neonorm Foal.

In 2014 we launched Neonorm in the United States under the brand name Neonorm Calf, and in December 2015 we conducted the soft launch of Neonorm Foal. We intend to establish a focused direct commercial effort, initially for the production animal markets. We will direct our commercial efforts on educational activities and outreach to key opinion leaders and decision makers at targeted regional and global accounts and also plan to continue to partner with leading distributors to commercialize our products. We expect that our current and future distribution partners will have the presence, name recognition, reputation and reach in the veterinary markets and in both key urban and rural centers, as appropriate. We believe this overall approach is scalable and transferable as we expand our commercialization efforts to companion animals, as well as when we expand internationally.

Launch Canalevia and our other product candidates for companion animals, if approved, leveraging the commercial capabilities and brand awareness we are currently building.

We have nine active INADs filed with the FDA and intend to develop species-specific formulations of Neonorm in six additional target species, formulations of Equilevia in horses, and Canalevia for cats and dogs, and potentially for diarrhea associated with acute colitis in horses.

Expand to international markets.

We intend to leverage our proprietary product development in the United States to international markets, with meaningful partnerships to address international requirements for product development, registration, and access to commercialization in relevant markets for each of our prescription and non-prescription products. As an example, in February 2015 we signed a distribution agreement with Biogenesis Bagó, a large veterinary biotechnology company in Latin America, a region that contained

approximately 401 million dairy and beef cattle in 2009 and produces approximately 11% of the world's milk supply. The distribution agreement provides Biogenesis Bagó with exclusive distribution rights for Neonorm Calf in Argentina, Brazil, Paraguay, Uruguay, and Bolivia.

Additionally, in September 2016, we entered an exclusive supply and distribution agreement for *Croton lechleri* botanical extract with Fresno, California-based Integrated Animal Nutrition and Health Inc. for dairy cattle and pigs in the Chinese marketplace. The agreement was executed following the positive results, which we announced in July 2016, of two studies to evaluate the safety and effectiveness of the botanical extract in piglets. The terms of the agreement specify annual minimum purchase amounts that are required to maintain exclusivity, and state that Integrated Animal Nutrition and Health Inc. is responsible for all activities and costs to obtain all required product registrations, marketing authorizations, and customs clearances for the Chinese market.

According to Index Muni, swine production is projected to reach 672.5 million head in 2017 in China, where pork is still the main protein source for many consumers. According to New Zealand-based NZX Agri, in 2017 there will be 7 million cows "in milk" (lactating cows) in China. With the world's largest population, China has been experiencing an increase in demand for dairy products as a result of sharply increasing income levels, fast-changing food habits, the desire of parents to feed their babies high-protein formula, and the loosening in 2015 of China's longstanding one-child policy, among other factors.

As we work to expand our commercialization efforts, we intend to seek out additional opportunities to enter key international markets. Certain markets, such as high performance horses, have strong international synergies benefiting market awareness and demand. We may also enter into partnerships that include payment of upfront licensing fees for our products and product candidates for markets outside the United States where appropriate.

Identify market needs that can be readily accessed and develop species-specific products by leveraging our broad intellectual property portfolio, deep pipeline and extensive botanical library.

In addition to our anti-secretory gastrointestinal product development efforts, we have expanded the depth of our gastrointestinal pipeline product candidates to include combinations of our proprietary anti-secretory products derived from *Croton lechleri* with the non-absorbed antibiotic, rifaximin, a human approved product, for gastrointestinal indications in all animals. We are also developing products such as Virend for feline herpes and NP-500 for Type II diabetes and metabolic syndrome. Both of these product candidates have been through Phase 2 human clinical testing. In addition, we have exclusive worldwide rights to Napo's library of over 2,300 medicinal plants for veterinary use in all species. We believe we have the product candidates and expertise to address many unmet animal health needs for both companion and production animals. We believe our extensive library of medicinal plants will enable us to develop first-in-class products that address significant health issues and concerns of many markets and geographies.

Products in Development

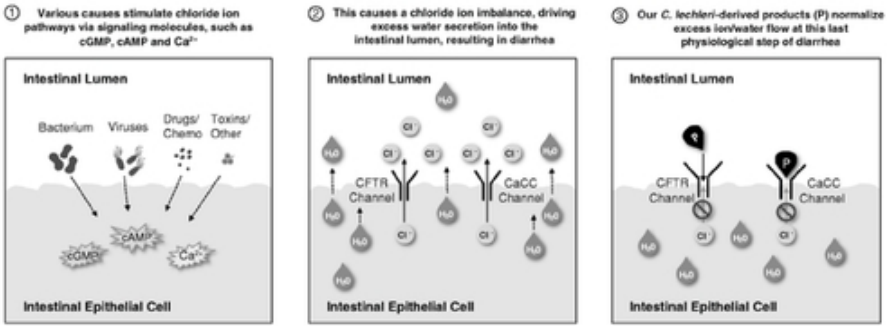
Market Background—Acute Diarrhea

We believe there is an unmet medical need for the treatment of acute diarrhea. The devastating dehydration that often occurs as a result of acute diarrhea in animals, including dogs, horses and preweaned dairy calves, can manifest quickly, have long-term health implications and result in death. Other than the FDA-approved human formulation of crofelemer, there are currently no approved anti-secretory agents we are aware of that directly address the water loss associated with acute diarrhea. Current treatments for acute diarrhea include oral rehydration solution, or ORS, anti-motility agents, absorbents and antibiotics. However, each of these approaches has known limitations. While ORS replaces the water loss associated with diarrhea, it can often extend the duration and severity of diarrhea. Anti-motility agents work by the mechanism of constipation, or temporarily paralyzing normal intestinal contractions, or peristaltic activity. These agents are contraindicated for chronic use and are therefore

inappropriate for certain conditions, such as chronic CID. Anti-motility agents can also cause pain, cramping, and rebound diarrhea. Absorbents simply attempt to absorb the toxin in the gut, often causing additional pain and cramping, and do not directly address the water loss. Antibiotics attempt to treat the infectious agent releasing the toxin, but do not directly address water loss and carry a risk of altering gut flora, which alteration itself can cause diarrhea. Systemic antibiotic usage has also come under increased scrutiny by the FDA due to problems associated with antibiotic resistance.

We believe that an ideal treatment for acute diarrhea would directly address water loss without causing constipation, affecting normal peristaltic activity or altering normal body absorption of other drugs or normal physiological function of the gut. We believe addressing water loss associated with acute diarrhea will improve the quality of life of dogs and provide attendant benefits to the dog owner, improve the health and productivity of dairy cattle and provide similar health and economic benefits in multiple other species. Our gastrointestinal products and product candidates act by normalizing the flow of ions and water in the intestinal lumen, the dysregulation of which is the last step common to the manifestation of acute diarrhea. As a result, we believe that our products and product candidates may be effective in addressing acute diarrhea, regardless of cause. In addition, the channels that regulate this ion and water flow, including channels known as CFTR and CaCC (the sites of action of our gastrointestinal products), are generally present in mammals. We therefore expect that the clinical benefit shown in humans, preweaned dairy calves, foals, and dogs will be confirmed in multiple other species, including cats and adult horses. Accordingly, we believe we can bring to market multiple products among multiple species that are first-in-class and effective in preventing the debilitating and devastating ramifications of acute diarrhea in animals.

The following diagram illustrates the mechanism of action of our gastrointestinal products, which normalize chloride and water flow and transit time of fluids within the intestinal lumen.



Canalevia—Chemotherapy-Induced Diarrhea in Dogs

Overview

Canalevia is a three-day, twice-daily formulation of crofelemer that we are developing for the treatment of CID in dogs. Canalevia is enteric-coated for targeted release of crofelemer, the active pharmaceutical ingredient, or API, in Canalevia, in the intestine. We have received MUMS designation for Canalevia for the treatment of CID in dogs, which provides an opportunity to shorten the timeframe to commercialization. In June 2015 we completed a multi-site pilot safety study involving the anticipated commercial formulation of Canalevia for CID. We've completed submission of all required major technical sections for the NADA for CID to the FDA for phased review. We expect to receive FDA acknowledgment of the completion of all required technical sections in support of conditional approval of Canalevia in 2017 for CID in dogs. Under MUMS designation, we would be required to initiate a pivotal study in the five years following conditional approval to generate the data required for full approval.

As we announced on January 31, 2017, Jaguar and Elanco US Inc., a subsidiary of Eli Lilly and Company, have signed an agreement to license, develop, co-promote and commercialize Canalevia, Jaguar's drug product candidate under investigation for treatment of acute and CID in dogs. The agreement grants Elanco exclusive global rights to Canalevia for use in companion animals. Jaguar and Elanco will collaborate on the global development of the product and on its commercialization in the U.S. Under the terms of the agreement, Jaguar has retained the commercial responsibility for the CID indication of Canalevia in dogs, which has received MUMS designation from the FDA and which the company expects will be the first indication available commercially in the next year.

Market Opportunity

We believe there is a significant unmet medical need for the treatment of CID in dogs. There is currently no FDA-approved anti-secretory product that we are aware of to treat CID in dogs. We estimate that there are over 230,000 dogs receiving chemotherapy treatment for cancer each year in the United States, with over 25% suffering from CID. Severe diarrhea is a frequent side effect of the most commonly administered chemotherapy drugs. Similar to the effects in humans, we believe that if left untreated, CID in dogs can result in:

- fluid and electrolyte losses, which can cause dehydration, electrolyte imbalance and renal insufficiency;
- nutritional deficiencies from alteration of gastrointestinal transit and digestion; and
- increased risk of infectious complication.

Efficacy of the underlying cancer treatment may also be jeopardized if CID severity requires reductions in the absorption, frequency and/or dosage of chemotherapy. From the dog owner's perspective, there are significant practical implications of CID in dogs that may affect living arrangements, as well as the cost, time and attention required to clean and care for the dog and its surroundings on a daily basis. Veterinarians sometimes prescribe human drugs in an effort to treat CID in dogs, but do not have the benefit of clinical support with respect to efficacy or dosing. In addition, administering a potentially unpalatable human formulation is often difficult and may lead to further uncertainty of the amount actually ingested by the dog.

Our Solution

We believe that Canalevia is an ideal treatment for CID in dogs because of its demonstrated novel anti-secretory mechanism of action. Canalevia acts locally in the gut and is minimally absorbed systemically. It does not alter gastrointestinal motility, has no significant effects on normally functioning intestinal ion channels and electrolyte or fluid transport, and has no side effects different from placebo. These features are further augmented by its lack of effects on the absorption and/or metabolism of co-administered chemotherapy drugs, orally or by other routes of administration. Canalevia acts by normalizing the flow of excess ions and water in the intestinal lumen. The flow of excess ions and water into the intestinal lumen is the last step common to the manifestation of acute diarrhea. As a result, we believe Canalevia may be effective in the treatment of acute diarrhea, regardless of cause, including CID. We intend to conduct a study in tyrosine kinase inhibitor ("TKI") induced diarrhea in dogs with cancer in 2017, to assist our educational and commercial efforts in anticipation of conditional approval of Canalevia for CID.

Human formulations of crofelemer have been studied and found effective in human patients with various types of watery diarrhea, including traveler's diarrhea, HIV-related diarrhea and other acute infectious diarrheas, including cholera. Crofelemer has been clinically demonstrated to have a safety profile not different from placebo in humans and several animal species, including dogs.

Clinical Data

Canalevia is a canine-specific formulation of crofelemer. A human-specific formulation of crofelemer, Mytesi (formerly known as Fulyzaq), was approved by the FDA in 2012 for the symptomatic relief of noninfectious diarrhea in adults with HIV/AIDS on antiretroviral therapy. A number of clinical studies of crofelemer were conducted by Napo in dogs in support of this approval that included dose toxicity studies. Safety was established by conducting a series of toxicity studies involving a total of 32 dogs six months of age and older. Dosage levels varied within and across the studies: two single dose acute toxicity studies were conducted on four dogs each; two seven-day repeat administration studies were conducted on four dogs each; one 30-day repeat administration study was conducted on four dogs; and one nine-month repeat administration study on eight dogs. The toxicology studies in dogs showed minimal to no adverse effects following dosing up to approximately 50 times the anticipated efficacious dose. The clinical studies previously conducted in dogs also included multiple dose studies. We are currently conducting safety studies in dogs as young as eight weeks of age to expand the studied dog population for safety labelof Canalevia to include younger dogs.

In multiple third-party human clinical trials involving approximately 2,400 patients, enteric-coated crofelemer showed statistically significant results relative to placebo in normalizing stool formation and improvements in other endpoints related to treating watery diarrhea. In these trials, the "p" values were statistical calculations to determine whether the effects of crofelemer were significant in comparison to placebo based on pre-specified statistical targets. Depending on the trial design, we specified that any result less than $p=0.05$ would be significant. In a pivotal trial in support of approval for human use, crofelemer demonstrated significant benefit in the chronic indication of diarrhea in adults with HIV/AIDS on anti-retroviral therapy, achieving highly significant results ($p=0.0096$) in the primary endpoint measuring frequency of diarrhea.

In addition to the pivotal trial in HIV/AIDS associated diarrhea, human clinical trials included double-blind, placebo-controlled chronic and acute studies, across different human patient populations, and included safety studies in pediatric patients as young as three months of age. For example, in a 3-day treatment study of approximately 100 adult human patients with acute watery diarrhea of multiple and/or unknown etiologies, crofelemer achieved clinical success in 79% of the patients, compared to 28% receiving placebo ($p<0.05$). Clinical success was defined as the complete cessation of diarrhea for 12 hours or two consecutive normal stools within 48 hours of first dose. Crofelemer also achieved statistical significance across each of the seven other endpoints measured in that study, including a 96% reduction in watery stools from baseline, compared to 54% for placebo ($p<0.05$) and an 89% reduction in urgency compared to 43% for placebo ($p<0.05$). Across the diseases and human patient populations studied to date with crofelemer, there have been no drug related serious adverse events or safety profile different from placebo.

In June 2015 we completed a pilot safety study involving the anticipated commercial formulation of Canalevia in dogs suffering from CID. The objective of the multi-site study was to determine the safety and tolerability of enteric-coated crofelemer tablets in dogs with CID when administered orally twice daily for six treatments at the recommended dose range of 2-4mg/kg. The eight dogs that participated in the study were enrolled based on current or historical episodes of diarrhea correlating to chemotherapy treatment. The study was a safety assessment as requested by the FDA, and diarrhea or unformed stool consistency was not an eligibility criteria. However, 25% of the dogs entered the study with unformed stools and responded during the treatment with formed or amorphous stools or no stool. None of the remaining dogs progressed to unformed stools.

Canalevia—Expansion to Acute Diarrhea in Dogs

Overview

We are also developing Canalevia for acute diarrhea in dogs, regardless of cause. In December 2015 we initiated a pivotal field study to evaluate the safety and effectiveness of Canalevia for the treatment of acute diarrhea in dogs. According to the American Veterinary Medical Association, there were approximately 70.0 million dogs in the United States in 2012. In February 2015 we completed a randomized, blind, multicenter proof-of-concept study of Canalevia in dogs, with statistically significant results. Crofelemer, the API in Canalevia, demonstrated efficacy in numerous human clinical trials of acute watery diarrhea induced by various infectious pathogens, including *E. coli*, *V. cholera* and non-specific pathogens (*e.g.*, Traveler's). Following oral dosing for two or three days, crofelemer, together with ORS, produced significant reduction in watery diarrhea, as demonstrated by the reduction of watery stool passage as well as reduced duration of diarrhea, urgency and dehydration.

As we announced on January 31, 2017, Jaguar and Elanco US Inc., a subsidiary of Eli Lilly and Company, have signed an agreement to license, develop, co-promote, and commercialize Canalevia, Jaguar's drug product candidate under investigation for treatment of acute and CID in dogs. The agreement grants Elanco exclusive global rights to Canalevia for use in companion animals. Jaguar and Elanco will collaborate on the global development of the product and on its commercialization in the U.S. Under the terms of the agreement, Jaguar has retained the commercial responsibility for the CID indication of Canalevia in dogs, which has received MUMS designation from the FDA and which the company expects will be the first indication available commercially in the next year.

Market Opportunity

Diarrhea is one of the most common reasons for veterinary office visits for dogs and the second most common reason for visits to the veterinary emergency room, yet there are currently no FDA-approved anti-secretory agents we are aware of to treat the indication. We estimate that veterinarians see approximately six million annual cases of acute and chronic diarrhea in dogs in the United States, approximately two-thirds of which are acute diarrhea.

Veterinarians typically treat acute diarrhea in dogs with antibiotics, probiotics, dietary restrictions and products approved and formulated for humans, such as Imodium and other anti-motility agents, as well as binding agents that absorb water such as Kaopectate and Pepto-Bismol. None of these treatment options address the water loss associated with acute diarrhea. Further, because none of the human products are FDA approved for animal use, veterinarians do not have the benefit of clinical support with respect to efficacy or dosing. Moreover, administering a potentially unpalatable human formulation is often difficult and may lead to further uncertainty of the amount actually ingested by the dog.

We believe that Canalevia is an ideal treatment for acute diarrhea in dogs because of its demonstrated novel anti-secretory mechanism of action. If approved for use in acute diarrhea in dogs, we believe Canalevia will be the only FDA-approved anti-secretory agent to treat diarrhea in dogs.

Clinical Data

Overview. Canalevia demonstrated a statistically significant clinical response and resolution of diarrhea in a randomized, blind, multicenter study, which assessed the clinical efficacy in alleviating clinical signs associated with watery diarrhea in dogs. The five-month trial was completed in February 2015. This was a proof of concept study with the goal of defining endpoint assessments and statistical analyses to inform a trial design to FDA for a pivotal regulatory dog Canalevia study for the more general watery diarrhea indications.

The protocol for this study is based on our experience and success in previous human and dairy calf studies evaluating *Croton lechleri* derivatives and their effect on acute diarrhea. Based on the results, we

designed the pivotal trial to evaluate the safety and effectiveness of Canalevia for the indication of acute diarrhea in dogs. In December 2015 we initiated this pivotal trial. The prospective, blinded, randomized, placebo-controlled study is being conducted on an inpatient basis at private veterinary practices, animal shelters and animal rescues across the U.S. A single protocol is being followed at all sites, and enrolled dogs remain on-site and are individually housed for the duration of the study. The study enrolled 200 dogs exhibiting secretory, or watery, diarrhea. Participating dogs were randomized to receive either Canalevia or a placebo orally twice daily for three days. The study's primary endpoint is to demonstrate a resolution of diarrhea. The study period is divided into three 24-hour treatment periods followed by a 24-hour observation period, and fecal assessments are completed at least six times daily. Study completion testing includes a physical examination, clinical pathology testing and a final fecal assessment. Jaguar has completed enrollment of this study and expects top-line results in 1H, 2017. The company expects to file all major section of the NADA, including the results from this pivotal trial, by mid-2017.

Equine Product Candidates

Jaguar is developing a full suite of products to support and improve gastrointestinal health in foals and adult horses. Gastrointestinal conditions such as acute diarrhea, ulcers and diarrhea associated with acute colitis can be extremely debilitating for horses, and present a significant economic and emotional burden for veterinarians and owners around the world.

We intend to develop a species-specific formulation of crofelemer to treat diarrhea associated with acute colitis in horses. We believe colitis affects thousands of horses in the United States each year, and in December 2015 we completed a pilot safety study in conjunction with Louisiana State University to evaluate crofelemer in adult horses, the first step in the development program for diarrhea associated with acute colitis. The study involved three healthy horses treated with three consecutive, three-day cycles of escalating dose levels (up to approximately eight times the proposed dosage in horses) of an oral crofelemer paste. Clinical observations, vital signs, biochemical changes (complete blood count, serum chemistry and urinalysis) and adverse events were evaluated for dose-limiting toxicity after each dose level. The study concluded that dose-limiting toxicities were not observed at any of the three dose levels.

We are also developing a formulation of a *Croton lechleri* product for the treatment of ulcers in horses. Ulcers are lesions of the lining of the digestive tract and are very common in horses used for many competitive activities including racing, dressage, show jumping, endurance events, and western performance. Diarrhea is often a coincident problem. We believe that because *Croton lechleri*-derived products have been shown to act locally in the gut and have traditional use and rodent model benefit for ulcers, this equine formulation of a *Croton lechleri*-derived product has the potential to address ulcers in horses, as well as diarrhea. Data from the American Horse Council states that there are currently 9.2 million horses in the U.S., a population that includes 844,531 race horses, more than 2.7 million show horses, and more than 3.9 million recreational horses. Data from the Food and Agriculture Organization of the United Nations indicate that there were approximately 5.7 million horses in Europe in 2013 and nearly 60 million horses in 2013 worldwide. We believe that many owners give their horses daily doses of omeprazole and/or sucralfate to treat and prevent ulcers, which practice can cost up to $50 per day.

In January 2016 we announced positive topline results from the proof-of-concept study we initiated in November 2015 to evaluate the safety and effectiveness of our investigational new animal drug, Equilevia, for the treatment of EGUS in horses.

In this prospective, blinded, randomized, negative controlled study, Standardbred or Thoroughbred racehorses were randomized to one of three groups (10 horses per group) and treated for 28 days: horses in the placebo group received water-filled syringes every 6 hours; those in the TRT5 group received 5 grams of Equilevia divided into 2 doses per day; and those in the TRT40 group received 40 grams of Equilevia divided into 4 doses per day. Strict enrollment criteria required patients to have both squamous (non-glandular) and glandular gastric ulcerations. All horses were examined by gastroscopy (stomach endoscope) by blinded equine investigators on Day 0 (prior to treatment; baseline), and on Day 14 (mid-study), Day 28 (last day of treatment) and Day 35 (7 days after last treatment). Treatment-related adverse events were not observed.

With respect to glandular ulcerations, a statistically significantly greater number of horses in both the TRT40 (89%) and the TRT5 (78%) group had an improvement or a resolution of glandular ulcerations, compared with the placebo (25%) group as soon as Day 14. By Day 35, all of the Equilevia treated horses had experienced improvement or resolution, whereas 25% of horses in the placebo group still had not improved or resolved during the study.

With respect to squamous ulcerations, a non-statistically significant dose-dependent effect was observed with 40% and 33% of horses achieving an improvement or a resolution by Day 14 in the TRT40 and TRT5 groups, respectively, compared with 11% of placebo horses. By Day 35, numerically more horses in the TRT40 (60%) and TRT5 (55%) groups had achieved an improvement or a resolution compared with 33% of placebo horses.

In February 2016 we announced that further analysis of the study results indicates that Equilevia did not alter gastric pH during the trial, or for 7 days after therapy. Gastric pH during therapy was observed to be similar to baseline gastric pH at all measured study time points. Whereas other ulcer treatments (e.g. proton pump inhibitors like omeprazole) rely on a mechanism of action that blocks gastric acid secretion for the treatment and prevention of equine gastric ulcer syndrome (EGUS), our preliminary data indicate that Equilevia may have advantages. Treatments for EGUS that do not alter gastric pH are important because maintaining low gastric pH is essential for digestion, for gut immunity and first line defense against pathogens, for the absorption of vitamins and minerals, and for potentially other downstream effects.

Equilevia may offer horse owners an additional advantage over omeprazole in the competition horse world, where the requirement exists for equine athletes to compete free from the effect of any drugs. International screening limits for horse racing state that omeprazole has a 72-hour detection time. Detection time is defined as the first observed time point at which urine and/or plasma samples collected from a horse are negative for the presence of a specified drug. Because Equilevia acts locally in the gut and is minimally absorbed, it is unlikely that use of this drug product candidate will present any issues related to detection time. We intend to demonstrate that Equilevia is not systemically absorbed in horses, thereby providing a treatment regimen that can continue without mandatory withdrawal prior to competition. Moreover, we also aim to demonstrate that Equilevia can be administered in the presence of feed, another constraint of omeprazole administration.

Following the late stage development toward anticipated FDA approval of Equilevia, Jaguar plans to focus initial promotional efforts on the segment of the equine market that is most likely to seek treatment for EGUS: owners and caregivers of high-value horses, equine athletes, and horses that are insured. According to the American Veterinary Medical Association, an estimated 9% of horse owners in the U.S. have insurance for the animals.

The U.S. patent for use of omeprazole to treat equine ulcers expired in 2015.

Until recently, treatment recommendations for equine ulcers have not differentiated between squamous and glandular disease. However, a series of recent third-party studies indicate considerably lower healing rates for glandular ulcers with standard of care (e.g. omeprazole). Subclinically, these lesions can compromise athletic performance.

It is clear that development of a natural alternative treatment for EGUS that maintains stomach health without altering stomach pH is desirable. As previously announced, we initiated a dose determination study in May 2016 to determine the minimum effective dose of Equilevia for the treatment of EGUS and to support development of the optimal commercial formulation. As we announced in November 2016, the dose determination study has been completed, and a full analysis of the study data with scoring of squamous and glandular ulcers is expected to be available in Q1, 2017. We also plan to initiate a field study for Equilevia, timed to take place during horse racing off-season, when race horses are available to participate.

Our goal is to see Equilevia serve as an important tool in the standard of care of horses with all types of ulcers. Additionally, we believe a significant market exists for a product that treats both gastric and colonic ulcers in horses without altering stomach pH. According to a 2005 study, 54% of performance horses have both colonic and gastric ulcers and 97% of performance horses have either a gastric (87%) or a colonic (63%) ulcer. While we are initially developing Equilevia for the indication of EGUS, we plan to investigate the possible efficacy of this product candidate for treatment of colonic ulcers as a follow on indication in horses following the anticipated launch of Equilevia.

Crofelemer—Cats

According to the American Veterinary Medical Association, there were approximately 74.0 million cats in the United States in 2012. We estimate that veterinarians see approximately 2.9 million annual cases of acute diarrhea in cats. Veterinarians typically treat acute diarrhea in cats with the same treatments used for dogs, namely antibiotics, probiotics, dietary restrictions and products approved and formulated for humans, such as Imodium and other anti-motility agents, as well as binding agents that absorb water such as Kaopectate and Pepto-Bismol.

We are currently developing a species-specific formulation of crofelemer, Felevia, for cats. We intend to initiate safety and proof-of-concept studies in cats in 2017.

As we announced on January 31, 2017, Jaguar and Elanco US Inc., a subsidiary of Eli Lilly and Company, have signed an agreement to license, develop, co-promote, and commercialize Canalevia, Jaguar's drug product candidate under investigation for treatment of acute and CID in dogs. The agreement grants Elanco exclusive global rights to Canalevia for use in companion animals. Jaguar and Elanco will collaborate on the global development of the product and on its commercialization in the U.S..

Neonorm Calf—Helps proactively retain fluids in dairy and beef calves—aiding the animals in avoiding debilitating, dangerous levels of dehydration

Overview

This formulation of Neonorm is an enteric-coated tablet designed to be orally administered to preweaned dairy and beef calves twice daily for three days. In our clinical study completed in May 2014, Neonorm demonstrated a statistically significant reduction in morbidity, as well as reduced mortality and improved weight gain as compared to placebo, in newborn dairy calves with scours. We recently launched Neonorm for preweaned calves in the United States under the brand name Neonorm Calf. We do not believe that Neonorm Calf fits within the FDA's definition of an animal drug, food or feed additive. Thus, we do not believe that it is regulated by the FDA at this time. The FDA previously regulated a human-specific formulation as a dietary supplement, rather than as a drug. To support the commercial launch, we completed field studies of Neonorm Calf involving approximately 400 preweaned dairy calves in total with Cornell University and in collaboration with our distributor, Animart.

Scours Market Opportunity

Scours refers to watery diarrhea in production animals, including dairy calves, which results from infectious agents that cause the secretion of ions and water into the intestinal lumen. Animals with scours may experience severe dehydration and electrolyte imbalance, which can lead to renal insufficiency, nutritional deficiencies, lower production in dairy cattle and even death. Current therapy include fluid and electrolyte replacement, continuous milk feeding, antibiotics (for calves with systemic involvement (*e.g.*, fever) with an increased risk of bacteremia), non-steroidal anti-inflammatory drug therapy and vaccines.

According to the USDA, there are approximately 9.2 million lactating dairy cows in the United States. We estimate from USDA sources that there were over 11.0 million dairy calves born in 2013. Dairy cows are continuously bred, both to maintain lactation and to produce dairy calves to maintain the herd. Dairy

calves are separated from their mothers shortly after birth and raised on commercial milk replacers until weaned at about 60 days of age. Almost one in four, or 23.9%, of dairy heifer calves had diarrhea or other digestive problems according to the USDA *Dairy 2007* study. Scours, diarrhea or other digestive problems are responsible for more than half of all preweaned calf deaths, and result in supportive care and treatment costs, impaired weight gain and long-term reduction in milk production. Of dairy farm operations surveyed in the *Dairy 2007* study, 62.1% used antibiotics for diarrhea or other digestive problems, including preweaned heifer calves not reporting diseases or disorders. Of preweaned calves that were affected by diarrhea or other digestive problems, almost three-fourths, or 74.5%, were treated with an antibiotic.

Our Solution

We believe Neonorm Calf is an ideal solution to aid fluid retention in dairy and beef calves suffering from scours. Neonorm Calf has been formulated and clinically tested to support fluid retention by specifically addressing the normalization of stool formation and ion and water flow in the intestinal lumen of newborn dairy calves with scours. There are an estimated 22.0 million beef calves in the United States, and published sources indicate that approximately 2.4% of beef calves younger than three weeks old suffer from diarrhea. Like Canalevia, Neonorm Calf acts locally in the gut and is minimally absorbed systemically. It does not alter gastrointestinal motility, has no significant effects on normally functioning intestinal ion channels and electrolyte or fluid transport, and has no side effects different from placebo. As a result, stool formation is normalized in a short period of time, weight loss is mitigated, supportive care costs and rehydration therapies such as ORS are reduced, and the risk of mortality is minimized.

Clinical Data

A challenge clinical study was completed in May 2014 by researchers from Cornell, and published in 2015 in the official journal of the American Dairy Science Association, *Journal of Dairy Science*. The results of this study suggest that Neonorm Calf can significantly increase the fecal dry matter of neonatal calves with experimentally-induced enterotoxigenic *E. coli* diarrhea, and suggest a potential benefit of Neonorm Calf in supporting weight gain in calves.

A further analysis, completed in October 2015, of the above-referenced Cornell study supports a benefit of Neonorm Calf on the optimization of the intestinal microbiome profile in preweaned dairy calves, a potential prebiotic benefit. The microbiome is a community of microorganisms that live normally in the gut and are vital to maintenance of gut health.

We recently completed a placebo-controlled study in conjunction with researchers from Cornell to evaluate the herd-wide efficacy of the prophylactic use of a second-generation formulation of Neonorm Calf administered in liquid on naturally occurring diarrhea in preweaned dairy calves and investigate the possible prebiotic benefit of the product. This double-blinded, randomized study involved 40 Holstein bull calves affected with naturally occurring diarrhea. The study results show that calves under prophylactic administration of Neonorm Calf had significantly lower water content in fecal samples at multiple measurement points, lower incidence of diarrhea, and had fewer fluid therapy interventions. The possible beneficial prebiotic mechanism of Neonorm Calf would supplement and is potentially synergistic with the anti-secretory and weight gain benefits of the product.

Fecal scoring, which was conducted daily during the study period, indicated a significantly lower incidence of diarrhea among Neonorm-treated calves on most treatment days than among calves in the placebo group. The study also assessed the incidence of diarrhea from days 1 to 25 of life. Calves in the Neonorm-treated group experienced a highly significant reduction in the incidence of diarrhea during this period compared to those in the placebo group.

Dehydration was assessed twice daily for all calves in the study. Results showed that severe dehydration requiring the administration of intravenous ("IV") fluid therapy was reduced by

approximately 50% in the Neonorm-treated calves. Moreover, overall rescue therapy, requiring either oral or IV fluid administration, for both severe and moderate dehydration, was significantly reduced in the Neonorm-treated animals.

As we announced on February 2, 2017, Jaguar has begun entry into the organic market with Neonorm Calf, following listing of Neonorm Calf with an organization that evaluates livestock products in accordance with the U.S. Department of Agriculture (USDA) National Organic Standards on behalf of specified producers in New York state. Additionally, Jaguar is applying to have Neonorm Calf listed by the Organic Materials Review Institute (OMRI). OMRI is an international nonprofit organization that determines which input products are allowed for use in organic production and processing. OMRI Listed® products are allowed for use in certified organic operations under the USDA National Organic Program. According to the Organic Trade Association's (OTA) 2016 Organic Industry Survey, the U.S. organic industry posted new records in 2015, with total organic product sales hitting a new benchmark of $43.3 billion, up 11% from the previous year's record level and outpacing the overall food market's growth rate of 3%. According to OTA, dairy, the second biggest organic food category, accounted for $6.0 billion in sales, an increase of over 10%, and dairy accounts for 15% of total organic food sales.

Organic livestock production plays a vital role in support of a sustainable and safe farm and food system, both in the U.S. and internationally. According to a report published by Allied Market Research, the global market for organic dairy food and drinks—organic milk, yogurt, cheese, and others—is expected to grow at a compound annual growth rate of 14.25% from 2016 to reach $36.7 billion by 2022 from $14.5 billion in 2015. We believe Neonorm Calf will qualify as allowable for use on certified organic dairies throughout the U.S., and we're currently working to obtain additional required listings.

Neonorm Line Extensions

We believe that due to Neonorm Calf's mechanism of action and our data in preweaned dairy calves, we will be able to develop and commercialize species-specific formulations of Neonorm for multiple other animal species, such as horses, goats and sheep. We believe that there is an opportunity to target large-scale commercial livestock operations, first in the United States, and later, internationally. In less developed nations, where not only dairy and beef cattle but also buffalo, goat and sheep provide livelihoods for local populations, reducing losses related to diarrhea can provide significant monetary, social and health benefits. Today, these groups are already accessed by distributors with whom we intend to work to extend the reach of Neonorm Calf and line extension products.

In December 2015 we conducted the soft launch of Neonorm Foal, our lead non-drug product to promote normal fecal formation and reduce fluid loss in foals. We are planning studies of an equine formulation of Neonorm for adult horses with episodic diarrhea. Published studies estimate that there were 9.2 million horses in the United States in 2005. Diarrhea is among the most common clinical complaints in foals. Often, diarrhea occurs in the first 30 days of the foal's life, both from infections and non-infectious causes, such as lactose intolerance and overfeeding. Some cases are severe and life threatening. A majority of foals will exhibit diarrhea at some point within the first two months of life. In adult horses, episodic diarrhea is mostly associated with diseases of the large intestine and damage to the colon or disturbance of colonic function. Typically, diarrhea in horses is treated with fluid replenishment and electrolytes, deworming agents and antibiotics, and intestinal protectants and absorbents, as well as anti-motility agents. To our knowledge there are currently no anti-secretory products approved by the FDA for veterinary use.

In December 2015 we announced positive results for an exploratory, investigator-initiated follow-up study which assessed the safety and performance of Neonorm Foal, without inclusion of a probiotic, in pre-weaned foals with watery diarrhea. This six-day, multi-site study (ARG102) involved 20 foals suffering from secretory, or watery, diarrhea, all of which were placed into one treatment group. During the treatment period, which lasted 72 hours, Neonorm Foal was administered orally, in paste formulation,

twice daily for six treatments. In this study, a non-enteric form of Neonorm Foal was used. The treatment period was followed by a 72-hour observation period. Fecal scoring was conducted every six hours during both the treatment and observation periods. The study took place in Argentina, during the southern hemisphere foaling season.

In November 2015 we completed an initial proof-of-concept study (NEO101) of Neonorm Foal in Argentina that involved 60 foals. The objective of this earlier, randomized, multi-site, blinded, placebo-controlled study was to evaluate the safety and performance of the product for treatment of foals suffering from secretory diarrhea, and the treated animals received Neonorm Foal in combination with a third-party probiotic. The results of a meta-analysis between the two studies demonstrated a significantly higher percentage of foals with clinical response and resolution of diarrhea for Neonorm Foal, from either ARG102 or NEO101, compared with the placebo group in NEO101.

During the 72-hour treatment period, 35% of placebo-treated foals in NEO101 were identified as clinical responders, compared with 85% of foals treated with Neonorm Foal in ARG102. For the purposes of both studies, clinical responders were defined as foals that achieved a formed stool by the end of the reported period.

During the 72-hour treatment period, resolution of diarrhea was observed in 41% of placebo-treated foals in NEO101 compared with 85% of foals treated with Neonorm Foal in ARG102. For the purposes of both studies, resolution of diarrhea was defined as a foal that produced a formed stool at any point during the reported period.

Other Product Candidates and Development

We have planned multiple clinical studies over the next 12 to 18 months to expand Canalevia and Neonorm to additional species. We believe that we will be successful because:

- we have existing safety and efficacy data for our products and product candidates in dogs, dairy calves and/or humans;
- each of these products works through the normalization of ion and water flow into the intestinal lumen; and
- this physiological pathway is generally present in mammals.

Additionally, we plan to initiate a safety and proof of concept study for Virend in 2017. Both Virend and NP-500 have been through Phase 2 human clinical testing by third parties and studies with combinations of rifaximin and *Croton lechleri* derived products. NP-500 is isolated and purified from a plant indigenous to the southwestern United States, and in traditional medicine, the plant was brewed as a tea and used for the treatment of diabetes and other various illnesses. We are currently developing species-specific formulations of NP-500 to treat obesity-related metabolic dysfunction in dogs, Type II diabetes in cats and metabolic syndrome in horses, and have filed three INADs for these indications.

According to a 2013 national survey of veterinarians, approximately 17% of dogs in the United States are obese. Studies show that obesity is more common in elderly dogs, as well as in neutered dogs. Obesity-related metabolic dysfunction manifests in altered lipid profiles, insulin resistance and mild hypertension, which could decrease a dog's lifespan. There are currently no FDA-approved products for the treatment of metabolic syndrome or insulin resistance in dogs. In cats, the prevalence of obesity-related diabetes or Type II diabetes is high and increasing. In horses, insulin resistance is associated with an equine metabolic syndrome characterized by obesity, regional adiposity and hypertriglyceridemia. It is also known to be a risk factor for laminitis. Various studies report the prevalence of insulin resistance as 10% and 28% in horses and ponies, respectively. There are also currently no FDA-approved products for the treatment of metabolic syndrome in horses.

We anticipate that our development activities will benefit from centralized activities, including shared use of the manufacturing and regulatory documentation for chemistry, manufacturing and controls, or CMC. We also anticipate being able to enter into combined clinical research agreements and activities with companion animal clinical trial sites for dogs and cats.

Sales and Distribution

As we announced on January 31, 2017, Jaguar and Elanco US Inc., a subsidiary of Eli Lilly and Company, have signed an agreement to license, develop, co-promote, and commercialize Canalevia, Jaguar's drug product candidate under investigation for treatment of acute and CID in dogs. The agreement grants Elanco exclusive global rights to Canalevia for use in companion animals. Jaguar and Elanco will collaborate on the global development of the product and on its commercialization in the U.S.. Under the terms of the agreement, Jaguar has retained the commercial responsibility for the CID indication of Canalevia in dogs, which has received MUMS designation from the FDA and which the company expects will be the first indication available commercially in the next year.

As we announced on December 12, 2016, Jaguar has signed a distribution agreement with Henry Schein, Inc., the world's largest provider of health care products and services to office-based dental, animal health and medical practitioners, for exclusive distribution of Jaguar's Neonorm Foal product to all segments of the U.S. equine market. Henry Schein's animal health business, Dublin, Ohio-based Henry Schein Animal Health, employs approximately 900 team members and had 2015 net sales of $2.9 billion. With 12 strategically positioned, state-of-the-art distribution facilities and 10 inside sales centers nationwide, we believe Henry Schein Animal Health is positioned to bring a broad selection of veterinary products and strategic business solutions to more than 26,000 veterinary professionals nationwide. The agreement became effective on December 9, 2016, and, subject to provisions specified in the agreement, shall continue in force for an initial period of one year. Thereafter, unless either party notifies the other of its intent not to renew the term of the agreement at least 30 days prior to the end of the then current term, the term shall be automatically renewed upon expiration for successive renewal terms of one year.

In September 2014, we launched Neonorm for preweaned dairy calves under the brand name Neonorm Calf in the Upper Midwest region, and expanded the launch nationwide in early 2015. In December 2015 we conducted the soft launch of Neonorm Foal, our non-prescription anti-diarrheal product for newborn horses. We expect to launch Canalevia in 2017 for CID, and acute diarrhea in early 2018. We intend to continue the development of our focused commercial effort for both the production and companion animal markets. We will focus our commercial efforts on educational activities and outreach to key opinion leaders and decision makers at key regional and global accounts for production animals and high prescriber veterinarians for companion animals. In August 2014, we entered into our first regional distribution agreement for the Upper Midwest region, and in September 2014, entered into an agreement with a national master distributor, who also distributes prescription products for the companion animal market. In February 2015, we entered into a five-year distribution agreement with Biogenesis Bagó for sale and distribution of Neonorm Calf in South America. Biogenesis Bagó is the largest veterinary biotechnology company in Latin America, a region that contained approximately 401 million dairy and beef cattle in 2009 and produces approximately 11% of the world's milk supply. In 2014 Biogenesis Bagó was named "Best Animal Health Company in Latin/South America" by a publication called Animal Pharm. Our distribution agreement provides Biogenesis Bagó with exclusive distribution rights for Neonorm Calf in Argentina, Brazil, Paraguay, Uruguay, and Bolivia. Under the terms of the distribution agreement, we can terminate the agreement if Biogenesis Bagó fails to meet annual sales goals for each year of the five-year agreement, and we may revoke exclusivity if Biogenesis Bagó fails to meet guaranteed minimum sales. We also agreed to additional incentive payments if stretch goals are exceeded.

We plan to partner with other leading distributors to deliver our products to customers both in the United States and internationally, and may also explore entering into partnerships that include payment of upfront licensing fees for our products and product candidates for markets outside the United States

where appropriate. We expect that our current and future partners will have the presence, name recognition, reputation and reach in the veterinary markets and in both key urban and rural centers, as appropriate. We believe this overall approach is scalable and transferable as we expand our commercialization efforts, as well as when we further expand internationally including to resource-constrained countries where food safety issues are emerging global challenges.

Manufacturing

The plant material used to manufacture Canalevia, Neonorm and related products is crude plant latex, or CPL, extracted and purified from *Croton lechleri*, a widespread and naturally regenerating tree in the rainforest that is managed as part of sustainable harvesting programs. The tree is found in several South American countries and has been the focus of long-term sustainable harvesting research and development work. Our collaborating suppliers obtain CPL and arrange for the shipment of CPL to our third party contract manufacturer. CPL will also be shipped to us for manufacturing after we establish our own API manufacturing capability.

Our third-party contract manufacturer will process CPL into both crofelemer, the API in Canalevia, and the botanical extract used in both Neonorm Calf and Neonorm Foal. This manufacturing process uses exclusive Napo intellectual property licensed pursuant to the Napo License Agreement. Canalevia will be manufactured by the same process used to manufacture the API that was used in the animal safety studies and the human studies in support of the approval of Mytesi (formerly known as Fulyzaq). Napo has also licensed this intellectual property to third parties in connection with its licenses related to the development and commercialization of crofelemer for human use. While we believe these third parties have developed their own proprietary manufacturing specifications pursuant to their license agreements, such third-party intellectual property is unknown to us, is not licensed to us pursuant to the Napo License Agreement, and is not part of the intellectual property that we intend to use for the manufacture of API in our licensed field of use. Similarly, the manufacture of Neonorm depends only on technology licensed from Napo. The license grant specifically excludes intellectual property rights developed pursuant to a prior collaboration agreement between Napo and Glenmark Pharmaceuticals, Ltd., or Glenmark, the manufacturer of the API in Mytesi (formerly known as Fulyzaq). In May 2014 and June 2014, and as amended in February 2015, we entered into binding memorandums of understanding with Indena S.p.A. to negotiate a definitive commercial supply agreement for the manufacture of the API in Canalevia and the botanical extract in Neonorm. We have furnished equipment to Indena S.p.A. for use in a facility that will be dedicated to the manufacture of crofelemer and the botanical extract.

In December 2015, Indena delivered 360 kilos of the standardized botanical extract to us. We currently own enough of the Neonorm standardized botanical extract to formulate a combination of approximately one million treatments of Neonorm Calf or Neonorm Foal.

Pursuant to the memorandums of understanding as amended, we agreed to pay Indena S.p.A. the following fees in connection with the establishment of our manufacturing arrangement:

- a start-up fee equal to €500,000, payable in two equal installments, both of which were paid in May 2015;
- fees associated with the technology transfer and manufacturing process adaptation equal to €620,000 for API which was paid in May and July 2015;
- fees for the design and set up of a dedicated suite qualified for pharmaceutical and veterinary products equal to €170,000 which was paid in May 2015;
- deliverables fees equal to €500,000, €250,000 of which was paid in December 2015, and €250,000 of which was payable by the end of March 2016, with the understanding that these fees will be credited against payments agreed to under the future commercial supply agreement; and
- a €300,000 bonus fee payable in two equal installments, the first of which was paid in March 2015, with the remainder paid by the end of March 2016.

We have made all contractual payments to Indena as of March 31, 2016. In March 2015, Indena S.p.A. agreed to delay payment of the fees payable by the end of March 2015 until the earlier of April 30, 2015 or the completion of our initial public offering. In July 2015 and December 2015 Indena S.p.A agreed to delay payment of certain fees payable until March 2016. We have made all contractual payments to Indena as of March 31, 2016. In June 2014, as contemplated by the memorandums of understanding, we also issued Indena S.p.A. a warrant to acquire 16,666 shares our common stock at an exercise price per share equal to 90% of the initial public offering price, which expires in June 2019.

In September, 2015 we entered into a distribution agreement with Glenmark Pharmaceuticals Ltd., or Glenmark. With the execution of the agreement, we intend to use Glenmark as our primary manufacturer of crofelemer for animal health use. Our agreement with Glenmark supplements our previously announced manufacturing agreement with Indena S.p.A for the standardized botanical extract in Neonorm Calf and Neonorm Foal. We intend to eventually use Indena as an alternative supplier for crofelemer.

In October 2015, we announced that we signed a crofelemer formulation development and manufacturing contract with Patheon Pharmaceuticals Inc., or Patheon, a leading global provider of drug development and delivery solutions to the global pharmaceutical and biopharma industries. Under the terms of the contract, Patheon will provide enteric-coated crofelemer tablets for Jaguar for use in animals. The tablets will be used in our pivotal efficacy trial for Canalevia, which began in the fourth quarter of 2015. We expect to use safety and effectiveness data from this trial in support of the initiation of the filing of a NADA with the FDA for Canalevia in 2017 for the indication of acute diarrhea in dogs.

Patheon is the manufacturer of Mytesi (formerly known as Fulyzaq), a human-specific, enteric-coated formulation of crofelemer that was approved by the FDA in 2012 for the symptomatic relief of noninfectious diarrhea in adults with HIV/AIDS on antiretroviral therapy. Members of our management team developed crofelemer while working at Napo where the drug was initially developed.

We also plan to enter into agreements with third parties for the formulation of the API and botanical extracts into finished products to be used for planned studies and commercialization.

The facilities of our third-party contract manufacturers that will manufacture our API and botanical extract, as well as formulate our finished products, comply with cGMP and other relevant manufacturing requirements.

Competition

The animal health industry is dominated by large independent companies such as Zoetis Inc., a standalone animal health company that was spun out from Pfizer, Inc. in 2013, as well as subsidiaries of large pharmaceutical companies, including Novartis Animal Health Inc., a subsidiary of Novartis International AG., Merck Animal Health, the animal health division of Merck & Co., Inc., Merial Inc., the animal health division of Sanofi S.A., Elanco Animal Health, the animal health division of Eli Lilly and Company, Bayer Animal Health GmbH, a subsidiary of Bayer AG, and Boehringer Ingelheim Animal Health, the animal health division of Boehringer Ingelheim GmbH. There are also animal health companies based in Europe, including Vétoquinol S.A., Virbac S.A., Dechra Pharmaceuticals PLC and Ceva Animal Health S.A.

Additionally, smaller animal health companies, such as Aratana Therapeutics, Inc., Kindred Biosciences, Inc., Phibro Animal Health Corporation, Nexvet Biopharma and Parnell Pharmaceuticals Holdings Ltd, recently completed initial public offerings of their stock in the United States and may choose to develop competitive products. We believe that the large human pharmaceutical companies may also decide to spin out their animal health subsidiaries into standalone companies.

Although, to our knowledge, there are currently no FDA-approved anti-secretory products to treat acute diarrhea in dogs, we anticipate that Canalevia, if approved for this indication, will face competition from various products, including products approved for use in humans that are used extra-label in animals.

We are aware that veterinarians typically treat acute diarrhea in dogs with antibiotics, probiotics, dietary restrictions and products approved and formulated for humans, such as Imodium and other anti-motility agents, as well as binding agents that absorb water, such as Kaopectate and Pepto-Bismol. None of these treatment options address the water loss associated with acute diarrhea. We are not aware of any veterinarians prescribing Mytesi (formerly known as Fulyzaq) extra-label for use in dogs, and the indication of Mytesi is for a disease that does not occur in dogs. Further, because none of the human products are FDA approved for animal use, veterinarians, although allowed to dispense human products for animal use, do not have the benefit of clinical support with respect to efficacy or dosing. Moreover, administering a potentially unpalatable human formulation is often difficult and may lead to further uncertainty of the amount actually ingested by the dog. However, this practice may continue and Canalevia may face competition from these products. Canalevia could also potentially face competition from Mytesi were veterinarians to prescribe it extra-label. Extra-label use is the use of an approved drug outside of its cleared or approved indications in the animal context. All of our potential products could also face competition from new products in development. These and other potential competing products may benefit from greater brand recognition and brand loyalty than our products and product candidates may achieve.

Intellectual Property

Napo License Agreement

In January 2014, we entered into the Napo License Agreement, which we amended and restated in August 2014 and further amended in January 2015, pursuant to which we acquired an exclusive, sublicensable, transferable, worldwide license to certain intellectual property rights of Napo and its affiliates to research, develop, formulate, make, have made, use, have used, market, offer for sale, sell, have sold, and import, and to otherwise exploit products of Napo and its other affiliates for all veterinary treatment uses and indications for all species of animals. The license grant specifically excludes intellectual property rights developed pursuant to a prior collaboration agreement between Napo and Glenmark Pharmaceuticals, Ltd., the manufacturer of the API in Mytesi (formerly known as Fulyzaq). Under the Napo License Agreement, Napo also assigned to us certain raw materials and equipment and granted us a right of reference to the entirety of the information included in the human approved new drug application of crofelemer.

Under the terms of the Napo License Agreement, we are responsible for, and shall ensure, the development and commercialization of products that contain or are derived from the licensed Napo technology (collectively referred to herein as the Products) worldwide in the field of veterinary treatment uses and indications for all species of animals.

In consideration for the license, we are obligated to pay a one-time non-refundable license fee of $1.75 million, less the option fee of $100,000 paid in July 2013 pursuant to a term sheet we signed with Napo. We paid $25,000 to Napo towards the license fee in December 2014 and in January 2015, agreed that the remaining license fee payment will be paid in cash, or, if mutually agreed with Napo, in shares of our common stock according to the following schedule:

Payment Date	License Fee Amount
Amendment Date	$ 25,000
March 31, 2015	$ 25,000
June 30, 2015	$ 150,000
September 30, 2015	$ 500,000
December 31, 2015	$ 500,000
March 31, 2016	$ 425,000
Total	$ 1,625,000

In the years ended December 31, 2016 and 2015, we paid $425,000 and $1.2 million in accordance with the agreement.

Pursuant to the Napo License Agreement, we will owe Napo a 2% royalty on annual net sales of all Products that are prescription drugs (such as Canalevia and any line extensions) approved by the FDA or the equivalent regulatory agency in another country, and a 1% royalty of annual net sales of non-prescription products (such as Neonorm and any line extensions) that do not require pre-marketing approval from the FDA or the equivalent regulatory agency in another country. Upon agreement with Napo, we may elect to remit any milestone payments and/or royalties in the form of our common stock.

The royalty term expires on a country-by-country and Product-by-Product basis on the later of: (i) 10 years from the first sale of a Product in such country, on an animal by animal basis; and (ii) the first date on which there is no longer (A) a valid claim within the licensed patent rights covering the use, manufacture or sale of such Product, or (B) any data exclusivity with respect to such Product in such country conferred by the applicable regulatory authority, and in each case of (A) and (B), a competitive product has been introduced into the market in such country. The royalties payable to Napo are subject to reduction, capped at a specified percentage, for any third-party payments made to obtain a license or other rights to issued patents that might present a commercial obstacle to the development, manufacture, use, or sale of a Product in a country. Additionally, if the royalty term for a Product is ongoing post-expiration of the last valid claim within the licensed patent rights that covers such product in any given country, then the royalties we owe Napo will be reduced by a specified percentage until expiration of the royalty term for such Product in such country. Upon the expiration of each royalty term, on a country-by-country and Product-by-Product basis, the license grants shall be fully paid up and we will have perpetual non-exclusive licenses for such Products in such countries. At any time during the term of the agreement, if Napo sells all of its assets relating to the use, production or exploitation of *Croton lechleri* derivative products to a third party, all of the rights granted to us relating to *Croton lechleri* derivative products under the license shall become exclusive in the field of veterinary treatment uses and indications for all species of animals, perpetual, fully paid-up, royalty-free and irrevocable, with the right to grant sublicenses.

Under the terms of the Napo License Agreement, we own all rights, title and interest in our intellectual property and any joint intellectual property developed under the license. We granted Napo a non-exclusive, paid-up, irrevocable worldwide license to our intellectual property developed under the Napo License Agreement for use outside the veterinary field, and an exclusive, paid-up worldwide license to any joint intellectual property developed under the Napo License Agreement outside the veterinary field. We agreed to defend, indemnify and hold Napo, its affiliates, and its officers, directors, employees, consultants and contractors harmless from and against any losses, costs, damages, liabilities, fees and expenses arising out of any third-party claim related to our gross negligence or willful misconduct, breach of our representations, warranties or covenants or the manufacture, sale or use of the Product or Products, in each case, unless such third-party claim is subject to indemnification by Napo. Napo agreed to defend, indemnify and hold us, our affiliates, and our officers, directors, employees, consultants and contractors harmless from and against any losses, costs, damages, liabilities, fees and expenses arising out of any third-party claim related to Napo's, its affiliate's or its licensees' (except for us) gross negligence or willful misconduct, or Napo's breach of its representations, warranties or covenants.

We may terminate the Napo License Agreement upon Napo's uncured material breach, bankruptcy or at will after certain notification periods. Napo may terminate the Napo License Agreement upon our uncured material breach or bankruptcy after certain notification periods.

As we announced on January 31, 2017, Jaguar and Elanco US Inc., a subsidiary of Eli Lilly and Company, have signed an agreement to license, develop, co-promote, and commercialize Canalevia, Jaguar's drug product candidate under investigation for treatment of acute and CID in dogs. The agreement grants Elanco exclusive global rights to Canalevia for use in companion animals.

Patent Portfolio

Under the Napo License Agreement, we have exclusive rights in the veterinary field to an international patent family related to International Patent Application WO1998/16111. The patents and patent applications in this family are directed to enteric protected formulations of proanthocyanidin polymers isolated from *Croton spp* or *Calophyllum spp.* (such as crofelemer and Neonorm), and methods of treating watery diarrhea using the enteric protected formulations for both human and veterinary uses. As such, the patents and patent applications of this family cover certain formulations of crofelemer, including Canalevia, as well as the standardized botanical extract in Neonorm, and methods of treating diarrhea using these formulations. There are three U.S. patents and a pending U.S. patent application in this family, including, US 7,323,195, which has a term until at least June 7, 2018, US 7,341,744, which has a term until at least January 11, 2018, and US 8,574,634, which has a term until at least January 11, 2018. The term of one of US 7,323,195 or US 7,341,744 may be extended to June 2021 and December 2020, respectively, to account for regulatory delay in obtaining human marketing approval for crofelemer (such potential extensions have been filed for and only one of the patents can be extended). Patent protection for enteric protected formulations of crofelemer and methods of use has also been obtained outside the United States, including in Europe, Australia, Canada, India, Japan, Korea, Mexico, New Zealand and Taiwan, with terms extending until at least October 14, 2017 in these jurisdictions. In particular, European patent EP 0 935 417 and Japanese patent no. 4195728 provide protection for enteric protected formulations of crofelemer and the standardized botanical extract in Neonorm in Europe and Japan, respectively, with terms that extend until at least October 14, 2017.

The patents and patent applications we licensed from Napo, or the Napo Patents, which cover both human and veterinary uses, were previously licensed by Napo to Salix for certain fields of human use. On March 4, 2016, Napo and Salix settled litigation and all rights to crofelemer and Mytesi (formerly known as Fulyzaq) were returned to Napo and the collaboration agreement between Salix and Napo, or the Salix Collaboration Agreement, was terminated. Napo has the responsibility to file, prosecute and maintain the Napo Patents. As a result, under the Napo License Agreement, we only have the right to maintain any issued patents within the Napo Patents that are not maintained in accordance with the responsibilities of Napo. There are three issued Napo Patents in the United States that cover, collectively, enteric protected formulations of proanthocyanidin polymers isolated from *Croton spp.* and methods of treating watery diarrhea using the enteric protected formulations for both human and veterinary uses.

We have filed and have currently pending four applications under the PCT, four U.S. non-provisional patent applications and three provisional patent applications relating to veterinary uses of *Croton* proanthocyanidin polymer compositions, including crofelemer, Neonorm and Canalevia, and product combinations under development. These applications are directed to treatment of watery diarrhea in newborn and young animals, including methods of improving mortality and weight gain in newborn animals, treatment of stress-induced diarrhea in animals, and treatment of watery diarrhea caused by salmonella in animals. These applications also focus on the treatment of diarrhea in companion animals such as dogs and cats. In addition, an application has been submitted for the treatment of ulcers and related symptoms in animals with an emphasis on ulcers in horses. An application has also been filed on a surprising prebiotic effect of crofelemer in bovine and other animal species based on unexpected research findings that indicate a prebiotic enhancement of the gut bacteria in animals. One other patent application has been filed combining crofelemer with rifaximin, a non-absorbed antibiotic for the treatment of bacteria induced diarrhea in multiple animal species. Applications have been filed relating to treatment of porcine epidemic virus in piglets and treatment of diarrhea in livestock with a formulation that is not enteric protected. Patents that may issue based upon applications filed claiming benefit of these provisional patent applications should have terms that extend until at least May 2035.

We have two issued US patents licensed exclusively from Napo for veterinary use, covering NP-500 and its use. NP-500 is the API in Jaguar's drug product candidates to treat and manage diseases related to insulin-resistance, such as obesity-related metabolic dysfunction in dogs and cats, diabetes mellitus, and

potentially equine laminitis. The two NP-500 patents claim benefit to a provisional application submitted to the USPTO by Napo in April 2011. Per the terms of the license agreement between Napo and us, we have an exclusive license to these intellectual properties for all veterinary treatment uses and indications for all species of animals except humans.

Trademarks

We plan to market our products under a trademark or trademarks we select and we will own all rights, title and interest, including all goodwill, associated with such trademarks.

Government Regulation

The development, approval and sale of animal health products are governed by the laws and regulations of each country in which we intend to seek approval, where necessary, to market and subsequently sell our prescription drug and non-drug products. To comply with these regulatory requirements, we are establishing processes and resources to provide oversight of the development, approval processes and launch of our products and to position those products in order to gain market share in each respective market.

United States

Certain federal regulatory agencies are charged with oversight and regulatory authority of animal health products in the United States. These agencies, depending on the product and its intended use may include the FDA, the USDA and the Environmental Protection Agency. In addition, the Drug Enforcement Administration regulates animal therapeutics that are classified as controlled substances. In addition, the Federal Trade Commission may in the case of non-drug products, regulate the marketing and advertising claims being made.

The approval of prescription drugs intended for animal use is regulated by the FDA's Center for Veterinary Medicine, or CVM. The CVM consists of six offices that work together to, in part, approve new drugs for commercialization and thereafter monitor those commercialized drugs once in the market. The Office of New Animal Drug Evaluation, or ONADE, is the lead office for reviewing novel drug candidates. We, as the sponsor of a novel drug candidate, commence the development and approval process by initiating communication with the ONADE and opening an INAD file. As part of this process, we will also schedule a discussion of the novel drug's development plan in order to obtain agreement from the CVM for the number, type and design of studies needed to obtain FDA approval of the novel drug.

As required by the FDA, new animal drug products must obtain marketing approval through the NADA process. Under the Administrative New Animal Drug Application, or Administrative NADA, process, a sponsor can engage in a phased submission of the required technical sections of an NADA, known as a rolling NADA, as opposed to submitting the entire application at once with a standard NADA. The requirements for all NADAs are the same regardless of whether a sponsor chooses the rolling NADA or the standard NADA submission. Under the phased review, once all technical sections have been submitted and reviewed, the sponsor submits an Administrative NADA to reflect that all technical sections of the NADA have been submitted and reviewed, each such technical section meets the requirements for approval and the CVM has issued technical section complete letters for each technical section. The phased review and Administrative NADA allow a drug sponsor to engage with the FDA as to each technical section to ensure that each section meets all requirements prior to submission of the application for approval. Phasing of NADA submissions is a voluntary process.

Once the tasks set forth in the development plan have been completed, including the clinical work as well as the chemistry and manufacturing work (feasibility, validation and stability of the drug inclusive), we, as the novel drug sponsor will need to provide to the FDA through the application process, information as to the safety and efficacy of the drug candidate, and, if needed, human food safety studies. These food

safety studies are only required for drugs intended for use in production animals, and we currently have no plans to develop drugs for production animals. Additionally, the application will contain a module on CMC, which describes the plan for manufacturing the drug including the API, the final formulation, where it will be made, how it will be made, how the drug will be packaged, how it can be stored, the conditions required for storage and how long it can be stored before expiry. A major part of the CMC section is the analysis we employ to ensure that the manufactured drug is of a high quality, is consistently manufactured under cGMP and is stable. Other significant components to the application we have to complete before receiving drug approval includes a draft label that will list specific information such as dosing information, intended use, warnings, directions for use, and other information as required by the regulations. The package insert that will contain information on studies, warnings, drug interactions, intended use and dosing is considered part of the label in addition to that which is adhering to the container itself. The CVM ensures that the labeling provides all the necessary information to use the drug safely and effectively, and that it clearly discloses the risks associated with the drug.

MUMS Designation

The Minor Use and Minor Species Animal Health Act, or MUMS Act, became effective in August 2004. The purpose of the MUMS Act was twofold: first, to encourage the development and availability of more animal drugs that are intended to be used in a major species defined as dogs, cats, cattle, horses, chickens, turkeys and pigs to treat diseases which occur infrequently or in limited geographic areas, therefore having an impact on a smaller number of animals on a yearly basis; and second, to encourage the development and availability of animal drugs for use in minor species (defined as all animals other than humans that are not one of the major species). The drug sponsor may seek conditional approval of the drug product provided the Office of Minor Use Minor Species, or "OMUMS" acknowledges that the intended use fits within a small number of animals treated per annum. A drug does not have to be designated to be eligible for conditional approval, however if OMUMS designates a MUMS drug, certain incentives and exclusivities are available to the sponsor. The MUMS designation is modeled on the orphan drug designation for human drug development and has certain financial incentives available to encourage MUMS drug development such as the availability of grants to help with the cost of the MUMS drug development. Also, drug developers of MUMS drugs are eligible to apply for a waiver of the user fees once the MUMS designation has been given by OMUMS. We believe that we qualify for MUMS designation for Canalevia as a minor use in a major species because the estimated total number of dogs in the United States affected by CID is less than 70,000. To obtain conditional approval of a MUMS drug, the company must submit CMC and safety data similar to that required for an NADA, as well as data suggesting a reasonable expectation of effectiveness. After the submission and the review of the application, the FDA through the CVM can then grant a conditional approval (CA-1). This approval allows for a commercialization of the product, while the sponsor continues to collect the substantial evidence of effectiveness required for a full NADA approval. The sponsor has up to five years to demonstrate substantial evidence of effectiveness for a previously conditionally approved drug. Ideally, MUMS designation helps move the product forward in development; however, it may not shorten the time to full commercialization. A sponsor that gains approval or conditional approval for a MUMS designated drug receives seven years of marketing exclusivity.

Protocol Concurrence

As we announced in April 2016, Jaguar obtained protocol concurrence from the FDA for our pivotal trial of Canalevia that we initiated in December 2015 for acute diarrhea in dogs. We plan to pursue protocol concurrences from the FDA for future pivotal trials in other indications. Under this process, a protocol is submitted to the FDA voluntarily by a drug sponsor. The FDA review of the protocol for a pivotal study makes it more likely that the study will generate information the sponsor needs to demonstrate whether the drug is safe and effective for its intended use. It creates an expectation by the sponsor that the FDA will not later alter its perspectives on these issues unless public or animal health

concerns appear that were not recognized at the time of protocol assessment. Even if FDA issues a protocol concurrence, ultimate approval of an NADA by the FDA is not guaranteed because a final determination that the agreed-upon protocol satisfies a specific objective, such as the demonstration of efficacy, or supports an approval decision, will be based on a complete review of all the data submitted to the FDA. Even if we were to obtain protocol concurrence, such concurrence does not guarantee that the results of the study will support a particular finding or approval of the new drug.

Marketing Exclusivity

We are currently planning on seeking MUMS designation for some of our prescription drug products and if we receive such a designation, we will be entitled to a seven-year marketing exclusivity, which means that we will face no competition from another sponsor marketing the same drug in the same dosage form for the same intended use. If we were to lose such designation or not receive such designation but our application as a new animal drug is found to be a new chemical entity that meets the criteria described by the FDA, we would be entitled to a five-year marketing exclusivity. In order to receive this five-year exclusivity, the FDA would have to find in its approval of our application that our NADA contains an API not previously approved in another application, that the application itself is an original application, not a supplemental application, and that our application included the following studies: one or more investigations to demonstrate substantial evidence of effectiveness of the drug for which we are seeking approval; animal safety studies and human food safety studies (where applicable). If the NADA is seeking approval of a drug for which we have received conditional approval, we, upon approval would still be entitled to a five-year marketing exclusivity provided it meets the criteria as set forth above. If however, our NADA is for a drug for which the FDA has determined that the drug contains an API that has previously been approved, regardless of whether the original approval was for use in humans or not, we may only be entitled to a three-year marketing exclusivity provided that the NADA is an original, not supplemental, application and contains both safety and efficacy studies demonstrating the safety and efficacy of the drug which is the subject of the application. Jaguar has received MUMS designation for Canalevia for the indication of Chemotherapy-Induced Diarrhea, or CID, in dogs.

European Union

The European Union, or EU, definition of a veterinary medicinal product closely matches the definition of an animal drug in the United States. In the EU, a company can market a veterinary medicinal product only after a marketing authorization has been issued by an EU member state, (*i.e.*, approval on a country-by-country basis) or by the EU Commission through the European Medicines Agency, or the EMA. Before the EU member state or the EU Commission issues marketing authorization, we must submit a marketing authorization application, known as the dossier. The dossier includes data from studies showing the product's quality, safety, and efficacy and is similar to an NADA filed with the FDA.

For an animal drug, the Committee for Medicinal Products for Veterinary Use, or CVMP, is responsible for the scientific evaluation. Experts from all EU member states are on the CVMP. The Rapporteur, or lead reviewer on the dossier, prepares an overview of the committee's scientific evaluation, called the CVMP Assessment Report.

The CVMP Assessment Report:

- summarizes the data submitted by the company on the product's quality, safety, and efficacy;
- explains the assessment done by the CVMP to support the committee's recommendation to the EU Commission to issue a marketing authorization; and
- is the basis for the European Public Assessment Report published on the EMA's website.

Labeling

The FDA plays a significant role in regulating the labeling, advertising and promotion of animal drugs. This is also true of regulatory agencies in the EU and other territories. In addition, advertising and promotion of animal health products is controlled by regulations in many countries. These rules generally restrict advertising and promotion to those claims and uses that have been reviewed and approved by the applicable agency. We will conduct a review of advertising and promotional material for compliance with the local and regional requirements in the markets where we eventually may sell our product candidates.

Our non-prescription products will be labeled in accordance with the health guidelines outlined by the National Animal Supplements Council, an industry organization that sets industry standards for certain non-prescription animal products, including but not limited to product labeling.

Other Regulatory Considerations

We believe regulatory rules relating to human food safety, food additives, or drug residues in food will not apply to the products we currently are developing because our prescription drug product candidates are not intended for use in production animals, with the exception of horses, which qualify as food animals in Europe and Canada; and our non-prescription products are not regulated by section 201(g) of the Federal Food, Drug, and Cosmetic Act, which the FDA is authorized to administer.

Our prescription drug product candidates currently in development, if approved, may eventually face generic competition in the United States and in the EU after the period of exclusivity has expired. In the United States, a generic animal drug may be approved pursuant to an abbreviated new animal drug application, or ANADA. With an ANADA, a generic applicant is not subject to the submission of new clinical and safety data but instead must only show that the proposed generic product is a copy of the novel drug product, and bioequivalent to the approved novel product. However, if our product candidates are the first approved by the FDA or the EMA as applicable for use in animals, they will be eligible for a five-year marketing exclusivity in the United States and 10 years in the EU thereby prohibiting generic entry into the market. If the product has MUMS designation it has a seven-year marketing exclusivity.

We do not believe that our non-prescription products are currently subject to regulation in the United States. The FDA's Center for Veterinary Medicine only regulates those animal supplements that fall within the FDA's definition of an animal drug, food or feed additive. The Federal Food Drug and Cosmetic Act defines food as "articles used for food or drink for man or other animals and articles used as components of any such article." Animal foods are not subject to pre-market approval and are designed to provide a nutritive purpose to the animals that receive them. Feed additives are defined as those articles that are added to an animal's feed or water as illustrated by the guidance documents. Our non-prescription products are not added to food, are not ingredients in food nor are they added to any animal's drinking water. Therefore, our non-prescription products do not fall within the definition of a food or feed additive. The FDA seeks to regulate such supplements as food or food additives depending on the intended use of the product. The intended use is demonstrated by how the article is included in a food, or added to the animals' intake (*i.e.,* through its drinking water). If the intended use of the product does not fall within the proscribed use making the product a food, it cannot be regulated as a food. There is no intent to make our non-prescription products a component of an animal food, either directly or indirectly. A feed additive is a product that is added to a feed for any reason including the top dressing of an already prepared feed. Some additives, such as certain forage, are deemed to be Generally Recognized as Safe, or GRAS, and therefore, not subject to a feed Additive Petition approval prior to use. However, the substances deemed GRAS are generally those that are recognized as providing nutrients as a food does. We do not believe that our non-prescription products fit within this framework either. Finally, a new animal drug refers to drugs intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in animals. Our non-prescription products are not intended to diagnose, cure, mitigate, treat or prevent disease and therefore, do not fit within the definition of an animal drug. Our non-prescription products are intended to

support a healthy gut, support fluid retention, and normalize stool formation in animals suffering from scours. Additionally, because a previously marketed human formulation of the botanical extract in our non-prescription products was considered a dietary supplement subject to the Dietary Supplement Health and Education Act of 1994 (and not regulated as a drug by the FDA), we do not believe that the FDA would regulate the animal formulation used in our non-prescription products in a different manner. We do not believe that our non-prescription products fit the definition of an animal drug, food or food additive and therefore are not regulated by the FDA at this time.

In addition to the foregoing, we may be subject to state, federal and foreign healthcare and/or veterinary medicine laws, including but not limited to anti-kickback laws, as we may from time to time enter consulting and other financial arrangements with veterinarians, who may prescribe or recommend our products. If our financial relationships with veterinarians are found to be in violation of such laws that apply to us, we may be subject to penalties.

Employees

As of December 31, 2016, we had 23 employees. Of our employees, eight hold D.V.M. or Ph.D. degrees and fifteen of our employees are engaged in research and development activities. None of our employees are represented by labor unions or covered by collective bargaining agreements.

Description of Properties

Our corporate headquarters are located in San Francisco, California, where we sublease 6,008 rentable square feet of office space from SeeChange Health Management Company, Inc. Our sublease agreement expires on August 31, 2018. We believe that our existing facilities are adequate for our near-term needs. We believe that suitable additional or alternative space would be available if required in the future on commercially reasonable terms if we are not able to convert our current sublease to a lease by August 31, 2018 on commercially reasonable terms.

ITEM 1A. RISK FACTORS

The business, financial condition and operating results of the Company may be affected by a number of factors, whether currently known or unknown, including but not limited to those described below. Any one or more of such factors could directly or indirectly cause the Company's actual results of operations and financial condition to vary materially from past or anticipated future results of operations and financial condition. Any of these factors, in whole or in part, could materially and adversely affect the Company's business, financial condition, results of operations and stock price. The following information should be read in conjunction with Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the consolidated financial statements and related notes in Part II, Item 8, "Financial Statements and Supplementary Data" of this Annual Report.

Risks Related to the Merger with Napo

The pendency of the merger with Napo could have an adverse effect on the price of our common stock, business, financial condition, results of operations or business prospects.

While we are not aware of any significant adverse effects to date, the pendency of the merger with Napo could disrupt our business in the following ways, among others:

- our customers and other third-party business partners may seek to terminate and/or renegotiate their relationships with us as a result of the merger, whether pursuant to the terms of their existing agreements with us or otherwise;
- the attention of our management may be directed toward the completion of the merger and related matters and may be diverted from our day-to-day business operations, including from other opportunities that might otherwise be beneficial to us; and
- current and prospective employees may experience uncertainty regarding their future roles with the combined company, which might adversely affect our ability to retain, recruit and motivate key personnel.

Should they occur, any of these matters could adversely affect our stock price, or harm our financial condition, results of operations or business prospects.

Failure to complete the merger could adversely affect our stock price and future business and financial results.

The consummation of the merger may be delayed, the merger may be consummated on terms different than those contemplated by the Binding Agreement of Terms, or the merger may not be consummated at all. Failure to consummate the merger would prevent our shareholders from realizing the anticipated benefits of the merger. The current market price of our shares of common stock may reflect a market assumption that the merger will occur, and a failure to consummate the merger could result in a significant decline in the market price of our shares and a negative perception of us generally. Any delay in the consummation of the merger or any uncertainty about the consummation of the merger could also negatively impact our and/or the combined company's share price and future business and financial results following the proposed merger.

Completion of the merger is subject to a number of conditions, including among other things, the receipt of approval of the Jaguar and Napo stockholders. There is no assurance that the parties will receive the necessary approvals or satisfy the other conditions to the completion of the merger. Failure to complete the proposed merger would prevent our shareholders from realizing the anticipated benefits of the merger. We will also remain liable for significant transaction costs, including legal, accounting and financial advisory fees. In addition, the market price of our common stock may reflect various market assumptions as to whether the merger will occur. Consequently, the failure to complete the merger could result in a significant change in the market price of our common stock.

The market price of our common stock after the merger may be affected by factors different from those currently affecting our shares.

Upon completion of the merger and assuming certain financial targets of the combined company are met, holders of Napo common stock will become holders of our common stock. Our business differs in important respects from that of Napo, and, accordingly, the results of operations of the combined company and the market price of our common stock after the completion of the merger may be affected by factors different from those currently affecting our operations.

The issuance of shares of our common stock to Napo stockholders in the merger will substantially dilute the interest in Jaguar held by Jaguar stockholders prior to the merger.

If the merger is completed, it is estimated that we will issue up to an aggregate of approximately 74,561,871 shares of our common stock and non-voting common stock upon the closing of the merger, assuming no exercise or conversion of outstanding options and warrants. Based on the current number of shares of our common stock and Napo common stock issued and outstanding, Napo stockholders and creditors before the merger will own, in the aggregate, approximately 25% of the aggregate number of shares of our common stock and non-voting common stock issued and outstanding immediately after the merger. The issuance of (i) shares of our common stock and non-voting common stock to Napo creditors and (ii) contingent rights to receive shares of Jaguar voting common stock to Napo stockholders in the merger will cause a 75% reduction in the relative percentage interest of our current stockholders in our earnings, voting rights, liquidation value and book and market value. It is expected that our stockholders before the merger will hold approximately 25% of our total common stock and non-voting common stock issued and outstanding immediately following completion of the merger. Thus, our stockholders before the merger will experience dilution in the amount of 75% as a result of the merger.

Obtaining required approvals necessary to satisfy the conditions to the completion of the merger may delay or prevent completion of the merger.

To complete the merger, we and Napo must obtain all necessary governmental, board of directors, investment committee, stockholder and third-party approvals, waivers and consents. We and Napo intend to pursue all required approvals in accordance with the Binding Agreement of Terms. No assurance can be given that the required approvals will be obtained and, even if all such approvals are obtained, no assurance can be given as to the terms, conditions and timing of the approvals or that they will satisfy the Binding Agreement of Terms.

If the NASDAQ Stock Market determines that the merger with Napo and the issuance of the merger consideration results in a change of control of the company, we may be required to submit a new application under NASDAQ's original listing standards and if such application is not approved, our common stock may be delisted from The NASDAQ Capital Market.

In connection with the merger, we will issue 63,866,684 shares of common stock. NASDAQ Rule 5110(a) provides that a company must apply for initial listing in connection with a transaction whereby a company combines with a non-NASDAQ entity, resulting in a change of control of such company and potentially allowing the non-NASDAQ entity to effectively obtain NASDAQ listing. In determining whether a change of control has occurred, NASDAQ considers all relevant factors including, changes in management, board of directors, voting power, ownership and financial structure of the Company. If The NASDAQ Stock Market determines that a change of control does in fact result from the consummation of the merger and the issuance of the merger consideration and an original listing application has not been approved prior to the consummation of merger, we will be in violation of NASDAQ Rule 5110(a) and our common stock could be delisted from The NASDAQ Capital Market.

Termination of the Binding Agreement of Terms could negatively impact us.

If the Binding Agreement of Terms is terminated, there may be various consequences. For example, our business may be impacted adversely by the failure to pursue other beneficial opportunities due to the focus of management on the merger, without realizing any of the anticipated benefits of completing the merger. Additionally, if the Binding Agreement of Terms is terminated, the market price of our common stock could decline to the extent that the current market price of our common stock reflects a market assumption that the merger will be completed. If the merger is terminated under certain circumstances, we may be required to issue 2,000,000 shares of our common stock to Napo as a break-up fee.

The market price of our common stock after the merger may be affected by factors different from those currently affecting our shares.

Upon completion of the merger, holders of Napo common stock will become holders of our common stock, assuming certain financial targets of the combined company that trigger the vesting of the Napo stockholders' contingent rights to receive shares of Jaguar voting common stock are satisfied. Our business differs in important respects from that of Napo, and, accordingly, the results of operations of the combined company and the market price of our common stock after the completion of the merger may be affected by factors different from those currently affecting our operations.

Risks Related to Our Business

We have a limited operating history, expect to incur further losses as we grow and may be unable to achieve or sustain profitability. Our independent registered public accounting firm has expressed substantial doubt about our ability to continue as a going concern.

Since formation in June 2013, our operations have been primarily limited to the research and development of our lead prescription drug product candidate, Canalevia, to treat various forms of diarrhea in dogs, and our non-prescription product, Neonorm Calf, to help dairies and calf farms proactively retain fluid in calves—helping the animals avoid debilitating, dangerous levels of dehydration, and the recent commercial launch of Neonorm Foal. As a result, we have limited meaningful historical operations upon which to evaluate our business and prospects and have not yet demonstrated an ability to broadly commercialize any of our products, obtain any required marketing approval for any of our prescription drug product candidates or successfully overcome the risks and uncertainties frequently encountered by companies in emerging fields such as the animal health industry. We also have not generated any material revenue to date, and expect to continue to incur significant research and development and other expenses. Our net loss and comprehensive loss for the year ended December 31, 2016 was $14.7 million. As of December 31, 2016, we had total stockholders' deficit of $2.5 million. We expect to continue to incur losses for the foreseeable future, which will increase significantly from historical levels as we expand our product development activities, seek necessary approvals for our product candidates, conduct species-specific formulation studies for our non-prescription products and begin commercialization activities. Even if we succeed in developing and broadly commercializing one or more of our products or product candidates, we expect to continue to incur losses for the foreseeable future, and we may never become profitable. If we fail to achieve or maintain profitability, then we may be unable to continue our operations at planned levels and be forced to reduce or cease operations.

As more fully discussed in Note 1 to the Financial Statements, we believe there is substantial doubt about our ability to continue as a going concern as we do not currently have sufficient cash resources to fund our operations through February 15, 2018, or one year from the filing date of the Form 10-K. Our financial statements do not include any adjustments that may result from the outcome of this uncertainty. If we are unable to continue as a viable entity, our stockholders may lose their entire investment.

We have never generated any material revenue from operations and may not generate any material revenue from our operations in the foreseeable future.

We are an animal health company focused on developing and commercializing prescription drug and non-prescription products for companion and production animals, foals, and high value horses. Since inception in June 2013, we have not generated any material revenue from operations. There is no guarantee that our recent commercial launch of Neonorm Calf for preweaned dairy calves in the United States will be successful or that we will be able to sell any products in the future. Further, in order to commercialize our prescription drug product candidates, we must receive regulatory approval from the FDA in the United States and other regulatory agencies in various jurisdictions. We have not yet received any regulatory approvals for our prescription drug product candidates. In addition, certain of our non-prescription products, such as Neonorm Calf, may be subject to regulatory approval outside the United States prior to commercialization. Accordingly, until and unless we receive any necessary regulatory approvals, we cannot market or sell our products. Moreover, even if we receive the necessary approvals, we may not be successful in generating revenue from sales of our products as we do not have any meaningful experience marketing or distributing our products. Accordingly, we may never generate any material revenue from our operations.

We expect to incur significant additional costs as we continue commercialization efforts for Neonorm, and undertake the clinical trials necessary to obtain regulatory approvals for Canalevia and Equilevia, which will increase our losses.

We commenced sales of Neonorm for preweaned dairy calves in the United States under the brand name Neonorm Calf at the end of 2014. We will need to continue to invest in developing our internal and third-party sales and distribution network and outreach efforts to key opinion leaders in the dairy industry, including veterinarians. We will also need to conduct clinical trials for Equilevia and Canalevia in order to obtain necessary initial regulatory approvals and to subsequently broaden Canalevia to additional indications and additional species. We will also need to conduct species-specific testing with Neonorm to expand to additional animal populations.

We are actively identifying additional products for development and commercialization, and will continue to expend substantial resources for the foreseeable future to develop Equilevia, Canalevia and Neonorm and develop products from the library of over 2,300 medicinal plants that we have licensed. These expenditures will include costs associated with:

- identifying additional potential prescription drug product candidates and non-prescription products;
- formulation studies;
- conducting pilot, pivotal and toxicology studies;
- completing other research and development activities;
- payments to technology licensors;
- maintaining our intellectual property;
- obtaining necessary regulatory approvals;
- establishing commercial supply capabilities; and
- sales, marketing and distribution of our commercialized products.

We also may incur unanticipated costs in connection with developing and commercializing our products. Because the outcome of our development activities and commercialization efforts is inherently

uncertain, the actual amounts necessary to successfully complete the development and commercialization of our current or future products and product candidates may be greater than we anticipate.

Because we anticipate incurring significant costs for the foreseeable future, if we are not successful in broadly commercializing any of our current or future products or product candidates or raising additional funding to pursue our research and development efforts, we may never realize the benefit of our development efforts and our business may be harmed.

We will need to raise substantial additional capital in the future to fund our operations and we may be unable to raise such funds when needed and on acceptable terms, which would force us to delay, limit, reduce or terminate one or more of our product development programs or future commercialization efforts.

We are forecasting continued losses and negative cash flows as we continue to fund our operating and marketing activities and research and development programs, and we will not have sufficient cash on hand to fund our operating plan through August 2017 and to complete the development of all the current products in our pipeline, or any additional products we may identify. We will need to seek additional funds sooner than planned through public or private equity or debt financings or other sources such as strategic collaborations. Other than the loan and security agreement (which provided for an initial loan commitment of $6.0 million) and the common stock purchase agreement, or the CSPA, with Aspire Capital Fund, LLC, or Aspire Capital (which committed Aspire Capital to purchase up to an aggregate of $15.0 million of our shares of common stock over the term of the CSPA), we have no current agreements or arrangements with respect to any such financings or collaborations, and any such financings or collaborations may result in dilution to our stockholders, the imposition of debt covenants and repayment obligations or other restrictions that may harm our business or the value of our common stock. We may also seek from time to time to raise additional capital based upon favorable market conditions or strategic considerations such as potential acquisitions.

Our future capital requirements depend on many factors, including, but not limited to:

- the scope, progress, results and costs of researching and developing our current and future prescription drug product candidates and non-prescription products;
- the timing of, and the costs involved in, obtaining any regulatory approvals for our current and any future products;
- the number and characteristics of the products we pursue;
- the cost of manufacturing our current and future products and any products we successfully commercialize;
- the cost of commercialization activities for Neonorm, Equilevia and Canalevia, if approved, including sales, marketing and distribution costs;
- the expenses needed to attract and retain skilled personnel;
- the costs associated with being a public company;
- our ability to establish and maintain strategic collaborations, distribution or other arrangements and the financial terms of such agreements; and
- the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing possible patent claims, including litigation costs and the outcome of any such litigation.

Additional funds may not be available when we need them on terms that are acceptable to us, or at all. If adequate funds are not available to us on a timely basis, we may be required to delay, limit, reduce or terminate one or more of our product development programs or future commercialization efforts.

We are substantially dependent on the success of Equilevia, Canalevia and Neonorm and cannot be certain that Equilevia or Canalevia will be approved or that we can successfully commercialize these products.

We currently do not have regulatory approval for any of our prescription drug product candidates, including Equilevia and Canalevia. Our current efforts are primarily focused on the commercial launch of Neonorm Calf and Neonorm Foal in the United States, and development efforts related to Equilevia and Canalevia. We are focused on expanding Canalevia's proposed indications to cover acute diarrhea in dogs and full FDA approval for CID for dogs. Accordingly, our near-term prospects, including our ability to generate material product revenue, obtain any new financing if needed to fund our business and operations or enter into potential strategic transactions, will depend heavily on the success of Neonorm and, if approved, Equilevia and Canalevia.

Substantial time and capital resources have been previously devoted by third parties in the development of crofelemer, the active pharmaceutical ingredient, or API, in Canalevia, and the botanical extract used in Neonorm. Both crofelemer and the botanical extract used in Neonorm were originally developed at Shaman Pharmaceuticals, Inc., or Shaman, by certain members of our management team, including Lisa A. Conte, our Chief Executive Officer and President, and Steven R. King, Ph.D., our Executive Vice President, Sustainable Supply, Ethnobotanical Research and Intellectual Property and Secretary. Shaman spent significant development resources before voluntarily filing for bankruptcy in 2001 pursuant to Chapter 11 of the U.S. Bankruptcy Code. The rights to crofelemer and the botanical extract used in Neonorm, as well as other intellectual property rights, were subsequently acquired by Napo from Shaman in 2001 pursuant to a court approved sale of assets. Ms. Conte founded Napo in 2001 and is the current interim chief executive officer of Napo and a member of its board of directors. While at Napo, certain members of our management team, including Ms. Conte and Dr. King, continued the development of crofelemer. In 2005, Napo entered into license agreements with Glenmark Pharmaceuticals Ltd., or Glenmark, and Luye Pharma Group Limited for rights to various human indications of crofelemer in certain territories as defined in the respective license agreements with these licensees. Subsequently, after expending significant sums developing crofelemer, including trial design and on-going patient enrollment in the final pivotal Phase 3 trial for crofelemer for non-infectious diarrhea in adults with HIV/AIDS on antiretroviral therapy, in late 2008, Napo entered into a collaboration agreement with Salix Pharmaceuticals, Inc., or Salix, for development and commercialization rights to certain indications worldwide and certain rights in North America, Europe, and Japan, to crofelemer for human use. In January 2014, we entered into the Napo License Agreement pursuant to which we acquired an exclusive worldwide license to Napo's intellectual property rights and technology, including crofelemer and the botanical extract used in Neonorm, for all veterinary treatment uses and indications for all species of animals. In February 2014, most of the executive officers of Napo, and substantially all Napo's employees, became our employees. If we are not successful in the development and commercialization of Neonorm and Canalevia, our business and our prospects will be harmed.

The successful development and commercialization of Neonorm and, if approved, Equilevia and Canalevia will depend on a number of factors, including the following:

- the successful completion of the pivotal trials and toxicology studies for Equilevia and Canalevia, which may take significantly longer than we currently anticipate and will depend, in part, upon the satisfactory performance of third-party contractors;
- our ability to demonstrate to the satisfaction of the FDA and any other regulatory bodies, the safety and efficacy of Equilevia and Canalevia;
- our ability and that of our contract manufacturers to manufacture supplies of Neonorm, Equilevia and Canalevia and to develop, validate and maintain viable commercial manufacturing processes that are compliant with current good manufacturing practices, or cGMP, if required;
- the success of Neonorm field studies and acceptance of their results by dairy producers;

- our ability to successfully launch Neonorm, whether alone or in collaboration with others;
- our ability to successfully launch Equilevia and Canalevia assuming approval is obtained, whether alone or in collaboration with others;
- the availability, perceived advantages, relative cost, relative safety and relative efficacy of our prescription drug product candidates and non-prescription products compared to alternative and competing treatments;
- the acceptance of our prescription drug product candidates and non-prescription products as safe and effective by veterinarians, animal owners and the animal health community;
- our ability to achieve and maintain compliance with all regulatory requirements applicable to our business; and
- our ability to obtain and enforce our intellectual property rights and obtain marketing exclusivity for our prescription drug product candidates and non-prescription products, and avoid or prevail in any third-party patent interference, patent infringement claims or administrative patent proceedings initiated by third parties or the U.S. Patent and Trademark Office, or USPTO.

Many of these factors are beyond our control. Accordingly, we may not be successful in developing or commercializing Neonorm, Equilevia, Canalevia or any of our other potential products. If we are unsuccessful or are significantly delayed in developing and commercializing Neonorm, Equilevia, Canalevia or any of our other potential products, our business and prospects will be harmed and you may lose all or a portion of the value of your investment in our common stock.

If we are not successful in identifying, licensing, developing and commercializing additional product candidates and products, our ability to expand our business and achieve our strategic objectives could be impaired.

Although a substantial amount of our efforts are focused on the commercial launch of Neonorm and the continued development and potential approvals of Equilevia and Canalevia, a key element of our strategy is to identify, develop and commercialize a portfolio of products to serve the animal health market. Most of our potential products are based on our knowledge of medicinal plants. Our current focus is primarily on product candidates and products for animals whose active pharmaceutical ingredient or botanical extract has been successfully commercialized or demonstrated to be safe and effective in human trials. In some instances, we may be unable to further develop these potential products because of perceived regulatory and commercial risks. Even if we successfully identify potential products, we may still fail to yield products for development and commercialization for many reasons, including the following:

- competitors may develop alternatives that render our potential products obsolete;
- potential products we seek to develop may be covered by third-party patents or other exclusive rights;
- a potential product may on further study be shown to have harmful side effects in animals or other characteristics that indicate it is unlikely to be effective or otherwise does not meet applicable regulatory criteria;
- a potential product may not be capable of being produced in commercial quantities at an acceptable cost, or at all; and
- a potential product may not be accepted as safe and effective by veterinarians, animal owners, key opinion leaders and other decision-makers in the animal health market.

While we are developing species-specific formulations, including flavors, methods of administration, new patents and other strategies with respect to our current potential products, we may be unable to prevent competitors from developing substantially similar products and bringing those products to market

earlier than we can. If such competing products achieve regulatory approval and commercialization prior to our potential products, our competitive position may be impaired. If we fail to develop and successfully commercialize other potential products, our business and future prospects may be harmed and we will be more vulnerable to any problems that we encounter in developing and commercializing our current potential products.

The Elanco Agreement is important to our business. If we or Elanco fail to adequately perform under the Elanco Agreement, or if we or Elanco terminate the Elanco Agreement, the development and commercialization of Canalevia and any other Licensed Products would be delayed or terminated and our business would be adversely affected.

The Elanco Agreement is important to our business, and our ability to develop and commercialize Canalevia and any other License Product is dependent upon this agreement.

The Elanco Agreement may be terminated by Elanco on a voluntary basis upon completion of the dose ranging study or at any time upon 90 days' written notice to us or for our failure to complete certain a quality assessment with respect to a certain facility within 6 months of the effective date of the Elanco Agreement. The Elanco Agreement may also be terminated by either party:

- for the other party's material breach, where such breach is not cured within the timeframe specified by the agreement;
- upon the bankruptcy, insolvency or dissolution of the other party; or
- for certain activities involving the challenge of certain patents licensed by us to Elanco.

Upon Elanco's voluntary termination or termination for Elanco's breach, among other things, all licenses and rights granted to Elanco will terminate and revert to us, and Elanco has agreed to assign to us all registrations and trademarks obtained in connection with the products covered by the agreement. Upon expiration of the term of the Elanco Agreement or termination for our breach, among other things, we have agreed to assign to Elanco all registrations and trademarks obtained in connection with the products covered by the agreement.

Termination of the Elanco Agreement could cause significant delays in our product development and commercialization efforts that could prevent us from commercializing our Licensed Products, including Canalevia, without first expanding our internal capabilities, securing additional financing or entering into another agreement with a third party. Any alternative collaboration or license could also be on less favorable terms to us.

Under the Elanco Agreement, among other things, we are responsible for the manufacture and supply of all of Elanco's reasonable requirements of the products covered by the agreement. If we are unable to meet our manufacture and supply obligations, Elanco may claim that we have materially breached the Elanco Agreement and terminate such agreement, which could adversely affect our business and our ability to successfully develop and commercialize any products covered by the agreement, including Canalevia.

Under the Elanco Agreement, Elanco has agreed to provide funding for certain clinical development activities. If the Elanco Agreement were terminated, we may need to seek additional financing to support the research and development of any terminated products or discontinue any terminated products, which could adversely affect our business. In addition, Elanco is solely responsible for commercializing products outside the United States. We cannot directly control Elanco's commercialization activities or the resources it allocates to our product candidates. Our interests and Elanco's interests may differ or conflict from time to time, or we may disagree with Elanco's level of effort or resource allocation. Elanco may internally prioritize our product candidates differently than we do or it may not allocate sufficient

resources to effectively or optimally commercialize them. If these events were to occur, our business would be adversely affected.

Our animal health products face significant competition from other pharmaceutical companies and our operating results will suffer if we fail to compete effectively.

The development and commercialization of animal health products is highly competitive and our success depends on our ability to compete effectively with other products in the market. We expect to compete with the animal health divisions of major pharmaceutical and biotechnology companies such as Merck Animal Health, Merial Inc., Elanco Animal Health, Bayer Animal Health GmbH, Novartis Animal Health Inc. and Boehringer Ingelheim Animal Health, as well as specialty animal health medicines companies such as Zoetis Inc., Phibro Animal Health Corporation and, in Europe, Virbac S.A., Vétoquinol S.A., Ceva Animal Health S.A. and Dechra Pharmaceuticals PLC. We are also aware of several early-stage companies that are developing products for use in the animal health market, including Aratana Therapeutics, Inc., Kindred Biosciences, Inc., Parnell Pharmaceuticals Holdings Ltd, Nexvet Biopharma and ImmuCell Corporation. We also compete with academic institutions, governmental agencies and private organizations that are conducting research in the field of animal health products.

Although there are currently no FDA-approved anti-secretory products to treat acute diarrhea in dogs, we anticipate that Canalevia, if approved, will face competition from various products, including products approved for use in humans that are used extra-label in animals. Extra-label use is the use of an approved drug outside of its cleared or approved indications in the animal context. All of our potential products could also face competition from new products in development. These and other potential competing products may benefit from greater brand recognition and brand loyalty than our products and product candidates may achieve.

Many of our competitors and potential competitors have substantially more financial, technical and human resources than we do. Many also have more experience in the development, manufacture, regulation and worldwide commercialization of animal health products, including animal prescription drugs and non-prescription products.

For these reasons, we cannot be certain that we and our products can compete effectively.

We may be unable to obtain, or obtain on a timely basis, regulatory approval for our existing or future prescription drug product candidates under applicable regulatory requirements, which would harm our operating results.

The research, testing, manufacturing, labeling, approval, sale, marketing and distribution of animal health products are subject to extensive regulation. We are usually not permitted to market our prescription drug product candidates in the United States until we receive approval of an NADA from the FDA. To gain approval to market an animal prescription drug for a particular species, we must provide the FDA with safety and efficacy data from pivotal trials that adequately demonstrate that our prescription drug product candidates are safe and effective in the target species (*e.g.* dogs, cats or horses) for the intended indications. In addition, we must provide manufacturing data evidencing that we can produce our product candidates in accordance with cGMP. For the FDA, we must also provide data from toxicology studies, also called target animal safety studies, and in some cases environmental impact data. In addition to our internal activities, we will partially rely on contract research organizations, or CROs, and other third parties to conduct our toxicology studies and for certain other development activities. The results of toxicology studies and other initial development activities, and of any previous studies in humans or animals conducted by us or third parties, may not be predictive of future results of pivotal trials or other future studies, and failure can occur at any time during the conduct of pivotal trials and other development activities by us or our CROs. Our pivotal trials may fail to show the desired safety or efficacy of our prescription drug product candidates despite promising initial data or the results in previous human or animal studies conducted by others, and success of a prescription drug product candidate in prior animal

studies, or in the treatment of humans, does not ensure success in subsequent studies. Clinical trials in humans and pivotal trials in animals sometimes fail to show a benefit even for drugs that are effective because of statistical limitations in the design of the trials or other statistical anomalies. Therefore, even if our studies and other development activities are completed as planned, the results may not be sufficient to obtain a required regulatory approval for a product candidate.

Regulatory authorities can delay, limit or deny approval of any of our prescription drug product candidates for many reasons, including:

- if they disagree with our interpretation of data from our pivotal studies or other development efforts;
- if we are unable to demonstrate to their satisfaction that our product candidate is safe and effective for the target indication and in the target species;
- if they require additional studies or change their approval policies or regulations;
- if they do not approve of the formulation, labeling or the specifications of our current and future product candidates; and
- if they fail to approve the manufacturing processes of our third-party contract manufacturers.

Further, even if we receive a required approval, such approval may be for a more limited indication than we originally requested, and the regulatory authority may not approve the labeling that we believe is necessary or desirable for successful commercialization.

Any delay or failure in obtaining any necessary regulatory approval for the intended indications of our product candidates would delay or prevent commercialization of such product candidates and would harm our business and our operating results.

The results of our earlier studies of Neonorm may not be predictive of the results in any future species-specific formulation studies, and we may not be successful in our efforts to develop or commercialize line extensions of Neonorm.

Our product pipeline includes a number of species-specific formulations of Neonorm, our lead non-prescription product. The results of our dairy calf studies and other initial development activities and of any previous studies in humans or animals conducted by us or third parties may not be predictive of future results of these formulation studies. Failure can occur at any time during the conduct of these trials and other development activities. Even if our species-specific formulation studies and other development activities are completed as planned, the results may not be sufficient to pursue a particular line extension for Neonorm. Further, even if we obtain promising results from our species-specific formulation studies, we may not successfully commercialize any line extension. Because line extensions are developed for a particular species market, we may not be able to leverage our experience from the commercial launch of Neonorm Calf and Neonorm Foal in new animal species markets. If we are not successful in developing and successfully commercializing these line extension products, we may not be able to grow our revenue and our business may be harmed.

Development of prescription drug products is inherently expensive, time-consuming and uncertain, and any delay or discontinuance of our current or future pivotal trials would harm our business and prospects.

Development of prescription drug products for animals remains an inherently lengthy, expensive and uncertain process, and our development activities may not be successful. We do not know whether our current or planned pivotal trials for any of our product candidates will begin or conclude on time, and they may be delayed or discontinued for a variety of reasons, including if we are unable to:

- address any safety concerns that arise during the course of the studies;

- complete the studies due to deviations from the study protocols or the occurrence of adverse events;
- add new study sites;
- address any conflicts with new or existing laws or regulations; or
- reach agreement on acceptable terms with study sites, which can be subject to extensive negotiation and may vary significantly among different sites.

Further, we may not be successful in developing species-specific formulations for Neonorm, and Neonorm may be subject to the same regulatory regime as prescription drug products in jurisdictions outside the United States. Any delays in completing our development efforts will increase our costs, delay our development efforts and approval process and jeopardize our ability to commence product sales and generate revenue. Any of these occurrences may harm our business, financial condition and prospects. In addition, factors that may cause a delay in the commencement or completion of our development efforts may also ultimately lead to the denial of regulatory approval of our product candidates which, as described above, would harm our business and prospects.

We will partially rely on third parties to conduct our development activities. If these third parties do not successfully carry out their contractual duties, we may be unable to obtain regulatory approvals or commercialize our current or future product candidates on a timely basis, or at all.

We will partially rely upon CROs to conduct our toxicology studies and for other development activities. We intend to rely on CROs to conduct one or more of our planned pivotal trials. These CROs are not our employees, and except for contractual duties and obligations, we have limited ability to control the amount or timing of resources that they devote to our programs or manage the risks associated with their activities on our behalf. We are responsible for ensuring that each of our studies is conducted in accordance with the development plans and trial protocols presented to regulatory authorities. Any deviations by our CROs may adversely affect our ability to obtain regulatory approvals, subject us to penalties or harm our credibility with regulators. The FDA and foreign regulatory authorities also require us and our CROs to comply with regulations and standards, commonly referred to as good clinical practices, or GCPs, or good laboratory practices, or GLPs, for conducting, monitoring, recording and reporting the results of our studies to ensure that the data and results are scientifically valid and accurate.

Agreements with CROs generally allow the CROs to terminate in certain circumstances with little or no advance notice. These agreements generally will require our CROs to reasonably cooperate with us at our expense for an orderly winding down of the CROs' services under the agreements. If the CROs conducting our studies do not comply with their contractual duties or obligations, or if they experience work stoppages, do not meet expected deadlines, or if the quality or accuracy of the data they obtain is compromised, we may need to secure new arrangements with alternative CROs, which could be difficult and costly. In such event, our studies also may need to be extended, delayed or terminated as a result, or may need to be repeated. If any of the foregoing were to occur, regulatory approval, if required, and commercialization of our product candidates may be delayed and we may be required to expend substantial additional resources.

Even if we obtain regulatory approval for Equilevia, Canalevia or our other product candidates, they may never achieve market acceptance. Further, even if we are successful in commercially launching Neonorm, it may not achieve commercial success.

If we obtain necessary regulatory approvals for Equilevia, Canalevia or our other product candidates, such products may still not achieve market acceptance and may not be commercially successful. Market acceptance of Canalevia, Equilevia, Neonorm and any of our other products depends on a number of factors, including:

- the safety of our products as demonstrated in our target animal studies;
- the indications for which our products are approved or marketed;

- the potential and perceived advantages over alternative treatments or products, including generic medicines and competing products currently prescribed by veterinarians, and products approved for use in humans that are used extra-label in animals;
- the acceptance by veterinarians, companion animal owners and production animal owners, including in the dairy industry, of our products as safe and effective;
- the cost in relation to alternative treatments and willingness on the part of veterinarians and animal owners to pay for our products;
- the prevalence and severity of any adverse side effects of our products;
- the relative convenience and ease of administration of our products; and
- the effectiveness of our sales, marketing and distribution efforts.

Any failure by Canalevia, Equilevia, Neonorm or any of our other products to achieve market acceptance or commercial success would harm our financial condition and results of operations.

The dairy industry is subject to conditions beyond our control and the occurrence of any such conditions may harm our business and impact the demand for our products.

The demand for production animal health products, such as Neonorm Calf, is heavily dependent on factors that affect the dairy market that are beyond our control, including the following, any of which may harm our business:

- cost containment measures within the dairy industry, in response to international, national and local general economic conditions, which may affect the market adoption of our products;
- state and federal government policies, including government-funded programs or subsidies whose discontinuance or modification could erode the demand for our products;
- a decline in demand for dairy products due to changes in consumer diets away from dairy products, which could adversely affect the demand for production animal health products;
- adverse weather conditions and natural disasters, such as floods, droughts, and pestilence, which can lower dairy yields; and
- disease or other conditions beyond our control.

Animal products, like human products, are subject to unanticipated post-approval safety or efficacy concerns, which may harm our business and reputation.

The success of our commercialization efforts will depend upon the perceived safety and effectiveness of animal health products, in general, and of our products, in particular. Unanticipated safety or efficacy concerns can subsequently arise with respect to approved prescription drug products, or non-prescription products, such as Neonorm, which may result in product recalls or withdrawals or suspension of sales, as well as product liability and other claims. Any safety or efficacy concerns, or recalls, withdrawals or suspensions of sales of our products, or human products derived from *Croton lechleri*, if any, could harm our reputation and business, regardless of whether such concerns or actions are justified.

Future federal and state legislation may result in increased exposure to product liability claims, which could result in substantial losses.

Under current federal and state laws, companion and production animals are generally considered to be the personal property of their owners and, as such, the owners' recovery for product liability claims involving their companion and production animals may be limited to the replacement value of the animal. Companion animal owners and their advocates, however, have filed lawsuits from time to time seeking

non-economic damages such as pain and suffering and emotional distress for harm to their companion animals based on theories applicable to personal injuries to humans. If new legislation is passed to allow recovery for such non-economic damages, or if precedents are set allowing for such recovery, we could be exposed to increased product liability claims that could result in substantial losses to us if successful. In addition, some horses can be worth millions of dollars or more, and product liability for horses may be very high. While we currently have product liability insurance, such insurance may not be sufficient to cover any future product liability claims against us.

If we fail to retain current members of our senior management, or to identify, attract, integrate and retain additional key personnel, our business will be harmed.

Our success depends on our continued ability to attract, retain and motivate highly qualified management and scientific personnel. We are highly dependent upon our senior management, particularly Lisa A. Conte, our president and Chief Executive Officer. The loss of services of any of our key personnel would cause a disruption in our ability to develop our current or future product pipeline and commercialize our products and product candidates. Although we have offer letters with these key members of senior management, such agreements do not prohibit them from resigning at any time. For example, the resignation of our former Chief Financial Officer, Charles O. Thompson, in September 2014, and the mutually agreed departure of our former Chief Veterinary Officer, Serge Martinod, D.V.M., Ph.D. in February 2015, caused us to incur additional expenses and expend resources to ensure a smooth transition with their respective successors, which diverted management attention away from executing our operational plan during this period. We currently do not maintain "key man" life insurance on any of our senior management team. The loss of Ms. Conte or other members of our current senior management could adversely affect the timing or outcomes of our current and planned studies, as well as the prospects for commercializing our products.

In addition, competition for qualified personnel in the animal health field is intense, because there are a limited number of individuals who are trained or experienced in the field. Further, our headquarters are located in San Francisco, California, and the dairy and agriculture industries are not prevalent in urban areas such as San Francisco. We will need to hire additional personnel as we expand our product development and commercialization activities. Even if we are successful in hiring qualified individuals, as we are a growing organization, we do not have a track record for integrating and retaining individuals. If we are not successful in identifying, attracting, integrating or retaining qualified personnel on acceptable terms, or at all, our business will be harmed.

We are dependent on two suppliers for the raw material used to produce the active pharmaceutical ingredient in Canalevia and the botanical extract in Neonorm. The termination of either of these contracts would result in a disruption to product development and our business will be harmed.

The raw material used to manufacture Canalevia and Neonorm is crude plant latex, or CPL, derived from the *Croton lechleri* tree, which is found in countries in South America, principally Peru. The ability of our contract suppliers to harvest CPL is governed by the terms of their respective agreements with local government authorities. Although CPL is available from multiple suppliers, we only have contracts with two suppliers to obtain CPL and arrange the shipment to our contract manufacturer. Accordingly, if our contract suppliers do not or are unable to comply with the terms of our respective agreements, and we are not able to negotiate new agreements with alternate suppliers on terms that we deem commercially reasonable, it may harm our business and prospects. The countries from which we obtain CPL could change their laws and regulations regarding the export of the natural products or impose or increase taxes or duties payable by exporters of such products. Restrictions could be imposed on the harvesting of the natural products or additional requirements could be implemented for the replanting and regeneration of the raw material. Such events could have a significant impact on our cost and ability to produce Canalevia, Neonorm and anticipated line extensions.

We are dependent upon third-party contract manufacturers, both for the supply of the active pharmaceutical ingredient in Canalevia and the botanical extract in Neonorm, as well as for the supply of finished products for commercialization.

To date, the CPL, API, botanical extract and some finished products that we have used in our studies and trials were obtained from Napo. We have also contracted with third parties for the formulation of API and botanical extract into finished products for our studies. We have entered into memorandums of understanding with Indena S.p.A. for the manufacture of CPL received from our suppliers into the API in Canalevia to support our regulatory filings, as well as the botanical extract in Neonorm and agreed to negotiate a commercial supply agreement. Indena S.p.A. has never manufactured either such ingredient to commercial scale. As a second supplier situation, we have entered into a four-year manufacturing and supply agreement with Glenmark for the supply of the API in Canalevia. Glenmark is the current manufacturer of crofelemer, the active API in Canalevia, for the FDA-approved human anti-secretory product, and the manufacturer on file for the NADA to which we have a right of reference. We have contracted with a third-party manufacturer for formulation development and manufacturing, whereby the manufacturer will provide enteric-coated tablets to us for use in animals. We also may contract with additional third parties for the formulation and supply of finished products, which we will use in our planned studies and commercialization efforts.

We will be dependent upon our contract manufacturers for the supply of the API in Canalevia. We currently have sufficient quantities of the botanical extract used in Neonorm to support initial commercialization of Neonorm. However, we will require additional quantities of the botanical extract if our commercial launch of Neonorm is successful. If we are not successful in reaching agreements with third parties on terms that we consider commercially reasonable for manufacturing and formulation, or if our contract manufacturer and formulator are not able to produce sufficient quantities or quality of API, botanical extract or finished product under their agreements, it could delay our plans and harm our business prospects.

The facilities used by our third-party contractors are subject to inspections, including by the FDA, and other regulators, as applicable. We also depend on our third-party contractors to comply with cGMP. If our third-party contractors do not maintain compliance with these strict regulatory requirements, we and they will not be able to secure or maintain regulatory approval for their facilities, which would have an adverse effect on our operations. In addition, in some cases, we also are dependent on our third-party contractors to produce supplies in conformity to our specifications and maintain quality control and quality assurance practices and not to employ disqualified personnel. If the FDA or a comparable foreign regulatory authority does not approve the facilities of our third-party contractors if so required, or if it withdraws any such approval in the future, we may need to find alternative manufacturing or formulation facilities, which could result in delays in our ability to develop or commercialize our products, if at all. We and our third-party contractors also may be subject to penalties and sanctions from the FDA and other regulatory authorities for any violations of applicable regulatory requirements. The USDA and the European Medicines Agency, or the EMA, employ different regulatory standards than the FDA, so we may require multiple manufacturing processes and facilities for the same product candidate or any approved product. We are also exposed to risk if our third-party contractors do not comply with the negotiated terms of our agreements, or if they suffer damage or destruction to their facilities or equipment.

If we are unable to establish sales capabilities on our own or through third parties, we may not be able to market and sell our current or future products and product candidates, if approved, and generate product or other revenue.

We currently have limited sales, marketing or distribution capabilities, and prior to our launch of Neonorm for preweaned dairy calves, had no experience in the sale, marketing and distribution of animal health products. There are significant risks involved in building and managing a sales organization, including our potential inability to attract, hire, retain and motivate qualified individuals, generate sufficient sales leads, provide adequate training to sales and marketing personnel and effectively oversee a

geographically-dispersed sales and marketing team. Any failure or delay in the development of our internal sales, marketing and distribution capabilities and entry into adequate arrangements with distributors or other partners would adversely impact the commercialization of Neonorm, Equilevia and Canalevia, if approved. If we are not successful in commercializing Neonorm, Equilevia, Canalevia or any of our other line extension products, either on our own or through one or more distributors, or in generating upfront licensing or other fees, we may never generate significant revenue and may continue to incur significant losses, which would harm our financial condition and results of operations.

Changes in distribution channels for animal prescription drugs may make it more difficult or expensive to distribute our prescription drug products.

In the United States, animal owners typically purchase their animal prescription drugs from their local veterinarians who also prescribe such drugs. There is a trend, however, toward increased purchases of animal prescription drugs from Internet-based retailers, "big-box" retail stores and other over-the-counter distribution channels, which follows an emerging shift in recent years away from the traditional veterinarian distribution channel. It is also possible that animal owners may come to rely increasingly on Internet-based animal health information rather than on their veterinarians. We currently expect to market our animal prescription drugs directly to veterinarians, so any reduced reliance on veterinarians by animal owners could harm our business and prospects by making it more difficult or expensive for us to distribute our prescription drug products. Animal owners also may substitute human health products for animal prescription drugs if the human health products are less expensive or more readily available, which could also harm our business.

Legislation has been or may be proposed in various states that would require veterinarians to provide animal owners with written prescriptions and disclosures that the animal owner has the right to fill the prescriptions through other means. If enacted, such legislation could lead to a reduction in the number of animal owners who purchase their animal pharmaceuticals directly from veterinarians, which also could harm our business.

Consolidation of our customers could negatively affect the pricing of our products.

Veterinarians will be our primary customers for our prescription drug products, as well as, to some extent, our non-prescription products, such as Neonorm. In recent years, there has been a trend towards the consolidation of veterinary clinics and animal hospitals. If this trend continues, these large clinics and hospitals could attempt to leverage their buying power to obtain favorable pricing from us and other animal health product companies. Any downward pressure on the prices of any of our products could harm our operating results and financial condition.

We will need to increase the size of our organization and may not successfully manage such growth.

As of December 31, 2016, we had 23 employees. Our ability to manage our growth effectively will require us to hire, train, retain, manage and motivate additional employees and to implement and improve our operational, financial and management systems. These demands also may require the hiring of additional senior management personnel or the development of additional expertise by our senior management personnel. If we fail to expand and enhance our operational, financial and management systems in conjunction with our potential future growth, it could harm our business and operating results.

Our research and development relies on evaluations in animals, which is controversial and may become subject to bans or additional regulations.

The evaluation of our products and product candidates in target animals is required to develop, formulate and commercialize our products and product candidates. Although our animal testing will be subject to GLPs and GCPs, as applicable, animal testing in the human pharmaceutical industry and in

other industries continues to be the subject of controversy and adverse publicity. Some organizations and individuals have sought to ban animal testing or encourage the adoption of additional regulations applicable to animal testing. To the extent that such bans or regulations are imposed, our research and development activities, and by extension our operating results and financial condition, could be harmed. In addition, negative publicity about animal practices by us or in our industry could harm our reputation among potential customers.

If approved, our prescription drug product candidates may be marketed in the United States only in the target animals and for the indications for which they are approved, and if we want to expand the approved animals or indications, we will need to obtain additional approvals, which may not be granted.

If our prescription drug product candidates are approved by regulatory authorities, we may market or advertise them only in the specific species and for treatment of the specific indications for which they were approved, which could limit use of the products by veterinarians and animal owners. We intend to develop, promote and commercialize approved products for other animals and new treatment indications in the future, but we cannot be certain whether or at what additional time and expense we will be able to do so. If we do not obtain marketing approvals for other species or for new indications, our ability to expand our business may be harmed.

Under the Animal Medicinal Drug Use Clarification Act of 1994, veterinarians are permitted to prescribe extra-label uses of certain approved animal drugs and approved human drugs for animals under certain conditions. While veterinarians may in the future prescribe and use human-approved products or our products for extra-label uses, we may not promote our products for extra-label uses. If the FDA determines that any of our marketing activities constitute promotion of an extra-label use, we could be subject to regulatory enforcement, including seizure of any misbranded or mislabeled drugs, and civil or criminal penalties, any of which could have an adverse impact on our reputation and expose us to potential liability. We will continue to spend resources ensuring that our promotional claims for our products and product candidates remain compliant with applicable FDA laws and regulations, including materials we post or link to on our website. For example, in 2012, our Chief Executive Officer received an "untitled letter" from the FDA while at Napo regarding preapproval promotion statements constituting misbranding of crofelemer, which was then an investigational drug. These statements were included in archived press releases included on Napo's website. Napo was required to expend time and resources to revise its website to remove the links in order to address the concerns raised in the FDA's letter.

If our prescription drug product candidates are approved by regulatory authorities, the misuse or extra-label use of such products may harm our reputation or result in financial or other damages.

If our prescription drug product candidates are approved by regulatory authorities, there may be increased risk of product liability if veterinarians, animal owners or others attempt to use such products extra-label, including the use of our products in species (including humans) for which they have not been approved. Furthermore, the use of an approved drug for indications other than those indications for which such products have been approved may not be effective, which could harm our reputation and lead to an increased risk of litigation. If we are deemed by a governmental or regulatory agency to have engaged in the promotion of any approved product for extra-label use, such agency could request that we modify our training or promotional materials and practices and we could be subject to significant fines and penalties, and the imposition of these sanctions could also affect our reputation and position within the industry. Any of these events could harm our reputation and our operating results.

We may not maintain the benefits associated with MUMS designation, including market exclusivity.

Although we have received MUMS designation for Canalevia for the treatment of CID in dogs, we may not maintain the benefits associated with MUMS designation. MUMS designation is a status similar to "orphan drug" status for human drugs. When we are granted MUMS designation, we are eligible for

incentives to support the approval or conditional approval of the designated use. This designation does not allow us to commercialize a product until such time as we obtain approval or conditional approval of the product.

Because Canalevia has received MUMS designation for the identified particular intended use, we are eligible to obtain seven years of exclusive marketing rights upon approval (or conditional approval) of Canalevia for that intended use and become eligible for grants to defray the cost of our clinical work. Each designation that is granted must be unique, *i.e.*, only one designation can be granted for a particular API in a particular dosage form for a particular intended use. The intended use includes both the target species and the disease or condition to be treated.

At some point, we could lose MUMS designation. The basis for a lost designation can include but is not limited to, our failure to engage with due diligence in moving forward with a non-conditional approval, or a competing product has received conditional approval or approval prior to our product candidate for the same indication or species. In addition, MUMS designation may be withdrawn for a variety of reasons such as where the FDA determines that the request for designation was materially defective, or if the manufacturer is unable to assure sufficient quantity of the prescription drug product to meet the needs of animals with the rare disease or condition. If this designation is lost, it could have a negative impact on the product and our company, which includes but is not limited to, market exclusivity related to MUMS designation, or eligibility for grants as a result of MUMS designation.

The market for our products, and the animal health market as a whole, is uncertain and may be smaller than we anticipate, which could lead to lower revenue and harm our operating results.

It is very difficult to estimate the commercial potential of any of our products because of the emerging nature of our industry as a whole. The animal health market continues to evolve and it is difficult to predict the market potential for our products. The market will depend on important factors such as safety and efficacy compared to other available treatments, changing standards of care, preferences of veterinarians, the willingness of companion and production animal owners to pay for such products, and the availability of competitive alternatives that may emerge either during the product development process or after commercial introduction. If the market potential for our products is less than we anticipate due to one or more of these factors, it could negatively impact our business, financial condition and results of operations. Further, the willingness of companion and production animal owners to pay for our products may be less than we anticipate, and may be negatively affected by overall economic conditions. The current penetration of animal insurance in the United States is low, animal owners are likely to have to pay out-of-pocket, and such owners may not be willing or able to pay for our products.

Our largest stockholder, Napo, controls a significant percentage of our common stock, and its interests may conflict with those of our other stockholders.

As of January 31, 2017, Napo owned in the aggregate approximately 19% of our common stock, and following the proposed merger. This concentration of ownership gives Napo significant influence over the way we are managed and the direction of our business. In addition, because we and Napo are party to a license agreement, Napo's interests as the licensor of our technology may be different from ours or those of our other stockholders. As a result, the interests of Napo with respect to matters potentially or actually involving or affecting us, such as future acquisitions, licenses, financings and other corporate opportunities and attempts to acquire us, may conflict with the interests of our other stockholders. Further, Napo has pledged its interests in our common stock as security for certain of its monetary obligations. Accordingly, Napo's ability to take action with respect to these shares may be limited by its agreements with its secured lenders, which may conflict with your interests or those of our other stockholders. If these secured lenders were to foreclose on such shares, these lenders would have significant influence over the way we are managed and the direction of our business. In addition, our Chief Executive Officer is also the interim chief executive officer of Napo and her duties as interim chief executive officer of Napo may conflict with

her duties as our Chief Executive Officer, and the resolution of these conflicts may not always be in our or your best interest.

Napo's principal business currently consists of, among other activities, the management of its intellectual property portfolio, including rights under license agreements with respect to such intellectual property. Napo has limited assets, and its primary sources of revenues in recent years have been license fees, warrant exercises, equity and debt investments and, since late 2013, the receipt of royalties pursuant to its license agreements, which have been limited to date. If Napo fails to generate sufficient revenues to cover its operating costs, it could revise its business strategy in ways that could affect its relationship with our company. For example, it could decide to divest its assets, including its stock in our company. Napo's interests in managing its business, including its ownership in our company, may conflict with your interests.

We may engage in future acquisitions that increase our capital requirements, dilute our stockholders, cause us to incur debt or assume contingent liabilities and subject us to other risks.

We may evaluate various strategic transactions, including licensing or acquiring complementary products, technologies or businesses. Any potential acquisitions may entail numerous risks, including increased operating expenses and cash requirements, assimilation of operations and products, retention of key employees, diversion of our management's attention and uncertainties in our ability to maintain key business relationships of the acquired entities. In addition, if we undertake acquisitions, we may issue dilutive securities, assume or incur debt obligations, incur large one-time expenses and acquire intangible assets that could result in significant future amortization expense. Moreover, we may not be able to locate suitable acquisition opportunities and this inability could impair our ability to grow or obtain access to technology or products that may be important to the development of our business.

Certain of the countries in which we plan to commercialize our products in the future are developing countries, some of which have potentially unstable political and economic climates.

We may commercialize our products in jurisdictions that are developing and emerging countries. This may expose us to the impact of political or economic upheaval, and we could be subject to unforeseen administrative or fiscal burdens. At present, we are not insured against the political and economic risks of operating in these countries. Any significant changes to the political or economic climate in any of the developing countries in which we operate or plan to sell products either now or in the future may have a substantial adverse effect on our business, financial condition, trading performance and prospects.

Fluctuations in the exchange rate of foreign currencies could result in currency transactions losses.

As we expand our operations, we expect to be exposed to risks associated with foreign currency exchange rates. We anticipate that we will commercialize Neonorm for preweaned dairy calves and its line extensions, as well as possibly Canalevia and its line extensions in jurisdictions outside the United States. As a result, we will also be further affected by fluctuations in exchange rates in the future to the extent that sales are denominated in currencies other than U.S. dollars. We do not currently employ any hedging or other strategies to minimize this risk, although we may seek to do so in the future.

Risks Related to Intellectual Property

We are dependent upon our license agreement with Napo and if the agreement is terminated for any reason our business will be harmed.

In January 2014, we entered into a license agreement with Napo, or the Napo License Agreement, which we amended and restated in August 2014 and further amended in January 2015. Pursuant to the Napo License Agreement, we acquired an exclusive worldwide license to Napo's intellectual property rights and technology, including rights to its library of over 2,300 medicinal plants, for all veterinary treatment uses and indications for all species of animals except humans. Under the terms of the Napo

License Agreement, we are responsible for, and shall ensure, the development and commercialization of products that contain or are derived from the licensed Napo technology worldwide in the field of veterinary treatment uses and indications for all species of animals. In consideration for the license, we are obligated to pay a one-time non-refundable license fee and royalties. Napo has the right to terminate the Napo License Agreement upon our uncured material breach of the agreement or if we declare bankruptcy. If the Napo License Agreement is terminated for any reason, our business will be harmed.

Napo has also entered into secured financing agreements with certain secured lenders, for whom Nantucket Investments Limited is acting as collateral agent. The security includes certain assets, including the intellectual property and technology licensed to us pursuant to the Napo License Agreement and Napo's shares of our common stock. Although Napo and Nantucket Investments Limited, on behalf of the secured lenders, have entered into a non-disturbance agreement with respect to the Napo License Agreement, in the event of a bankruptcy of Napo or foreclosure action with respect to Napo's assets, there can be no guarantee that the bankruptcy trustee or any other party to such action will not attempt to interfere with or terminate the Napo License Agreement or otherwise require its terms to be changed, which could harm our business. Under the terms of the Napo License Agreement, certain events, such as an acquisition of Napo or a sale by Napo of all of the intellectual property and technology licensed to us pursuant to the Napo License Agreement, should result in a fully-paid up license to us of all of such intellectual property and technology. If for any reason, Napo ceases to be the owner of the intellectual property and technology licensed to us pursuant to the Napo License Agreement in such a manner that did not result in a fully-paid up license provided for therein, the owner of such intellectual property and technology could attempt to interfere with or terminate the Napo License Agreement or otherwise attempt to renegotiate the arrangement, which would harm our business.

If Napo experiences financial difficulties, becomes unable to pay its liabilities when due, or declares bankruptcy, its creditors could attempt to assert claims against Napo relating to the formation of our company and the grant of an exclusive license to us.

Napo formed our company in June 2013, and in January 2014, we entered into the Napo License Agreement. Napo currently has no commercial operations and its potential sources of revenue are limited to the third parties who have licensed or may license Napo's intellectual property and technology, or collaborate with Napo in the future. Napo was involved in litigation with Salix and expended significant resources in the litigation and subsequent settlement. At the time of the formation of our company and the date of the Napo License Agreement, Napo's liabilities exceeded its assets on a balance sheet prepared in conformity with U.S. generally accepted accounting principles. Napo has been able to pay its liabilities when due but if Napo experiences financial difficulties, becomes unable to pay its liabilities when due, or declares bankruptcy, a creditor, trustee in bankruptcy, or other representative of a Napo bankruptcy estate could attempt to assert claims against us relating to our formation and Napo's grant of an exclusive license to us. One theory such a party could use to challenge our formation and the license grant is that of fraudulent conveyance. This theory is used by creditors to challenge the transfer of assets made with actual intent to hinder, delay, or defraud creditors, or where a financially distressed entity transfers assets without receiving reasonably equivalent value in exchange, provided such litigation is brought within the applicable statute of limitations. Although we do not believe that our formation or Napo's grant of the license was a fraudulent conveyance, litigation based on such theory, if successful, could result in a court order setting aside the license for the benefit of the creditor pursuing the litigation or all creditors of Napo should it occur in the context of a Napo bankruptcy. Even if unsuccessful, any such action would divert management's attention, potentially be costly to defend and could harm our business.

We currently do not own any issued patents, most of our intellectual property is licensed from Napo and we cannot be certain that our patent strategy will be effective to enhance marketing exclusivity.

The patent prosecution process is expensive and time-consuming, and we may not be able to prepare, file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of inventions made in the course of development and commercialization activities in time to obtain patent protection on them. Moreover, in some circumstances, we may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the patents, covering technology that we license from third parties. In particular, we are dependent upon Napo and its licensees to file, prosecute and maintain the intellectual property we license pursuant to the Napo License Agreement. The patents and patent applications we licensed from Napo, or the Napo Patents, which cover both human and veterinary uses, were previously licensed by Napo to Salix for certain fields of human use. On March 4, 2016, Napo and Salix settled litigation and all rights to crofelemer and Fulyzaq were returned to Napo and the collaboration agreement between Salix and Napo, or the Salix Collaboration Agreement, was terminated. Napo has the responsibility to file, prosecute and maintain the Napo Patents. As a result, under the Napo License Agreement, we only have the right to maintain any issued patents within the Napo Patents that are not maintained in accordance with the responsibilities of Napo. There are three issued Napo Patents in the United States that cover, collectively, enteric protected formulations of proanthocyanidin polymers isolated from *Croton spp.* and methods of treating watery diarrhea using the enteric protected formulations for both human and veterinary uses.

Napo has also licensed its *Croton lechleri* related intellectual property to Glenmark and Luye Pharma Group Limited to develop and commercialize crofelemer for human indications in various geographies. Fulyzaq is dependent upon intellectual property protection from the Napo Patents. Napo currently markets Fulyzaq in the United States for human use and the three issued Napo Patents that cover enteric protected formulations of proanthocyanidin polymers isolated from *Croton spp*. and methods of treating watery diarrhea using the enteric protected formulations are listed in the FDA's Orange Book for Fulyzaq. We rely on these issued Napo Patents as intellectual property protection for our prescription drug product candidates and non-prescription products. Pending patent applications within Napo Patents either may not be relevant to veterinary indications and/or may not issue as patents. If any patent application within the Napo Patents is not filed or prosecuted for any reason, including as a result of a lack of financial resources, and we are not able to file and prosecute such patent application within the Napo Patents, our business may be harmed. In addition, as between Napo and us, Napo has the first right to enforce the Napo Patents against potential infringers. If we are not the party who enforces the Napo Patents, we will receive no proceeds from such enforcement action. In each case, such proceeds are subject to reimbursement of costs and expenses incurred by the other party in connection with such action. If our current or future licensors fail to establish, maintain or protect such patents and other intellectual property rights, such rights may be reduced or eliminated.

We currently do not own any issued patents. We have filed and have currently pending three applications under the Patent Cooperation Treaty, or PCT, one U.S. non-provisional patent application and eight provisional patent applications in the veterinary field, of which we control the filing, prosecution and maintenance; however, patents based on any patent applications we may submit may never be issued. We have an exclusive worldwide license from Napo to various issued patents and pending patent applications in the field of animal health. The strength of patents in the field of animal health involves complex legal and scientific questions and can be uncertain. Even if patents do successfully issue, third parties may challenge their validity, enforceability or scope, which may result in such patents being narrowed, invalidated or held unenforceable. Furthermore, even if they are unchallenged, our patents, if issued, and the patents we have licensed may not adequately protect our intellectual property or prevent others from designing around their claims. If we cannot obtain issued patents or the patents we have licensed are not maintained or their scope is significantly narrowed, our business and prospects would be harmed.

Recent patent reform legislation could increase the uncertainties and costs surrounding the prosecution of any patent applications and the enforcement or defense of any patents that issue. On September 16, 2011, the Leahy-Smith America Invents Act, or the Leahy-Smith Act, was signed into law. The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications are prosecuted, redefine prior art, may affect patent litigation, and switch the U.S. patent system from a "first-to-invent" system to a "first-to-file" system. Under a "first-to-file" system, assuming the other requirements for patentability are met, the first inventor to file a patent application generally will be entitled to the patent on an invention regardless of whether another inventor had made the invention earlier. The USPTO has developed new regulations and procedures to govern administration of the Leahy-Smith Act, and many of the substantive changes to patent law associated with the Leahy-Smith Act, and in particular, the first-to-file provisions, became effective on March 16, 2013. Among some of the other changes to the patent laws are changes that limit where a patentee may file a patent infringement suit and that provide opportunities for third parties to challenge any issued patent in the USPTO. The Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of any patents that issue, all of which could harm our business and financial condition.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance and annuity fees on any issued patent are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of the patent. The USPTO 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 failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. If we or our licensors fail to maintain the patents and patent applications covering prescription drug product candidates and non-prescription products, our competitors might be able to enter the market, which would harm our business.

Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, which would be costly, time-consuming and, if successfully asserted against us, delay or prevent the development and commercialization of our current or future products and product candidates.

Our research, development and commercialization activities may infringe or otherwise violate or be claimed to infringe or otherwise violate patents owned or controlled by other parties. There may be patents already issued of which we are unaware that might be infringed by one of our current or future prescription drug product candidates or non-prescription products. Moreover, it is also possible that patents may exist that we are aware of, but that we do not believe are relevant to our current or future prescription drug product candidates or non-prescription products, which could nevertheless be found to block our freedom to market these products. Because patent applications can take many years to issue and may be confidential for 18 months or more after filing, there may be applications now pending of which we are unaware and which may later result in issued patents that may be infringed by our current or future prescription drug product candidates or non-prescription products. We cannot be certain that our current or future prescription drug product candidates or non-prescription products will not infringe these or other existing or future third-party patents. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents.

To the extent we become subject to future third-party claims against us or our collaborators, we could incur substantial expenses and, if any such claims are successful, we could be liable to pay substantial damages, including treble damages and attorney's fees if we or our collaborators are found to be willfully infringing a third party's patents. If a patent infringement suit were brought against us or our collaborators, we or they could be forced to stop or delay research, development, manufacturing or sales of the prescription drug or non-prescription product that is the subject of the suit. Even if we are successful in defending such claims, infringement and other intellectual property claims can be expensive and time-consuming to litigate and divert management's attention from our business and operations. As a result of or in order to avoid potential patent infringement claims, we or our collaborators may be compelled to seek a license from a third party for which we would be required to pay license fees or royalties, or both. Moreover, these licenses may not be available on acceptable terms, or at all. Even if we or our collaborators were able to obtain such a license, the rights may be nonexclusive, which could allow our competitors access to the same intellectual property. Any of these events could harm our business and prospects.

There has been substantial litigation regarding patents and other intellectual property rights in the field of therapeutics, as well as patent challenge proceedings, including interference, derivation and administrative law proceedings before the USPTO, and oppositions and other comparable proceedings in foreign jurisdictions. Under U.S. patent reform laws, new procedures, including *inter partes* review and post-grant review, were implemented as of September 16, 2012, with post-grant review available for patents issued on applications filed on or after March 16, 2013, and the implementation of such reform laws presents uncertainty regarding the outcome of any challenges to our future patents, if any, and to patents we have in licensed. In addition to possible infringement claims against us, we may be subject to third-party pre-issuance submission of prior art to the USPTO, or become involved in opposition, derivation, reexamination, *inter partes* review, post-grant review, or other patent office proceedings or litigation in the United States or elsewhere, challenging our patent rights or the patent rights of others. For applications filed before March 16, 2013 or patents issuing from such applications, if third parties have prepared and filed patent applications in the United States that also claim technology to which we have rights, we may have to participate in interference proceedings in the USPTO to determine the priority of invention. Because patent applications in the United States and most other countries are confidential for a period of time after filing, we cannot be certain that we were the first to either file patent applications on or invent any of the inventions claimed in our patent applications. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in United States federal court necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. We may also become involved in opposition or similar proceedings in patent offices in other jurisdictions regarding our intellectual property rights with respect to our prescription drug or non-prescription products and technology. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate, our future patent rights, if any, allow third parties to commercialize our technology or products and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize products without infringing third-party patent rights.

Our proprietary position depends upon patents that are formulation or method-of-use patents, which do not prevent a competitor from using the same drug candidate for another use.

Composition-of-matter patents on the API in prescription drug products are generally considered to be the strongest form of intellectual property protection because such patents provide protection without regard to any particular method of use or manufacture or formulation of the API used. The composition-of-matter patents for crofelemer, the API in Canalevia, have expired, and we have licensed from Napo patents and applications covering formulations and methods of use for crofelemer and the botanical extract in Neonorm.

Method-of-use patents protect the use of a product for the specified method and formulation patents cover formulations of the API or botanical extract. These types of patents do not prevent a competitor from developing or marketing an identical product for an indication that is outside the scope of the patented method or from developing a different formulation that is outside the scope of the patented formulation. Moreover, with respect to method-of-use patents, even if competitors do not actively promote their product for our targeted indications or uses for which we may obtain patents, veterinarians may recommend that animal owners use these products extra-label, or animal owners may do so themselves. Although extra-label use may infringe or contribute to the infringement of method-of-use patents, the practice is common and such infringement is difficult to prevent or prosecute.

If our efforts to protect intellectual property are not adequate, we may not be able to compete effectively in our markets.

We intend to rely upon a combination of regulatory exclusivity periods, patents, trade secret protection, confidentiality agreements, and license agreements to protect the intellectual property related to our current prescription drug product candidates and non-prescription products and our development programs.

If the breadth or strength of protection provided by any patents, patent applications or future patents we may own, license, or pursue with respect to any of our current or future product candidates or products is threatened, it could threaten our ability to commercialize any of our current or future product candidates or products. Further, if we encounter delays in our development efforts, the period of time during which we could market any of our current or future product candidates or products under any patent protection we obtain would be reduced.

Given the amount of time required for the development, testing and regulatory review of new product candidates or products, patents protecting such candidates might expire before or shortly after such product candidates or products are commercialized. Patent term extensions have been applied for US 7,323,195 and US 7,341,744 to account for regulatory delays in obtaining human marketing approval for crofelemer, however, only one patent may be extended per marketed compound. If such extensions are received, then US 7,323,195 may be extended to June 2021 or US 7,341,744 may be extended to December 2020. However, the applicable authorities, including the USPTO and the FDA, and any equivalent regulatory authority in other countries, may not agree with our assessment of whether such extensions are available, and may refuse to grant extensions to patents, or may grant more limited extensions than requested. If this occurs, our competitors may take advantage of our investment in development and trials by referencing our clinical and preclinical data and launch their product earlier than might otherwise be the case.

Even where laws provide protection or we are able to obtain patents, costly and time-consuming litigation may be necessary to enforce and determine the scope of our proprietary rights, and the outcome of such litigation would be uncertain. Moreover, any actions we may bring to enforce our intellectual property against our competitors could provoke them to bring counterclaims against us, and some of our competitors have substantially greater intellectual property portfolios than we have.

If we are unable to prevent disclosure of our trade secrets or other confidential information to third parties, our competitive position may be impaired.

We also rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable or for which we have not filed patent applications, processes for which patents are difficult to enforce and other elements of our product development processes that involve proprietary know-how, information or technology that is not covered by patents. Although we require all of our employees to assign their inventions to us, and endeavor to execute confidentiality agreements with all of our employees, consultants, advisors and any third parties who have access to our proprietary

know-how, information or technology, we cannot be certain that we have executed such agreements with all parties who may have helped to develop our intellectual property or had access to our proprietary information, or that our agreements will not be breached. We cannot guarantee that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. If we are unable to prevent disclosure of our intellectual property to third parties, we may not be able to maintain a competitive advantage in our market, which would harm our business.

Any disclosure to or misappropriation by third parties of our confidential proprietary information could enable competitors to quickly duplicate or surpass our technological achievements, and erode our competitive position in our market.

We may be involved in lawsuits to protect or enforce any future patents issued to us, which could be expensive, time-consuming and unsuccessful.

Competitors may infringe upon any patents that may issue to us, or any patents that we may license. To counter infringement or unauthorized use of any patents we may obtain, we may be required to file infringement claims or request that our licensor file an infringement claim, which can be expensive and time-consuming to litigate. In addition, if we or one of our future collaborators were to initiate legal proceedings against a third party to enforce a patent covering our current product candidates, or one of our future products, the defendant could counterclaim that the patent is invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness, non-enablement or lack of statutory subject matter. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant material information from the USPTO, or made a materially misleading statement, during prosecution. Third parties may also raise similar validity claims before the USPTO in post-grant proceedings such as *ex parte* reexaminations, *inter partes* review, or post-grant review, or oppositions or similar proceedings outside the United States, in parallel with litigation or even outside the context of litigation. The outcome following legal assertions of invalidity and unenforceability is unpredictable. If a defendant were to prevail on a legal assertion of invalidity or unenforceability, we would lose at least part, and perhaps all, of any future patent protection on our current or future product candidates. Such a loss of patent protection could harm our business. We cannot be certain that there is no invalidating prior art, of which we and the patent examiner were unaware during prosecution. For the patents and patent applications that we have licensed, we may have limited or no right to participate in the defense of any licensed patents against challenge by a third party.

Litigation proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be unsuccessful, it could have an adverse effect on the price of our common stock. Finally, we may not be able to prevent, alone or with the support of our licensors, misappropriation of our trade secrets or confidential information, particularly in countries where the laws may not protect those rights as fully as in the United States.

Changes in U.S. patent law could diminish the value of patents in general, thereby impairing our ability to protect our products.

As is the case with other animal health product companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the animal health industry involves both technological and legal complexity. Therefore, obtaining and enforcing patents is costly,

time-consuming and inherently uncertain. In addition, the United States has recently enacted and implemented wide-ranging patent reform legislation. The U.S. Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce patents that we have licensed or that we might obtain in the future.

We may not be able to protect our intellectual property rights throughout the world, which could impair our business.

Filing, prosecuting and defending patents on prescription drug products, product candidates and non-prescription products throughout the world would be prohibitively expensive. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we may obtain patent protection, but where patent enforcement is not as strong as that in the United States. These products may compete with our products in jurisdictions where we do not have any issued or licensed patents and any future patent claims or other intellectual property rights may not be effective or sufficient to prevent them from so competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to animal health products, which could make it difficult for us to stop the infringement of our future patents, if any, or patents we have in licensed, or marketing of competing products in violation of our proprietary rights generally. Further, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. Proceedings to enforce our future patent rights, if any, in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business.

Our business could be harmed if we fail to obtain certain registered trademarks in the United States or in other countries.

In October 2014, our trademark applications for Canalevia and Neonorm were approved for publication. Although we have filed a trademark application for our company name and our logo in the United States, our applications have not been granted and the corresponding marks have not been registered in the United States. We have not filed for these or other trademarks in any other countries. During trademark registration proceedings, we may receive rejections of our trademark applications. If so, we will have an opportunity to respond, but we may be unable to overcome such rejections. In addition, the USPTO and comparable agencies in many foreign jurisdictions may permit third parties to oppose pending trademark applications and to seek to cancel registered trademarks. If opposition or cancellation proceedings are filed against any of our trademark applications or any registered trademarks, our trademarks may not survive such proceedings. Moreover, any name we propose to use with our prescription drug product candidates in the United States, including Canalevia, must be approved by the FDA, regardless of whether we have registered or applied to register as a trademark. The FDA typically conducts a review of proposed prescription drug product names, including an evaluation of potential for confusion with other product names. If the FDA objects to any of our proposed proprietary product names, we may be required to expend significant additional resources in an effort to identify a suitable

substitute name that would qualify under applicable trademark laws, not infringe the existing rights of third parties and be acceptable to the FDA.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.

We have received confidential and proprietary information from third parties. In addition, we employ individuals who were previously employed at other biotechnology, pharmaceutical or animal health companies. We may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise improperly used or disclosed confidential information of these third parties or our employees' former employers. Litigation may be necessary to defend against any such claims. Even if we are successful in defending against any such claims, such litigation could result in substantial cost and be a distraction to our management and employees.

Risks Related to Government Regulation

Even if we receive any required regulatory approvals for our current or future prescription drug product candidates and non-prescription products, we will be subject to ongoing obligations and continued regulatory review, which may result in significant additional expense.

If the FDA or any other regulatory body approves any of our current or future prescription drug product candidates, or if necessary, our non-prescription products, the manufacturing processes, clinical development, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion and recordkeeping for the product may be subject to extensive and ongoing regulatory requirements. These requirements could include, but are not limited to, submissions of efficacy and safety and other post-marketing information and reports, establishment registration, and product listing, compliance with new rules promulgated under the FSMA, as well as continued compliance with cGMP, GLP and GCP for any studies that we conduct post-approval. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with our contract manufacturers or manufacturing processes, or failure to comply with regulatory requirements, are reportable events to the FDA and may result in, among other things:

- restrictions on the marketing or manufacturing of the product, withdrawal of the product from the market, revised labeling, or voluntary or involuntary product recalls;
- additional clinical studies fines, warning letters or holds on target animal studies;
- refusal by the FDA, or other regulators to approve pending applications or supplements to approved applications filed by us or our strategic collaborators related to the unknown problems, or suspension or revocation of the problematic product's license approvals;
- product seizure or detention, or refusal to permit the import or export of products; and
- injunctions or the imposition of civil or criminal penalties.

The FDA or other regulatory agency's policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates or require certain changes to the labeling or additional clinical work concerning safety and efficacy of the product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability, which would harm our business. In addition, failure to comply with these regulatory requirements could result in significant penalties.

In addition, from time to time, we may enter into consulting and other financial arrangements with veterinarians, who prescribe or recommend our products, once approved. As a result, we may be subject to state, federal and foreign healthcare and/or veterinary medicine laws, including but not limited to anti-kickback laws. If our financial relationships with veterinarians are found to be in violation of such laws that apply to us, we may be subject to penalties.

The issuance by the FDA of protocol concurrences for our pivotal studies does not guarantee ultimate approval of our NADA.

We intend to seek protocol concurrences from the FDA for the pivotal trial of Canalevia that we have initiated for acute diarrhea in dogs and for future pivotal trials in other indications. A pivotal study protocol is submitted to the FDA by a drug sponsor for purposes of obtaining FDA review of the protocol. Prior FDA review of the protocol for a pivotal study makes it more likely that the study will generate information the sponsor needs to demonstrate whether the drug is safe and effective for its intended use. It creates an expectation by the sponsor that the FDA should not later alter its perspectives on these issues unless public or animal health concerns appear that were not recognized at the time of protocol assessment. Even if the FDA issues a protocol concurrence, ultimate approval of an NADA by the FDA is not guaranteed because a final determination that the agreed-upon protocol satisfies a specific objective, such as the demonstration of efficacy, or supports an approval decision, will be based on a complete review of all the data submitted to the FDA. Even if we were to obtain protocol concurrence such concurrence does not guarantee that the results of the study will support a particular finding or approval of the new drug.

Any of our current or future prescription drug product candidates or non-prescription products may cause or contribute to adverse medical events that we would be required to report to regulatory authorities and, if we fail to do so, we could be subject to sanctions that would harm our business.

If we are successful in commercializing any of our current or future prescription drug product candidates or non-prescription products, certain regulatory authorities will require that we report certain information about adverse medical events if those products may have caused or contributed to those adverse events. The timing of our obligation to report would be triggered by the date we become aware of the adverse event as well as the nature of the event. We may fail to report adverse events we become aware of within the prescribed timeframe. We may also fail to appreciate that we have become aware of a reportable adverse event, especially if it is not reported to us as an adverse event or if it is an adverse event that is unexpected or removed in time from the use of our products. If we fail to comply with our reporting obligations, the regulatory authorities could take action including, but not limited to, criminal prosecution, seizure of our products, facility inspections, removal of our products from the market, recalls of certain lots or batches, or cause a delay in approval or clearance of future products.

Legislative or regulatory reforms with respect to animal health may make it more difficult and costly for us to obtain regulatory clearance or approval of any of our current or future product candidates and to produce, market, and distribute our products after clearance or approval is obtained.

From time to time, legislation is drafted and introduced in the U.S. Congress or other jurisdictions in which we intend to operate that could significantly change the statutory provisions governing the testing, regulatory clearance or approval, manufacture, and marketing of regulated products. In addition, the FDA's regulations and guidance are often revised or reinterpreted by the FDA and such other regulators in ways that may significantly affect our business and our products and product candidates. Similar changes in laws or regulations can occur in other countries. Any new regulations or revisions or reinterpretations of existing regulations in the United States or in other countries may impose additional costs or lengthen review times of any of our current or future products and product candidates. We cannot determine what

effect changes in regulations, statutes, legal interpretation or policies, when and if promulgated, enacted or adopted may have on our business in the future. Such changes could, among other things, require:

- changes to manufacturing methods;
- additional clinical trials or testing;
- new requirements related to approval to enter the market;
- recall, replacement, or discontinuance of certain products; and
- additional record keeping or the development of certain regulatory required hazard identification plans.

Each of these would likely entail substantial time and cost and could harm our financial results. In addition, delays in receipt of or failure to receive regulatory clearances or approvals for any future products would harm our business, financial condition, and results of operations.

We believe that our non-prescription products are not subject to regulation by regulatory agencies in the United States, but there is a risk that regulatory bodies may disagree with our interpretation, or may redefine the scope of its regulatory reach in the future, which would result in additional expense and could delay or prevent the commercialization of these products.

The FDA retains jurisdiction over all animal prescription drug products however, in many instances, the Federal Trade Commission will exercise primary or concurrent jurisdiction with FDA on non-prescription products as to post marketing claims made regarding the product. On April 22, 1996, the FDA published a statement in the Federal Register, 61 FR 17706, that it believes that the Dietary Supplement and Health Education Act, or DSHEA, does not apply to animal health supplement products, such as our non-prescription products. Accordingly, the FDA's Center for Veterinary Medicine only regulates those animal supplements that fall within the FDA's definition of an animal drug, animal food or animal feed additive. The Federal Food Drug and Cosmetic Act defines food as "articles used for food or drink for man or other animals and articles used as components of any such article." Animal foods are not subject to pre-market approval and are designed to provide a nutritive purpose to the animals that receive them. Feed additives are defined as those articles that are added to an animal's feed or water as illustrated by the guidance documents. Our non-prescription products are not added to food, are not ingredients in food nor are they added to any animal's drinking water. Therefore, our non-prescription products do not fall within the definition of a food or feed additive. In light of the pronouncement by the FDA that the DSHEA was not intended to apply to animals, the FDA seeks to regulate such supplements as food or food additives depending on the intended use of the product. The intended use is demonstrated by how the article is included in a food, or added to the animals' intake (*i.e.,* through its drinking water). If the intended use of the product does not fall within the proscribed use making the product a food, it cannot be regulated as a food. There is no intent to make our non-prescription products a component of an animal food, either directly or indirectly. A feed additive is a product that is added to a feed for any reason including the top dressing of an already prepared feed. Some additives, such as certain forage, are deemed to be Generally Recognized as Safe, or GRAS, and therefore, not subject to a feed Additive Petition approval prior to use. However, the substances deemed GRAS are generally those that are recognized as providing nutrients as a food does. We do not believe that our non-prescription products fit within this framework either. Finally, a new animal drug refers to drugs intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in animals. Our non-prescription Neonorm Foal and Neonorm Calf products are not intended to diagnose, cure, mitigate, treat or prevent disease and therefore, do not fit within the definition of an animal drug. Additionally, because a previously marketed human formulation of the botanical extract in our non-prescription products was regulated as a human dietary supplement subject to the DSHEA (and not regulated as a drug by the FDA), we do not believe that the FDA would regulate the animal formulation used in our non-prescription products in a different

manner. We do not believe that our non-prescription products fit the definition of an animal drug, food or food additive and therefore are not regulated by the FDA at this time.

However, despite many such unregulated animal supplements currently on the market, the FDA may choose in the future to exercise jurisdiction over animal supplement products in which case, we may be subject to unknown regulations thereby inhibiting our ability to launch or to continue marketing our non-prescription products. In the past, the FDA has redefined or attempted to redefine some non-prescription non-feed products as falling within the definition of drug, feed or feed additive and therefore subjected those products to the relevant regulations. We have not discussed with the FDA our belief that the FDA currently does not exercise jurisdiction over our non-prescription products. Should the FDA assert regulatory authority over our non-prescription products, we would take commercially reasonable steps to address the FDA's concerns, potentially including but not limited to, seeking registration for such products, reformulating such products to further distance such products from regulatory control, or ceasing sale of such products. Further, the Animal and Plant Health Inspection Service, an agency of the USDA, may at some point choose to exercise jurisdiction over certain non-prescription products that are not intended for production animals. We do not believe we are currently subject to such regulation, but could be in the future. If the FDA or other regulatory agencies, such as the USDA, try to regulate our non-prescription products, we could be required to seek regulatory approval for our non-prescription products, which would result in additional expense and could delay or prevent the commercialization of these products.

Risks Related to Our Common Stock

Our failure to meet the continued listing requirements of The NASDAQ Capital Market could result in a delisting of our common stock.

Our common stock is listed on The NASDAQ Capital Market, which imposes, among other requirements, a minimum stockholders equity requirement. On August 22, 2016 we received a notice from NASDAQ of non-compliance with its continuing listing rules, namely that our stockholders' equity at June 30, 2016 of $1,565,316, as reported in our Form 10-Q for the quarter then ended, was less than the $2,500,000 minimum. The failure to meet continuing compliance standards subjects our common stock to delisting. Based on the plan that we submitted to regain compliance, the Securities and Exchange Commission, or the SEC, granted us an extension until February 21, 2017 to regain compliance.

Another requirement for continued listing on The NASDAQ Capital Market is the minimum bid requirement. The closing bid price for our common stock must remain at or above $1.00 per share to comply with NASDAQ's minimum bid requirement for continued listing. If the closing bid price for our common stock is less than $1.00 per share for 30 consecutive business days, NASDAQ may send us a notice stating we will be provided a period of 180 days to regain compliance with the minimum bid requirement or else NASDAQ may make a determination to delist our common stock. Our stock traded for less than $1.00 for 30 consecutive business days, and we received notice of this from The NASDAQ Capital Market on December 28, 2016. We have a 180 calendar day grace period, or until June 26, 2017, to regain compliance with the minimum bid price requirement. The continued listing standard will be met if our common stock has a minimum closing bid price of at least $1.00 per share for a minimum of 10 consecutive business days during the 180 calendar day grace period.

The delisting of our common stock from NASDAQ may make it more difficult for us to raise capital on favorable terms in the future. Such a delisting would likely have a negative effect on the price of our common stock and would impair your ability to sell or purchase our common stock when you wish to do so. Further, if we were to be delisted from The NASDAQ Capital Market, our common stock would cease to be recognized as covered securities and we would be subject to regulation in each state in which we offer our securities.

While we presented a plan to regain compliance, there can be no assurance that our plan will be successful. Moreover, there is no assurance that any actions that we take to restore our compliance with NASDAQ's listing requirements would stabilize the market price or improve the liquidity of our common stock, prevent our common stock from remaining below the NASDAQ minimum bid price required for continued listing or prevent future non-compliance with NASDAQ's listing requirements.

If our shares become subject to the penny stock rules, it would become more difficult to trade our shares.

The SEC has adopted rules that regulate broker-dealer practices in connection with transactions in penny stocks. Penny stocks are generally equity securities with a price of less than $5.00, other than securities registered on certain national securities exchanges or authorized for quotation on certain automated quotation systems, provided that current price and volume information with respect to transactions in such securities is provided by the exchange or system. If we do not retain a listing on The NASDAQ Capital Market and if the price of our common stock is less than $5.00, our common stock will be deemed a penny stock. The penny stock rules require a broker-dealer, before a transaction in a penny stock not otherwise exempt from those rules, to deliver a standardized risk disclosure document containing specified information. In addition, the penny stock rules require that before effecting any transaction in a penny stock not otherwise exempt from those rules, a broker-dealer must make a special written determination that the penny stock is a suitable investment for the purchaser and receive (i) the purchaser's written acknowledgment of the receipt of a risk disclosure statement; (ii) a written agreement to transactions involving penny stocks and (iii) a signed and dated copy of a written suitability statement. These disclosure requirements may have the effect of reducing the trading activity in the secondary market for our common stock, and therefore stockholders may have difficulty selling their shares.

The price of our common stock could be subject to volatility related or unrelated to our operations, and purchasers of our common stock could incur substantial losses.

The trading price of our common stock could be subject to wide fluctuations in response to various factors, some of which are beyond our control. These factors include those discussed previously in this "Risk Factors" section of this report and others, such as:

- delays in the commercialization of Neonorm, Canalevia, Equilevia or our other current or future prescription drug product candidates and non-prescription products;
- any delays in, or suspension or failure of, our current and future studies;
- announcements of regulatory approval or disapproval of any of our current or future product candidates or of regulatory actions affecting us or our industry;
- manufacturing and supply issues that affect product candidate or product supply for our studies or commercialization efforts;
- quarterly variations in our results of operations or those of our competitors;
- changes in our earnings estimates or recommendations by securities analysts;
- the payment of licensing fees or royalties in shares of our common stock;
- announcements by us or our competitors of new prescription drug products or product candidates or non-prescription products, significant contracts, commercial relationships, acquisitions or capital commitments;
- announcements relating to future development or license agreements including termination of such agreements;
- adverse developments with respect to our intellectual property rights or those of our principal collaborators;

- commencement of litigation involving us or our competitors;
- any major changes in our board of directors or management;
- new legislation in the United States relating to the prescription, sale, distribution or pricing of animal health products;
- product liability claims, other litigation or public concern about the safety of our prescription drug product candidates and non-prescription products or any such future products;
- market conditions in the animal industry, in general, or in the animal health sector, in particular, including performance of our competitors; and
- general economic conditions in the United States and abroad.

In addition, the stock market, in general, or the market for stocks in our industry, in particular, may experience broad market fluctuations, which may adversely affect the market price or liquidity of our common stock. Any sudden decline in the market price of our common stock could trigger securities class-action lawsuits against us. If any of our stockholders were to bring such a lawsuit against us, we could incur substantial costs defending the lawsuit and the time and attention of our management would be diverted from our business and operations. We also could be subject to damages claims if we are found to be at fault in connection with a decline in our stock price.

No active market for our common stock exists or may develop, and you may not be able to resell your common stock at or above the public offering price.

Prior to our initial public offering in May 2015, there was no public market for shares of our common stock. The listing of our common stock on The NASDAQ Capital Market does not assure that a meaningful, consistent and liquid trading market exists. Although our common stock is listed on The NASDAQ Capital Market, trading volume in our common stock has been limited and an active trading market for our shares my never develop or be sustained. If an active market for our common stock does not develop, you may be unable to sell your shares when you wish to sell them or at a price that you consider attractive or satisfactory. The lack of an active market may also adversely affect our ability to raise capital by selling securities in the future, or impair our ability to license or acquire other product candidates, businesses or technologies using our shares as consideration.

The sale of our common stock to Aspire Capital may cause substantial dilution to our existing stockholders and the sale of the shares of common stock acquired by Aspire Capital could cause the price of our common stock to decline.

On June 8, 2016, we entered into the CSPA with Aspire Capital, in which Aspire Capital committed to purchase, at our election, up to an aggregate of $15.0 million shares of our common stock over a period of approximately 30 months (i.e., 30 months from July 8, 2016, the effective date of the initial registration statement on Form S-1 that we filed to register the shares that we issued and may issue to Aspire pursuant to the CSPA).

Through January 31, 2017, we have issued 2,027,490 shares of our common stock to Aspire Capital under the CSPA for gross proceeds of approximately $2.7 million. We may ultimately sell all, some or none of the approximately $12.3 million of common stock remaining under the CSPA to Aspire Capital, and Aspire Capital may sell all, some or none of our shares that it holds or comes to hold under the CSPA. Sales by Aspire Capital of shares acquired pursuant to the CSPA may result in dilution to the interests of other holders of our common stock. The sale of a substantial number of shares of our common stock by Aspire Capital, or anticipation of such sales, could make it more difficult for us to sell equity or equity-related securities in the future at a time and at a price that we might otherwise wish to effect sales. However, we have the right to control the timing and amount of sales of our shares to Aspire Capital, and the CSPA may be terminated by us at any time at our discretion without any penalty or cost to us.

If securities or industry analysts do not publish research or reports about our company, or if they issue an adverse or misleading opinions regarding us or our stock, our stock price and trading volume could decline.

The trading market for our common stock depends in part on the research and reports that industry or financial analysts publish about us or our business. We do not influence or control the reporting of these analysts. If one or more of the analysts who do cover us downgrade or provide a negative outlook on our company or our industry, or the stock of any of our competitors, the price of our common stock could decline. If one or more of these analysts ceases coverage of our company, we could lose visibility in the market, which in turn could cause the price of our common stock to decline.

You may be diluted by exercises of outstanding options and warrants.

As of December 31, 2016, we had outstanding options to purchase an aggregate of 2,571,220 shares of our common stock at a weighted average exercise price of $2.52 per share and warrants to purchase an aggregate of 5,968,876 shares of our common stock at a weighted-average exercise price of $1.40 per share. The exercise of such outstanding options and warrants will result in further dilution of your investment. In addition, you may experience additional dilution if we issue common stock in the future. As a result of this dilution, you may receive significantly less in net tangible book value than the full purchase price you paid for the shares in the event of liquidation.

Provisions in our charter documents and under Delaware law could discourage a takeover that stockholders may consider favorable and may lead to entrenchment of management.

Our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that could delay or prevent changes in control or changes in our management without the consent of our board of directors. These provisions to include the following:

- a classified board of directors with three-year staggered terms, which may delay the ability of stockholders to change the membership of a majority of our board of directors;
- no cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- the exclusive right of our board of directors to elect a director to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- the ability of our board of directors to authorize the issuance of shares of preferred stock and to determine the terms of those shares, including preferences and voting rights, without stockholder approval, which could adversely affect the rights of our common stockholders or be used to deter a possible acquisition of our company;
- the ability of our board of directors to alter our bylaws without obtaining stockholder approval;
- the required approval of the holders of at least 75% of the shares entitled to vote at an election of directors to adopt, amend or repeal our bylaws or repeal the provisions of our amended and restated certificate of incorporation regarding the election and removal of directors;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- the requirement that a special meeting of stockholders may be called only by the chairman of the board of directors, the chief executive officer, the president or the board of directors, which may delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors; and

- advance notice procedures that stockholders must comply with in order to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of us.

These provisions could inhibit or prevent possible transactions that some stockholders may consider attractive.

We are also subject to the anti-takeover provisions contained in Section 203 of the Delaware General Corporation Law. Under Section 203, a corporation generally may not engage in a business combination with any holder of 15% or more of its capital stock unless the holder has held the stock for three years or, among other exceptions, the board of directors has approved the transaction.

Our amended and restated bylaws designate the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or other employees.

Our amended and restated bylaws provide that, unless we consent in writing to an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, (iv) any action asserting a claim that is governed by the internal affairs doctrine or (v) any action to interpret, apply, enforce or determine the validity of our certificate of incorporation or bylaws. Any person purchasing or otherwise acquiring any interest in any shares of our capital stock shall be deemed to have notice of and to have consented to this provision of our amended and restated bylaws. This choice-of-forum provision may limit our stockholders' ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits. Alternatively, if a court were to find this provision of our amended and restated bylaws inapplicable or unenforceable with respect to one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could harm our business and financial condition.

We do not intend to pay dividends on our common stock, and your ability to achieve a return on your investment will depend on appreciation in the market price of our common stock.

We currently intend to invest our future earnings, if any, to fund our growth and not to pay any cash dividends on our common stock. Because we do not intend to pay dividends, your ability to receive a return on your investment will depend on any future appreciation in the market price of our common stock. We cannot be certain that our common stock will appreciate in price.

Our principal stockholders own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

As of February 1, 2017, our executive officers, directors, holders of 5% or more of our capital stock and their respective affiliates beneficially owned in the aggregate approximately 58.9% of our outstanding shares of common stock. As a result of their stock ownership, these stockholders may have the ability to influence our management and policies, and will be able to significantly affect the outcome of matters requiring stockholder approval such as elections of directors, amendments of our organizational documents or approvals of any merger, sale of assets or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you may feel are in your best interest as one of our stockholders.

The requirements of being a public company, including compliance with the reporting requirements of the Exchange Act and the requirements of the Sarbanes-Oxley Act, may strain our resources, increase our costs and distract management, and we may be unable to comply with these requirements in a timely or cost-effective manner.

Our initial public offering had a significant, transformative effect on us. Prior to our initial public offering, our business operated as a privately-held company, and we were not required to comply with public reporting, corporate governance and financial accounting practices and policies required of a publicly-traded company. As a publicly-traded company, we incur significant additional legal, accounting and other expenses compared to historical levels. In addition, new and changing laws, regulations and standards relating to corporate governance and public disclosure, including the Dodd-Frank Wall Street Reform and Consumer Protection Act and the rules and regulations thereunder, as well as under the Sarbanes-Oxley Act, the JOBS Act and the rules and regulations of the SEC and The NASDAQ Capital Market, may result in an increase in our costs and the time that our board of directors and management must devote to our compliance with these rules and regulations. These rules and regulations have substantially increased our legal and financial compliance costs and diverted management time and attention from our product development and other business activities.

The Sarbanes-Oxley Act requires, among other things, that we assess the effectiveness of our internal control over financial reporting annually and the effectiveness of our disclosure controls and procedures quarterly. In particular, Section 404 of the Sarbanes-Oxley Act, or Section 404, requires us to perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on, and our independent registered public accounting firm potentially to attest to, the effectiveness of our internal control over financial reporting. We have needed to expend time and resources on documenting our internal control over financial reporting so that we are in a position to perform such evaluation when required. As an "emerging growth company," we expect to avail ourselves of the exemption from the requirement that our independent registered public accounting firm attest to the effectiveness of our internal control over financial reporting under Section 404. However, we may no longer avail ourselves of this exemption when we cease to be an "emerging growth company." When our independent registered public accounting firm is required to undertake an assessment of our internal control over financial reporting, the cost of our compliance with Section 404 will correspondingly increase. Our compliance with applicable provisions of Section 404 requires that we incur substantial accounting expense and expend significant management time on compliance-related issues as we implement additional corporate governance practices and comply with reporting requirements. Moreover, if we are not able to comply with the requirements of Section 404 applicable to us in a timely manner, or if we or our independent registered public accounting firm identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, the market price of our stock could decline and we could be subject to sanctions or investigations by the SEC or other regulatory authorities, which would require additional financial and management resources.

We are an "emerging growth company" and we cannot be certain if the reduced disclosure requirements applicable to "emerging growth companies" will make our common stock less attractive to investors.

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, and we may take advantage of certain exemptions and relief from various reporting requirements that are applicable to other public companies that are not "emerging growth companies." In particular, while we are an "emerging growth company" (i) we will not be required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act, (ii) we will be subject to reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and (iii) we will not be required to hold nonbinding advisory votes on executive compensation or stockholder approval of any golden parachute payments not previously approved. In addition, the JOBS Act provides that an emerging growth company can delay its adoption of any new or revised accounting standards, but we have irrevocably elected not to avail ourselves of this exemption and, therefore, we will

be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies. In addition, investors may find our common stock less attractive if we rely on the exemptions and relief granted by the JOBS Act. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may decline and/or become more volatile.

We may remain an "emerging growth company" until as late as December 31, 2020 (the fiscal year-end following the fifth anniversary of the closing of our initial public offering, which occurred on May 18, 2015), although we may cease to be an "emerging growth company" earlier under certain circumstances, including (i) if the market value of our common stock that is held by non-affiliates exceeds $700.0 million as of any June 30, in which case we would cease to be an "emerging growth company" as of December 31 of such year, (ii) if our gross revenue exceeds $1.0 billion in any fiscal year or (iii) if we issue more than $1.0 billion of non-convertible debt over a three-year period.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our corporate headquarters are located in San Francisco, California, where we sublease 6,008 rentable square feet of office space from SeeChange Health Management Company, Inc. Our sublease agreement expires on August 31, 2018. We believe that our existing facilities are adequate for our near-term needs. We believe that suitable additional or alternative space would be available if required in the future on commercially reasonable terms if we are not able to convert our current sublease to a lease by August 31, 2018 on commercially reasonable terms. We believe that our existing facilities are adequate to meet our business requirements for at least the next 12 months and that additional space will be available on commercially reasonable terms, if required.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we may become involved in litigation relating to claims arising from the ordinary course of business. There are currently no claims or actions pending against us, the ultimate disposition of which could have a material adverse effect on our results of operations, financial condition or cash flows.

ITEM 4. MINE SAFETY DISCLOSURE

Not applicable.

PART II

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

Market Information

Our shares of common stock have been listed and traded on The NASDAQ Capital Market under the symbol "JAGX" since May 13, 2015. Prior to that date, there was no public market for our common stock.

The following table sets forth, for the periods indicated, the high and low intra-day sale prices in dollars on The NASDAQ Capital Market for our common stock.

Quarter Ended	High	Low
June 30, 2015 (from May 13, 2015)	$ 7.06	$ 4.56
September 30, 2015	$ 5.48	$ 1.90
December 31, 2015	$ 4.70	$ 1.69
March 31, 2016	$ 4.60	$ 1.35
June 30, 2016	$ 3.79	$ 1.19
September 30, 2016	$ 2.25	$ 1.09
December 31, 2016	$ 1.53	$ 0.61

Holders

As of December 31, 2016, there were approximately 29 stockholders of record of our common stock. These figures do not reflect the beneficial ownership or shares held in nominee name, nor do they include holders of any RSUs.

Dividend Policy

We have never paid any cash dividends on our common stock to date. We currently anticipate that we will retain all future earnings, if any, to fund the development and growth of our business and do not anticipate paying any cash dividends for at least the next five years, if ever.

Recent Sales of Unregistered Securities

In October 2016, pursuant to a common stock purchase agreement dated October 18, 2016, we issued 170,455 shares of common stock to an accredited investor for gross proceeds of $150,000.

On November 8, 2016, we entered into an amendment to extend the maturity date of the $150,000 convertible note, issued pursuant to the convertible note purchase agreement dated December 23, 2014, from October 31, 2016 to January 1, 2017. In exchange for the extension of the maturity date, on November 8, 2016, we issued the convertible noteholder a warrant to purchase 120,000 shares of common stock at an exercise price of $0.01 per share, which expires July 28, 2022. On January 31, 2017, we entered into another amendment to further extend the maturity date of the $150,000 convertible note to January 1, 2018. In exchange for the extension, we issued the convertible note holder a warrant to purchase 370,916 shares of our common stock at an exercise price of $0.51 per share, which expires on January 31, 2019.

The offers, sales, and issuances of the securities described above were deemed to be exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act, Regulation D or Regulation S promulgated thereunder as transactions by an issuer not involving a public offering. The recipients of securities in each of these transactions acquired the securities for investment only and not with a view to or for sale in connection with any distribution thereof and appropriate legends were affixed to the securities issued in these transactions. Each of the recipients of securities in these transactions was an accredited or sophisticated person and had adequate access, through employment, business or other relationships, to information about us.

ITEM 6. SELECTED FINANCIAL DATA

Not Applicable.

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

The following discussion and analysis should be read together with our financial statements and the related notes appearing elsewhere in this report.

Overview

We are an animal health company focused on developing and commercializing first-in-class gastrointestinal products for companion and production animals, foals, and high value horses. Canalevia is our lead prescription drug product candidate, intended for treatment of various forms of diarrhea in dogs. We achieved statistically significant results in a multicenter canine proof-of-concept study completed in February 2015, supporting the conclusion that Canalevia treatment is superior to placebo. As we announced in December 2015, the pivotal clinical field study to evaluate the safety and effectiveness of Canalevia for acute diarrhea in dogs is underway. Two-hundred dogs were enrolled in the Canalevia pivotal study, which completed enrollment in January 2017. Jaguar has received Minor Use in a Minor Species (MUMS) designation for Canalevia for Chemotherapy-Induced Diarrhea (CID) in dogs. Canalevia is a canine-specific formulation of crofelemer, an active pharmaceutical ingredient isolated and purified from the *Croton lechleri* tree, which is sustainably harvested. A human-specific formulation of crofelemer, Mytesi (formerly known as Fulyzaq), was approved by the FDA in 2012 for the symptomatic relief of noninfectious diarrhea in adults with HIV/AIDS on antiretroviral therapy. Members of our management team developed crofelemer while at Napo Pharmaceuticals, Inc. or Napo, which was Jaguar's parent company until May 13, 2015. The reception among users of our lead non-prescription products—Neonorm Calf and Neonorm Foal, an anti-diarrheal product we launched for newborn horses in early 2016—has been quite positive. The clinically-proven performance of Neonorm Foal, in combination with our heightened understanding of market needs within the global equine space, is driving our increased focus on equine product development. Equilevia (formerly referred to as SB-300) is Jaguar's prescription drug product candidate for treatment of gastrointestinal ulcers in horses. Equilevia is a pharmaceutical formulation of a standardized botanical extract. Neonorm is a standardized botanical extract derived from the *Croton lechleri* tree. We launched Neonorm Calf in the United States at the end of 2014 for preweaned dairy calves. Canalevia, Equilevia and Neonorm are distinct products formulated to address specific species and market channels. We have filed nine investigational new animal drug applications, or INADs, with the FDA and intend to develop species-specific formulations of Neonorm in six additional target species, and Canalevia for both cats and dogs. In July 2016 we released data from two China-based studies sponsored by Fresno, California-based Integrated Animal Nutrition and Health Inc. showing remarkable resolution of diarrhea and cure of piglets afflicted with diarrhea following treatment with a *Croton lechleri* botanical extract administered in water.

As we announced in December 2016, Jaguar has signed a distribution agreement with Henry Schein, Inc., the world's largest provider of health care products and services to office-based dental, animal health and medical practitioners, for exclusive distribution of Neonorm Foal product to all segments of the U.S. equine market. Henry Schein's animal health business, Dublin, Ohio-based Henry Schein Animal Health, employs approximately 900 team members and had 2015 net sales of $2.9 billion. The agreement became effective on December 9, 2016, and, subject to provisions specified in the agreement, shall continue in force for an initial period of one year. Thereafter, unless either party notifies the other of its intent not to renew the term of the agreement at least 30 days prior to the end of the then current term, the term shall be automatically renewed upon expiration for successive renewal terms of one year.

As we announced in September 2016, we have signed an exclusive supply and distribution agreement for this botanical extract with Integrated Animal Nutrition and Health Inc. for dairy cattle and pigs in the Chinese marketplace. According to the Minnesota-based Institute for Agriculture and Trade Policy, swine production was expected to reach 723 million head in 2014 in China, where pork is still the main protein source for many consumers. In 2015 there were an estimated 15.6 million dairy cattle in China, according to Index Muni. Integrated Animal Nutrition and Health, Inc. has minimum purchase requirements of the botanical extract to maintain their exclusivity.

Since inception, we have been primarily focused on designing and conducting studies of Canalevia to treat diarrhea in dogs and of Neonorm to help retain fluid in calves and to function as an anti-diarrheal in foals. We are also focused on developing a full suite of equine products to support and improve gastrointestinal health in foals and adult horses. Gastrointestinal conditions such as acute diarrhea, ulcers and diarrhea associated with acute colitis can be extremely debilitating for horses, and present a significant economic and emotional burden for veterinarians and owners around the world. A portion of our activities has also been focused on other efforts associated with being a recently formed company, including securing necessary intellectual property, recruiting management and key employees, and financing activities.

On February 8, 2017, we entered into a binding agreement of terms for our acquisition of Napo. Following the merger, Napo will operate as our wholly-owned subsidiary, focused on human health. The binding financial terms of the merger include a 3-to-1 Napo-to-Jaguar value ratio to calculate the relative ownership of the combined entity. As of January 31, 2017, Napo owned approximately 19% of the outstanding shares of our common stock.

The Binding Agreement of Terms sets forth the financial terms of the merger and customary conditions to closing, which include but are not limited to completion of due diligence, receipt of a fairness opinion, and stockholder and other approvals. Additionally, the financial terms of the merger and conditions to closing include provisions that (i) Napo's secured convertible debt shall not exceed $10.0 million and its unsecured debt shall not exceed $3.0 million, and (ii) a third party will invest $3.0 million in us for approximately four million shares of our newly issued common stock with the investment proceeds loaned to Napo immediately prior to the consummation of the merger. The Binding Agreement of Terms also provides that if the merger fails to close for any reason on or prior to July 31, 2017, other than as a result directly or indirectly of (x) lack of stockholder approval by either party or (y) Napo (i) failing to perform in accordance with the terms and conditions of the agreement or (ii) failing to abide by or breaching the provisions or representations, warranties and covenants of the agreement or the merger documents, then, on or before the close of business on August 7, 2017, we will be required to issue 2,000,000 shares of our restricted common stock to Napo.

We expect to incur significant expenses in connection with the merger. While we have assumed that a certain level of expenses will be incurred, there are many factors that could affect the total amount or the timing of the merger expenses, and many of the expenses that will be incurred are, by their nature, difficult to estimate. These expenses could result in the combined company taking significant charges against earnings following the completion of the merger. The ultimate amount and timing of such charges are uncertain at the present time. We incurred approximately $100,000 in professional and other fees associated with the proposed merger during the year ended December 31, 2016.

On January 27, 2017, we entered into a licensing, development, co-promotion and commercialization agreement with Elanco to license, develop and commercialize Canalevia, our drug product candidate under investigation for treatment of acute and chemotherapy-induced diarrhea in dogs, and other drug product formulations of crofelemer for treatment of gastrointestinal diseases, conditions and symptoms in cats and other companion animals. The Elanco Agreement grants Elanco exclusive global rights to Canalevia, a product whose active pharmaceutical ingredient is sustainably isolated and purified from the Croton lechleri tree, for use in companion animals. Pursuant to the Elanco Agreement, Elanco will have

exclusive rights globally outside the U.S. and co-exclusive rights with us in the U.S. to direct all marketing, advertising, promotion, launch and sales activities related to the Licensed Products.

Under the terms of the Elanco Agreement, we received a $1.5 million upfront payment and will receive additional payments upon achievement of certain development, regulatory and sales milestones in an aggregate amount of up to $61.0 million payable throughout the term of the Elanco Agreement, as well as product development expense reimbursement, and royalty payments on global sales. The Elanco Agreement specifies that we will supply the Licensed Products to Elanco, and that the parties will agree to set a minimum sales requirement that Elanco must meet to maintain exclusivity. Elanco will also reimburse us for Canalevia-related expenses, including reimbursement for Canalevia-related expenses in Q4 2016, certain development and regulatory expenses related to our planned target animal safety study and the completion of our field study of Canalevia for acute diarrhea in dogs.

Financial Operations Overview

We were incorporated in June 2013 in Delaware. Napo formed our company to develop and commercialize animal health products. Prior to our incorporation, the only activities of Napo related to animal health were limited to the retention of consultants to evaluate potential strategic alternatives. We were previously a majority-owned subsidiary of Napo. However, following the closing of our May 2015 initial public offering, we are no longer majority-owned by Napo.

We have not generated any material revenue to date and expect to continue to incur significant research and development and other expenses. Our net loss attributable to common stockholders was $14.7 million and $16.6 million for the years ended December 31, 2016 and 2015. As of December 31, 2016, we had total stockholders' deficit of $2.5 million and cash and cash equivalents of $950,979. We expect to continue to incur losses for the foreseeable future as we expand our product development activities, seek necessary approvals for our product candidates, conduct species-specific formulation studies for our non-prescription products, establish API manufacturing capabilities and begin commercialization activities. As a result, we expect to experience increased expenditures for 2017.

Revenue

We sell our primary commercial product Neonorm to distributors under agreements that may provide distributor price adjustments and rights of return under certain circumstances. Until we have sufficient sales history and pipeline visibility, we will defer revenue and costs of distributor sales until products are sold by the distributor to the distributor's customers. Revenue recognition depends on notification either directly from the distributor that product has been sold to the distributor's customer, when we have access to the data. We maintain system controls to verify that the reported distributor and third party data is accurate. Deferred revenue on shipments to distributors will reflect the estimated effects of distributor price adjustments, if any, and the estimated amount of gross margin expected to be realized when the distributor sells through product purchased from the Company. Accounts receivable from distributors will be recognized and included in deferred revenue when we ship product to the distributor. We relieve inventory and recognize revenue typically upon shipment by the distributor to their customer. We recognized $141,523 and $258,381 in revenue for the years ended December 31, 2016 and 2015, respectively.

Cost of Revenue

Cost of revenue expenses consist of costs to manufacture, package and distribute Neonorm that distributors have sold through to their customers.

Research and Development Expense

Research and development expenses consist primarily of clinical and contract manufacturing expense, personnel and related benefit expense, stock-based compensation expense, employee travel expense, reforestation expenses. Clinical and contract manufacturing expense consists primarily of costs to conduct stability, safety and efficacy studies, and manufacturing startup expenses at an outsourced API provider in Italy.

We typically use our employee and infrastructure resources across multiple development programs. We track outsourced development costs by prescription drug product candidate and non-prescription product but do not allocate personnel or other internal costs related to development to specific programs or development compounds.

The timing and amount of our research and development expenses will depend largely upon the outcomes of current and future trials for our prescription drug product candidates as well as the related regulatory requirements, the outcomes of current and future species-specific formulation studies for our non-prescription products, manufacturing costs and any costs associated with the advancement of our line extension programs. We cannot determine with certainty the duration and completion costs of the current or future development activities.

The duration, costs and timing of trials, formulation studies and development of our prescription drug and non-prescription products will depend on a variety of factors, including:

- the scope, rate of progress, and expense of our ongoing, as well as any additional clinical trials, formulation studies and other research and development activities;
- future clinical trial and formulation study results;
- potential changes in government regulations; and
- the timing and receipt of any regulatory approvals.

A change in the outcome of any of these variables with respect to the development of a prescription drug product candidate or non-prescription product could mean a significant change in the costs and timing associated with our development activities.

We expect research and development expense to increase significantly as we add personnel, commence additional clinical studies and other activities to develop our prescription drug product candidates and non-prescription products.

Sales and Marketing Expense

Sales and marketing expenses consist of personnel and related benefit expense, stock-based compensation expense, direct sales and marketing expense, employee travel expense, and management consulting expense. We currently incur sales and marketing expenses to promote Neonorm calf and foal sales.

We expect sales and marketing expense to increase significantly as we develop and commercialize new products and grow our existing Neonorm market. We will need to add sales and marketing headcount to promote the sales of existing and new products.

General and Administrative Expense

General and administrative expenses consist of personnel and related benefit expense, stock-based compensation expense, employee travel expense, legal and accounting fees, rent and facilities expense, and management consulting expense.

We expect general and administrative expense to increase in order to enable us to effectively manage the overall growth of the business. This will include adding headcount, enhancing information systems and potentially expanding corporate facilities.

Interest Expense

Interest expense consists primarily of interest on convertible promissory notes, the standby bridge financing commitment and the loan and security agreement (long-term debt arrangement). It also includes interest expense and the amortization of a beneficial conversion feature related to convertible promissory notes issued in June and December 2014 and in February and March 2015.

Results of Operations

Comparison of the years ended December 31, 2016 and 2015

The following table summarizes the Company's results of operations with respect to the items set forth in such table for the years ended December 31, 2016 and 2015 together with the change in such items in dollars and as a percentage:

	Years Ended December 31,		Variance	
	2016	2015	($)	(%)
Revenue	**$ 141,523**	**$ 258,381**	**$ (116,858)**	**(45.2)%**
Operating Expenses				
Cost of revenue	**51,966**	**123,457**	**(71,491)**	**(57.9)%**
Research and development expense	**7,206,864**	**6,475,851**	**731,013**	**11.3%**
Sales and marketing expense	**485,440**	**765,091**	**(279,651)**	**(36.6)%**
General and administrative expense	**5,983,238**	**5,339,351**	**643,887**	**12.1%**
Total operating expenses	**13,727,508**	**12,703,750**	**1,023,758**	**8.1%**
Loss from operations	**(13,585,985)**	**(12,445,369)**	**(1,140,616)**	**9.2%**
Interest expense, net	**(985,549)**	**(3,317,287)**	**2,331,738**	**(70.3)%**
Other expense	**(11,046)**	**(27,277)**	**16,231**	**(59.5)%**
Change in fair value of warrants	**(43,200)**	**(501,617)**	**458,417**	**(91.4)%**
Loss on extinguishment of debt	**(108,000)**	**—**	**(108,000)**	**N/A**
Net loss and comprehensive loss	**$ (14,733,780)**	**$ (16,291,550)**	**$ 1,557,770**	**(9.6)%**

Revenue and Cost of Revenue

Revenue and related cost of revenue for the years ended December 31, 2016 and 2015 reflects sell-through of our Neonorm Calf and Neonorm Foal products to our distributors. We defer recognizing revenue and cost of revenue until products are sold by the distributor to the distributor's end customers and recognition depends on notification from the distributor that product has been sold to the distributor's end customer. In 2016, we began selling the botanical extract to a distributor for use exclusively in China. The revenue from these sales, which totaled $24,000 in the year ended December 31, 2016, is recognized upon shipment to the distributor as no return rights are provided to this distributor. We experienced a reduction in Neonorm Calf unit sales in the year ended December 31, 2016 compared to 2015 resulting in the decrease in revenue. The decrease in cost of revenue was consistent with the decrease in revenue. We are increasing our efforts to promote sales growth.

Research and Development Expense

The following table presents the components of research and development expense for the years ended December 31, 2016 and 2015 together with the change in such components in dollars and as a percentage:

	Years Ended December 31,			
	2016	2015	Variance	Variance %
R&D:				
Personnel and related benefits	**$ 2,546,220**	**$ 1,891,954**	**$ 654,266**	**34.6%**
Materials expense and tree planting	**113,394**	**187,876**	**(74,482)**	**(39.6)%**
Travel, other expenses	**400,846**	**360,362**	**40,484**	**11.2%**
Clinical and contract manufacturing	**2,254,122**	**3,093,193**	**(839,071)**	**(27.1)%**
Stock-based compensation	**181,489**	**472,145**	**(290,656)**	**(61.6)%**
Other	**1,710,793**	**470,321**	**1,240,472**	**263.8%**
Total	**$ 7,206,864**	**$ 6,475,851**	**$ 731,013**	**11.3%**

We increased research and development expense $731,000 from $6.5 million in the year ended December 31, 2015 to $7.2 million for the same period in 2016. We added headcount to enable us to make significant progress in the development of certain drug candidates that resulted in the increase of $654,000 in personnel and related benefit expenses, while carefully controlling spend in clinical trials and contract manufacturing. Clinical trial expenses increased due to our dog safety and efficacy study and our horse dose determination study both of which began in fiscal year 2016. These expenses were offset by a reduction of contract manufacturing expenses associated with the setup of manufacturing in Italy, which was completed in March 2016. Stock-based compensation decreased $291,000 from $472,000 in the year December 31, 2015 to $181,000 in the same period in 2016 primarily due to the reduction in the fair market value of our common stock. Other expenses, consisting primarily of consulting and formulation expenses, increased $1.2 million from $470,000 in the year ended December 31, 2015 to $1.7 million in the same period in 2016. Consulting expenses increased $940,000 from $135,000 in the year ended December 31, 2015 to $1.1 million in the same period in 2016 due to a substantial increase in contractor utilization to assist in our clinical trials and in chemistry, manufacturing and controls ("CMC") activities. Formulation expenses increased $250,000 from $170,000 in the year ended December 31, 2015 to $420,000 for the same period in 2016 due to an increase in work needed to supply clinical operations with active and placebo product for use in clinical trials. We plan to increase our research and development expense as we continue developing our drug candidates.

We also continued our reforestation efforts, although our expense decreased $74,000 from $188,000 in the year ended December 31, 2015 to $113,000 for the same period in 2016. We value and take to heart the responsibility to replenish trees consumed in order to extract the raw material to manufacture our primary commercial product and the drug product for use in clinical trials.

Sales and Marketing Expense

The following table presents the components of sales and marketing expense for the years ended December 31, 2016 and 2015 together with the change in such components in dollars and as a percentage:

	Years Ended December 31,			
	2016	2015	Variance	Variance %
S&M:				
Personnel and related benefits	**$ 198,100**	**$ 347,944**	**$ (149,844)**	**(43.1)%**
Stock-based compensation	**73,679**	**54,115**	**19,564**	**36.2%**
Direct Marketing Fees	**116,417**	**196,910**	**(80,493)**	**(40.9)%**
Other	**97,244**	**166,122**	**(68,878)**	**(41.5)%**
Total	**$ 485,440**	**$ 765,091**	**$ (279,651)**	**(36.6)%**

Sales and marketing expense decreased $280,000 from $765,000 in the year ended December 31, 2015 to $485,000 in the same period in 2016 primarily due to a decrease in average monthly headcount for most of the fiscal year and a decrease in direct marketing expense. Personnel costs decreased $150,000 from $348,000 for the year ended December 31, 2015 to $198,000 for the same period in 2016. Stock based compensation expense increased $20,000 from $54,000 in the year ended December 31, 2015 to $74,000 in the same period in 2016 due primarily to expense associated with options granted to a consultant in 2016. Direct marketing and sales expense decreased $81,000 from $197,000 in the year ended December 31, 2015 to $116,000 for the same period in 2016 due to a reduction in marketing programs to promote our Neonorm products. Other expenses, consisted primarily of travel expense, consulting expense and royalty expense. Travel expenses decreased $42,000 from $66,000 in the year ended December 31, 2015 to $25,000 in the same period in 2016 consistent with the reduction in headcount. Consulting expense increased $7,000 from $47,000 in the year ended December 31, 2015 to $54,000 in the same period in 2016. Royalty expenses decreased $39,000 from $40,000 in the year ended December 31, 2015 to $1,000 in the same period in 2016 due to a reduction in the royalty rate upon going public and also due to the decrease in sales of our Neonorm products. We plan to expand sales and marketing spend to promote our Neonorm products.

General and Administrative Expense

The following table presents the components of general and administrative expense for the years ended December 31, 2016 and 2015 together with the change in such components in dollars and as a percentage:

	Years Ended December 31,			
	2016	2015	Variance	Variance %
G&A:				
Personnel and related benefits	**$ 2,104,809**	**$ 2,025,339**	**$ 79,470**	**3.9%**
Accounting fees	**311,693**	**351,743**	**(40,050)**	**(11.4)%**
Third-party consulting fees and Napo service fees	**374,852**	**200,758**	**174,094**	**86.7%**
Legal fees	**824,288**	**611,237**	**213,051**	**34.9%**
Travel	**310,066**	**442,095**	**(132,029)**	**(29.9)%**
Stock-based compensation	**462,759**	**465,905**	**(3,146)**	**(0.7)%**
Rent and lease expense	**384,147**	**280,753**	**103,394**	**36.8%**
Public company expenses	**291,253**	**234,247**	**57,006**	**24.3%**
Other	**919,371**	**727,274**	**192,097**	**26.4%**
Total	**$ 5,983,238**	**$ 5,339,351**	**$ 643,887**	**12.1%**

Our general and administrative expenses increased $644,000 from $5.3 million in the year ended December 31, 2015 to $6.0 million for the same period in 2016. In 2015, we became a public company and added headcount that has resulted in increases of $79,000 in personnel expense. Stock-based compensation was flat at $466,000 in the year ended December 31, 2015 compared to $463,000 in the same period in 2016 due to expense associated with new grants to existing employees offsetting the reduction in our stock price. Our public company expenses increased $57,000 due primarily to a full year of expense in 2016 versus only seven months of expense in 2015 as we filed our IPO in May 2015. We controlled our professional services expenses, reducing our audit fees by $40,000. However, our legal fees increased $213,000 from $611,000 in the year ended December 31, 2015 compared to $824,000 in the same period in 2016 due to increased public filings with the SEC, and we increased consulting expenses by $174,000 from $201,000 in the year ended December 31, 2015 to $375,000 in the same period in 2016 primarily due to placement agent fees related to the 2016 private placement financing in 2016. Rent expense increased $103,000 due to moving into our new San Francisco headquarters facility in July of 2015. Other expenses, including insurance costs also increased as a result of becoming a public company in May 2015. We expect to incur additional general and administrative expense as a result of operating as a public company and as we grow our business, including expenses related to compliance with the rules and regulations of the SEC, additional insurance expenses, investor relations activities and other administrative and professional services.

Liquidity and Capital Resources

Sources of Liquidity

We had an accumulated deficit of $40.4 million as a result of incurring net losses since our inception as we have not generated significant revenue through the current fiscal year. Our net loss and comprehensive loss was $801,000 for the period from inception to December 31, 2013, $8.6 million for the year ended December 31, 2014, $16.3 million for the year ended December 31, 2015, and $14.7 million for the year ended December 31, 2016. We expect to continue to incur additional losses through the end of fiscal year 2017 and in future years due to expected significant expenses for toxicology, safety and efficacy clinical trials of our products and product candidates, for establishing contract manufacturing capabilities, and for the commercialization of one or more of our product candidates, if approved.

We had cash and cash equivalents of $951,000 as of December 31, 2016 compared to $7.7 million as of December 31, 2015. We do not believe our existing cash and cash equivalents will be sufficient to meet our anticipated cash requirements for the next 12 months. Our independent registered public accounting firm has included an explanatory paragraph in its audit report included in our Form 10-K regarding our assessment of substantial doubt about our ability to continue as a going concern. Our financial statements do not include any adjustments that may result from the outcome of this uncertainty.

To date, we have funded our operations primarily through the issuance of equity securities, short-term convertible promissory notes, and long-term debt, in addition to sales of Neonorm, our commercial product:

- In 2013, we received $400 from the issuance of 2,666,666 shares of common stock to our parent Napo Pharmaceuticals, Inc. We also received $519,000 of net cash from the issuance of convertible promissory notes in an aggregate principal amount of $525,000. These notes were all converted to common stock in 2014.

- In 2014, we received $6.7 million in proceeds from the issuance of convertible preferred stock. Effective as of the closing of our initial public offering, the 3,015,902 shares of outstanding convertible preferred stock were automatically converted into 2,010,596 shares of common stock. Following our initial public offering, there were no shares of preferred stock outstanding.

- In 2014, we received $1.1 million from the issuance of convertible promissory notes in an aggregate principal amount of $1.1 million. These notes were converted to common stock upon the

effectiveness of the initial public offering in May of 2015. In August 2014, we entered into a standby line of credit with an individual, who is an accredited investor, for up to $1.0 million. To date, we had not made any drawdowns under this facility. Also, in October of 2014, as amended and restated in December 2014, we entered into a $1.0 million standby bridge loan which was repaid in 2015.

- In 2015, we received $1.25 million in exchange for $1.25 million of convertible promissory notes, of which $1.0 million was converted to common stock in 2015, and $100,000 was repaid in 2015. The remaining $150,000 remains outstanding.

- In May 2015, we received net proceeds of $15.9 million upon the closing of our initial public offering, gross proceeds of $20.0 million (2,860,000 shares at $7.00 per share) net of $1.2 million of underwriting discounts and commissions and $3.3 million of offering expenses, including $0.4 million of non-cash expense. These shares began trading on The NASDAQ Capital Market on May 13, 2015.

- In 2015, we received net proceeds of $5.9 million from the issuance of long-term debt. We entered into a loan and security agreement with a lender for up to $8.0 million, which provided for an initial loan commitment of $6.0 million. Under the loan agreement we are required to maintain $4.5 million of the proceeds in cash, which amount may be reduced or eliminated on the achievement of certain milestones. An additional $2.0 million is available contingent on the achievement of certain further milestones. The agreement has a term of three years, with interest only payments through February 29, 2016. Thereafter, principal and interest payments will be made with an interest rate of 9.9%. Additionally, there will be a balloon interest payment of $560,000 on August 1, 2018. This amount is being recognized over the term of the loan agreement and the effective interest rate, considering the balloon payment, is 15.0%. Our proceeds are net of a $134,433 debt discount under the terms of such agreement.

- In 2014 and 2015, we received $24,000 and $531,000, respectively, in cash from sales of Neonorm to distributors.

- In 2015, we received approximately $13,000 in proceeds from the exercise of stock options.

- In 2016, we received net proceeds of $4.1 million upon the closing of our follow-on public offering, reflecting gross proceeds of $5.0 million (2.0 million shares at $2.50 per share) net of $373,011 of underwriting discounts and commissions and $496,887 of offering expenses.

- In June 2016, we entered into the CSPA with a private investor. Under the terms of the agreement, we may sell up to $15.0 million in common stock to the investor during the approximately 30-month term of the agreement. Upon execution of the CSPA, we sold 222,222 shares of our common stock to the investor at $2.25 per share for net proceeds of $448,732, reflecting gross proceeds of $500,000 and offering expenses of $51,268. In consideration for entering into the CSPA, we issued 456,667 shares of our common stock to the investor. We issued 1,348,601 shares in exchange for net proceeds of $2,122,570, reflecting gross proceeds of $2,176,700 net of $54,130 offering expenses under the CSPA in the year ended December 31, 2016.

- In October 2016, we entered into a Common Stock Purchase Agreement with an existing private investor. Upon execution of the agreement we sold 170,455 shares of our common stock in exchange for $150,000 in cash proceeds.

- On November 22, 2016, we entered into a Securities Purchase Agreement, or the 2016 Purchase Agreement, with certain institutional investors, pursuant to which we sold securities to such investors in a private placement transaction, which we refer to herein as the 2016 Private Placement. In the 2016 Private Placement, we sold an aggregate of 1,666,668 shares of our common stock at a price of $0.60 per share for gross proceeds of approximately $1.0 million. The investors in the 2016 Private Placement also received (i) warrants to purchase up to an aggregate of 1,666,668

shares of our common stock, at an exercise price of $0.75 per share, or the Series A Warrants, (ii) warrants to purchase up to an aggregate 1,666,668 shares of our common stock, at an exercise price of $0.90 per share, or the Series B Warrants, and (iii) warrants to purchase up to an aggregate 1,666,668 shares of our common stock, at an exercise price of $1.00 per share, or the Series C Warrants and, together with the Series A Warrants and the Series B Warrants, the 2016 Warrants.

- On January 27, 2017, we entered into a licensing, development, co-promotion and commercialization agreement with Elanco to license, develop and commercialize Canalevia, our drug product candidate under investigation for treatment of acute and chemotherapy-induced diarrhea in dogs, and other drug product formulations of crofelemer for treatment of gastrointestinal diseases, conditions and symptoms in cats and other companion animals. The Elanco Agreement grants Elanco exclusive global rights to Canalevia, a product whose active pharmaceutical ingredient is sustainably isolated and purified from the Croton lechleri tree, for use in companion animals. Pursuant to the Elanco Agreement, Elanco will have exclusive rights globally outside the U.S. and co-exclusive rights with us in the U.S. to direct all marketing, advertising, promotion, launch and sales activities related to the Licensed Products. Under the terms of the Elanco Agreement, we received a $1.5 million upfront payment and will receive additional payments upon achievement of certain development, regulatory and sales milestones in an aggregate amount of up to $61.0 million payable throughout the term of the Elanco Agreement, as well as product development expense reimbursement, and royalty payments on global sales. The Elanco Agreement specifies that we will supply the Licensed Products to Elanco, and that the parties will agree to set a minimum sales requirement that Elanco must meet to maintain exclusivity. Elanco will also reimburse us for Canalevia-related expenses, including reimbursement for Canalevia-related expenses in Q4 2016, certain development and regulatory expenses related to our planned target animal safety study and the completion of our field study of Canalevia for acute diarrhea in dogs.

We expect our expenditures will continue to increase as we continue our efforts to develop animal health products, expand our commercially available Neonorm product and continue development of Canalevia in the near term. We have agreed to pay Indena S.p.A. fees of approximately €2.1 million under a memorandum of understanding relating to the establishment of our commercial API manufacturing arrangement in Italy. As of June 30, 2016, we remitted €1.95 million of the €2.1 million. We paid the final €150,000 on July 15, 2016.

We do not believe our current capital is sufficient to fund our operating plan through December 2017. We will need to seek additional funds sooner than planned, through public or private equity or debt financings or other sources, such as strategic collaborations. Such financing may result in dilution to stockholders, imposition of debt covenants and repayment obligations or other restrictions that may affect our business. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. We may also not be successful in entering into partnerships that include payment of upfront licensing fees for our products and product candidates for markets outside the United States, where appropriate. If we do not generate upfront fees from any anticipated arrangements, it would have a negative effect on our operating plan. The Company plans to finance its operations and capital funding needs through equity and/or debt financing as well as revenue from future product sales. However, there can be no assurance that additional funding will be available to the Company on acceptable terms on a timely basis, if at all, or that the Company will generate sufficient cash from operations to adequately fund operating needs or ultimately achieve profitability. If the Company is unable to obtain an adequate level of financing needed for the long-term development and commercialization of its products, the Company will need to curtail planned activities and reduce costs. Doing so will likely have an adverse effect on the Company's ability to execute on its business plan.

Cash Flows for Year Ended December 31, 2016 Compared to the Year Ended December 31, 2015

The following table shows a summary of cash flows for the years ended December 31, 2016 and 2015:

	Years Ended December 31,	
	2016	2015
Total cash used in operations	$ (14,413,718)	$ (14,315,863)
Total cash provided by/(used in) investing activities	2,384,500	(3,002,700)
Total Cash Provided by Financing Activities	5,282,666	24,170,902
	$ (6,746,552)	$ 6,852,339

Cash Used in Operating Activities

During the year ended December 31, 2016, cash used in operating activities of $14.4 million resulted from our net loss of $14.7 million, offset by non-cash accretion of end of term payment, debt discounts and debt issuance costs of $510,000, stock-based compensation of $718,000, loss on extinguishment of debt of $108,000, depreciation expense of $47,000, net of changes in operating assets and liabilities of $1.1 million.

During the year ended December 31, 2015, cash used in operating activities of $14.3 million resulted from our net loss of $16.3 million, offset by non-cash accretion of debt discounts of $2.5 million, non-cash revaluation of warrant liability of $502,000 and stock-based compensation of $992,000, amortization of debt issuance costs of $130,000, accretion of the balloon payment on the long-term debt of $116,000, loss on the sale of property and equipment of $35,000, depreciation expense of $5,000, net of changes in operating assets and liabilities of $2.3 million.

Cash Provided By/Used In Investing Activities

During the year ended December 31, 2016, cash provided by investing activities of $2.4 million primarily consisted of $2.5 million of a release of restricted cash that resulted from a reduction in our long-term debt, net of $104,000 in purchases of property and equipment.

During the year ended December 31, 2015, cash used in investing activities of $3.0 million primarily consisted of $3.0 million in restricted cash that resulted from our issuance of long-term debt, $23,000 from the purchase of property and equipment, net of $21,000 from the sale of property and equipment.

Cash Provided by Financing Activities

During the year ended December 31, 2016, cash provided by financing activities of $5.3 million primarily consisted of $4.1 million in net cash received in our secondary public offering, net of commissions and certain offering expenses, $2.6 million in net proceeds received in the CSPA, $150,000 in net proceeds from an additional common stock purchase agreement, and $903,000 in net cash received in the sale of common stock to various investors as part of the 2016 Private Placement offset by $2.5 million in principal payments on our long-term debt.

During the year ended December 31, 2015, cash provided by financing activities 24.2 million primarily consisted of the gross proceeds from the issuance of $5.6 million in long-term debt, net of discounts and debt issuance costs, $1.3 million in convertible promissory notes, offset by $1.1 million in repayments thereof, and $18.4 million in net cash was provided related to our initial public offering, net of commissions and certain deferred offering costs, offset by the repayment of the $1.0 million bridge loans and $100,000 in convertible notes.

Description of Indebtedness

Convertible Notes and Warrants

2013 Convertible Notes

From July through September 2013, we issued four convertible promissory notes (collectively the "Notes") for gross aggregate proceeds of $525,000 to various third-party lenders. The Notes bore interest at 8% per annum. The Notes automatically matured and the entire outstanding principal amount, together with accrued interest, was due and payable in cash at the earlier of July 8, 2015 (the "Maturity Date") or ten business days after the date of consummation of the initial closing of a first equity round of financing. We consummated a first equity round of financing prior to the Maturity Date with a pre-money valuation of greater than $3.0 million, and, accordingly, principal and accrued interest was converted into shares of common stock at 75% of the purchase price paid by such equity investors. These notes were all converted to common stock in February 2014 upon the issuance of the convertible preferred stock. In February 2014, in connection with the first equity round of financing and issuance of the Series A convertible preferred stock, the noteholders exercised their option to convert their Notes into 207,664 shares of common stock and accrued interest was paid in cash to the noteholders. The accreted interest expense related to the discount on the Notes was $1,443 for the period from January 1, 2014 to the conversion date of the Notes. Upon conversion, the entire remaining debt discount of $4,071 was recorded as interest expense.

In connection with the Notes, we issued warrants to the noteholders, which became exercisable to purchase an aggregate of 207,664 shares of common stock as of the issuance of the first equity round of financing (the "Warrants"). The Warrants have a $2.53 exercise price, are fully exercisable from the initial date of the first equity round of financing, and have a five-year term subsequent to that date. The warrants were fully expensed prior to 2016.

2014 Convertible Notes

On June 2, 2014, pursuant to a convertible note purchase agreement, we issued convertible promissory notes in the aggregate principal amount of $300,000 to two accredited investors, including a convertible promissory note for $200,000 to a board member to which Series A preferred stock was sold. These notes accrued interest at 3% per annum and automatically were to mature on June 1, 2015. Interest expense for the year ended December 31, 2015 was $3,237 and is included in interest expense in the statement of operations and comprehensive loss. Accrued interest is $8,507 and is included in accrued liabilities in the balance sheet. All interest was to be paid in cash upon maturity. Upon the closing of the IPO, the outstanding principal amount automatically converted into 53,571 shares common stock at $5.60, as amended in March 2015. Upon issuance, we analyzed the beneficial nature of the conversion terms and determined that a beneficial conversion feature, or BCF, existed because the effective conversion price on issuance of the notes was less than the fair value at the time of the issuance. We calculated the value of the BCF using the intrinsic method and recorded a BCF of $75,000 as a discount to notes payable and to additional paid-in capital. For the year ended December 31, 2015, we amortized $31,250 of the discount as interest expense in the statements of operations and comprehensive loss.

On July 16, 2014, pursuant to a convertible note purchase agreement, weissued a convertible promissory note in the principal amount of $150,000 to an accredited investor. This note accrued interest at 3% per annum and automatically was to mature on June 1, 2015. Interest expense for the year ended December 31, 2015 was $1,627 and is included in interest expense in the statements of operations and comprehensive loss. Accrued interest is $3,711 and is included in accrued liabilities in the balance sheet. All interest was to be paid in cash upon maturity. Upon the closing of the IPO, the outstanding principal amount automatically converted into 26,785 shares of common stock at $5.60, as amended in March 2015. Upon issuance, we analyzed the beneficial nature of the conversion terms and determined that a BCF existed because the effective conversion price was less than the fair value at the time of the issuance. We calculated the value of the BCF using the intrinsic method and recorded a BCF of $37,500 as a discount to

the notes payable and to additional paid-in capital. For the year ended December 31, 2015, we amortized $17,857 of the discount as interest expense in the statements of operations and comprehensive loss.

In connection with the Transfer Agreement (Note 6) we issued fully vested and immediately exercisable warrants to the Manufacturer to purchase 16,666 shares of common stock at 90% of the IPO price, amended to $6.30 in March 2015, for a period of five years. The fair value of the warrants, $37,840, was recorded as research and development expense and additional paid-in capital in June 2014. The warrants were originally valued using the Black-Scholes model with the following assumptions: stock price of $4.83, exercise price of $4.35, term of five years, volatility of 49%, dividend yield of 0%, and risk-free interest rate of 1.64%.

On December 23, 2014, pursuant to a convertible note purchase agreement, we issued convertible promissory notes in the aggregate principal amount of $650,000 to three accredited investors, including a convertible promissory note for $250,000 to the same board member to which the June 2, 2014 $200,000 convertible promissory note was issued and to which Series A preferred stock was sold. These notes accrued interest at 12% per annum and became payable within thirty days following the IPO. Interest expense for the year ended December 31, 2015 was $28,210 and is included in interest expense in the statements of operations and comprehensive loss. Accrued interest is $30,132 and is included in accrued liabilities in the balance sheet. All interest was to be paid in cash upon maturity. Upon consummation of our IPO, the noteholders converted the notes into 116,070 shares of common stock at a conversion price equal to 80% of the IPO price, amended to $5.60 in March 2015. In connection with these notes, we also issued the lenders a fully vested warrant to purchase shares of our common stock at an exercise price equal to 80% of the IPO price, amended to $5.60 in March 2015. These warrants entitle the noteholders to purchase 58,035 shares of common stock. The fair value of the warrants, $147,943, was recorded as a debt discount and liability at December 23, 2014. We amortized $141,890 of this discount in the year ended December 31, 2015 which has been recorded as interest expense in the statements of operations and comprehensive loss. The warrants were originally valued using the Black-Scholes model with the following assumptions: stock price of $4.59, exercise price of $4.15, term of three years expiring December 2017, volatility of 49%, dividend yield of 0%, and risk-free interest rate of 1.10%. Based on the circumstances, the value derived using the Black-Scholes model approximated that which would be obtained using a lattice model. The debt discount was amortized as interest expense over the one hundred ninety days from issuance of the notes through their first maturity date of July 31, 2015, beginning in January 2015. We analyzed the beneficial nature of the conversion terms and determined that a BCF existed because the effective conversion price was less than the fair value at the time of the issuance. We calculated the value of the BCF using the intrinsic method. A BCF of $502,057 was recorded as a discount to the notes payable and to additional paid-in capital. For the years ended December 31, 2016 and 2015, we amortized $0 and $484,329 of the BCF as interest expense in the statements of operations and comprehensive loss.

2015 Convertible Notes

In February 2015, we issued convertible promissory notes to two accredited investors in the aggregate principal amount of $250,000. These notes were issued pursuant to the convertible note purchase agreement dated December 23, 2014. In connection with the issuance of the notes, we issued the lenders warrants to purchase 22,320 shares at $5.60 per share, which expire December 31, 2017. Principal and interest of $103,912 was paid in May 2015 for $100,000 of these notes. The Company analyzed the beneficial nature of the conversion terms and determined that a BCF existed because the effective conversion price was less than the fair value at the time of the issuance. We calculated the value of the BCF using the intrinsic method. A BCF for the full face value was recorded as a discount to the notes payable and to additional paid-in capital. For the years ended December 31, 2016 and 2015, we amortized $0 and $250,000 of the BCF as interest expense in the Company's statement of operations and comprehensive income.

Extinguishment of debt

The remaining outstanding note of $150,000 is payable to the investor at an effective simple interest rate of 12% per annum, and was due in full on July 31, 2016. On July 28, 2016, we entered into an amendment to extend the repayment of the principal and related interest under the terms of the remaining note from July 31, 2016 to October 31, 2016. On November 8, 2016, we entered into an amendment to further extend the maturity date of the remaining note from October 31, 2016 to January 1, 2017. In exchange for the extension of the maturity date, on November 8, 2016, our board of directors granted the lendor a warrant to purchase 120,000 shares of our common stock for $0.01 per share. The warrant is exercisable at any time on or before July 28, 2022, the expiration date of the warrant.

The amendment and related warrant issuance resulted in our treating the debt as having been extinguished and replaced with new debt for accounting purposes. We calculated a loss on the extinguishment of debt of $108,000 which is included in other expense in the statements of operations and comprehensive loss.

The $150,000 note is included in notes payable in the balance sheet. We accrued interest of $33,929, which is included in accrued liabilities in the balance sheet, and incurred $18,049 and $15,880 in interest expense in the years ended December 31, 2016 and 2015, respectively.

On December 28, 2016, we entered into an amendment to further extend the maturity date of the note from January 1, 2017 to January 31, 2017. On January 31, 2017, the Company entered into an amendment to further extend the due date of the $150,000 convertible note payable from January 31, 2017 to January 1, 2018.

In March 2015, we entered into a non-binding letter of intent with an investor. In connection therewith, the investor paid the Company $1.0 million. At March 31, 2015, we had recorded this amount as a loan advance on the balance sheet. In April 2015, the investor purchased $1.0 million of convertible promissory notes from us, the terms of which provided that such notes were to be converted into shares of our common stock upon the closing of an IPO at a conversion price of $5.60 per share. In connection with the purchase of the notes, we issued the investor a warrant to purchase 89,285 shares at $5.60 per share, which expires December 31, 2017. The notes accrued simple interest of 12% per annum and, upon consummation of our IPO in May 2015, converted into 178,571 shares of our common stock. We analyzed the beneficial nature of the conversion terms and determined that a BCF existed because the effective conversion price was less than the fair value at the time of the issuance. We calculated the value of the BCF using the intrinsic method. A BCF of for the full face value was recorded as a discount to the notes payable and to additional paid-in capital. For the year ended December 31, 2015, we amortized $1,000,000 of the BCF as interest expense in the statements of operations and comprehensive income. We accrued interest of $17,753, which is included in accrued liabilities in the balance sheet, and has incurred $17,753 and $15,880 in interest expense in the years ended December 31, 2016 and 2015, respectively.

As of December 31, 2016 and 2015, the convertible notes payable obligations were as follows:

	December 31, 2016	December 31, 2015
Notes payable	$ 150,000	$ 150,000
Unamortized note discount	—	—
Net debt obligation	$ 150,000	$ 150,000

Interest expense on the convertible notes for the years ended December 31, 2016 and 2015 was as follows:

	Years Ended December 31,	
	2016	2015
Nominal Interest	$ 18,049	$ 70,619
Amortization of debt discount	—	1,925,326
	$ 18,049	$ 1,995,945

Interest payable on the convertible notes at December 31, 2016 and 2015 was as follows:

	December 31, 2016	December 31, 2015
Interest Payable:	$ 94,048	$ 75,999

Notes Payable—Bridge Loans

On October 30, 2014, we entered into a standby bridge financing agreement with two lenders, which was amended and restated on December 3, 2014, which provided a loan commitment in the aggregate principal amount of $1.0 million (the "Bridge"). Proceeds to us were net of a $100,000 debt discount under the terms of the Bridge and net of $104,000 of debt issuance costs. This debt discount and debt issuance costs were recorded as interest expense using the effective interest method, over the six month term of the Bridge. The Bridge became payable upon the IPO. The Bridge was repaid in May 2015, including interest thereon in an amount of $1,321,600. In connection with the Bridge, the lenders were granted warrants to purchase 178,569 shares of our common stock determined by dividing $1.0 million by the exercise price of 80% of the IPO price, amended to $5.60 in March 2015. The fair value of the warrants, $505,348, was originally recorded as a debt discount and liability at December 3, 2014. The warrants were originally valued using the Black-Scholes model with the following assumptions: stock price of $5.01, exercise price of $5.23, term of five years expiring December 2019, volatility of 63%, dividend yield of 0%, and risk-free interest rate of 1.61%. Based on the circumstances, the value derived using the Black-Scholes model approximated that which would be obtained using a lattice model. The debt discount was recorded as interest expense over the six month term of the Bridge. Of the aggregate debt discount of $605,348 (warrants and original $100,000 discount), $521,291 was recorded as interest expense during the year ended December 31, 2015. Additional financing costs of $104,000 were incurred related to the Bridge and deferred on closing. These were recognized as interest expense over the six-month term of the Bridge using the effective interest method. The Company amortized the remaining $86,667 of these deferred financing charges by the end of May 2015 was recorded the amortized amounts as interest expense. We fully extinguished the debt and accrued interest in May 2015.

Interest expense on the notes payable-bridge loans for the years ended December 31, 2016 and 2015 was as follows:

	Years Ended December 31,	
	2016	2015
Nominal Interest	$ —	$ 100,000
Amortization of debt discount	—	521,291
Repayment premium	—	201,600
Debt issuance costs	—	86,667
	$ —	$ 909,558

Standby Line of Credit

In August 2014, we entered into a standby line of credit with an accredited investor for up to $1.0 million pursuant to a Line of Credit and Loan Agreement dated August 26, 2014. In connection with the entry into the standby line of credit, we issued the lender a fully vested warrant to purchase 33,333 shares of common stock at an exercise price equal to 80% of the IPO price, amended to $5.60 in March 2015, which expires in August 2016. The fair value of the warrants, $114,300, was recorded as interest expense and additional paid-in capital in August 2014. The warrants were originally valued using the Black-Scholes model with the following assumptions: stock price of $8.00, exercise price of $6.40, term of two years, volatility of 52%, dividend yield of 0%, and risk-free interest rate of 0.52%. The line of credit expired on March 31, 2015 and there were no drawdowns under the facility.

Long-term Debt

In August 2015, we entered into a loan and security agreement with a lender for up to $8.0 million, which provided for an initial loan commitment of $6.0 million. The loan agreement requires us to maintain $4.5 million of the proceeds in cash, which may be reduced or eliminated on the achievement of certain milestones. An additional $2.0 million is available contingent on the achievement of certain further milestones. The agreement has a term of three years, with interest only payments through February 29, 2016. Thereafter, principal and interest payments will be made with an interest rate of 9.9%. Additionally, there will be a balloon payment of $560,000 on August 1, 2018. This amount is being recognized over the term of the loan agreement and the effective interest rate, considering the balloon payment, is 15.0%. Proceeds to us were net of a $134,433 debt discount under the terms of the loan agreement. This debt discount is being recorded as interest expense, using the interest method, over the term of the loan agreement. Under the agreement, we are entitled to prepay principal and accrued interest upon five days prior notice to the lender. In the event of prepayment, we are obligated to pay a prepayment charge. If such prepayment is made during any of the first twelve months of the loan agreement, the prepayment charge will be (a) during such time as we are required to maintain a minimum cash balance, 2% of the minimum cash balance amount plus 3% of the difference between the amount being prepaid and the minimum cash balance, and (b) after such time as we are no longer required to maintain a minimum cash balance, 3% of the amount being prepaid. If such prepayment is made during any time after the first twelve months of the loan agreement, 1% of the amount being prepaid.

On April 21, 2016, the loan and security was amended upon which we repaid $1.5 million of the debt out of restricted cash. The amendment modified the repayment amortization schedule providing a four-month period of interest only payments for the period from May through August 2016.

As of December 31, 2016 and 2015, the net long-term debt obligation was as follows:

	December 31, 2016	December 31, 2015
Debt and unpaid accrued end-of-term payment	$ 3,894,320	$ 6,115,797
Unamortized note discount	(42,493)	(106,635)
Unamortized debt issuance costs	(114,626)	(206,235)
Net debt obligation	$ 3,737,201	$ 5,802,927
Current portion of long-term debt	$ 1,919,675	$ 1,707,899
Long-term debt, net of discount	1,817,526	$ 4,095,028
Total	$ 3,737,201	$ 5,802,927

Future principal payments under the long-term debt are as follows:

Years ending December 31	Amount
2017	$ 2,032,048
2018	1,479,246
Total future principal payments	3,511,294
2018 end-of-term payment	560,000
	4,071,294
Less: unaccreted end-of-term payment at December 31, 2016	(176,974)
Debt and unpaid accrued end-of-term payment	$ 3,894,320

The obligation at December 31, 2015 includes an end-of-term payment of $560,000, which accretes over the life of the loan as interest expense. As a result of the debt discount and the end-of-term payment, the effective interest rate for the loan differs from the contractual rate.

Interest expense on the long-term debt for the years ended December 31, 2016 and 2015 was as follows:

	December 31, 2016	December 31, 2015
Nominal Interest	$ 457,448	$ 224,400
Amortization of debt discount	64,142	27,798
Accretion of end-of-term payment	267,230	115,797
Debt issuance costs	178,713	43,789
	$ 967,533	$ 411,784

At the IPO, our outstanding warrants to purchase convertible preferred stock were all converted to warrants to purchase common stock.

Warrants

On November 22, 2016, we entered into a Securities Purchase Agreement, or the 2016 Purchase Agreement, with certain institutional investors, pursuant to which we sold securities to such investors in a private placement transaction, which we refer to herein as the 2016 Private Placement. In the 2016 Private Placement, we sold an aggregate of 1,666,668 shares of our common stock at a price of $0.60 per share for net proceeds of $677,224 or gross proceeds of approximately $1.0 million less $322,777 in issuance costs. The investors in the 2016 Private Placement also received (i) warrants to purchase up to an aggregate of 1,666,668 shares of our common stock, at an exercise price of $0.75 per share, or the Series A Warrants, (ii) warrants to purchase up to an aggregate 1,666,668 shares of our common stock, at an exercise price of $0.90 per share, or the Series B Warrants, and (iii) warrants to purchase up to an aggregate 1,666,668 shares of our common stock, at an exercise price of $1.00 per share, or the Series C Warrants and, together with the Series A Warrants and the Series B Warrants, the 2016 Warrants. The issuance costs were

allocated to common stock, series A warrants, and Series B and C warrants based on the relative fair value of each:

Instruments	Fair Value	% Allocation	Issuance Costs (allocated)
Common Stock	$ 156,522	16%	$ 50,522
Warrants (Series A)	700,001	70%	225,944
Warrants (Series B and C)	143,478	14%	46,311
Total	$ 1,000,001	100%	$ 322,777

Common stock of a net $106,000 (fair value less issuance costs) was included in equity in the company's balance sheet. Series A warrants of $756,001, consisting of the series A warrants of $700,001 and the series A placement agent warrants of $56,000, are included in current liabilities in the balance sheet and the $225,944 of issuance cost was expensed and is in general and administrative expense on the statement of operations and comprehensive loss. Series B and C warrants of a net $97,167 (fair value less issuance costs) are included in equity in the company's balance sheet.

Our warrant share activity is summarized as follows:

	December 31, 2016	December 31, 2015
Beginning balance at January 1	748,872	494,267
Warrants granted	5,253,337	254,605
Warrants cancelled	(33,333)	—
Ending balance at December 31	5,968,876	748,872

Off-Balance Sheet Arrangements

Since inception, we have not engaged in the use of any off-balance sheet arrangements, such as structured finance entities, special purpose entities or variable interest entities.

Critical Accounting Policies and Significant Judgments and Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles, or U.S. GAAP, requires the use of estimates and assumptions that affect the reported amounts of assets and liabilities, revenues and expenses, and related disclosures in the financial statements. Critical accounting policies are those accounting policies that may be material due to the levels of subjectivity and judgment necessary to account for highly uncertain matters or the susceptibility of such matters to change, and that have a material impact on financial condition or operating performance. While we base our estimates and judgments on our experience and on various other factors that we believe to be reasonable under the circumstances, actual results may differ from these estimates under different assumptions or conditions. We believe the following critical accounting policies used in the preparation of our financial statements require significant judgments and estimates. For additional information relating to these and other accounting policies, see Note 2 to our audited financial statements, appearing elsewhere in this report.

Accrued Research and Development Expenses

As part of the process of preparing our financial statements, we are required to estimate accrued research and development expenses. Estimated accrued expenses include fees paid to vendors and clinical sites in connection with our clinical trials and studies. We review new and open contracts and communicate with applicable internal and vendor personnel to identify services that have been performed on our behalf

and estimate the level of service performed and the associated costs incurred for the service when we have not yet been invoiced or otherwise notified of the actual cost for accrued expenses. The majority of our service providers invoice us monthly in arrears for services performed or as milestones are achieved in relation to our contract manufacturers. We make estimates of our accrued expenses as of each reporting date.

We base our accrued expenses related to clinical trials and studies on our estimates of the services received and efforts expended pursuant to contracts with vendors, our internal resources, and payments to clinical sites based on enrollment projections. The financial terms of the vendor agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. Payments under some of these contracts depend on factors such as the successful enrollment of animals and the completion of development milestones. We estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from our estimate, we adjust the related expense accrual accordingly on a prospective basis. If we do not identify costs that have been incurred or if we underestimate or overestimate the level of services performed or the costs of these services, our actual expenses could differ from our estimates. To date, we have not made any material adjustments to our estimates of accrued research and development expenses or the level of services performed in any reporting period presented.

The Company expenses the total cost of a certain long-term manufacturing development contract ratably over the estimated life of the contract, or the total amount paid if greater.

Accounting for Stock-Based Compensation

Beginning in the second quarter of 2014, we awarded options and restricted stock units. We measure stock-based awards granted to employees and directors at fair value on the date of grant and recognize the corresponding compensation expense of the awards, net of estimated forfeitures, over the requisite service periods, which correspond to the vesting periods of the awards. The Company revalues non-employee options each reporting period using the fair market value of the Company's common stock as of the last day of each reporting period.

Key Assumptions. Our Black-Scholes-Merton option-pricing model requires the input of highly subjective assumptions, including the fair value of the underlying common stock, the expected volatility of the price of our common stock, the expected term of the option, risk-free interest rates and the expected dividend yield of our common stock. These estimates involve inherent uncertainties and the application of management's judgment. If factors change and different assumptions are used, our stock-based compensation expense could be materially different in the future. These assumptions are estimated as follows:

- Fair value of our common stock—Our common stock is valued by reference to the publicly-traded price of our common stock.

- Expected volatility—As we do not have any trading history for our common stock, the expected stock price volatility for our common stock was estimated by taking the average historic price volatility for industry peers based on daily price observations for common stock values over a period equivalent to the expected term of our stock option grants. We did not rely on implied volatilities of traded options in our industry peers' common stock because the volume of activity was relatively low. We intend to continue to consistently apply this process using the same or similar public companies until a sufficient amount of historical information regarding the volatility of our own common stock share price becomes available.

- Expected term—The expected term represents the period that our stock-based awards are expected to be outstanding. It is based on the "simplified method" for developing the estimate of the expected life of a "plain vanilla" stock option. Under this approach, the expected term is presumed

to be the midpoint between the average vesting date and the end of the contractual term for each vesting tranche. We intend to continue to apply this process until a sufficient amount of historical exercise activity is available to be able to reliably estimate the expected term.

- Risk-free interest rate—The risk-free interest rate is based on the yields of U.S. Treasury securities with maturities similar to the expected term of the options for each option group.

- Dividend yield—We have never declared or paid any cash dividends and do not presently plan to pay cash dividends in the foreseeable future. Consequently, we used an expected dividend yield of zero.

- Forfeitures—We estimate forfeitures at the time of grant and revise those estimates periodically in subsequent periods. We use historical data to estimate pre-vesting option forfeitures and record stock-based compensation expense only for those awards that are expected to vest.

Common Stock Valuations. Prior to our IPO, the fair value of the common stock underlying our stock options was determined by our board of directors, which intended all options granted to be exercisable at a price per share not less than the per share fair value of our common stock underlying those options on the date of grant. The valuations of our common stock were determined in accordance with the guidelines outlined in the American Institute of Certified Public Accountants Practice Aid, Valuation of Privately-Held-Company Equity Securities Issued as Compensation. The assumptions we used in the valuation model are highly complex and subjective. We base our assumptions on future expectations combined with management judgment. In the absence of a public trading market, our board of directors, with input from management, exercised significant judgment and considered numerous objective and subjective factors to determine the fair value of our common stock as of the date of each option grant and stock award. These judgments and factors will not be necessary to determine the fair value of new awards once the underlying shares begin trading. For now we included the following factors:

- the prices, rights, preferences and privileges of our Series A preferred stock relative to those of our common stock;

- lack of marketability of our common stock;

- our actual operating and financial performance;

- current business conditions and projections;

- hiring of key personnel and the experience of our management;

- our stage of development;

- illiquidity of share-based awards involving securities in a private company;

- the U.S. capital market conditions; and

- the likelihood of achieving a liquidity event, such as an offering or a merger or acquisition of our company given prevailing market conditions.

The fair market value per share of our common stock for purposes of determining stock-based compensation is now the closing price of our common stock as reported on The NASDAQ Stock Market on the applicable grant date.

Classification of Securities

We apply the principles of ASC 480-10 "Distinguishing Liabilities From Equity" and ASC 815-40 "Derivatives and Hedging—Contracts in Entity's Own Equity" to determine whether financial instruments such as warrants, contingently issuable shares and shares subject to repurchase should be classified as liabilities or equity and whether beneficial conversion features exist. Financial instruments such as warrants

that are evaluated to be classified as liabilities are fair valued upon issuance and are remeasured at fair value at subsequent reporting periods with the resulting change in fair value recorded in other income/(expense). The fair value of warrants is estimated using the Black Scholes Merton model and requires the input of subjective assumptions including expected stock price volatility and expected life.

Income Taxes

As of December 31, 2016, we had net operating loss carryforwards for federal and state income tax purposes of $24.5 million and $17.1 million, respectively, which will begin to expire in 2033, subject to limitations. Our management has evaluated the factors bearing upon the realizability of our deferred tax assets, which are comprised principally of net operating loss carryforwards. Our management concluded that, due to the uncertainty of realizing any tax benefits as of December 31, 2016, a valuation allowance was necessary to fully offset our deferred tax assets. We have evaluated our uncertain tax positions and determined that we have no liabilities from unrecognized tax benefits and therefore we have not incurred any penalties or interest. The Tax Reform Act of 1986, as amended, limits the use of net operating loss and tax credit carryforward in certain situations where changes occur in the stock ownership of a company. Utilization of the domestic NOL and tax credit forwards may be subject to a substantial annual limitation due to ownership change limitations that may have occurred or that could occur in the future, as required by the Internal Revenue Code Section 382, as well as similar state provisions.

Recent Accounting Pronouncements

In November 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update No. 2016-18, Statement of Cash Flows: Restricted Cash, or ASU 2016-18, that will require entities to show the changes in the total of cash, cash equivalents, restricted cash and restricted cash equivalents in the statement of cash flows. As a result, entities will no longer present transfers between cash and cash equivalents and restricted cash and restricted cash equivalents in the statement of cash flows. When cash, cash equivalents, restricted cash and restricted cash equivalents are presented in more than one line item on the balance sheet, the new guidance requires a reconciliation of the totals in the statement of cash flows to the related captions in the balance sheet. This reconciliation can be presented either on the face of the statement of cash flows or in the notes to the financial statements. Entities will also have to disclose the nature of their restricted cash and restricted cash equivalent balances. ASU 2016-18 becomes effective for fiscal years beginning after December 15, 2017, and interim periods within those years, with early adoption permitted. Any adjustments must be reflected as of the beginning of the fiscal year that includes that interim period. The adoption of this standard is not expected to have an impact on our financial position or results of operations.

In August 2016, the FASB issued Accounting Standards Update, or ASU, No. 2016-15, Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments, which addresses the following cash flow issues: (1) debt prepayment or debt extinguishment costs; (2) settlement of zero-coupon debt instruments or other debt instruments with coupon interest rates that are insignificant in relation to the effective interest rate of the borrowing; (3) contingent consideration payments made after a business combination; (4) proceeds from the settlement of insurance claims; (5) proceeds from the settlement of corporate-owned life insurance policies, including bank-owned life insurance policies; (6) distributions received from equity method investees; (7) beneficial interests in securitization transactions; and (8) separately identifiable cash flows and application of the predominance principle. The amendments in this ASU are effective for public business entities for fiscal years beginning after December 15, 2017 and interim periods within those fiscal years and are effective for all other entities for fiscal years beginning after December 15, 2018 and interim periods within fiscal years beginning after December 15, 2019. Early adoption is permitted, including adoption in an interim period. We are currently evaluating the impact of the adoption of ASU No. 2016-15 on our consolidated financial statements.

In March 2016, the FASB issued ASU No. 2016-09, Compensation—Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting, which simplifies several aspects of the accounting for employee stock-based payment transactions. The areas for simplification in ASU No. 2016-09 include the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. The amendments in this ASU will be effective for annual periods beginning after December 15, 2016 and interim periods within those annual periods. Early adoption is permitted. We are currently evaluating the impact of the adoption of ASU No. 2016-09 on our consolidated financial statements.

In March 2016 the FASB issued ASU No. 2016-07, Investments—Equity Method and Joint Ventures (Topic 323): Simplifying the Transition to the Equity Method of Accounting. This new standard eliminates the requirement that when an investment qualifies for use of the equity method as a result of an increase in the level of ownership interest or degree of influence, an adjustment must be made to the investment, results of operations and retained earnings retroactively on a step-by-step basis as if the equity method had been in effect during all previous periods that the investment has been held. T ASU 2016-07 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2017. We are currently evaluating the potential effects of the adoption of this update on its financial statements.

In February 2016, the FASB issued Accounting Standards Update ("ASU") No. 2016-02, Leases (Topic 842), which provides guidance for accounting for leases. Under ASU 2016-02, the Company will be required to recognize the assets and liabilities for the rights and obligations created by leased assets. ASU 2016-02 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. We are currently evaluating the impact of the adoption of ASU 2016-02 on our consolidated financial statements.

In November 2015, the FASB issued ASU No. 2015-17, Balance Sheet Classification of Deferred Taxes (Topic 740), which simplifies the presentation of deferred income taxes. Under ASU 2015-17, deferred tax assets and liabilities are required to be classified as noncurrent, eliminating the prior requirement to separate deferred tax assets and liabilities into current and noncurrent. The new guidance is effective beginning on January 1, 2017, with early adoption permitted. The standard may be adopted prospectively or retrospectively to all periods presented. We elected to early adopt the standard on a retrospective basis effective December 31, 2015, and all deferred tax assets and liabilities are classified as non-current on our balance sheet. Adoption had no effect on our balance sheet for 2016 and 2015 as presented.

In April 2015, the FASB issued ASU No. 2015-03, Interest—Imputation of Interest (Subtopic 835-30): Simplifying the Presentation of Debt Issuance Costs, to simplify the presentation of debt issuance costs by requiring debt issuance costs to be presented as a deduction from the corresponding debt liability. ASU 2015-03 will be effective beginning in its first quarter of 2016, however early adoption is permitted for financial statements that have not been previously issued. The guidance is to be applied retrospectively to all periods presented. We adopted ASU 2015-03 on December 31, 2015. The adoption of this guidance did not have an impact on our financial condition, results of operations or cash flows.

In August 2014, the FASB issued ASU No. 2014-15, "Presentation of Financial Statements—Going Concern (Subtopic 205-40)—Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern", which provides guidance regarding management's responsibility to assess whether substantial doubt exists regarding the ability to continue as a going concern and to provide related footnote disclosures. In connection with preparing financial statements for each annual and interim reporting period, management should evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern within one year after the date that the financial statements are issued (or within one year after the date that the financial statements are available to be issued when applicable). This ASU is effective for the annual period ending after December 15, 2016, and for annual periods and interim periods thereafter. We implemented this

guidance for the annual period beginning after December 15, 2016. The adoption of this guidance did not have an impact on our statements of financial condition, results of operations or cash flows.

In June 2014, the FASB issued ASU No. 2014-12, "Compensation—Stock Compensation (Topic 718)", which requires that a performance target that affects vesting and that could be achieved after the requisite service period be treated as a performance condition. The performance target should not be reflected in estimating the grant-date fair value of the award. Compensation cost should be recognized in the period in which it becomes probable that the performance target will be achieved and should represent the compensation cost attributable to the period(s) for which the requisite service has already been rendered. If the performance target becomes probable of being achieved before the end of the requisite service period, the remaining unrecognized compensation cost should be recognized prospectively over the remaining requisite service period. The total amount of compensation cost recognized during and after the requisite service period should reflect the number of awards that are expected to vest and should be adjusted to reflect those awards that ultimately vest. The requisite service period ends when the employee can cease rendering service and still be eligible to vest in the award if the performance target is achieved. This guidance is effective for annual periods (and interim periods within those annual periods) beginning after December 15, 2015. We implemented this guidance for all interim and annual periods beginning after December 15, 2015. The adoption of this guidance did not have an impact on our statements of financial condition, results of operations or cash flows.

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers." The objective of ASU 2014-19 is to establish a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and will supersede most of the existing revenue recognition guidance, including industry-specific guidance. The core principle of the new standard is that revenue should be recognized to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The standard is effective for annual reporting periods beginning after December 15, 2018 and allows for prospective or retrospective application. We currently anticipate utilizing the full retrospective method of adoption allowed by the standard, in order to provide for comparative results in all periods presented, and plan to adopt the standard as of January 1, 2018. We are currently evaluating the new guidance, however we do not believe the impact will be significant.

JOBS Act

In April 2012, the JOBS Act was enacted. Section 107 of the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. Thus, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected not to avail ourselves of this extended transition period, and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Not applicable.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Jaguar Animal Health, Inc.
Index to Financial Statements

Report of Independent Registered Public Accounting Firm

Board of Directors and Stockholders
Jaguar Animal Health, Inc.
San Francisco, California

We have audited the accompanying balance sheets of Jaguar Animal Health, Inc. as of December 31, 2016 and 2015 and the related statements of operations and comprehensive loss, stockholders' equity (deficit), and cash flows for each of the two years in the period ended December 31, 2016. 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 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. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also 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, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As described in Note 1 to the financial statements, the Company has suffered recurring losses from operations and has an accumulated deficit that raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The financial statements do not include any adjustments that might result from the outcome of this uncertainty. Our opinion is not modified with respect to this matter.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Jaguar Animal Health, Inc. at December 31, 2016 and 2015, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2016, in conformity with accounting principles generally accepted in the United States of America.

/s/ BDO USA, LLP

San Francisco, California
February 15, 2017

Jaguar Animal Health, Inc.

Balance Sheets

	December 31, 2016	December 31, 2015
Assets		
Current assets:		
Cash and cash equivalents	$ 950,979	$ 7,697,531
Restricted cash	511,293	—
Accounts receivable	4,963	55,867
Due from former parent	299,648	3,199
Inventory	412,754	229,871
Deferred offering costs	72,710	143,231
Prepaid expenses	302,694	324,083
Total current assets	2,555,041	8,453,782
Property and equipment, net	885,945	829,232
Restricted cash	—	3,000,000
Other assets	122,163	122,163
Total assets	$ 3,563,149	$ 12,405,177
Liabilities, Convertible Preferred Stock and Stockholders' Equity (Deficit)		
Current liabilities:		
Accounts payable	$ 517,000	$ 574,462
License fee payable to former parent	—	425,000
Deferred revenue	224,454	251,936
Convertible notes payable	150,000	150,000
Accrued expenses	582,522	798,434
Warrant liability	799,201	
Current portion of long-term debt	1,919,675	1,707,899
Total current liabilities	4,192,852	3,907,731
Long-term debt, net of discount	1,817,526	4,095,028
Deferred rent	6,956	3,321
Total liabilities	$ 6,017,334	$ 8,006,080
Commitments and Contingencies (See note 6)		
Stockholders' Equity (Deficit):		
Preferred stock: $0.0001 par value, 10,000,000 shares authorized at December 31, 2016 and December 31, 2015; no shares issued and outstanding at December 31, 2016 and December 31, 2015.	—	—
Common stock: $0.0001 par value, 50,000,000 shares authorized at December 31, 2016 and December 31, 2015; 14,007,132 and 8,124,923 shares issued and outstanding at December 31, 2016 and December 31, 2015, respectively.	1,401	812
Additional paid-in capital	37,980,522	30,100,613
Accumulated deficit	(40,436,108)	(25,702,328)
Total stockholders' equity (deficit)	(2,454,185)	4,399,097
Total liabilities, convertible preferred stock and stockholders' equity (deficit)	$ 3,563,149	$ 12,405,177

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

Jaguar Animal Health, Inc.

Statements of Operations and Comprehensive Loss

	Years Ended December 31,	
	2016	2015
Revenue	$ 141,523	$ 258,381
Operating Expenses		
Cost of revenue	51,966	123,457
Research and development expense	7,206,864	6,475,851
Sales and marketing expense	485,440	765,091
General and administrative expense	5,983,238	5,339,351
Total operating expenses	13,727,508	12,703,750
Loss from operations	(13,585,985)	(12,445,369)
Interest expense, net	(985,549)	(3,317,287)
Other income/(expense)	(11,046)	(27,277)
Change in fair value of warrants	(43,200)	(501,617)
Loss on extinguishment of debt	(108,000)	—
Net loss and comprehensive loss	(14,733,780)	(16,291,550)
Accretion of redeemable convertible preferred stock	—	(346,374)
Net loss attributable to common stockholders	$ (14,733,780)	$ (16,637,924)
Net loss per share atributable to common stockholders, basic and diluted	$ (1.35)	$ (2.70)
Weighted-average common shares outstanding, basic and diluted	10,951,178	6,153,139

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

Jaguar Animal Health, Inc.

Statement of Changes in Common Stock, Convertible Preferred Stock and Stockholders' Equity (Deficit)

	Series A Convertible Preferred Stock		Common Stock		Additional paid-in capital	Accumulated deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount			
Balances—December 31, 2014	3,015,902	$ 7,304,914	2,874,330	$ 288	$ 1,175,242	$ (9,410,778)	$ (8,235,248)
Issuance of common stock in initial public offering, net of discounts and commissions of $1,209,802, offering costs of $2,897,825 and offering costs in the form of common stock warrants of $400,400	—	—	2,860,000	286	15,511,974	—	15,512,260
Warrant, issued in conjunction with the initial public offering	—	—	—	—	400,400	—	400,400
Conversion of preferred stock into common stock upon initial public offering	(3,015,902)	(7,651,288)	2,010,596	201	7,651,087	—	7,651,288
Conversion of preferred stock warrant liability into additional paid-in capital upon initial public offering	—	—	—	—	1,150,985	—	1,150,985
Conversion of convertible notes into common stock upon initial public offering	—	—	374,997	37	2,099,963	—	2,100,000
Stock-based compensation	—	—	—	—	992,165	—	992,165
Beneficial conversion feature on notes payable	—	—	—	—	1,202,521	—	1,202,521
Deemed dividends on Series A	—	263,060	—	—	(263,060)	—	(263,060)
Accretion of issuance costs	—	83,314	—	—	(83,314)	—	(83,314)
Napo license fee abatement	—	—	—	—	250,000	—	250,000
Issuance of common stock upon exercise of stock options	—	—	5,000	—	12,650	—	12,650
Net and comprehensive loss	—	—	—	—	—	(16,291,550)	(16,291,550)
Balances—December 31, 2015	—	$ —	8,124,923	$ 812	$ 30,100,613	$ (25,702,328)	$ 4,399,097
Issuance of common stock in a secondary public offering ,net of discounts and commissions of $373,011 and offering costs of $496,887 February 2016	—	—	2,000,000	200	4,129,902	—	4,130,102
Issuance of common stock in a private investment in public entities offering, net of offering costs of $105,398 June 2016.	—	—	2,027,490	203	2,571,099	—	2,571,302
Issuance of common stock in a private investment in public entities offering October 2016	—	—	170,455	17	149,983	—	150,000
Issuance of common stock and equity warrants in a private investment in public entities offering, net of warrant liability of $700,001 and net of offering costs of $96,833 November 2016	—	—	1,666,668	167	203,000	—	203,167
Warrants, issued in conjunction with debt extinguishment	—	—	—	—	108,000	—	108,000
Issuance of common stock in exchange for vested restricted stock units	—	—	17,596	2	(2)	—	—
Stock-based compensation	—	—	—	—	717,927		717,927
Net and comprehensive loss	—	—	—	—	—	(14,733,780)	(14,733,780)
Balances—December 31, 2016	—	$ —	14,007,132	$ 1,401	$ 37,980,522	$ (40,436,108)	$ (2,454,185)

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

Jaguar Animal Health, Inc.

Statements of Cash Flow

	Years Ended December 31, 2016	2015
Cash Flows from Operating Activities		
Net loss	$(14,733,780)	$(16,291,550)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation expense	47,494	5,155
Gain/loss on disposal of fixed assets	—	34,549
Loss on extinguishment of debt	108,000	—
Materials cost in connection with license activity	—	6,287
Issuance costs in connection with warrants issued in the November 2016 private investment in public entity	39,200	—
Stock-based compensation	717,927	992,165
Amortization of debt issuance costs and debt discount	510,085	2,720,668
Change in fair value of warrants	43,200	501,617
Changes in assets and liabilities		
Accounts receivable—trade	50,904	(55,867)
Inventory	(182,883)	(31,842)
Prepaid expenses	21,389	(299,913)
Deferred offering costs	(72,710)	—
Other long-term assets	—	(122,163)
Due from parent	(296,449)	(19,780)
Deferred revenue	(27,482)	228,134
Deferred rent	3,635	3,321
License fee payable	(425,000)	(1,200,000)
Accounts payable	(28,336)	(240,087)
Accrued expenses	(188,912)	(546,557)
Total cash used in operations	(14,413,718)	(14,315,863)
Cash Flows from Investing Activities		
Purchase of equipment	(104,207)	(23,300)
Sale of equipment	—	20,600
Change in restricted cash	2,488,707	(3,000,000)
Total cash provided by/(used in) investing activities	2,384,500	(3,002,700)
Cash Flows from Financing Activities		
Proceeds from issuance of long-term debt	—	5,615,543
Repayment of long-term debt	(2,488,706)	—
Proceeds from issuance of redeemable convertible notes payable, net	—	1,250,000
Repayment of convertible notes payable	—	(100,000)
Repayment of notes payable	—	(1,000,000)
Proceeds from issuance of common stock in initial public offering, net of commissions and discounts	—	18,810,484
Deferred offering costs	—	(417,775)
Proceeds from issuance of common stock in follow-on secondary public offering, net of commissions, discounts	5,000,000	—
Commissions, discounts and issuance costs associated with the follow-on secondary public offering	(869,898)	—
Proceeds from issuance of common stock in a private investment in public entities June 2016	2,676,746	—
Issuance costs associated with the proceeds from the issuance of common stock in a private investment in public entities June 2016	(105,444)	—
Proceeds from the issuance of common stock in a private investment in public entities October 2016	150,000	—
Proceeds from the issuance of common stock in a private investment in public entities November 2016	1,000,001	—
Issuance costs associated with the proceeds from the issuance of common stock in a private investment in public entities November 2016	(80,033)	—
Proceeds from the exercise of common stock options	—	12,650
Total Cash Provided by Financing Activities	5,282,666	24,170,902
Net increase in cash and cash equivalents	(6,746,552)	6,852,339
Cash and cash equivalents, beginning of period	7,697,531	845,192
Cash and cash equivalents, end of period	$ 950,979	$ 7,697,531
Supplemental Schedule of Non-Cash Financing and Investing Activities		
Interest paid on long-term debt	$ 478,665	$ 173,250
Warrants issued in connection with convertible notes payable	$ —	$ 47,479
Warrants issued in connection with notes payable	$ 108,000	$ —
Warrants issued in connection with the initial public offering	$ —	$ 400,400
Warrants issued in connection with private investment in public entity	$ 756,001	
Accretion of redeemable convertible preferred stock	$ —	$ 346,374
Abatement of license fee payable to Napo	$ —	$ 250,000
Conversion of convertible preferred stock to common stock	$ —	$ 7,651,288
Conversion of preferred stock warrant liability to common stock warrants	$ —	$ 1,150,985
Conversion of convertible notes to common stock	$ —	$ 2,100,000

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

Jaguar Animal Health, Inc.

Notes to Financial Statements

1. Organization and Business

Jaguar Animal Health, Inc. ("Jaguar" or the "Company") was incorporated on June 6, 2013 (inception) in Delaware. The Company was a majority-owned subsidiary of Napo Pharmaceuticals, Inc. ("Napo" or the "Former Parent") until the close of the Company's initial public offering on May 18, 2015. The Company was formed to develop and commercialize first-in-class gastrointestinal products for companion and production animals and horses. The Company's first commercial product, Neonorm Calf, was launched in 2014 and Neonorm Foal was launched in the first quarter of 2016. In September of 2016, the Company began selling the *Croton lechleri* botanical extract (the "botanical extract") to an exclusive distributor for use in pigs in China. The Company's activities are subject to significant risks and uncertainties, including failing to secure additional funding in order to timely compete the development and commercialization of products. The Company operates in one segment and is headquartered in San Francisco, California.

On June 11, 2013, Jaguar issued 2,666,666 shares of common stock to Napo in exchange for cash and services. On July 1, 2013, Jaguar entered into an employee leasing and overhead agreement (the "Service Agreement") with Napo, under which Napo agreed to provide the Company with the services of certain Napo employees for research and development and the general administrative functions of the Company. On January 27, 2014, Jaguar executed an intellectual property license agreement with Napo pursuant to which Napo transferred fixed assets and development materials, and licensed intellectual property and technology to Jaguar. On February 28, 2014, the Service Agreement terminated and the associated employees became employees of Jaguar effective March 1, 2014. See Note 9 for additional information regarding the capital contributions and Note 4 for the Service Agreement and license agreement details. Effective July 1, 2016, Napo agreed to reimburse the Company for the use of the Company's employee's time and related expenses, including rent and a fixed overhead amount to cover office supplies and copier use.

On October 6, 2016, Jaguar signed a non-binding letter of intent ("LOI") with Napo potentially to merge the two companies.

Reverse Stock Split

In October 2014, the Board of Directors and stockholders approved a 1-for-1.5 reverse stock split (the "Reverse Split") of the Company's outstanding shares of common stock and increased the number of authorized shares of common stock from 10,000,000 shares to 15,000,000 shares. The Company effected the Reverse Split on October 27, 2014. Under the terms of the Reverse Split, each share of common stock, issued and outstanding as of such effective date, was automatically reclassified and changed into two-thirds of one share of common stock, without any action by the stockholder. Fractional shares were rounded down to the nearest whole share. All share and per share amounts have been restated to reflect the Reverse Split.

Initial Public Offering

On May 18, 2015, the Company completed an initial public offering ("IPO") of its common stock. In connection with its IPO, the Company issued and sold 2,860,000 shares of common stock at a price to the public of $7.00 per share. As a result of the IPO, the Company received $15.9 million in net proceeds, after deducting underwriting discounts and commissions of $1.2 million and offering expenses of $2.9 million ($3.3 million including non-cash offering expenses) payable by the Company. In connection with the IPO, the Company's outstanding shares of convertible preferred stock were automatically converted into

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

1. Organization and Business (Continued)

2,010,596 shares of common stock and the Company's outstanding warrants to purchase convertible preferred stock were all converted to warrants to purchase common stock.

Liquidity

The accompanying financial statements have been prepared assuming the Company will continue as a going concern. The Company has incurred recurring operating losses since inception and has an accumulated deficit of $40,436,108 as of December 31, 2016. The Company expects to incur substantial losses in future periods. Further, the Company's future operations are dependent on the success of the Company's ongoing development and commercialization efforts. There is no assurance that profitable operations, if ever achieved, could be sustained on a continuing basis.

The Company plans to finance its operations and capital funding needs through equity and/or debt financing as well as revenue from future product sales. However, there can be no assurance that additional funding will be available to the Company on acceptable terms on a timely basis, if at all, or that the Company will generate sufficient cash from operations to adequately fund operating needs or ultimately achieve profitability. If the Company is unable to obtain an adequate level of financing needed for the long-term development and commercialization of its products, the Company will need to curtail planned activities and reduce costs. Doing so will likely have an adverse effect on the Company's ability to execute on its business plan. These matters raise substantial doubt about the ability of the Company to continue in existence as a going concern within one year after issuance date of the financial statements. The accompanying financial statements do not include any adjustments that might result from the outcome of these uncertainties.

In June 2016, the Company entered into a common stock purchase agreement with a private investor (the "CSPA"), which provides that, upon the terms and subject to the conditions and limitations set forth therein, the investor is committed to purchase up to an aggregate of $15.0 million of the Company's common stock over the approximately 30-month term of the agreement. As of December 31, 2016 the Company sold 2,027,490 shares for net cash proceeds of $2,676,700. Under the CSPA, the Company cannot issue more than the 2,027,490 shares of common stock already issued unless the price per share is $1.32 (the closing price on the date that the CSPA was signed).

2. Summary of Significant Accounting Policies

Basis of Presentation

The financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP").

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires the Company's management to make judgments, assumptions and estimates that affect the amounts reported in its financial statements and the accompanying notes. The accounting policies that reflect the Company's more significant estimates and judgments and that the Company believes are the most critical to aid in fully understanding and evaluating its reported financial results are valuation of stock options; valuation of warrant liabilities; impairment of long lived assets; useful lives for depreciation; valuation adjustments for excess and obsolete inventory; deferred taxes and valuation allowances on deferred tax assets; and

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

evaluation and measurement of contingencies. Those estimates could change, and as a result, actual results could differ materially from those estimates.

Deferred Offering Costs

Deferred offering costs are costs incurred in filings of registration statements with the Securities and Exchange Commission. These deferred offering costs are offset against proceeds received upon the closing of the offerings. Deferred costs of $143,231 as of December 31, 2015 include legal, accounting and filing fees associated with the follow-on registration offering as more fully described in Note 9. Deferred costs of $72,710 as of December 31, 2016 include legal, accounting and filing fees associated with the Company's registration of unissued shares in the CSPA.

Concentration of Credit Risk and Cash and Cash Equivalents

Cash is the financial instrument that potentially subjects the Company to a concentration of credit risk as cash is deposited with a bank and cash balances are generally in excess of Federal Deposit Insurance Corporation ("FDIC") insurance limits. The carrying value of cash approximates fair value at December 31, 2016 and 2015.

Fair Values

The Company's financial instruments include, cash and cash equivalents, accounts payable, accrued expenses, amounts due to Napo, the former parent, warrant liabilities, and debt. Cash is reported at fair value. The recorded carrying amount of accounts payable, accrued expenses and amounts due to Napo approximates their fair value due to their short-term nature. The carrying value of the interest-bearing debt approximates fair value based upon the borrowing rates currently available to the Company for bank loans with similar terms and maturities. See Note 3 for the fair value measurements, and Note 7 for the fair value of the Company's warrant liabilities.

Restricted Cash

On August 18, 2015, the Company entered into a long-term loan and security agreement with a lender for up to $8.0 million, which provided for an initial loan commitment of $6.0 million. The loan agreement required the Company to maintain a base minimum cash balance of $4.5 million until the Company met certain milestones and/or when the Company begins making principal payments. On December 22, 2015, the Company achieved certain milestones and the base minimum cash balance was reduced to $3.0 million. Aggregate principal payments of $2.5 million further reduced the restricted cash balance to $511,294 as of December 31, 2016. Restricted cash has been classified within current assets as restrictions will be fully released on April 1, 2017.

Inventories

Inventories are stated at the lower of cost or market. The Company calculates inventory valuation adjustments when conditions indicate that the net realizable value is less than cost due to physical deterioration, usage, obsolescence, reductions in estimated future demand or reduction in selling price. Inventory write-downs are measured as the difference between the cost of inventory and estimated net realizable value. There have been no write-downs to date.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

Property and Equipment

Equipment is stated at cost, less accumulated depreciation. Equipment begins to be depreciated when it is placed into service. Depreciation is calculated using the straight-line method over the estimated useful lives of 3 to 10 years.

Expenditures for repairs and maintenance of assets are charged to expense as incurred. Costs of major additions and betterments are capitalized and depreciated on a straight-line basis over their estimated useful lives. Upon retirement or sale, the cost and related accumulated depreciation of assets disposed of are removed from the accounts and any resulting gain or loss is included in income (loss) from operations.

Long-Lived Assets

The Company regularly reviews the carrying value and estimated lives of all of its long-lived assets, including property and equipment to determine whether indicators of impairment may exist that warrant adjustments to carrying values or estimated useful lives. The determinants used for this evaluation include management's estimate of the asset's ability to generate positive income from operations and positive cash flow in future periods as well as the strategic significance of the assets to the Company's business objectives.

Should an impairment exist, the impairment loss would be measured based on the excess of the carrying amount over the asset's fair value. The Company has not recognized any impairment losses through December 31, 2016.

Research and Development Expense

Research and development expense consists of expenses incurred in performing research and development activities including related salaries, clinical trial and related drug and non-drug product costs, contract services and other outside service expenses. Research and development expense is charged to operating expense in the period incurred.

Revenue Recognition

Sales of Neonorm Calf and Foal to distributors are made under agreements that may provide distributor price adjustments and rights of return under certain circumstances. Until the Company develops sufficient sales history and pipeline visibility, revenue and costs of distributor sales will be deferred until products are sold by the distributor to the distributor's customers. Revenue recognition depends on notification either directly from the distributor that product has been sold to the distributor's customer, when the Company has access to the data. Deferred revenue on shipments to distributors reflect the estimated effects of distributor price adjustments, if any, and the estimated amount of gross margin expected to be realized when the distributor sells through product purchased from the Company. Company sales to distributors are invoiced and included in accounts receivable and deferred revenue upon shipment. Inventory is relieved and revenue recognized upon shipment by the distributor to their customer. The Company had Neonorm revenues of $141,523 and $258,381 for the years ended December 31, 2016, and 2015.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

Stock-Based Compensation

The Company's 2013 Equity Incentive Plan and 2014 Stock Incentive Plan (see Note 10) provides for the grant of stock options, restricted stock and restricted stock unit awards.

The Company measures stock awards granted to employees and directors at fair value on the date of grant and recognizes the corresponding compensation expense of the awards, net of estimated forfeitures, over the requisite service periods, which correspond to the vesting periods of the awards. The Company issues stock awards with only service-based vesting conditions, and records compensation expense for these awards using the straight-line method.

The Company uses the grant date fair market value of its common stock to value both employee and non-employee options when granted. The Company revalues non-employee options each reporting period using the fair market value of the Company's common stock as of the last day of each reporting period.

Classification of Securities

The Company applies the principles of ASC 480-10 "Distinguishing Liabilities from Equity" and ASC 815-40 "Derivatives and Hedging—Contracts in Entity's Own Equity" to determine whether financial instruments such as warrants, contingently issuable shares and shares subject to repurchase should be classified as liabilities or equity and whether beneficial conversion features exist. Financial instruments such as warrants that are evaluated to be classified as liabilities are fair valued upon issuance and are remeasured at fair value at subsequent reporting periods with the resulting change in fair value recorded in other income/(expense). The fair value of warrants is estimated using the Black Scholes Merton model and requires the input of subjective assumptions including expected stock price volatility and expected life.

Income Taxes

The Company accounts for income taxes using the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in the financial statements or in the Company's tax returns. Deferred taxes are determined based on the difference between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect in the years in which the differences are expected to reverse. Changes in deferred tax assets and liabilities are recorded in the provision for income taxes. The Company assesses the likelihood that its deferred tax assets will be recovered from future taxable income and, to the extent it believes, based upon the weight of available evidence, that it is more likely than not that all or a portion of deferred tax assets will not be realized, a valuation allowance is established through a charge to income tax expense. Potential for recovery of deferred tax assets is evaluated by estimating the future taxable profits expected and considering prudent and feasible tax planning strategies.

The Company accounts for uncertainty in income taxes recognized in the financial statements by applying a two-step process to determine the amount of tax benefit to be recognized. First, the tax position must be evaluated to determine the likelihood that it will be sustained upon external examination by the taxing authorities. If the tax position is deemed more-likely-than-not to be sustained, the tax position is then assessed to determine the amount of benefit to recognize in the financial statements. The amount of the benefit that may be recognized is the largest amount that has a greater than 50% likelihood of being realized upon ultimate settlement. The provision for income taxes includes the effects of any resulting tax

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

reserves, or unrecognized tax benefits, that are considered appropriate, as well as the related net interest and penalties.

Comprehensive Loss

Comprehensive loss is defined as changes in stockholders' equity (deficit) exclusive of transactions with owners (such as capital contributions and distributions). For the years ended December 31, 2016 and 2015 there was no difference between net loss and comprehensive loss.

Segment Data

The Company manages its operations as a single segment for the purposes of assessing performance and making operating decisions. The Company is an animal health company focused on developing and commercializing prescription and non-prescription products for companion and production animals.

Basic and Diluted Net Loss Per Common Share

Basic net loss per common share is computed by dividing net loss attributable to common stockholders for the period by the weighted-average number of common shares outstanding during the period. Diluted net loss per share is computed by dividing the net loss attributable to common stockholders for the period by the weighted-average number of common shares, including potential dilutive shares of common stock assuming the dilutive effect of potential dilutive securities. For periods in which the Company reports a net loss, diluted net loss per common share is the same as basic net loss per common share, because their impact would be anti-dilutive to the calculation of net loss per common share. Diluted net loss per common share is the same as basic net loss per common share for the years ended December 31, 2016 and 2015.

Recent Accounting Pronouncements

In November 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update No. 2016-18, Statement of Cash Flows: Restricted Cash, or ASU 2016-18, that will require entities to show the changes in the total of cash, cash equivalents, restricted cash and restricted cash equivalents in the statement of cash flows. As a result, entities will no longer present transfers between cash and cash equivalents and restricted cash and restricted cash equivalents in the statement of cash flows. When cash, cash equivalents, restricted cash and restricted cash equivalents are presented in more than one line item on the balance sheet, the new guidance requires a reconciliation of the totals in the statement of cash flows to the related captions in the balance sheet. This reconciliation can be presented either on the face of the statement of cash flows or in the notes to the financial statements. Entities will also have to disclose the nature of their restricted cash and restricted cash equivalent balances. ASU 2016-18 becomes effective for fiscal years beginning after December 15, 2017, and interim periods within those years, with early adoption permitted. Any adjustments must be reflected as of the beginning of the fiscal year that includes that interim period. The adoption of this standard is not expected to have an impact on the Company's financial position or results of operations.

In August 2016, the FASB issued Accounting Standards Update, or ASU, No. 2016-15, Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments, which addresses the following cash flow issues: (1) debt prepayment or debt extinguishment costs; (2) settlement of zero-coupon debt instruments or other debt instruments with coupon interest rates that are insignificant in

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

relation to the effective interest rate of the borrowing; (3) contingent consideration payments made after a business combination; (4) proceeds from the settlement of insurance claims; (5) proceeds from the settlement of corporate-owned life insurance policies, including bank-owned life insurance policies; (6) distributions received from equity method investees; (7) beneficial interests in securitization transactions; and (8) separately identifiable cash flows and application of the predominance principle. The amendments in this ASU are effective for public business entities for fiscal years beginning after December 15, 2017 and interim periods within those fiscal years and are effective for all other entities for fiscal years beginning after December 15, 2018 and interim periods within fiscal years beginning after December 15, 2019. Early adoption is permitted, including adoption in an interim period. The Company is currently evaluating the impact of the adoption of ASU No. 2016-15 on our consolidated financial statements.

In March 2016, the FASB issued ASU No. 2016-09, Compensation—Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting, which simplifies several aspects of the accounting for employee stock-based payment transactions. The areas for simplification in ASU No. 2016-09 include the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. The amendments in this ASU will be effective for annual periods beginning after December 15, 2016 and interim periods within those annual periods. Early adoption is permitted. The Company is currently evaluating the impact of the adoption of ASU No. 2016-09 on our consolidated financial statements.

In March 2016 the FASB issued ASU No. 2016-07, Investments—Equity Method and Joint Ventures (Topic 323): Simplifying the Transition to the Equity Method of Accounting. This new standard eliminates the requirement that when an investment qualifies for use of the equity method as a result of an increase in the level of ownership interest or degree of influence, an adjustment must be made to the investment, results of operations and retained earnings retroactively on a step-by-step basis as if the equity method had been in effect during all previous periods that the investment has been held. T ASU 2016-07 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2017. The Company is currently evaluating the potential effects of the adoption of this update on its financial statements.

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-02, Leases (Topic 842), which provides guidance for accounting for leases. Under ASU 2016-02, the Company will be required to recognize the assets and liabilities for the rights and obligations created by leased assets. ASU 2016-02 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. The Company is currently evaluating the impact of the adoption of ASU 2016-02 on our consolidated financial statements.

In November 2015, the FASB issued ASU No. 2015-17, Balance Sheet Classification of Deferred Taxes (Topic 740), which simplifies the presentation of deferred income taxes. Under ASU 2015-17, deferred tax assets and liabilities are required to be classified as noncurrent, eliminating the prior requirement to separate deferred tax assets and liabilities into current and noncurrent. The new guidance is effective for the Company beginning on January 1, 2017, with early adoption permitted. The standard may be adopted prospectively or retrospectively to all periods presented. The Company elected to early adopt the standard on a retrospective basis effective December 31, 2015, and all deferred tax assets and liabilities are classified as non-current on our balance sheet. Adoption had no effect on the Company's balance sheet for 2016 and 2015 as presented.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

In April 2015, the FASB issued ASU No. 2015-03, Interest—Imputation of Interest (Subtopic 835-30): Simplifying the Presentation of Debt Issuance Costs, to simplify the presentation of debt issuance costs by requiring debt issuance costs to be presented as a deduction from the corresponding debt liability. ASU 2015-03 will be effective for the Company beginning in its first quarter of 2016, however early adoption is permitted for financial statements that have not been previously issued. The guidance is to be applied retrospectively to all periods presented. The Company adopted ASU 2015-03 on December 31, 2015. The adoption of this guidance did not have an impact on the Company's financial condition, results of operations or cash flows.

In August 2014, the FASB issued ASU No. 2014-15, "Presentation of Financial Statements—Going Concern (Subtopic 205-40)—Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern", which provides guidance regarding management's responsibility to assess whether substantial doubt exists regarding the ability to continue as a going concern and to provide related footnote disclosures. In connection with preparing financial statements for each annual and interim reporting period, management should evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern within one year after the date that the financial statements are issued (or within one year after the date that the financial statements are available to be issued when applicable). This ASU is effective for the annual period ending after December 15, 2016, and for annual periods and interim periods thereafter. The Company implemented this guidance for the annual period beginning after December 15, 2016. The adoption of this guidance did not have an impact on the Company's financial condition, results of operations or cash flows.

In June 2014, the FASB issued ASU No. 2014-12, "Compensation—Stock Compensation (Topic 718)", which requires that a performance target that affects vesting and that could be achieved after the requisite service period be treated as a performance condition. The performance target should not be reflected in estimating the grant-date fair value of the award. Compensation cost should be recognized in the period in which it becomes probable that the performance target will be achieved and should represent the compensation cost attributable to the period(s) for which the requisite service has already been rendered. If the performance target becomes probable of being achieved before the end of the requisite service period, the remaining unrecognized compensation cost should be recognized prospectively over the remaining requisite service period. The total amount of compensation cost recognized during and after the requisite service period should reflect the number of awards that are expected to vest and should be adjusted to reflect those awards that ultimately vest. The requisite service period ends when the employee can cease rendering service and still be eligible to vest in the award if the performance target is achieved. This guidance is effective for annual periods (and interim periods within those annual periods) beginning after December 15, 2015. The Company implemented this guidance for all interim and annual periods beginning after December 15, 2015. The adoption of this guidance did not have an impact on the Company's financial condition, results of operations or cash flows.

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers." The objective of ASU 2014-19 is to establish a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and will supersede most of the existing revenue recognition guidance, including industry-specific guidance. The core principle of the new standard is that revenue should be recognized to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The standard is effective for annual reporting periods beginning after December 15, 2018 and allows for prospective or retrospective application. The Company currently anticipates utilizing the full retrospective

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

method of adoption allowed by the standard, in order to provide for comparative results in all periods presented, and plans to adopt the standard as of January 1, 2018. The Company is currently evaluating the new guidance, however it does not believe the impact will be significant.

3. Fair Value Measurements

ASC 820 "Fair Value Measurements," defines fair value, establishes a framework for measuring fair value under generally accepted accounting principles and enhances disclosures about fair value measurements. Fair value is defined under ASC 820 as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value under ASC 820 must maximize the use of observable inputs and minimize the use of unobservable inputs. The standard describes a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value which are the following:

- Level 1—Quoted prices in active markets for identical assets or liabilities;
- Level 2—Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data; and
- Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities, including pricing models, discounted cash flow methodologies and similar techniques.

The following table presents information about the Company's warrant liabilities that were measured at fair value on a recurring basis as of December 31, 2016 and 2015 and indicates the fair value hierarchy of the valuation:

	Level 1	Level 2	Level 3	Total
As of December 31, 2016 Warrant Liability	$ —	$ —	$ 799,201	$ 799,201

There were no warrant liabilities at December 31, 2015.

The change in the estimated fair value of level 3 liabilities is summarized below:

	Beginning Value of Level 3 Liability	Issuance of Common Stock Warrants	Change in Fair Value of Level 3 Liability	Conversion into Additional Paid-in Capital	Ending Fair Value of Level 3 Liability
For the year ended December 31, 2016	$ —	$ 756,001	$ 43,200	$ —	$ 799,201
For the year ended December 31, 2015	$ 601,889	$ 47,479	$ 501,617	$ (1,150,985)	$ —

The warrants issued in 2016 were originally valued on November 29, 2016 using the Black-Scholes-Merton model with the following assumptions: stock price of $0.69, exercise price of $0.75, term of 5.5 years expiring May 2022, volatility of 71.92%, dividend yield of 0%, and risk-free interest rate of 1.87%. The warrants were revalued at December 31, 2016 using the Black-Scholes model with the following

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

3. Fair Value Measurements (Continued)

assumptions: stock price of $0.716, exercise price of $0.75, term of 5.41 years expiring May 2022, volatility of 73.62%, dividend yield of 0%, and risk-free interest rate of 2.0%.

The change in the fair value of the level 3 warrant liability is reflected in the statement of operations and comprehensive loss for the years ended December 31, 2016 and 2015.

4. Related Party Transactions

Due from former parent

The Company was a majority-owned subsidiary of Napo until May 18, 2015, the date of the Company's IPO. Additionally, Lisa A. Conte, Chief Executive Officer of the Company, is also the interim Chief Executive Officer of Napo Pharmaceuticals, Inc. The Company has total outstanding receivables (payables) from/to former parent ("Napo") at December 31, 2016 and December 31, 2015 as follows:

	December 31, 2016	December 31, 2015
Due from former parent	$ 299,819	$ 6,008
Royalty payable to former parent	(171)	(2,809)
Net receivable from former parent	$ 299,648	$ 3,199

	December 31, 2016	December 31, 2015
License fee payable to former parent	—	(425,000)

Due from former parent

Employee leasing and overhead allocation

Effective July 1, 2016, Napo agreed to reimburse the Company for the use of the Company's employee's time and related expenses, including rent and a fixed overhead amount to cover office supplies and copier use. The total amount of such services was $627,529 for the six months ended December 31, 2016. Napo remitted $350,000 in fiscal year 2016 and the remaining balance of $277,529 is included in current assets in the Company's balance sheet.

Other transactions

In 2016, the Company made $22,290 in payments for consulting, travel and computer equipment on behalf of Napo. In 2015, the Company made $6,008 in net payments on behalf of Napo, including $15,000 in Napo legal services paid by the Company, net of $8,992 of Company consulting services paid by Napo.

The Company purchased from Napo $37,355 of clinical trial material of which $897 of unused material remains in prepaid expenses and other current assets on the Company's balance sheet, crofelemer API of $174,299 all of which was used and expensed in 2016, and $66,358 of crude plant latex in 2016 none of which has been used in operations and all of which is included in prepaid expenses and other current assets in the Company's balance sheet. All of these purchases were paid in 2016.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

4. Related Party Transactions (Continued)

The Company sublet office space from Napo from March 1, 2014 through May 31, 2014. The Company paid Napo $33,897 for rent related to the office space, which was included in general and administrative expense in the Company's statements of operations and comprehensive loss in 2014.

Royalty payable to former parent and license fee payable to former parent and related agreement

On July 11, 2013, Jaguar entered into an option to license Napo's intellectual property and technology (the "Option Agreement"). Under the Option Agreement, upon the payment of $100,000 in July 2013, the Company obtained an option for a period of two years to execute an exclusive worldwide license to Napo's intellectual property and technology to use for the Company's animal health business. The option price was creditable against future license fees to be paid to Napo under the License Agreement (as defined below).

In January 2014, the Company exercised its option and entered into a license agreement (the "License Agreement") with Napo for an exclusive worldwide license to Napo's intellectual property and technology to permit the Company to develop, formulate, manufacture, market, use, offer for sale, sell, import, export, commercialize and distribute products for veterinary treatment uses and indications for all species of animals. The Company was originally obligated to pay a one-time non-refundable license fee of $2,000,000, less the option fee of $100,000. At the Company's option, the license fee could have been paid in common stock. In January 2015, the License Agreement was amended to decrease the one-time non-refundable license fee payable from $2,000,000 to $1,750,000 in exchange for acceleration of the payment of the fee. Given that Napo is a significant shareholder of the Company, the abatement of the license fee amount has been recorded as a capital contribution in the accompanying condensed financial statements. In the years ending December 31, 2016 and 2015, the Company made payments of $425,000 and $1.2 million, respectively.

Milestone payments aggregating $3,150,000 may also be due to Napo based on regulatory approvals of various veterinary products. In addition to the milestone payments, the Company will owe Napo an 8% royalty on annual net sales of products derived from the *Croton lechleri* tree, up to $30,000,000 and then, a royalty of 10% on annual net sales of $30,000,000 or more. Additionally, if any other products are developed, the Company will owe Napo a 2% royalty on annual net sales of pharmaceutical prescription products that are not derived from *Croton lechleri* and a 1% royalty on annual net sales of non-prescription products that are not derived from *Croton lechleri*. The royalty term expires at the longer of 10 years from the first sale of each individual product or when there is no longer a valid patent claim covering any of the products and a competitive product has entered the market. However, because an IPO of at least $10,000,000 was consummated prior to December 31, 2015, the royalty was reduced to 2% of annual net sales of its prescription products derived from *Croton lechleri* and 1% of net sales of its non-prescription products derived from *Croton lechleri* and no milestone payment will be due and no royalties will be owed on any additional products developed. The Company incurred $1,015 and $39,734 in royalties for the years ended December 31, 2016 and 2015, respectively, which are included in sales and marketing expense in the Company's statement of operations and comprehensive loss. The Company had unpaid royalties of $171 and $2,810 at December 31, 2016 and 2015, respectively, which are netted with other receivables due from the former parent and are included in current assets in the Company's balance sheet. The Company may, at its sole discretion, elect to remit any milestone payments and/or royalties in the form of the Company's common stock.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

4. Related Party Transactions (Continued)

In addition to receiving a License Agreement to Napo's intellectual property and technology, the License also transferred to the Company certain materials and equipment. Raw materials of $1.2 million transferred from Napo were included in research and development expense on the statements of operations and comprehensive loss during the year ended December 31, 2014. Equipment of $811,087 related to the License is included in property and equipment on the Company's balance sheet at December 31, 2016 and 2015 at the cost paid by Napo, which approximates fair value.

The Company has agreed under the License Agreement to defend, indemnify and hold Napo, its affiliates, and the officers, directors, employees, consultants and contractors of Napo harmless from and against any losses, costs, damages, liabilities, fees and expenses arising out of any third-party claim related to the Company's gross negligence, breach of covenants or the manufacture, sale or use of the product or products.

5. Balance Sheet Components

Property and Equipment

Property and equipment at December 31, 2016 and 2015 consisted of the following:

	December 31, 2016	December 31, 2015
Lab equipment	$ 811,087	$ 811,087
Clinical equipment	64,870	23,300
Software	62,637	—
Total property and equipment at cost	938,594	834,387
Accumulated Depreciation	(52,649)	(5,155)
Property and Equipment, net	$ 885,945	$ 829,232

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

5. Balance Sheet Components (Continued)

Depreciation and amortization expense was $47,494 and $5,155 in the years ended December 31, 2016 and 2015 and was recorded in the statements of operations and comprehensive loss as follows:

	Years Ended December 31,	
	2016	2015
Depreciation—Lab Equipment—research and developoment expense	$ 26,271	$ 4,378
Depreciation—Clinical Equipment—research and development expense	10,203	777
Depreciation—Software—general and administrative expense	11,020	—
Total Depreciation Expense	$ 47,494	$ 5,155

Accrued Expenses

Accrued expenses at December 31, 2016 and 2015 consist of the following:

	December 31, 2016	December 31, 2015
Accrued compensation and related:		
Accrued vacation	$ 223,769	187,734
Accrued payroll	2,692	80,692
Accrued payroll tax	20,140	43,702
	246,601	312,128
Accrued interest	123,982	127,149
Accrued contract manufacturing costs	—	110,141
Accrued clinical	36,725	166,750
Accrued other	175,214	82,266
Total	$ 582,522	798,434

6. Commitments and Contingencies

Operating Leases

Effective July 1, 2015, the Company leases its San Francisco, California headquarters under a non-cancelable sub-lease agreement that expires August 31, 2018. The Company provided cash deposits of $122,163, consisting of a security deposit of $29,539 and prepayment of the last three months of the lease of $92,623, which are included in other assets on the Company's balance sheet.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

6. Commitments and Contingencies (Continued)

Future minimum lease payments under non-cancelable operating leases as of December 31, 2016 are as follows:

Years ending December 31,	Amount
2017	363,486
2018	245,327
Total minimum lease payments	608,813

The Company recognizes rent expense on a straight-line basis over the non-cancelable lease period. Rent expense under the non-cancelable operating lease was $361,114 for the year ended December 31, 2016 and $180,557 for the six months ended December 31, 2015. Rent expense is included in general and administrative expense in the Company's statements of operations and comprehensive loss.

As discussed in Note 4 above, on March 1, 2014, the Company sublet office space in San Francisco, California from Napo. The Company paid Napo $33,897 for rent related to the office space for the months of March, April and May of 2014, which was included in general and administrative expense in the Company's statements of operations and comprehensive loss. Beginning June 1, 2014, the Company assumed Napo's sublease from the landlord. The term of the assumed sublease was from June 1, 2014 through June 30, 2015. Rent expense under the sublease was $69,580 and $80,816 for the years ended December 31, 2015 and 2014, respectively, which was included in general and administrative expense in the Company's statement of operations and comprehensive loss.

Contract Manufacturing Commitment

Effective June 26, 2014 the Company entered into a technology transfer and commercial manufacturing agreement (the "Transfer Agreement") with a contract manufacturer in Italy (the "Manufacturer"), whereby the Company and the Manufacturer will cooperate to develop and refine the manufacturing process for the Company's prescription and non-prescription products. Pursuant to the Transfer Agreement, the Company was to make prepayments to the Manufacturer as follows: (1) a start-up fee of €500,000, €250,000 of which was to be paid at the earlier to occur of September 15, 2014 or the closing date of an initial public offering and €250,000 of which was to be paid at the time of installation and qualification of the Company's equipment at their facility, (2) related to the technology transfer, €620,000, €310,000 of which was paid subsequent to the signature of the Transfer Agreement and €310,000 of which was to be paid after the delivery of a final study report, (3) for design of a portion of the Manufacturer's facility, €100,000 was to be paid within five days of the signature of the Transfer Agreement, and (4) a €300,000 bonus fee payable in two equal installments, the first of which is due by the end of March 2015, with the remainder paid by the end of December 2015. The first €150,000 of the bonus fee payable was paid in May 2015. Additionally, the Transfer Agreement stipulated that the Company was to pay the Manufacturer an aggregate of €500,000 upon the delivery of agreed-upon levels of satisfactory product. Further, the Company issued the Manufacturer warrants to purchase 16,666 shares of common stock with an exercise price of 90% of the initial public offering price, amended to $6.30 in March 2015.

Effective February 12, 2015, March 25, 2015 and July 15, 2015 the Company entered into amendments delaying payments to the Manufacturer as follows: (i) the €500,000 start-up fee was due by the end of April 2015 and has been paid during the year ended December 31, 2015, (ii) related to the technology transfer, of the remaining €310,000, €215,000 was due April 2015 and €95,000 was due June 30, 2015, both of which

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

6. Commitments and Contingencies (Continued)

were paid during the year ended December 31, 2015, (iii) related to the design of a portion of the Manufacturer's facility, the payment has increased to €170,000, €150,000 of which was due at the end of April 2015 and €20,000 was due on June 30, 2015, both of which have been paid during the year ended December 31, 2015 (iv) the fees linked to the deliverables are now due €250,000 on December 31, 2015 and €250,000 on March 31, 2016, 2015, (v) the bonus fee payable of €300,000, €150,000 was due at the end of April 2015 and has been paid during the year ended December 31, 2015 and €150,000 due at December 31, 2015. In May 2015, the Company entered into a Memorandum of Understanding ("MOU") with the contract manufacturer and paid the start-up fee of €500,000 and the technology transfer fee of €215,000. In accordance with the terms of the Memorandum of Understanding, the Manufacturer will supply 400Kg of the Company's API at no cost in anticipation of the future deduction by December 2015. The final €250,000 was paid on March 29, 2016.

In December 2015, we entered into an amendment to our technology transfer and commercial manufacturing agreement with our contract manufacturer in Italy delaying a €150,000 bonus fee payment which was originally due on December 31, 2015 to March 31, 2016. On April 4, 2016, the Company further amended the payment date to June 30, 2016. The Company paid the final €150,000 bonus fee on July 15, 2016.

The Company expensed the total cost of the contract ratably over the estimated life of the contract, or the total amount paid if greater. As of December 31, 2016 and December 31, 2015, the amortized costs exceeded amounts paid by $0 and $110,141, respectively, which are included in accrued manufacturing costs in accrued liabilities in the Company's balance sheet.

Debt Obligations

See Note 7—Debt and Warrants.

Contingencies

From time to time, the Company may be involved in legal proceedings arising in the ordinary course of business. The Company believes there is no litigation pending that could have, individually or in the aggregate, a material adverse effect on the financial position, results of operations or cash flows.

7. Debt and Warrants

Convertible Notes and Warrants

2013 Convertible Notes

From July through September 2013, the Company issued four convertible promissory notes (collectively the "Notes") for gross aggregate proceeds of $525,000 to various third-party lenders. The Notes bore interest at 8% per annum. The Notes automatically matured and the entire outstanding principal amount, together with accrued interest, was due and payable in cash at the earlier of July 8, 2015 (the "Maturity Date") or ten business days after the date of consummation of the initial closing of a first equity round of financing. The Company consummated a first equity round of financing prior to the Maturity Date with a pre-money valuation of greater than $3.0 million, and, accordingly, principal and accrued interest was converted into shares of common stock at 75% of the purchase price paid by such equity investors. These notes were all converted to common stock in February 2014 upon the issuance of the convertible preferred stock. In February 2014, in connection with the first equity round of financing

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

7. Debt and Warrants (Continued)

and issuance of the Series A convertible preferred stock, the noteholders exercised their option to convert their Notes into 207,664 shares of common stock and accrued interest was paid in cash to the noteholders. The accreted interest expense related to the discount on the Notes was $1,443 for the period from January 1, 2014 to the conversion date of the Notes. Upon conversion, the entire remaining debt discount of $4,071 was recorded as interest expense.

In connection with the Notes, the Company issued warrants to the noteholders, which became exercisable to purchase an aggregate of 207,664 shares of common stock as of the issuance of the first equity round of financing (the "Warrants"). The Warrants have a $2.53 exercise price, are fully exercisable from the initial date of the first equity round of financing, and have a five-year term subsequent to that date.

2014 Convertible Notes

On June 2, 2014, pursuant to a convertible note purchase agreement, the Company issued convertible promissory notes in the aggregate principal amount of $300,000 to two accredited investors, including a convertible promissory note for $200,000 to a board member to which Series A preferred stock was sold. These notes accrued interest at 3% per annum and automatically were to mature on June 1, 2015. Interest expense for the year ended December 31, 2015 was $3,237 and is included in interest expense in the statement of operations and comprehensive loss. Accrued interest is $8,507 and is included in accrued liabilities in the balance sheet. All interest was to be paid in cash upon maturity. Upon the closing of the IPO, the outstanding principal amount automatically converted into 53,571 shares common stock at $5.60, as amended in March 2015. Upon issuance, the Company analyzed the beneficial nature of the conversion terms and determined that a beneficial conversion feature ("BCF") existed because the effective conversion price on issuance of the notes was less than the fair value at the time of the issuance. The Company calculated the value of the BCF using the intrinsic method and recorded a BCF of $75,000 as a discount to notes payable and to additional paid-in capital. For the year ended December 31, 2015, the Company amortized $31,250 of the discount as interest expense in the statements of operations and comprehensive loss.

On July 16, 2014, pursuant to a convertible note purchase agreement, the Company issued a convertible promissory note in the principal amount of $150,000 to an accredited investor. This note accrued interest at 3% per annum and automatically was to mature on June 1, 2015. Interest expense for the year ended December 31, 2015 was $1,627 and is included in interest expense in the statements of operations and comprehensive loss. Accrued interest is $3,711 and is included in accrued liabilities in the balance sheet. All interest was to be paid in cash upon maturity. Upon the closing of the IPO, the outstanding principal amount automatically converted into 26,785 shares of common stock at $5.60, as amended in March 2015. Upon issuance, the Company analyzed the beneficial nature of the conversion terms and determined that a BCF existed because the effective conversion price was less than the fair value at the time of the issuance. The Company calculated the value of the BCF using the intrinsic method and recorded a BCF of $37,500 as a discount to the notes payable and to additional paid-in capital. For the year ended December 31, 2015, the Company amortized $17,857 of the discount as interest expense in the statements of operations and comprehensive loss.

In connection with the Transfer Agreement (Note 6) the Company issued fully vested and immediately exercisable warrants to the Manufacturer to purchase 16,666 shares of common stock at 90% of the IPO price, amended to $6.30 in March 2015, for a period of five years. The fair value of the warrants, $37,840,

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

7. Debt and Warrants (Continued)

was recorded as research and development expense and additional paid-in capital in June 2014. The warrants were originally valued using the Black-Scholes model with the following assumptions: stock price of $4.83, exercise price of $4.35, term of five years, volatility of 49%, dividend yield of 0%, and risk-free interest rate of 1.64%.

On December 23, 2014, pursuant to a convertible note purchase agreement, the Company issued convertible promissory notes in the aggregate principal amount of $650,000 to three accredited investors, including a convertible promissory note for $250,000 to the same board member to which the June 2, 2014 $200,000 convertible promissory note was issued and to which Series A preferred stock was sold. These notes accrued interest at 12% per annum and became payable within thirty days following the IPO. Interest expense for the year ended December 31, 2015 was $28,210 and is included in interest expense in the statements of operations and comprehensive loss. Accrued interest is $30,132 and is included in accrued liabilities in the balance sheet. All interest was to be paid in cash upon maturity. Upon consummation of the Company's IPO, the noteholders converted the notes into 116,070 shares of common stock at a conversion price equal to 80% of the IPO price, amended to $5.60 in March 2015. In connection with these notes, the Company also issued the lenders a fully vested warrant to purchase shares of the Company's common stock at an exercise price equal to 80% of the IPO price, amended to $5.60 in March 2015. These warrants entitle the noteholders to purchase 58,035 shares of common stock. The fair value of the warrants, $147,943, was recorded as a debt discount and liability at December 23, 2014. The Company amortized $141,890 of this discount in the year ended December 31, 2015 which has been recorded as interest expense in the Company's statements of operations and comprehensive loss. The warrants were originally valued using the Black-Scholes model with the following assumptions: stock price of $4.59, exercise price of $4.15, term of three years expiring December 2017, volatility of 49%, dividend yield of 0%, and risk-free interest rate of 1.10%. Based on the circumstances, the value derived using the Black-Scholes model approximated that which would be obtained using a lattice model. The debt discount was amortized as interest expense over the one hundred ninety days from issuance of the notes through their first maturity date of July 31, 2015, beginning in January 2015. The Company analyzed the beneficial nature of the conversion terms and determined that a BCF existed because the effective conversion price was less than the fair value at the time of the issuance. The Company calculated the value of the BCF using the intrinsic method. A BCF of $502,057 was recorded as a discount to the notes payable and to additional paid-in capital. For the year ended December 31, 2015, the Company amortized $484,329 of the BCF as interest expense in the statements of operations and comprehensive loss.

2015 Convertible Notes

In February 2015, the Company issued convertible promissory notes to two accredited investors in the aggregate principal amount of $250,000. These notes were issued pursuant to the convertible note purchase agreement dated December 23, 2014. In connection with the issuance of the notes, the Company issued the lenders warrants to purchase 22,320 shares at $5.60 per share, which expire December 31, 2017. Principal and interest of $103,912 was paid in May 2015 for $100,000 of these notes. The Company analyzed the beneficial nature of the conversion terms and determined that a BCF existed because the effective conversion price was less than the fair value at the time of the issuance. The Company calculated the value of the BCF using the intrinsic method. A BCF of for the full face value was recorded as a discount to the notes payable and to additional paid-in capital. For the years ended December 31, 2016 and 2015, the Company amortized $0 and $250,000 of the BCF as interest expense in the Company's statement of operations and comprehensive income.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

7. Debt and Warrants (Continued)

Extinguishment of debt

The remaining outstanding note of $150,000 is payable to the investor at an effective simple interest rate of 12% per annum, and was due in full on July 31, 2016. On July 28, 2016, the Company entered into an amendment to delay the repayment of the principal and related interest under the terms of the remaining note from July 31, 2016 to October 31, 2016. On November 8, 2016, the Company entered into an amendment to extend the maturity date of the remaining note from October 31, 2016 to January 1, 2017. In exchange for the extension of the maturity date, on November 8, 2016, the Company's board of directors granted the lendor a warrant to purchase 120,000 shares of the Company's common stock for $0.01 per share. The warrant is exercisable at any time on or before July 28, 2022, the expiration date of the warrant.

The amendment and related warrant issuance resulted in the Company treating the debt as having been extinguished and replaced with new debt for accounting purposes due to meeting the 10% cash flow test. The Company calculated a loss on the extinguishment of debt of $108,000, or the equivalent to the fair value of the warrants granted, which is included in other expense in the Company's statements of operations and comprehensive loss.

The $150,000 note is included in notes payable in the Company's balance sheet. The Company has accrued interest of $33,929 and $15,880, which is included in accrued liabilities in the Company's balance sheet as of December 31, 2016 and 2015, respectively, and incurred $18,049 and $15,880 in interest expense in the years ended December 31, 2016 and 2015, respectively.

On December 28, 2016, the Company entered into an amendment to extend the maturity date of the note from January 1, 2017 to January 31, 2017. On January 31, 2017, the Company entered into an amendment to further extend the due date of the $150,000 convertible note payable from January 31, 2017 to January 1, 2018.

In March 2015, the Company entered into a non-binding letter of intent with an investor. In connection therewith, the investor paid the Company $1.0 million. At March 31, 2015, the Company had recorded this amount as a loan advance on the balance sheet. In April 2015, the investor purchased $1.0 million of convertible promissory notes from the Company, the terms of which provided that such notes were to be converted into shares of the Company's common stock upon the closing of an IPO at a conversion price of $5.60 per share. In connection with the purchase of the notes, the Company issued the investor a warrant to purchase 89,285 shares at $5.60 per share, which expires December 31, 2017. The notes accrued simple interest of 12% per annum and, upon consummation of the Company's IPO in May 2015, converted into 178,571 shares of the Company's common stock. The Company analyzed the beneficial nature of the conversion terms and determined that a BCF existed because the effective conversion price was less than the fair value at the time of the issuance. The Company calculated the value of the BCF using the intrinsic method. A BCF of for the full face value was recorded as a discount to the notes payable and to additional paid-in capital. For the year ended December 31, 2015, the Company amortized $1,000,000 of the BCF as interest expense in the Company's statements of operations and comprehensive income. The Company has accrued interest of $17,753, which is included in accrued liabilities in the Company's balance sheet, and has incurred $17,753 and $15,880 in interest expense in the years ended December 31, 2016 and 2015, respectively.

The outstanding convertible notes payable obligation was $150,000 as of December 31, 2016 and 2015.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

7. Debt and Warrants (Continued)

Interest expense on the convertible notes for the years ended December 31, 2016 and 2015 was as follows:

	Years Ended December 31,	
	2016	2015
Nominal Interest	$ 18,049	$ 70,619
Amortization of debt discount	—	1,925,326
	$ 18,049	$ 1,995,945

Interest payable on the convertible notes at December 31, 2016 and 2015 was as follows:

	December 31, 2016	December 31, 2015
Interest Payable:	$ 94,048	$ 75,999

Notes Payable—Bridge Loans

On October 30, 2014, the Company entered into a standby bridge financing agreement with two lenders, which was amended and restated on December 3, 2014, which provided a loan commitment in the aggregate principal amount of $1.0 million (the "Bridge"). Proceeds to the Company were net of a $100,000 debt discount under the terms of the Bridge and net of $104,000 of debt issuance costs. This debt discount and debt issuance costs were recorded as interest expense using the effective interest method, over the six month term of the Bridge. The Bridge became payable upon the IPO. The Bridge was repaid in May 2015, including interest thereon in an amount of $1,321,600. In connection with the Bridge, the lenders were granted warrants to purchase 178,569 shares of the Company's common stock determined by dividing $1.0 million by the exercise price of 80% of the IPO price, amended to $5.60 in March 2015. The fair value of the warrants, $505,348, was originally recorded as a debt discount and liability at December 3, 2014. The warrants were originally valued using the Black-Scholes model with the following assumptions: stock price of $5.01, exercise price of $5.23, term of five years expiring December 2019, volatility of 63%, dividend yield of 0%, and risk-free interest rate of 1.61%. Based on the circumstances, the value derived using the Black-Scholes model approximated that which would be obtained using a lattice model. The debt discount was recorded as interest expense over the six month term of the Bridge. Of the aggregate debt discount of $605,348 (warrants and original $100,000 discount), $521,291 was recorded as interest expense during the year ended December 31, 2015. Additional financing costs of $104,000 were incurred related to the Bridge and deferred on closing. These were recognized as interest expense over the six-month term of the Bridge using the effective interest method. The Company amortized the remaining $86,667 of these deferred financing charges by the end of May 2015 was recorded the amortized amounts as interest expense. The Company fully extinguished the debt and accrued interest in May 2015.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

7. Debt and Warrants (Continued)

Interest expense on the notes payable-bridge loans for the years ended December 31, 2016 and 2015 was as follows:

	Years Ended December 31,	
	2016	2015
Nominal Interest	$ —	$ 100,000
Amortization of debt discount	—	521,291
Repayment premium	—	201,600
Debt issuance costs	—	86,667
	$ —	$ 909,558

Standby Line of Credit

In August 2014, the Company entered into a standby line of credit with an accredited investor for up to $1.0 million pursuant to a Line of Credit and Loan Agreement dated August 26, 2014. In connection with the entry into the standby line of credit, the Company issued the lender a fully vested warrant to purchase 33,333 shares of common stock at an exercise price equal to 80% of the IPO price, amended to $5.60 in March 2015, which expires in August 2016. The fair value of the warrants, $114,300, was recorded as interest expense and additional paid-in capital in August 2014. The warrants were originally valued using the Black-Scholes model with the following assumptions: stock price of $8.00, exercise price of $6.40, term of two years, volatility of 52%, dividend yield of 0%, and risk-free interest rate of 0.52%. The line of credit expired on March 31, 2015 and there were no drawdowns under the facility. The warrants expired in August 2016.

Long-term Debt

In August 2015, the Company entered into a loan and security agreement with a lender for up to $8.0 million, which provided for an initial loan commitment of $6.0 million. The loan agreement requires the Company to maintain $4.5 million of the proceeds in cash, which may be reduced or eliminated on the achievement of certain milestones. An additional $2.0 million is available contingent on the achievement of certain further milestones. The agreement has a term of three years, with interest only payments through February 29, 2016. Thereafter, principal and interest payments will be made with an interest rate of 9.9%. Additionally, there will be a balloon payment of $560,000 on August 1, 2018. This amount is being recognized over the term of the loan agreement and the effective interest rate, considering the balloon payment, is 15.0%. Proceeds to the Company were net of a $134,433 debt discount under the terms of the loan agreement. This debt discount is being recorded as interest expense, using the interest method, over the term of the loan agreement. Under the agreement, the Company is entitled to prepay principal and accrued interest upon five days prior notice to the lender. In the event of prepayment, the Company is obligated to pay a prepayment charge. If such prepayment is made during any of the first twelve months of the loan agreement, the prepayment charge will be (a) during such time as the Company is required to maintain a minimum cash balance, 2% of the minimum cash balance amount plus 3% of the difference between the amount being prepaid and the minimum cash balance, and (b) after such time as the Company is no longer required to maintain a minimum cash balance, 3% of the amount being prepaid. If

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

7. Debt and Warrants (Continued)

such prepayment is made during any time after the first twelve months of the loan agreement, 1% of the amount being prepaid.

On April 21, 2016, the loan and security was amended upon which the Company repaid $1.5 million of the debt out of restricted cash. The amendment modified the repayment amortization schedule providing a four-month period of interest only payments for the period from May through August 2016.

As of December 31, 2016 and 2015, the net long-term debt obligation was as follows:

	December 31, 2016	December 31, 2015
Debt and unpaid accrued end-of-term payment	$ 3,894,320	$ 6,115,797
Unamortized note discount	(42,493)	(106,635)
Unamortized debt issuance costs	(114,626)	(206,235)
Net debt obligation	$ 3,737,201	$ 5,802,927
Current portion of long-term debt	$ 1,919,675	$ 1,707,899
Long-term debt, net of discount	1,817,526	$ 4,095,028
Total	$ 3,737,201	$ 5,802,927

Future principal payments under the long-term debt are as follows:

Years ending December 31	Amount
2017	$ 2,032,048
2018	1,479,246
Total future principal payments	3,511,294
2018 end-of-term payment	560,000
	4,071,294
Less: unaccreted end-of-term payment at December 31, 2016	(176,974)
Debt and unpaid accrued end-of-term payment	$ 3,894,320

The obligation at December 31, 2015 includes an end-of-term payment of $560,000, which accretes over the life of the loan as interest expense. As a result of the debt discount and the end-of-term payment, the effective interest rate for the loan differs from the contractual rate.

Interest expense on the long-term debt for the years ended December 31, 2016 and 2015 was as follows:

	December 31, 2016	December 31, 2015
Nominal Interest	$ 457,448	$ 224,400
Amortization of debt discount	64,142	27,798
Accretion of end-of-term payment	267,230	115,797
Debt issuance costs	178,713	43,789
	$ 967,533	$ 411,784

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

7. Debt and Warrants (Continued)

At the IPO, the Company's outstanding warrants to purchase convertible preferred stock were all converted to warrants to purchase common stock.

Warrants

On November 22, 2016, the Company entered into a Securities Purchase Agreement, or the 2016 Purchase Agreement, with certain institutional investors, pursuant to which the Company sold securities to such investors in a private placement transaction, which we refer to herein as the 2016 Private Placement. In the 2016 Private Placement, the Company sold an aggregate of 1,666,668 shares of the Company's common stock at a price of $0.60 per share for gross proceeds of approximately $1.0 million. The investors in the 2016 Private Placement also received (i) warrants to purchase up to an aggregate of 1,666,668 shares of the Company's common stock, at an exercise price of $0.75 per share, or the Series A Warrants, and the Placement Agent received warrants to purchase 133,333 shares of our common stock in lieu of cash for service fees with the same terms as the investors; (ii) warrants to purchase up to an aggregate 1,666,668 shares of the Company's common stock, at an exercise price of $0.90 per share, or the Series B Warrants, and (iii) warrants to purchase up to an aggregate 1,666,668 shares of our common stock, at an exercise price of $1.00 per share, or the Series C Warrants and, together with the Series A Warrants and the Series B Warrants, the 2016 Warrants.The warrants were granted in three series with different terms. The warrants were valued using the Black-Scholes-Merton warrant pricing model as follows:

- Series A Warrants and Placement Agent Warrants: 1,666,668 warrant shares with a strike price of $0.75 per share and an expiration date of May 29, 2022; and 133,333 warrant shares to the placement agent with a strike price of $0.75 and an expiration date of May 29, 2022; the expected life is 5.5 years, the volatility is 71.92% and the risk free rate is 1.87% in valuing these warrants.

- Series B Warrants: 1,666,668 warrant shares with a strike price of $0.90 per share and an expiration date of November 29, 2017; the expected life is one year, the volatility is 116.65% and the risk free rate is 0.78% in valuing these warrants.

- Series C Warrants: 1,666,668 warrant shares with a strike price of $1.00 per share and an expiration date of May 29, 2018; the expected life is 1.5 years, the volatility is 116.92% and the risk free rate is 0.94%.

The warrant valuation date was November 29, 2016 and the closing price of $0.69 per share was used in determining the fair value of the warrants. The series A warrants and placement agent warrants were valued at $756,001 and were classified as a warrant liability in the Company's balance sheet. The series A warrants and placement agent warrants were revalued on December 31, 2016 at $799,201 which is included in the Company's balance sheet, and the $43,200 increase is included in the Company's statements of operations and comprehensive loss. The strike price was $0.75 per share, the expected life was 5.41 years, the volatility was 73.62% and the risk free rate was 2.0%. The series B and C warrants were classified as equity, and as such were not subject to revaluation at year end. Costs incurred in connection with the issuance were allocated based on the relative fair values of the Series A and the Series B and C warrants.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

7. Debt and Warrants (Continued)

The Company's warrant activity is summarized as follows:

	December 31, 2016	December 31, 2015
Beginning balance at January 1	748,872	494,267
Warrants granted	5,253,337	254,605
Warrants cancelled	(33,333)	—
Ending balance at December 31	5,968,876	748,872

8. Redeemable Convertible Preferred Stock

In February, April and May of 2014, the Company issued 3,015,902 shares of convertible preferred stock in exchange for $6,777,338. The redemption value of the convertible preferred stock was $9.0 million. The differences between the respective redemption values/liquidation preference and carrying values are being accreted over the period from the date of issuance to the earliest possible redemption date, February 2017. The Company has recorded accretion of $263,060 for the year ended December 31, 2015.

Costs incurred in connection with the issuance of Series A redeemable convertible preferred stock during the year ended December 31, 2014 were $119,097 which have been recorded as a reduction to the carrying amounts of convertible preferred stock and are being accreted to the carrying value of the applicable preferred stock to the redemption date. The Company has recorded accretion of $83,334 for the year ended December 31, 2015.

On May 18, 2015, the Company completed its IPO. In connection with the IPO, all of the Company's 3,015,902 outstanding shares of convertible preferred stock were automatically converted into 2,010,596 shares of common stock. Prior to this conversion event, Convertible Preferred Stock had been classified outside of stockholders' (deficit) in accordance with authoritative guidance for the classification and measurement of potentially redeemable securities.

9. Stockholders' Equity

Common Stock

The Company's second amended and restated certificate of incorporation authorizes the Company to issue 50,000,000 shares of common stock $0.0001 par value. The holders of common stock are entitled to one vote for each share of common stock held at all meetings of stockholders. The number of authorized shares of common stock may be increased or decreased by the affirmative vote of the holders of shares of capital stock of the Company representing a majority of the votes represented by all shares (including Preferred Stock) entitled to vote.

In February 2016, the Company completed a secondary public offering of its common stock. In connection with its secondary public offering, the Company issued and sold 2,000,000 shares of common stock at a price to the public of $2.50 per share. As a result of the secondary public offering, the Company received $4.1 million in net proceeds, after deducting underwriting discounts and commissions of $373,011 and offering expenses of $496,887.

In June 2016, the Company entered into a common stock purchase agreement with a private investor (the "CSPA"), which provides that, upon the terms and subject to the conditions and limitations set forth

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

9. Stockholders' Equity (Continued)

therein, the investor is committed to purchase up to an aggregate of $15.0 million of the Company's common stock over the approximately 30-month term of the agreement. Upon execution of the CSPA, the Company sold 222,222 shares of its common stock to the investor at $2.25 per share for net proceeds of $394,534, reflecting gross proceeds of $500,000 and offering expenses of $105,398. In consideration for entering into the CSPA, the Company issued 456,667 shares of its common stock to the investor. Concurrently with entering into the CSPA, the Company also entered into a registration rights agreement with the investor (the "Registration Agreement"), in which the Company agreed to file one or more registration statements, as permissible and necessary to register under the Securities Act of 1933, as amended, the sale of the shares of the Company's common stock that have been and may be issued to the investor under the CSPA. On June 22, 2016 and September 22, 2016, the Company filed registration statements on Form S-1 (File Nos. 333-212173 and 333-213751) pursuant to the terms of the Registration Agreement, which registration statements were declared effective on July 8, 2016 and October 5, 2016, respectively. In the year ended December 31, 2016, pursuant to the CSPA, the Company sold an additional 1,348,601 shares of the Company's common stock in exchange for $2,176,700 of cash proceeds. Of the $15.0 million available under the CSPA, the Company has received $2,676,700 as of December 31, 2016. Under the CSPA, the Company cannot issue more than the 2,027,490 shares of common stock already issued unless the price per share is $1.32 (the closing price on the date that the CSPA was signed).

In October 2016, the Company entered into a Common Stock Purchase Agreement with an existing private investor. Upon execution of the agreement the Company sold 170,455 shares of its common stock in exchange for $150,000 in cash proceeds.

On November 22, 2016, the Company entered into a Securities Purchase Agreement, or the 2016 Purchase Agreement, with certain institutional investors, pursuant to which the Company sold securities to such investors in a private placement transaction, which is referred to herein as the 2016 Private Placement. In the 2016 Private Placement, the Company sold an aggregate of 1,666,668 shares of its common stock at a price of $0.60 per share for net proceeds of $677,224 or gross proceeds of approximately $1.0 million less $322,777 in issuance costs. The investors in the 2016 Private Placement also received (i) warrants to purchase up to an aggregate of 1,666,668 shares of our common stock, at an exercise price of $0.75 per share, or the Series A Warrants, (ii) warrants to purchase up to an aggregate 1,666,668 shares of our common stock, at an exercise price of $0.90 per share, or the Series B Warrants, and (iii) warrants to purchase up to an aggregate 1,666,668 shares of our common stock, at an exercise price of $1.00 per share, or the Series C Warrants and, together with the Series A Warrants and the Series B Warrants, the 2016 Warrants. The issuance costs were allocated to common stock, series A warrants, and Series B and C warrants based on the relative fair value of each:

Instruments	Fair Value	% Allocation	Issuance Costs (allocated)
Common Stock	$ 156,522	16%	$ 50,522
Warrants (Series A)	700,001	70%	225,944
Warrants (Series B and C)	143,478	14%	46,311
Total	$ 1,000,001	100%	$ 322,777

Common stock of a net $106,000 (fair value less issuance costs) was included in equity in the company's balance sheet. Series A warrants of $756,001, consisting of the series A warrants of $700,001 and the series A placement agent warrants of $56,000, are included in current liabilities in the company's

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

9. Stockholders' Equity (Continued)

balance sheet and the $225,944 of issuance cost was expensed and is in general and administrative expense on the company's statement of operations and comprehensive loss. Series B and C warrants of a net $97,167 (fair value less issuance costs) were classified in equity in the company's balance sheet.

In exchange for the extension of the maturity date of the outstanding 2015 Convertible Note, on, November 8, 2016, the Company's board of directors granted the lender a warrant to purchase 120,000 shares of the Company's common stock for $0.01 per share. The warrant is exercisable at any time on or before July 28, 2022, the expiration date of the warrant. The amendment and related warrant issuance resulted in the Company treating the debt as having been extinguished and replaced with new debt for accounting purposes due to meeting the 10% cash flow test. The Company calculated a loss on the extinguishment of debt of $108,000, or the equivalent to the fair value of the warrants granted, which is included in other expense in the Company's statements of operations and comprehensive loss. The warrants were valued on November 8, 2016 using the Black-Scholes-Merton model with the following assumptions: stock price of $0.91, exercise price of $0.01, term of 5.72 years expiring July 2022, volatility of 70.35%, dividend yield of 0%, and risk-free interest rate of 1.45%.

As of December 31, 2016 and 2015, the Company had reserved shares of common stock for issuance as follows:

	December 31, 2016	December 31, 2015
Options issued and outstanding	2,571,220	919,506
Options available for grant	39,988	106,833
RSUs issued and outstanding	20,789	55,536
Warrants issued and outstanding	5,968,876	748,872
Convertible notes	67,655	26,785
Total	8,668,528	1,857,532

Preferred Stock

The Company's second amended and restated certificate of incorporation authorizes the Company to issue 10,000,000 shares of preferred stock $0.0001 par value. No shares of preferred stock were issued or outstanding at December 31, 2016 or December 31, 2015.

10. Stock Incentive Plans

2013 Equity Incentive Plan

Effective November 1, 2013, the Company's board of directors and sole stockholder adopted the Jaguar Animal Health, Inc. 2013 Equity Incentive Plan (the "2013 Plan"). The 2013 Plan allows the Company's board of directors to grant stock options, restricted stock awards and restricted stock unit awards to employees, officers, directors and consultants of the Company. As of December 31, 2013, the Company had reserved 300,000 shares of its common stock for issuance under the 2013 Plan. In April 2014, the board of directors amended the 2013 Plan to increase the shares reserved for issuance to 847,533 shares. Following the effective date of the IPO and after effectiveness of any grants under the 2013 Plan that were contingent on the IPO, no additional stock awards will be granted under the 2013 Plan.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

10. Stock Incentive Plans (Continued)

Outstanding grants continue to be exercisable, however any unissued shares under the plan and any forfeitures of outstanding options do not rollover to the 2014 Stock Incentive Plan.

2014 Stock Incentive Plan

Effective May 12, 2015, the Company adopted the Jaguar Animal Health, Inc. 2014 Stock Incentive Plan ("2014 Plan"). The 2014 Plan provides for the grant of options, restricted stock and restricted stock units to eligible employees, directors and consultants to purchase the Company's common stock. The Company reserved 333,333 shares of common stock for issuance pursuant to the 2014 Plan. The Company added 162,498 shares to the plan in accordance with the Plan that provides for automatic share increases on the first day of each fiscal year in the amount of 2% of the outstanding number of shares of the Company's common stock on last day of the preceding calendar year. The 2014 Plan replaces the 2013 Plan except that all outstanding options under the 2013 Plan remain outstanding until exercised, cancelled or until they expire.

In July 2015, the Company amended the 2014 Plan reserving an additional 550,000 shares under the plan contingent upon approval by the Company's stockholders at the June 2016 annual stockholders meeting. In June 2016, the Company amended the 2014 Plan once again, modifying the increase from 550,000 shares to 1,550,000 shares, which was approved at the 2016 annual stockholders meeting.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

10. Stock Incentive Plans (Continued)

Stock Options and Restricted Stock Units ("RSUs")

The following table summarizes incentive plan activity for the years ended December 31, 2016 and 2015:

	Shares Available for Grant	Stock Options Outstanding	RSUs Outstanding	Weighted Average Stock Option Exercise Price	Weighted Average Remaining Contractual Life (Years)	Aggregate Intrinsic Value
2013 Equity Incentive Plan Balance—December 31, 2014	119,077	659,554	68,902	$ 2.67		
Additional shares authorized	—					
Options granted	(176,364)	176,364	—	$ 7.00		
Options cancelled	95,784	(95,784)	—	$ 2.53		
Options available for grant cancelled upon IPO	(51,863)	—				
Options cancelled post-IPO not rolled back into the 2013 Plan	—	(42,128)				
Options exercised	—	(5,000)	—	$ 2.53		
RSUs granted	(1,484)	—	1,484			
RSUs cancelled	14,850	—	(14,850)			
2013 Equity Incentive Plan Balance—December 31, 2015	—	693,006	55,536	$ 3.74		
2014 Stock Stock Plan Balance—December 31, 2014	—					
Shares authorized	333,333					
Options granted	(241,500)	241,500		$ 4.32		
Options cancelled	15,000	(15,000)		$ 5.09		
Combined Incentive Plan Balance—December 31, 2015	106,833	919,506	55,536	$ 3.87	8.81	$ —
2013 Equity Incentive Plan Activity:						
Options cancelled not rolled back into the 2013 Plan		(127,629)		$ 4.19		
RSUs vested and released			(27,768)			
RSUs cancelled			(6,979)			
2014 Stock Incentive Plan Activity:						
Additional shares authorized	1,712,498					
Options granted	(1,927,121)	1,927,121		$ 1.97		
Options cancelled	147,778	(147,778)		$ 2.28		
Combined Incentive Plan Balance—December 31, 2016	39,988	2,571,220	20,789	$ 2.52	8.77	
Options vested and exercisable—December 31, 2016		983,147		$ 3.41	8.25	$ —
Options vested and expected to vest—December 31, 2016		2,163,246		$ 2.52	8.73	$ —

The weighted average grant date weighted average fair value of stock options granted was $0.86 and $2.90 per share during the years ended December 31, 2016 and 2015.

The number of option shares that vested in the years ended December 31, 2016 and 2015 was 655,481 shares and 413,063 shares, respectively. The grant date weighted average fair value of option shares that vested in the years ended December 31, 2016 and 2015 was $722,134 and $893,974, respectively.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

10. Stock Incentive Plans (Continued)

The grant date weighted-average fair value of options exercised was $0.43 in the year December 31, 2015 of which there was no intrinsic value. No options were exercised in the year ended December 31, 2016.

The Company granted RSUs in 2014 and 2015 under the 2013 Equity Incentive Plan. The units granted vest upon the occurrence of both a liquidity event and satisfaction of the service-based requirement. The time-based vesting provides that 50% of the RSU will vest on January 1, 2016 and the remaining 50% vest on July 1, 2017. The Company began recording stock-based compensation expense relating to the RSU grants effective May 18, 2015, the date of the Company's initial public offering, and the date the liquidity condition was met. The stock-based compensation expense is based on the grant date fair value which is the equivalent to the fair market value on the date of grant, and is amortized over the vesting period using the straight-line method, net of estimated forfeitures. On January 1, 2016, the Company issued 17,546 shares of its common stock in exchange for 27,768 vested and released RSUs, net of 10,172 RSU shares used to pay withholding taxes.

Stock-Based Compensation

The following table summarizes stock-based compensation expense related to stock options and RSUs for the three months ended December 31, 2016 and 2015, and are included in the statements of operations and comprehensive loss as follows:

	Years Ended December 31,	
	2016	2015
Research and development expense	$ 181,489	$ 472,145
Sales and marketing expense	73,679	54,115
General and administrative expense	462,759	465,905
Total	$ 717,927	$ 992,165

As of December 31, 2016, the Company had $1,263,950 of unrecognized stock-based compensation expense for options and restricted stock units outstanding, which is expected to be recognized over a weighted-average period of 1.9 years.

The estimated grant-date fair value of employee stock options was calculated using the Black-Scholes option-pricing model using the following assumptions:

	Years Ended December 31,	
	2016	2015
Weighted-average volatility	66.25 - 72.08%	55.43 - 61.51%
Weighted-average expected term (years)	5.00 - 5.82	5.15 - 5.82
Risk-free interest rate	1.10 - 2.15%	1.60 - 1.84%
Expected dividend yield	—	—

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

10. Stock Incentive Plans (Continued)

The estimated grant-date fair value of non-employee stock options was calculated using the Black-Scholes option-pricing model using the following assumptions:

	Years Ended December 31,	
	2016	2015
Weighted-average volatility	78.30 - 80.04%	76.63%
Weighted-average expected term (years)	9.19 - 10.00	9.69
Risk-free interest rate	1.32 - 2.46%	2.25%
Expected dividend yield	—	—

11. Net Loss Per Share Attributable to Common Stockholders

The following table presents the calculation of basic and diluted net loss per common share for the years ended December 31, 2016 and 2015:

	December 31, 2016	December 31, 2015
Net loss attributable to common shareholders	$ (14,733,780)	$ (16,637,924)
Shares used to compute net loss per common share, basic and diluted	10,951,178	6,153,139
Net loss per share attributable to common shareholders, basic and diluted	$ (1.35)	$ (2.70)

Basic net loss per share is calculated by dividing net loss by the weighted-average number of common shares outstanding during the period. Diluted net loss per share is computed by dividing net loss by the weighted-average number of common shares and common share equivalents outstanding for the period. Common stock equivalents are only included when their effect is dilutive. The Company's potentially dilutive securities which include stock options, convertible preferred stock and common stock warrants have been excluded from the computation of diluted net loss per share as they would be anti-dilutive. For all periods presented, there is no difference in the number of shares used to compute basic and diluted shares outstanding due to the Company's net loss position.

The following outstanding common stock equivalents have been excluded from diluted net loss per common share for the years ended December 31, 2016 and 2015 because their inclusion would be anti-dilutive:

	December 31, 2016	December 31, 2015
Options issued and outstanding	2,571,220	919,506
Warrants to purchase common stock	5,968,876	748,872
Restricted stock units	20,789	55,536
Total	8,560,885	1,723,914

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

12. Income Taxes

The Company's loss before provision for income taxes during the years ended December 31, 2016 and 2015, was a domestic loss of $14,733,780 and $16,291,550, resepctively.

Due to continued losses for the year ending December 31, 2016, and a full valuation allowance, the Company has not recorded a provision for income taxes for the years ending December 31, 2016 or 2015.

The components of the provision for income taxes during the years ended December 31, 2016 and 2015 is as follows:

	December 31, 2016	December 31, 2015
Current:		
Federal	$ —	$ —
State	—	—
Foreign	—	—
Total Current	—	—
Deferred:		
Federal	(4,387,544)	(4,197,007)
State	(1,249,149)	(587,696)
Foreign	—	—
Total Deferred	(5,636,693)	(4,784,703)
Valuation Allowance	5,636,693	4,784,703
Total Provision for Income Taxes	$ —	$ —

The Company's effective tax during the years ended December 31, 2016 and 2015, differed from the federal statutory rate as follows:

	December 31, 2016	December 31, 2015
Statutory Rate	(34.0)%	(34.0)%
State Taxes	(5.6)%	(3.6)%
Tax Credits	(0.5)%	5.2%
Other	1.8%	1.7%
Valuation Allowance	38.3%	30.7%
Effective Tax Rate	0.0%	0.0%

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

12. Income Taxes (Continued)

Net deferred tax assets as of December 31, 2016 and 2015 consist of the following:

	December 31, 2016	December 31, 2015
Non-current Deferred Tax Assets:		
Net Operating Costs	$ 9,626,610	$ 7,459,489
Tax Credits	374,605	261,851
Stock Compensation	297,438	188,602
Fixed Assets and Intangibles	3,700,557	470,577
Other	93,434	75,432
	14,092,644	8,455,951
Valuation Allowance	(14,092,644)	(8,455,951)
Net Non-current Deferred Tax Assets	$ —	$ —

A valuation allowance is provided when it is more likely than not that the deferred tax assets will not be realized. The Company has established a valuation allowance to offset net deferred tax assets as of December 31, 2016 and 2015, due to the uncertainty of realizing future tax benefits from its net operating loss carryforwards and other deferred tax assets.

The valuation allowance increased by $5,636,693 during the year ended December 31, 2016.

As of December 31, 2016, the Company had federal and California net operating loss carryovers of approximately $24,543,368 and $17,103,817, respectively. The federal and California net operating losses will begin to expire in 2033.

As of December 31, 2016, the Company had federal and California research credit carryovers of approximately $279,793 and $285,554, respectively. The federal research credits will begin to expire in 2033. The California research credits carry forward indefinitely.

Utilization of the domestic NOL and tax credit forwards may be subject to a substantial annual limitation due to ownership change limitations that may have occurred or that could occur in the future, as required by the Internal Revenue Code Section 382, as well as similar state provisions. In general, an "ownership change," as defined by 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. Any limitation may result in expiration of all or a portion of the NOL or tax credit carryforwards before utilization.

In November 2015, the FASB issued Accounting Standards Update 2015-17, which simplifies the presentation of deferred income taxes by requiring that deferred tax assets and liabilities be presented as non-current. The standard impacts presentation only. The Company elected to early adopt the standard on a retrospective basis effective December 31, 2015, and all deferred tax assets and liabilities are classified as non-current on the Company's consolidated balance sheets. Adoption of this ASU had no effect on the Company's balance sheet for 2015 as presented.

Uncertain Tax Positions

The Company has adopted the provisions of ASC 740, "Income Taxes Related to Uncertain Tax Positions." Under these principals, tax positions are evaluated in a two-step process. The Company first

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

12. Income Taxes (Continued)

determines whether it is more-likely-than-not that a tax positions will be sustained upon examination. If a tax position meets the more-likely-than-not recognition threshold it is then measured to determine the amount of benefit to be recognized in the financial statements. The tax position is measured as the largest amount of benefit that has a greater than 50 percent likelihood of being realized upon ultimate settlement.

The following is a reconciliation of the beginning and ending amount of our total gross unrecognized tax benefit liabilities:

	December 31, 2016	December 31, 2015
Gross Unrecognized Tax Benefit—Beginning Balance	$ 78,930	$ 31,006
Increases Related to Tax Positions from Prior Years	—	5,920
Increases Related to Tax Positions Taken During t the Current Year	34,143	42,004
Gross Unrecognized Tax Benefit—Beginning Balance	$ 113,073	$ 78,930

There are no liabilities from unrecognized tax benefits included in the Company's balance sheet as of December 31, 2016 and 2015, and therefore the Company has not accrued for any penalties or interest.

The Company files income tax returns in the United States and various states, where the statute of limitations are 3 years and 4 years, respectively. The Company remains open for audit by the United States Internal Revenue Service and states state tax jurisdictions since inception.

The Company is not currently under examination by income tax authorities in federal or state jurisdictions.

13. 401(k) Plan

The Company sponsors a 401(k) defined contribution plan covering all employees. There were no employer contributions to the plan from plan inception through December 31, 2016.

14. Subsequent Events

The Company completed an evaluation of the impact of subsequent events through February 15, 2017, the date these financial statements were issued.

Commercializaton Agreement

On January 27, 2017, the Company announced it entered into a licensing, development, co-promotion and commercialization agreement with Elanco US Inc. ("Elanco") to license, develop and commercialize Canalevia, a Company drug product candidate under investigation for treatment of acute and chemotherapy-induced diarrhea in dogs, and other drug product formulations of crofelemer for treatment of gastrointestinal diseases, conditions and symptoms in cats and other companion animals (collectively, the "Licensed Products"). The Elanco Agreement grants Elanco exclusive global rights to Canalevia, a product whose active pharmaceutical ingredient is sustainably isolated and purified from the Croton lechleri tree, for use in companion animals. Pursuant to the Elanco Agreement, Elanco will have exclusive rights globally outside the U.S. and co-exclusive rights with the Company in the U.S. to direct all marketing, advertising, promotion, launch and sales activities related to the Licensed Products.

Jaguar Animal Health, Inc.

Notes to Financial Statements (Continued)

14. Subsequent Events (Continued)

Under the terms of the Elanco Agreement, the Company received a $1.5 million upfront payment and will receive additional payments upon achievement of certain development, regulatory and sales milestones in an aggregate amount of up to $61.0 million payable throughout the term of the Elanco Agreement, as well as product development expense reimbursement, and royalty payments on global sales. The Elanco Agreement specifies that the Company will supply the Licensed Products to Elanco, and that the parties will agree to set a minimum sales requirement that Elanco must meet to maintain exclusivity. The Elanco Agreement also contains provisions regarding payment terms, confidentiality and indemnification, as well as other customary provisions. Elanco will also reimburse the Company for Canalevia-related expenses, including reimbursement for Canalevia-related expenses in Q4 2016, certain development and regulatory expenses related to the Company's planned target animal safety study and the completion of the Company's field study of Canalevia for acute diarrhea in dogs.

2015 Convertible Notes Payable

On January 31, 2017, the Company entered into an amendment to extend the due date of the $150,000 convertible note payable from January 31, 2017 to January 1, 2018. In exchange for the extension of the maturity date, on January 31, 2017, the Company's board of directors granted the convertible note holder a warrant to purchase 370,916 shares of the Company's common stock for $0.51 per share. The warrant is exercisable at any time on or before January 31, 2019, the expiration date of the warrant.

Merger Agreement

On February 8, 2017, the Company announced that it had entered into a binding agreement of terms (the "Agreement") to merge with Napo Pharmaceuticals, Inc., the Company's former parent. The transaction was approved by the unanimous vote of independent and disinterested members of each of Jaguar's and Napo's Board of Directors. Napo will operate as a wholly-owned subsidiary of Jaguar, focused on human health. The binding financial terms of the merger include a 3-to-1 Napo-to-Jaguar value ratio to calculate the relative ownership of the combined entity. As of January 31, 2017, Napo owned approximately 19% of Jaguar's outstanding shares of common stock. The Agreement sets forth the financial terms of the merger and customary conditions to closing, which include but are not limited to completion of due diligence, receipt of a fairness opinion, and stockholder and other approvals. Additionally, the financial terms of the merger and conditions to closing include provisions that (i) Napo's secured convertible debt shall not exceed $10.0 million and its unsecured debt shall not exceed $3.0 million, and (ii) a third party will invest $3.0 million in the Company for approximately four million shares of newly issued common stock of the Company with the investment proceeds loaned to Napo immediately prior to the consummation of the merger. The Agreement also provides that if the merger fails to close for any reason on or prior to July 31, 2017, other than as a result directly or indirectly of (x) lack of stockholder approval by either party or (y) Napo (i) failing to perform in accordance with the terms and conditions of the Agreement or (ii) failing to abide by or breaching the provisions or representations, warranties and covenants of the Agreement or the merger documents, then, on or before the close of business on August 7, 2017, the Company will be required to issue 2,000,000 shares of its restricted common stock to Napo.

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," as such term is defined in Rule 13a-15(e) under the Exchange Act that are designed to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in Securities and Exchange Commission 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 our disclosure controls and procedures, management recognized that disclosure controls and procedures, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the disclosure controls and procedures are met. Our disclosure controls and procedures have been designed to meet reasonable assurance standards. Additionally, in designing disclosure controls and procedures, our management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible disclosure controls and procedures. The design of any disclosure controls and procedures also 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.

Based on their evaluation as of the end of the period covered by this Annual Report on Form 10-K, our Chief Executive Officer and Chief Financial Officer have concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Internal Control Over Financial Reporting

This annual report does not include a report of management's assessment regarding internal control over financial reporting or an attestation report of our registered public accounting firm due to a transition period established by rules of the Securities and Exchange Commission for newly public companies.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting during the fourth quarter of 2016.

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this item is incorporated by reference from the Proxy Statement for the 2017 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2016.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item is incorporated by reference from the information under the captions "Compensation of Directors and Executive Officers" contained in the Proxy Statement for the 2017 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2016.

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

The information required by this item is incorporated by reference from the information under the captions "Security Ownership of Certain Beneficial Owners and Management" and "Compensation of Directors and Executive Officers—Equity Compensation "contained in the Proxy Statement for the 2017 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2016.

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

The information required by this item is incorporated by reference from the information under the caption "Proposal 1—Election of Directors—Director Independence" and "Certain Relationships and Related Transactions" contained in the Proxy Statement for the 2017 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2016.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item is incorporated by reference from the information under the caption "Proposal 2—Ratification of the Appointment of Independent Registered Public Accounting Firm—Principal Accountant Fees and Services" contained in the Proxy Statement for the 2017 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2016.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) Documents filed as part of this report

1. Financial Statements:

Reference is made to the Index to Financial Statements of Jaguar Animal Health, Inc. included in Item 8 of Part II hereof.

2. Financial Statement Schedules

All schedules have been omitted because they are not required, not applicable, or the required information is included in the financial statements or notes thereto.

3. Exhibits

See Item 15(b) below. Each management contract or compensating plan or arrangement required to be filed has been identified.

(b) Exhibits—The following exhibits are included herein or incorporated herein by reference.

Exhibit No.	Description
3.1	Second Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K (No. 001-36714) filed with the Securities and Exchange Commission on May 18, 2015).
3.2	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to the Current Report on Form 8-K (No. 001-36714) filed with the Securities and Exchange Commission on May 18, 2015).
4.1	Specimen Common Stock Certificate of Jaguar Animal Health, Inc. (incorporated by reference to Exhibit 4.1 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on October 10, 2014).
10.1‡	Form of Indemnification Agreement by and between Jaguar Animal Health, Inc. and its directors and officers (incorporated by reference to Exhibit 10.1 to the Registration Statement on Form S-1 (No. 333-198383) filed with the Securities and Exchange Commission on August 27, 2014).
10.2‡	Jaguar Animal Health, Inc. 2014 Stock Incentive Plan (incorporated by reference to Exhibit 10.5 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on October 31, 2014).
10.3‡	Form of Notice of Grant of Stock Option and Stock Option Agreement under the 2014 Stock Incentive Plan (incorporated by reference to Exhibit 10.6 to the Registration Statement on Form S-1 (No. 333-198383) filed with the Securities and Exchange Commission on August 27, 2014).
10.4‡	Form of Notice of Grant of Restricted Stock and Restricted Stock Agreement under the 2014 Stock Incentive Plan (incorporated by reference to Exhibit 10.7 to the Registration Statement on Form S-1 (No. 333-198383) filed with the Securities and Exchange Commission on August 27, 2014).
10.5‡	Form of Notice of Grant of Restricted Stock Units and Restricted Stock Unit Agreement under the 2014 Stock Incentive Plan (incorporated by reference to Exhibit 10.8 to the Registration Statement on Form S-1 (No. 333-198383) filed with the Securities and Exchange Commission on August 27, 2014).

Exhibit No.	Description
10.6‡	Offer Letter by and between Jaguar Animal Health, Inc. and Lisa A. Conte, dated March 1, 2014 (incorporated by reference to Exhibit 10.9 to the Registration Statement on Form S-1 (No. 333-198383) filed with the Securities and Exchange Commission on August 27, 2014).
10.7‡	Offer Letter by and between Jaguar Animal Health, Inc. and Steven R. King, Ph.D., dated February 28, 2014 (incorporated by reference to Exhibit 10.11 to the Registration Statement on Form S-1 (No. 333-198383) filed with the Securities and Exchange Commission on August 27, 2014).
10.8	Amended and Restated License Agreement by and between Jaguar Animal Health, Inc. and Napo Pharmaceuticals, Inc., dated August 6, 2014 (incorporated by reference to Exhibit 10.13 to the Registration Statement on Form S-1 (No. 333-198383) filed with the Securities and Exchange Commission on August 27, 2014).
10.9	Employee Leasing and Overhead Allocation Agreement by and between Jaguar Animal Health, Inc. and Napo Pharmaceuticals, Inc., dated July 1, 2013 (incorporated by reference to Exhibit 10.14 to the Registration Statement on Form S-1 (No. 333-198383) filed with the Securities and Exchange Commission on August 27, 2014).
10.10	Assignment of Sublease and Landlord Consent by and between Jaguar Animal Health, Inc. and Napo Pharmaceuticals, Inc., dated June 1, 2014 (incorporated by reference to Exhibit 10.15 to the Registration Statement on Form S-1 (No. 333-198383) filed with the Securities and Exchange Commission on August 27, 2014).
10.11	Form of Common Stock Warrant that expires February 5, 2019 (incorporated by reference to Exhibit 10.16 to the Registration Statement on Form S-1 (No. 333-198383) filed with the Securities and Exchange Commission on August 27, 2014).
10.12	Form of Common Stock Warrant issued to Indena S.p.A. that expires June 26, 2019 (incorporated by reference to Exhibit 10.17 to the Registration Statement on Form S-1 (No. 333-198383) filed with the Securities and Exchange Commission on August 27, 2014).
10.13	Form of Common Stock Warrant issued to Joshua Mailman, which expires August 26, 2016 (incorporated by reference to Exhibit 10.21 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on September 9, 2014).
10.14‡	Offer Letter by and between Jaguar Animal Health, Inc. and John A. Kallassy, dated as of September 19, 2014 (incorporated by reference to Exhibit 10.22 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on October 10, 2014).
10.15	Non-Disturbance Letter Agreement by and between Napo Pharmaceuticals, Inc. and Nantucket Investments Limited, as Administrative Agent and Collateral Agent, dated October 10, 2014 (incorporated by reference to Exhibit 10.23 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on October 10, 2014).
10.16	Form of Warrant to Purchase Common Stock issued to GPB Life Science Holdings LLC and 31 Group, LLC, which expires October 30, 2019 (incorporated by reference to Exhibit 10.25 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on October 31, 2014).

Exhibit No.	Description
10.17	Form of Exchange Warrant to Purchase Common Stock, issued to GPB Life Science Holdings LLC and 31 Group, LLC, which expires June 3, 2020, as amended (incorporated by reference to Exhibit 10.27 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on April 17, 2015).
10.18	Amendment No. 1 to Amended and Restated License Agreement between Jaguar Animal Health, Inc. and Napo Pharmaceuticals, Inc., dated as of January 27, 2015 (incorporated by reference to Exhibit 10.28 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on March 20, 2015).
10.19‡	Offer Letter by and between Jaguar Animal Health, Inc. and Michael Hauser, D.V.M., dated as of March 3, 2015 (incorporated by reference to Exhibit 10.32 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on March 20, 2015).
10.20	Form of Representative's Warrant (incorporated by reference to Exhibit 10.33 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on April 17, 2015).
10.21	Form of Warrant and Note Exercise Amendment pursuant to Convertible Note and Warrant Purchase Agreement dated December 23, 2014 (incorporated by reference to Exhibit 10.35 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on April 17, 2015).
10.22	Convertible Note and Warrant Purchase Agreement dated March 20, 2015 by and between Jaguar Animal Health, Inc., and Dechra Pharmaceuticals PLC (incorporated by reference to Exhibit 10.37 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on April 17, 2015).
10.23	Common Stock Warrant issued pursuant to the Convertible Note and Warrant Purchase Agreement dated March 20, 2015, which expires December 31, 2017 (incorporated by reference to Exhibit 10.39 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on April 17, 2015).
10.24	Form of Warrant Exercise Amendment pursuant to Exchange Warrant to Purchase Common Stock dated December 3, 2014 (incorporated by reference to Exhibit 10.40 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on April 17, 2015).
10.25	Form of Amended and Restated Exchange Warrant to Purchase Common Stock (incorporated by reference to Exhibit 10.41 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on April 17, 2015).
10.26	Sublease Agreement by and between SeeChange Health Management LLC and Jaguar Animal Health, Inc., dated June 23, 2015 (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K (No. 001-36714) filed with the Securities and Exchange Commission on June 23, 2015).
10.27	Consent to Sublease by and among CA-Mission Street Limited Partnership, SeeChange Health Management LLC and Jaguar Animal Health, Inc., dated June 19, 2015 (incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K (No. 001-36714) filed with the Securities and Exchange Commission on June 23, 2015).

Exhibit No.	Description
10.28	Loan and Security Agreement between Jaguar Animal Health, Inc., Qualified Subsidiaries thereof, the several banks and other financial institutions or entities from time to time parties thereto as lenders and Hercules Technology Growth Capital, Inc., dated as of August 18, 2015 (incorporated herein by reference to Exhibit 10.2 to the Current Report on Form 8-K (No. 001-36714) filed with the Securities and Exchange Commission on August 20, 2015).
10.29†	Manufacture and Supply Agreement between Jaguar Animal Health, Inc. and Glenmark Pharmaceuticals Ltd., dated September 22, 2015 (incorporated herein by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q (No. 001-36714) filed with the Securities and Exchange Commission on November 13, 2015).
10.30	Formulation Development and Manufacturing Agreement between Jaguar Animal Health, Inc. and Patheon Pharmaceuticals Inc., dated October 8, 2015 (incorporated by reference to Exhibit 10.30 to the Registration Statement on Form S-1 (No. 333-208905) filed with the Securities and Exchange Commission on January 7, 2016).
10.31‡	Offer Letter by and between Jaguar Animal Health, Inc., and Karen Wright, dated as of October 11, 2015 (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on December 18, 2015).
10.32	Form of Convertible Promissory Note issued pursuant to the Convertible Note and Warrant Purchase Agreement dated as of December 23, 2014 (incorporated by reference to Exhibit 10.30 to the Registration Statement on Form S-1/A (No. 333-198383) filed with the Securities and Exchange Commission on March 20, 2015).
10.33	First Amendment to the Loan and Security Agreement and Waiver, dated as of April 21, 2016, by and among Jaguar Animal Health, Inc., Hercules Capital, Inc., and the lender party thereto (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on April 27, 2016).
10.34‡	Separation Agreement, by and between Jaguar Animal Health, Inc. and John Kallassy, dated April 28, 2016 (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K (No. 001-36714) filed on May 3, 2016).
10.35	Common Stock Purchase Agreement, dated June 8, 2016, by and between Jaguar Animal Health, Inc. and Aspire Capital Fund, LLC (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed on June 9, 2016).
10.36	Letter of Intent, between Jaguar Animal Health, Inc. and Napo Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8 K filed on October 6, 2016).
10.37	Common Stock Warrant issued pursuant to the Letter Agreement, dated November 8, 2016, between Jaguar Animal Health, Inc. and Serious Change II LP, which expires July 28, 2022 (incorporated herein by reference to Exhibit 10.2 to the Quarterly Report on Form 10 Q (No. 001 36714) filed on November 14, 2016).
10.38	Form of Securities Purchase Agreement, by and among Jaguar Animal Health, Inc. and the investors in the 2016 Private Placement (incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K filed on November 29, 2016).
10.39	Form of Registration Rights Agreement, by and among Jaguar Animal Health, Inc. and the investors in the 2016 Private Placement (incorporated herein by reference to Exhibit 10.2 to the Current Report on Form 8-K filed on November 29, 2016).

Exhibit No.	Description
10.40	Supply and Distribution Agreement, dated as of September 6, 2016, by and between Jaguar Animal Health, Inc. and Integrated Animal Nutrition and Health Inc. (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q/A (No. 001-36714) filed on December 5, 2016).
10.41*††	Distribution Agreement, dated December 9, 2016, by and between Jaguar Animal Health, Inc. and Henry Schein, Inc.
10.42*††	License, Development, Co-Promotion and Commercialization Agreement, dated January 27, 2017, by and between Jaguar Animal Health, Inc. and Elanco US, Inc.
10.43*	Common Stock Warrant issued pursuant to the Letter Agreement, dated January 30, 2017, between Jaguar Animal Health, Inc. and Serious Change II LP, which expires January 31, 2019.
10.44	Binding Agreement of Terms for Jaguar Animal Health, Inc. Acquisition of Napo Pharmaceuticals, dated February 8, 2017, between Jaguar Animal Health, Inc. and Napo Pharmaceuticals, Inc. (incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K filed on February 9, 2017).
23.1*	Consent of Independent Registered Public Accounting Firm.
31.1*	Principal Executive Officer's Certifications Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Principal Financial Officer's Certifications Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1**	Certification Pursuant to 18 U.S.C. § 1350 (Section 906 of Sarbanes-Oxley Act of 2002).
32.2**	Certification Pursuant to 18 U.S.C. § 1350 (Section 906 of Sarbanes-Oxley Act of 2002).
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema
101.CAL	XBRL Taxonomy Extension Calculation Linkbase
101.DEF	XBRL Taxonomy Extension Definition Linkbase
101.LAB	XBRL Taxonomy Extension Label Linkbase
101.PRE	XBRL Taxonomy Extension Presentation Linkbase

* Filed herewith.

** In accordance with Item 601(b)(32)(ii) of Regulation S-K and SEC Release No. 34-47986, the certifications furnished in Exhibits 32.1 and 32.2 hereto are deemed to accompany this Form 10-K and will not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934 (the "Exchange Act") or deemed to be incorporated by reference into any filing under the Exchange Act or the Securities Act of 1933 except to the extent that the registrant specifically incorporates it by reference.

† Confidential treatment granted as to portions of the exhibit. Confidential materials omitted and filed separately with the Securities and Exchange Commission.

†† Portions of the exhibit have been omitted pursuant to a request for confidential treatment.

‡ Management contract or compensatory plan or arrangement.

SIGNATURES

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

JAGUAR ANIMAL HEALTH, INC.

By: /s/ LISA A. CONTE

Lisa A. Conte
Chief Executive Officer and President

Date: February 15, 2017

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

Signatures	Titles	Date
/s/ LISA A. CONTE Lisa A. Conte	Chief Executive Officer, President and Director	February 15, 2017
/s/ KAREN S. WRIGHT Karen S. Wright	Chief Financial Officer	February 15, 2017
/s/ JAMES J. BOCHNOWSKI James J. Bochnowski	Chairman of the Board of Directors	February 15, 2017
/s/ JIAHAO QIU Jiahao Qiu	Director	February 15, 2017
/s/ ZHI YANG, PH.D. Zhi Yang, Ph.D.	Director	February 15, 2017
/s/ FOLKERT W. KAMPHUIS Folkert W. Kamphuis	Director	February 15, 2017
/s/ JOHN MICEK III John Micek III	Director	February 15, 2017
/s/ ARI AZHIR Ari Azhir	Director	February 15, 2017

***** TEXT OMITTED AND SUBMITTED PURSUANT TO CONFIDENTIAL TREATMENT REQUEST**

DISTRIBUTION AGREEMENT

This Distribution Agreement (this "Agreement") is made and entered into as of December 9, 2016 (the "Effective Date"), by and between Jaguar Animal Health, Inc. a Delaware corporation ("Vendor") and Butler Animal Health Supply, LLC d/b/a/ Henry Schein Animal Health, a Delaware limited liability company ("Distributor").

RECITALS

WHEREAS, Vendor desires to appoint Distributor, and Distributor desires to be appointed, to distribute Products of Vendor in the Territory pursuant to the terms and conditions of this Agreement;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

ARTICLE I
APPOINTMENT

Section 1.01 Appointment. Subject to the terms and conditions of this Agreement, Vendor hereby appoints Distributor on an exclusive basis, and Distributor hereby accepts such appointment, as Vendor's distributor with the right to promote, market, distribute and sell the products specifically identified on Exhibit A (the "Products") within the territory specifically identified on Exhibit B (the "Territory") during the term of this Agreement.

Section 1.02 Term. This Agreement shall take effect as of the Effective Date and, subject to the provisions of Section 6.01, shall continue in force for an initial period of one (1) year (the "Initial Term"). Thereafter, unless either party notifies the other of its intent not to renew the Term of this Agreement at least 30 days prior to the end of the then current Term, the Term shall be automatically renewed upon expiration for successive renewal Terms of one (1) year (each a "Renewal Term" and collectively with the Initial Term, the "Term").

ARTICLE II
DISTRIBUTION

Section 2.01 Duties of Distributor. Distributor shall use commercially reasonable efforts to promote, market, distribute and sell the Products to customers in the Territory.

Section 2.02 Promotional Materials. Subject to the terms of this Agreement, Distributor shall use sales and technical literature as well as promotional artwork and training materials provided by Vendor. Distributor may alter such materials or develop any other materials in connection with the marketing and distribution of Products (including but not limited to product brochures and sales aids), subject to Vendor's review and prior written approval.

Section 2.03 Vendor Service Level Commitment. Vendor shall exercise all reasonable efforts to provide Distributor with an aggregate average monthly service level of at least ninety-five percent (95%), calculated quarterly as follows: the service level will be calculated on a monthly basis by dividing the total lines products shipped to Distributor by the total lines of products ordered by Distributor. If the aggregate average monthly adjusted service level falls below ninety-five percent (95%) for two (2) consecutive months, Vendor shall, as Distributor's sole and exclusive remedy, pay Distributor (in the form of a credit memo) an amount equal to 1% multiplied by Distributor's total product purchases during

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the second month of such two (2)-month period, and every month thereafter until service levels return to ninety-five percent (95%). Distributor shall provide Vendor a two (2) month lead time for manufacturing to fulfill an order.

Section 2.04 EDI. Vendor shall exchange data with Distributor through the Electronic Data Interchange ("EDI") using, without limitation, the following transaction sets: i) 810 Invoice, ii) 820 Payment Order/Remittance Advice; iii) 850 Purchase Order; iv) 856 Advanced Ship Notice/Manifest (including, without limitation, purchase order number, carrier, expected delivery date and location, item description and quantities, and cost; v) Trace Sales Date. Specific data fields and any other requirements will be communicated in writing by Distributor to Vendor from time to time. Distributor may charge Vendor a fee, as mutually agreed upon by the parties, for data not exchanged via EDI.

ARTICLE III
PAYMENT

Section 3.01 Pricing. Vendor will offer the Products to Distributor at the price(s) set forth on Exhibit A (the "Price List"). Vendor reserves the right, in its sole discretion, upon 90 days advance written notice to Distributor, to change the prices listed on the Price List. In each case in which the prices on the Price List are changed by Vendor, Vendor shall deliver to Distributor a revised Price List, which will be deemed a part of this Agreement; provided, that no price change shall affect orders submitted to Vendor prior to such change.

Section 3.02 Payment Terms. Amounts due and payable with respect to a Product to be delivered by Vendor shall be paid 2% 30, net 31. All payments to Vendor under this Agreement shall be made, at Distributor's option, by credit card, EDI, Automated Clearing House (ACH), or electronic wire transfer to an account designated by Vendor in writing from time to time.

Section 3.03 Delivery and Risk of Loss. All orders will be FOB Distributor's warehouse. Legal title to and risk of loss of all Products purchased by Distributor hereunder will be transferred to Distributor upon Products being accepted at Distributor's warehouse. In the event that any Products are damaged during shipment to Distributor or are otherwise defective, Distributor shall notify Vendor and provide reasonable substantiation. At Distributor's election, Vendor shall either promptly deliver substitute Products to Distributor or issue Distributor a full credit for the same.

Section 3.04 Floor Stock Adjustment. Vendor agrees to provide a floor stock adjustment when Vendor decreases price of an item and Distributor has inventory on hand at the old price. Such floor stock adjustment shall be equal to the difference in old versus new price multiplied by the amount of inventory on hand at the old price.

Section 3.05 Product Expiration. Distributor may return any unsold Products to Vendor within ninety (90) days of such Product's expiration date and Vendor shall promptly provide to Distributor a full refund for the cost of such returned Product at the price paid by Distributor for such Product.

Section 3.06 Reporting Distributor will provide Vendor with a quarterly sales report, by state within the Territory ("Report"). The Report will be provided no later than 30 days after the end of the quarter. Vendor will pay a fee of 2% of the net sales on each Report ("Report Fee") for such reporting which shall be waived during the Initial Term and first Renewal Term of the agreement. Payment of the Report Fee shall be paid within 30 days after the report is provided.

ARTICLE IV
WARRANTIES AND INDEMNIFICATION

Section 4.01 Vendor's Warranties. Vendor hereby represents and warrants that, at the time of delivery of the Products to Distributor:

(a) The Products shall be adequately contained, packaged and labeled, and shall conform to the claims and affirmations of fact made on any container or label, or in any applicable advertisement issued by Vendor.

(b) The Products shall not be adulterated, misbranded or otherwise prohibited by any federal, state and local laws, ordinances and regulations in the Territory.

(c) The Products shall have a remaining shelf-life and be merchantable and fit for the purpose for which they are intended for a period of at least eighteen (18) months from the date of such delivery to Distributor.

Section 4.02 Indemnification by Vendor. Vendor shall indemnify and hold harmless Distributor and its managers, officers, employees, agents and affiliates from and against any and all liabilities, damages, losses, penalties, fines, costs and expenses, including reasonable attorneys' fees, paid or incurred by them in connection with: (i) claims based upon or arising from physical injury (including death) or property damage relating to defects in the Products including design or manufacture, (ii) any alleged infringement of intellectual property rights of any third party as a result of the sale of any of the Products; or (iii) any recall of the Products. Vendor agrees to maintain comprehensive "occurrence" general liability insurance, including "occurrence" product liability, contractual liability insurance and advertising injury coverage, with minimum limits of liability of $3,000,000 and to deliver to Distributor a certificate thereof with Distributor named as an additional insured thereon. Such insurance must insure against all products contemplated under this Agreement. Insurance coverage must be procured from an insurance company bearing an AM Best Rating of no less than B+ or a S&P Rating of no less than BBB.

Section 4.03. Limitation of Liability. EXCEPT AS OTHERWISE PROVIDED IN SECTION 4.02, IN NO EVENT SHALL EITHER PARTY BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL (INCLUDING, WITHOUT LIMITATION, LOST PROFITS), SPECIAL OR PUNITIVE DAMAGES FOR ANY CLAIM HEREUNDER RESULTING FROM ANY CAUSE WHATSOEVER, WHETHER BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE REGARDLESS OF WHETHER SUCH PARTYHAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Section 4.04. Recall Expense Reimbursement. In the event of a recall, Distributor will invoice Vendor for any and all costs associated with those services Distributor provides as mutually agreed upon by the parties in the execution of the manufacturer's recall including but not limited to, identification and sequestering of any recalled inventory still in-house, data mining to identify accounts that purchased recalled Product(s) and providing such data to the Vendor and/or contacting the affected accounts with specific instructions on what to do with that recalled Product, providing freight collection services to have the Product returned to Distributor (if applicable), warehousing and managing returned inventory according to the parameters of the recall, return shipping to the Vendor or Vendor's designated recall processing designee, issuing customer credits for returned Product when applicable, and handling the expense reimbursement (receivable) for any and all services provided by Distributor in facilitating Vendor's recall. Once invoiced, Vendor shall reimburse Distributor net 30. Delinquent reimbursement payments will be assessed a late fee of 18% APR.

ARTICLE V
INTELLECTUAL PROPERTY

Section 5.01 Trademark Use. Vendor grants Distributor a non-exclusive, non-transferable and royalty-free right and license to use such trademarks, trade names and designs owned by or licensed to Vendor (the "Trademarks") and used on or in reference to the Products in connection with the advertising, promotion, marketing, distribution and sale of the Products in the Territory in accordance with this Agreement.

Section 5.02 Trademark Ownership. Vendor shall retain exclusive ownership of all Trademarks, and Distributor's use of the Trademarks shall be for the sole purpose of performing its responsibilities under this Agreement and shall inure to the benefit of Vendor.

Section 5.03 Post-Expiration/Termination Use. Upon expiration or termination of this Agreement, if Vendor does not repurchase Distributor's entire inventory of Products remaining on hand at Vendor's selling price to Distributor, then Distributor shall have the right to continue to use the Trademarks to sell any such remaining inventory of Products.

ARTICLE VI
TERMINATION

Section 6.01 Termination. Notwithstanding the terms of Section 1.02, this Agreement may be terminated as follows:

(a) Insolvency. Either party may terminate this Agreement at any time by giving written notice to the other party, which notice shall be effective upon dispatch, should the other party file a petition of any type as to its bankruptcy, be declared bankrupt, become insolvent, make an assignment for the benefit of its creditors, go into liquidation or receivership, cease to function as a going concern, cease to conduct its operations in the normal course of business or otherwise lose legal control of its business, or should the other party or a substantial part of its business come into the control of one or more third parties other than those in control as of the date of this Agreement.

(b) Without Cause. Either party may terminate this Agreement, with or without cause, by giving the other party 30 days prior written notice thereof.

Section 6.02 No Liability. Neither party, by reason of the termination of this Agreement, shall be liable to the other for compensation, reimbursement or damages because of any loss of anticipated sales/rentals or prospective profits or because of expenditures, investments, leases, property improvements or other matters related to the business or goodwill of the parties.

ARTICLE VII
CONFIDENTIAL INFORMATION

Section 7.01 Non-Disclosure. Vendor and Distributor acknowledge that in the performance of their duties hereunder each may obtain access to "Confidential Information" (as defined below) of the other. Vendor and Distributor agree that, during the Term of this agreement and for a period of two (2) years after the termination of this Agreement, unless specifically permitted in writing by the other party, each will (a) retain in confidence and not disclose to any third party, and (b) use only for the purpose of carrying out their duties hereunder, any such Confidential Information. As used herein, the term

"Confidential Information" means any information, or data, whether of a business or scientific nature and whether in written, oral or tangible form, relating to Vendor's and Distributor's business or potential business or its research and development activities, not generally available to or known to the public, and not otherwise known to the receiving party, that is disclosed to or learned by the other party pursuant hereto. Confidential Information does not include, however, information which (a) was available to the receiving party on a non-confidential basis prior to its disclosure by the disclosing party or its representative; (b) becomes available to the receiving party on a non-confidential basis from a person other than the disclosing party or its representatives who are not otherwise bound by a confidentiality agreement with the disclosing party or any of its representatives; (c) was independently developed or discovered by the receiving party; (d) has come within the public domain through no fault of, or action by, the receiving party or its representatives; or (e) which is required by law to be disclosed. For the avoidance of any doubt, such confidentiality restrictions on Vendor include, but are not limited to, disclosure of Distributor's sales information to any third party which aggregates sales information/data for the production of industry market reports or analysis. It is understood that money damages would not be sufficient for any breach if this provision by either party or their representatives, and the parties agree that each party shall be entitled to equitable relief, including, without limitation, injunction and specific performance in the event of any breach of this provision.

ARTICLE VIII
GOVERNING LAW

Section 8.01 Governing Law. This Agreement will be governed by and construed in accordance with the laws of the State of California as applicable to contracts made and to be performed in that state, without regard to conflicts of laws principles. Any action under this Agreement must be brought in any court that has subject matter jurisdiction and is located in, or whose district includes the State of Ohio and that such court will have personal jurisdiction over the parties for purposes of the action, and each party waives any objection to venue.

ARTICLE IX
MISCELLANEOUS

Section 9.01 Force Majeure. If a party is prevented, hindered or delayed in performing its obligations under this Agreement by an event not reasonably foreseeable which is due to a cause beyond such party's control which renders performance of that party's obligations impossible or so difficult and costly as to be commercially unreasonable, then, upon giving written notice thereof to the other party, such party shall be released from any liability on its part for the performance of its obligations under this Agreement (except for any obligation to pay amounts due and owing hereunder). During any such period that the performance by one party under this Agreement has been suspended, the other party may likewise suspend the performance of its obligations hereunder to the extent it is commercially reasonable to do so.

Section 9.02 Independent Parties. Each party is acting under this Agreement as an independent contractor. This Agreement does not make either party the employee, partner, agent or legal representative of the other party for any purpose whatsoever. Neither party is granted any right or authority to assume or to create any obligation, liability or responsibility, express or implied, on behalf of or in the name of the other party.

Section 9.03 Notices. All notices or communications given or required under this Agreement shall be in writing and shall be effective upon the earlier of: (i) actual receipt; (ii) seven (7) days following deposit into the United States mail (registered or certified mail, return receipt requested); (iii) the next business day following deposit with a nationally recognized overnight courier service; or (iv) if

sent by facsimile, upon receipt by the transmitting facsimile machine that such legible facsimile was successfully sent to and received by the proper facsimile number during regular business hours, in each case with any delivery fees pre-paid and addressed to the Party at the address set forth on the signature page of this Agreement (or at such other address as may have been designated by written notice).

Section 9.04 Severability. If any provision of this Agreement is found by any court, arbitral tribunal or public authority of competent jurisdiction to be invalid or unenforceable, subject to the following sentence of this Section, such provision shall be severed herefrom and such invalidity or unenforceability will not affect any other provisions of this Agreement, all of which will remain in full force. If any provision is found invalid or unenforceable due to its

geographic, temporal or subject matter scope, this Agreement shall automatically be deemed to be amended to the extent necessary for the provision in question to be valid and enforceable

Section 9.05 Exhibits. This Agreement has Exhibits A, B, C and D, each of which forms an integral part of this Agreement and is made a part hereof by reference.

Section 9.06 CG&I. The Continuing Guaranty and Indemnification attached hereto as Exhibit D (CG&I) is incorporated herein and the provisions of the CG&I supersede and control any conflicting provisions of this Agreement.

Section 9.07 Entire Agreement; Amendment; Waiver. This Agreement, including its Exhibits, are the entire agreement between Vendor and Distributor concerning the subject of this Agreement and supersedes all other prior and contemporaneous agreements between the parties. This Agreement may be amended only by an instrument in writing signed by both parties which expressly refers to this Agreement and specifically states that it is intended to amend it. The failure of either party to enforce at any time any of the provisions of this Agreement will not be construed to be a waiver of such provision or of the right of that party to subsequently enforce any such provision.

Section 9.08 Binding Effect. This Agreement will become effective only after it is signed on behalf of both parties. Thereafter, the Agreement will be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns. This Agreement may be executed (including by electronic transmission) in two or more counterparts, each of which when taken together shall constitute one and the same.

Section 9.09 Survival. Sections 4.01, 4.02, 4.04, 5.03 and 7.01 shall survive termination or expiration of this Agreement.

[*Signature Page Follows*]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed on and as of the date first written above.

BUTLER ANIMAL HEALTH SUPPLY, LLC

By: /s/ Kimberly E. Allen
Name: Kimberly E. Allen
Title: President, Commerical Divison

Address for Notices:

400 Metro Place North
Dublin, Ohio 43017

Attn: Legal
Fax No: 614-761-9096

JAGUAR ANIMAL HEALTH, INC.

By: /s/ Lisa A. Conte
Name: Lisa A. Conte
Title: President & CEO

Address for Notices:

201 Mission Street, Suite 2345,
San Francisco, CA 94105

Attn: Lisa Conte
Fax No: 415-371-8311

EXHIBIT A
PRODUCTS AND PRICE LIST

Product: Neonorm Foal 30ml syringe

	Per Syringe	Per Box(8 syringes	Per Treatment
Horse Owner	[***]	[***]	[***]
Veterinarian	[***]	[***]	[***]
Distributor	[***]	[***]	[***]

***** CONFIDENTIAL TREATMENT REQUESTED**

EXHIBIT B
TERRITORY DESCRIPTION

The United States of America including its possessions and territories.

EXHIBIT C

SALES TARGETS

Market for Foals with Diarrhea

Year		Yr1	yr2	Yr3
Thoroughbreds		[***]	[***]	[***]
Quarter Horses		[***]	[***]	[***]
Standard Breeds		[***]	[***]	[***]
Other		[***]	[***]	[***]
Total # of foals		[***]	[***]	[***]
# experience foal heat diarrhea	90%	[***]	[***]	[***]
% get treated	20%	[***]	[***]	[***]
% market share		[***]	[***]	[***]
Total number of treatments for foal heat		[***]	[***]	[***]
infectious diarrhea	10%	[***]	[***]	[***]
% market share		[***]	[***]	[***]
Total number of treatments for infectious diarrhea		[***]	[***]	[***]
Total number treated		[***]	[***]	[***]
Total number of syringes	2	[***]	[***]	[***]

***** CONFIDENTIAL TREATMENT REQUESTED**

EXHIBIT D

CONTINUING GUARANTY AND INDEMNIFICATION

Jaguar Animal Health, Inc. on behalf of itself and its affiliates (collectively referred to as "JAGUAR") hereby guarantees that each article (collectively, the "PRODUCTS") constituting or being part of any shipment or delivery now or hereafter made to Butler Animal Health Supply, LLC d/b/a Henry Schein Animal Health or any affiliate thereof (collectively, "HSAH") will: (i) at the time of each shipment or delivery be in compliance with all applicable federal, national, supranational, state, provincial, local or similar statute, law, ordinance, regulation, rule, code, order, requirement or rule of law (including common law) (hereinafter referred to as "Legal Requirements"), in each region in which HSAH will distribute the Products; and (ii) not be adulterated or misbranded within the meaning of the U.S Federal Food, Drug and Cosmetic Act (the "Act"), or within the meaning of any Legal Requirements, nor will any PRODUCT be an article which may not, under the provisions of Sections 405, 505 or 512 of the Act, be introduced into interstate commerce. JAGUAR hereby guarantees that it has proper legal title to the PRODUCTS and that the PRODUCTS are merchantable and fit for their intended purpose.

JAGUAR shall indemnify and hold HSAH harmless for and against any and all liabilities, losses, damages (including, actual, punitive and exemplary damages), claims (including product liability claims), costs and expenses, interest, awards, judgments and penalties (including attorneys' and consultants' fees and expenses) suffered or incurred by HSAH arising or resulting from:

i. any claim of trademark, trade dress, trade secret, copyright, patent or other intellectual property infringement arising out of HSAH's distribution of the PRODUCTS (except where HSAH has supplied the trademark which is the basis for the claim);

ii. any alleged or actual use or misuse of the PRODUCTS (other than by HSAH);

iii. any breach by JAGUAR of any obligation to HSAH, including those contained in related agreements in respect of distribution, if any;

iv. any negligent or willful action or omission of JAGUAR or any of its agents, employees, representatives, successors or assigns in connection with the manufacture, development, sale, distribution, storage or dispensing of the PRODUCTS; or

v. any action for the recall or seizure of the PRODUCTS.

JAGUAR agrees to maintain comprehensive "occurrence" general liability insurance, including "occurrence" product liability, contractual liability insurance and advertising injury coverage, with minimum limits of liability of $3,000,000 and to deliver to HSAH a certificate thereof with HSAH named as an additional insured thereon. Such insurance must insure against all products contemplated under this Agreement. Insurance coverage must be procured from an insurance company bearing an AM Best Rating of no less than B+ or a S&P Rating of no less than BBB.

JAGUAR will provide notice to HSAH of any regulatory action related to its operations and JAGUAR shall be responsible, if required by Legal Requirements, for notifying the appropriate federal, state and local authorities of any customer complaints or other occurrences regarding the PRODUCTS, evaluating all complaints and responding to HSAH in writing on the resolution of any complaints from HSAH for its customers.

If JAGUAR private labels, co-brands or enters into an exclusive distribution arrangement with HSAH for any PRODUCT, JAGUAR agrees: (a) to make no changes in the PRODUCT, labeling or packaging, manufacturing site or country of origin of the PRODUCT without HSAH's prior written approval; and (b) to allow representatives of HSAH to enter and inspect JAGUAR'S facilities (and any of its PRODUCT contractor manufacturer facilities)

during normal business hours and, upon reasonable request, to supply HSAH with proper documentation for HSAH to determine JAGUAR's (and its relevant contract manufacturers') adherence to quality assurance and regulatory compliance standards provided that HSAH will not be permitted to carry out any such audit or inspection more than once in any 12 month period. If such approved PRODUCT changes are made, JAGUAR shall provide adequate explanation of

the changes, make all required filing with government agencies/competent authorities and any required packaging or literature changes, and pay all costs associated with such changes.

JAGUAR shall comply with all applicable legal requirements, including by making (with appropriate federal and state authorities) any filings and disclosures of reportable transactions with practitioners and other relevant parties with respect to any marketing or promotion of its PRODUCTS whether directly or on its behalf.

JAGUAR warrants that packaging, including cartons, ship cases and pallets shall be of sufficient strength to maintain the quality of the PRODUCTS during normal transportation and storage.

This CG&I shall be continuing and shall be binding upon JAGUAR and his or its successors and assigns and shall inure to the benefit of HSAH, its successors and assigns and to the benefit of its officers, directors, agents and employees. This CG&I shall supersede any and all prior agreements or understandings between HSAH and JAGUAR regarding the subject matter hereof. JAGUAR shall not provide any compensation or other benefit to HSAH's employees without the prior written consent of HSAH and agrees to promptly disclose any financial relationships between JAGUAR and any HSAH employee which may give rise to a conflict of interest between such employee and HSAH. No right, express or implied, is granted to JAGUAR hereunder to use in any manner any name, trade name, trademark or service mark of HSAH. This CG&I contains proprietary information and may not be disclosed without prior written approval from HSAH. Any amendments or modifications to this CG&I must be in writing and executed by authorized representatives of both Parties. This CG&I shall be governed by the laws of the State of New York. This CG&I shall cover all PRODUCTS and shall survive the termination of this and any other distributor agreement between the Parties.

***** TEXT OMITTED AND SUBMITTED PURSUANT TO CONFIDENTIAL TREATMENT REQUEST**

LICENSE, DEVELOPMENT, CO-PROMOTION

AND COMMERCIALIZATION AGREEMENT

BY AND BETWEEN

JAGUAR ANIMAL HEALTH, INC.

AND

ELANCO US INC.

EFFECTIVE AS OF

JANUARY 27, 2017

LICENSE, DEVELOPMENT, CO-PROMOTION AND COMMERCIALIZATION AGREEMENT

THIS LICENSE, DEVELOPMENT, CO-PROMOTION AND COMMERCIALIZATION AGREEMENT (this "Agreement"), effective as of January 27, 2017 (the "Effective Date"), is entered into by and between JAGUAR ANIMAL HEALTH, INC., a Delaware corporation and having its office at 201 Mission Street, Suite 2375, San Francisco, California 94105 ("Licensor") and ELANCO US INC., a Delaware corporation and having its office at 2500 Innovation Way, Greenfield, Indiana 46140 and its Affiliates ("Elanco").

PRELIMINARY STATEMENTS

A. Licensor is an animal health company focused on developing and commercializing prescription and non-prescription gastrointestinal products for companion animals, including Canalevia™, a prescription drug product formulation of crofelemer for the Field of Use in dogs (the "Product");

B. Elanco possesses skills, knowledge and expertise in the research, development, marketing, manufacturing and distribution of companion animal products, including but not limited to animal health pharmaceutical and diagnostic products, and has the experience and resources to develop, obtain regulatory approval for, and market the Licensed Products; and

C. Licensor desires to grant Elanco exclusive rights to develop, market and commercialize the Licensed Products in the Territory during the Term and will provide sales and marketing support in the Co-Promotion Territory during the Co-Promotion Term.

NOW, THEREFORE, in consideration of the foregoing preliminary statements and the mutual agreements and covenants set forth herein, the Parties hereby agree as follows:

1. DEFINITIONS

As used in this Agreement, the following terms shall have the meanings set forth in this Section 1 unless the context clearly and unambiguously dictates otherwise. Unless the context requires otherwise, references to the singular include the plural and vice versa, and references to Sections, Exhibits and Schedules are references to the sections, exhibits and schedules of this Agreement.

1.1 "Acute Trial" means the field trial pertaining to testing of a Licensed Product for treatment of acute diarrhea.

1.2 "Additional Product(s)" means a drug product formulation of crofelemer in the Field of Use in cats or other domesticated or domestic-bred animals that are maintained as pets in the home, excluding equine.

1.3 Adverse Event" means any observation in animals, whether or not considered to be product-related, that is unfavorable and unintended and that occurs after any use of a veterinary medicinal product (off-label and on-label uses), including without limitation events

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related to a suspected lack of expected efficacy according to approved labelling or noxious reactions in humans after being exposed to veterinary medicinal products.

1.4 "Affiliate" means, with respect to a Party, any entity controlling, controlled by, or under common control with, such Party, for only so long as such control exists. For the purposes of this definition, "control" shall refer to: (a) the possession, directly or indirectly, of the power to direct the management or policies of an entity, whether through the ownership of voting securities, by contract or otherwise, or (b) the ownership, directly or indirectly, of more than fifty percent (50%) of the voting securities or other ownership interest of an entity.

1.5 "Agreement" means this Collaboration, License, Development, Co-Promotion and Commercialization Agreement together with the preliminary statements and all exhibits, schedules and attachments hereto.

1.6 "Alternate Trademark" has the meaning assigned to such term in Section 7.4.

1.7 "Applicable Laws" means all statutes, ordinances, regulations, rules or orders of any kind whatsoever of any Governmental Authority that may be in effect from time to time and applicable to the activities contemplated by this Agreement.

1.8 "Bankruptcy Code" has the meaning assigned to such term in Section 14.9.

1.9 "Breaching Party" has the meaning assigned to such term in Section 14.3.

1.10 "Business Day" means any day of the year on which national banking institutions in New York City, New York are open to the public for conducting business and are not required or authorized to close.

1.11 "Calendar Quarter" means each period of three (3) consecutive months ending on the last day of March, June, September, or December, respectively.

1.12 "Calendar Year" means, for the first Calendar Year, the period commencing on the Effective Date and ending on December 31, 2017, and each twelve (12) month period thereafter, commencing on January 1 and ending on December 31 during the Term; provided, that the last Calendar Year shall end on the final day of the Term.

1.13 "Chronic Trial" means the field trial pertaining to testing of a Licensed Product for the treatment of chronic diarrhea.

1.14 "Commercialization Program" has the meaning assigned to such term in Section 4.1.

1.15 "Commercially Reasonable Efforts" means, with respect to a Party, those efforts and resources, as applicable, relating to a certain activity or activities, including, without limitation, the development, manufacturing and commercialization of Licensed Products in accordance with such Party's business, legal, medical and scientific judgment, such efforts and resources to be in accordance with the efforts and resources the Party would use for a product

owned by it, or to which it has rights, which is of similar market potential and at a similar stage in its product life.

1.16 "Competitive Product" means a prescription product in the Field that is a non-opiate and non-antibiotic locally acting anti-secretory agent that acts by the dual action of modulation of the cystic fibrosis transmembrane regulator conductance (CFTR) and calcium-activated chloride channel (CaCC).

1.17 "Compliance" means the adherence by the Parties in all material respects to all Applicable Laws and Party Specific Regulations, in each case with respect to the activities to be conducted under this Agreement.

1.18 "Condition Precedent" means completion of the quality assessment of the Glenmark Pharmaceutical Limited facility located at Plot No. 3109-C, GIDC Industrial Estate, Ankleshwar-393 002, Dist Bharuch, Gujarat State, India conducted by a third party assessor to the reasonable satisfaction of Elanco. If the assessment is not reasonably satisfactory, Licensor shall, at its own expense, take the steps necessary to correct the findings of the third party assessor.

1.19 "Confidential Information" has the meaning assigned to such term in Section 12.2.

1.20 "Co-Promotion Term" means, with (i) respect to a Licensed Product for chronic indications, the period commencing six (6) months prior to the anticipated First Commercial Sale and ending twelve (12) months after the First Commercial Sale of the Licensed Product for chronic indications in canines; and (ii) respect to a Licensed Product for acute indications, the period commencing six (6) months prior to the anticipated First Commercial Sale and ending twelve months after the First Commercial Sale of a Licensed Product for an acute indication in any species covered in the Field.

1.21 "Co-Promotion Territory" means the United States.

1.22 "Control" or "Controlled" means, with respect to any item of Confidential Information, Know-How, Patent Rights, or other intellectual property right, the right to grant a license or sublicense with respect thereto as provided for in this Agreement, without violating the terms of any agreement or other arrangement with, or any legal rights of, or without requiring the consent of or payment to, any Third Party other than pursuant to the Napo License Agreement.

1.23 "Cover", "Covered" or "Covering" means, in connection with a Patent Right, that in the absence of a license granted to a person under a Valid Claim included in such Patent Right, the practice by such person of an invention claimed in such Patent Right would infringe such Valid Claim (or, in the case of a Patent Right that is a patent application, would infringe an otherwise Valid Claim in such patent application if it were to issue as a patent).

1.24 "Development Plan" or "DP" has the meaning assigned to such term in Section 3.4.

1.25 "Development Program" has the meaning assigned to such term in Section 3.3.

1.26 "Distribution Expenses" means the allowance for distribution expenses not to exceed the following range of deduction: (a) U.S. 0.5% to 1.5% of the Net Sales, and (b) outside of the U.S. ("OUS") 5.5% to 6.5% of the Net Sales.

1.27 "Dose Ranging Study" means that certain study to be undertaken by Licensor as agreed to by Elanco in consultation with Licensor.

1.28 "Effective Date" has the meaning assigned to such term in the introductory paragraph of this Agreement.

1.29 "Elanco" has the meaning assigned to such term in the introductory paragraph of this Agreement.

1.30 "Elanco Exclusive Territory" means worldwide with the exception of the United States.

1.31 "Elanco Platform Technology" means the Patent Rights and Know-How directly relating to formulation technology of finished pharmaceutical product form of a companion animal product that is Controlled by Elanco as of the Effective Date and any upgrade, enhancement, modification, alteration, improvement, development or other change made after the Effective Date thereto. Elanco shall notify Licensor of any incorporation of Elanco Platform Technology into a Licensed Product. For the sake of clarity, Elanco's technology related to a chewable finished pharmaceutical product form of a companion animal product is an Elanco Platform Technology. Elanco shall own at all times the Elanco Platform Technology and any Inventions made, conceived, or reduced to practice during the Term of this Agreement related to the Elanco Platform Technology.

1.32 "FDA" means the United States Food and Drug Administration, or any successor thereto.

1.33 "Field of Use" means the treatment of gastrointestinal diseases, conditions and symptoms, including chronic diarrhea and acute diarrhea for dogs, cats or other domesticated or domestic-bred animals that are maintained as pets in the home, excluding equine. Notwithstanding the foregoing, Licensor will be permitted to sell Products for minor use and minor species (MUMS) indications until such time as Elanco has the First Commercial Sale of a Licensed Product for an acute indication. At such time, Licensor shall immediately stop selling products for MUMS indications.

1.34 "First Commercial Sale" means the first sale of a Licensed Product for use or consumption by the general public of such Licensed Product for which payment has been received after all required Registrations have been granted, or such sale is otherwise permitted in such country, excluding Licensed Product (a) for use in clinical trials or other development activities with respect to such Licensed Product by or on behalf of a Party, (b) provided as samples, (c) provided for compassionate use, or (d) provided for a bona fide charitable purpose,

in each case of (a) through (d) for which no payment is received by Elanco, its Affiliates or Sublicensees.

1.35 "GAAP" means generally accepted accounting principles in the United States, consistently applied.

1.36 "Governmental Authority" means any court, commission, authority, department, ministry, official or other instrumentality of, or being vested with public authority under any law of, any country, state or local authority or any political subdivision thereof, or any association of countries.

1.37 "GxP" means compliance with all relevant Regulatory Authority requirements for Good Clinical Practices (per FDA/CVM guidance "Good Clinical Practices: VICH GL9"), Good Laboratory Practices (per FDA/DVM regulation "21 CFR Part 58"), Current Good Manufacturing Practices (per FDA/CVM regulation "21 CFR Part 211, 225 or 226") and the applicable foreign equivalents.

1.38 "Improvement" means any upgrade, enhancement, modification, alteration, improvement, development or other change made after the Effective Date to the Licensor Know-How or any Inventions made, conceived, or reduced to practice during the Term of this Agreement. For the sake of clarity, Improvements do not include any Invention made, conceived or reduced to practice during the Term of this Agreement related to the Elanco Platform Technology.

1.39 "Indemnitee" has the meaning assigned to such term in Section 13.2.3.

1.40 "Infringement" has the meaning assigned to such term in Section 9.4.1.

1.41 "Interested Party" has the meaning assigned to such term in Section 12.1.2.

1.42 "Internal Compliance Codes" means a Party's internal policies and procedures intended to ensure that a Party complies with Applicable Laws, Party Specific Regulations, and such Party's internal ethical, medical and similar standards.

1.43 "Inventions" means all inventions designed, discovered, generated, invented or conceived by or on behalf of either Party or its respective Affiliates or both Parties or their respective Affiliates, whether solely or jointly with any Third Party, in the course of activities performed under this Agreement.

1.44 "Joint Invention" shall have the meaning assigned to such term in Section 9.2.1 (c).

1.45 "Joint Steering Committee" or "JSC" has the meaning assigned to such term in Section 2.1.1.

1.46 "Know-How" means any and all data, results, information, materials, technical information, know-how, inventions, regulatory submissions, research and development

information, trade secrets, formulations, formulas, test methods, and materials relating to the Licensed Products, or upgrade, enhancement, modification, alteration, improvement, development or other change made thereto (including via their compositions, use, and properties), including, without limitation, cell

lines, cell banks, experimental protocols and procedures, biological data, chemical data, pharmacological data, toxicological data, non-clinical data, clinical data, assays, control methods, and other data, related materials and writings.

1.47 "Licensed Process" means any process that would infringe one or more Valid Claims of a Licensor Patent, but for the license granted in Section 7 of this Agreement.

1.48 "Licensed Product(s)" means the Product and Additional Products.

1.49 "Licensor" has the meaning assigned to such term in the introductory paragraph of this Agreement

1.50 "Licensor Know-How" means all Know How and confidential, unpatented information to the extent owned or Controlled by Licensor during the Term of this Agreement associated with or related to the Licensed Product, and/or any Improvements Controlled by Licensor, including but not limited to regulatory submissions, research and development information, trade secrets, engineering, scientific and practical information, data, formulas, formulations, APIs, analogs, back-up programs, information about qualities, uses, test methods and results, information about materials, compositions and sources, and drawings, specifications, laboratory notebooks, work product and other relevant writings in each case, which is necessary or desirable for the practice of the Licensed Product.

1.51 "Licensor Patents" means any and all Patent Rights Controlled by Licensor during the Term pertaining to the Licensed Products, including, but not limited, to Licensor's interest in the Patent Rights scheduled on Schedule 9.3.1 and any Patent Right Covering an Improvement.

1.52 "Licensor Technology" means, collectively, the Licensor Patents and Licensor Know-How.

1.53 "NADA" means a new animal drug application for the marketing, manufacture and sale (and pricing when applicable) of a Licensed Product in the United States.

1.54 "Napo Know-How" means the confidential, unpatented Know-How licensed to Licensor under the Napo License Agreement.

1.55 "Napo License Agreement" means that certain License Agreement dated as of January 27, 2015, pursuant to which Napo Pharmaceuticals, Inc. ("Napo") has granted to Licensor an exclusive license to the Napo Technology and the Napo IP.

1.56 "Napo Patents" means the Patent Rights licensed to Licensor under the Napo License Agreement.

1.57 "Net Sales" means, with respect to each country in the Territory and with respect to a Licensed Product, the gross amount invoiced by Elanco (including an Elanco Affiliate) or

any Sublicensee thereof to unrelated Third Parties, excluding any sublicensee, for the Licensed Product in the Territory, less:

(a) Trade, quantity and cash discounts allowed;

(b) Discounts, refunds, rebates, chargebacks, retroactive price adjustments, and any other allowances which effectively reduce the net selling price;

(c) Licensed Product returns and allowances;

(d) Any Tax imposed on the production, sale, delivery or use of the Licensed Product, including, without limitation, sales, use, excise or value added taxes;

(e) Wholesaler inventory management fees;

(f) Allowances for Distribution Expenses; and

(g) Any other similar and customary deductions which are in accordance with GAAP.

Such amounts shall be determined from the books and records of Elanco or Sublicensee, maintained in accordance with GAAP or, in the case of Sublicensees, such similar accounting principles, consistently applied. Elanco further agrees in determining such amounts, it will use Elanco's then current standard procedures and methodology, including Elanco's then current standard exchange rate methodology for the translation of foreign currency sales into U.S. Dollars or, in the case of Sublicensees, such similar methodology, consistently applied.

In the event that the Product is sold as part of a Combination Product (where "Combination Product" means any pharmaceutical product which comprises the Product and other active compound(s) and/or ingredients), the Net Sales of the Product, for the purposes of determining royalty payments, shall be determined by multiplying the Net Sales of the Combination Product (as defined in the standard Net Sales definition) by the fraction, A / (A+B) where A is the weighted average sale price of the Product when sold separately in finished form, and B is the weighted average sale price of the other product(s) sold separately in finished form.

In the event that the weighted average sale price of the Product can be determined but the weighted average sale price of the other product(s) cannot be determined, Net Sales for purposes of determining royalty payments shall be calculated by multiplying the Net Sales of the Combination Product by the fraction A / C where A is the weighted average sale price of the Product when sold separately in finished form and C is the weighted average sale price of the Combination Product.

In the event that the weighted average sale price of the other product(s) can be determined but the weighted average sale price of the Product cannot be determined, Net Sales for purposes of determining royalty payments shall be calculated by multiplying the Net Sales of the Combination Product by the following formula: one (1) minus (B / C) where B is the weighted average sale price of the other product(s) when sold separately in finished form and C is the weighted average sale price of the Combination Product.

In the event that the weighted average sale price of both the Product and the other product(s) in the Combination Product cannot be determined, the Net Sales of the Product shall be deemed to be equal to fifty percent (50%) of the Net Sales of the Combination Product.

The weighted average sale price for a Product, other product(s), or Combination Product shall be calculated once each Calendar Year and such price shall be used during all applicable royalty reporting periods for the entire following Calendar Year. When determining the weighted average sale price of a Product, other product(s), or Combination Product, the weighted average sale price shall be calculated by dividing the sales dollars (translated into U.S. dollars) by the units of active ingredient sold during the twelve (12) months (or the number of months sold in a partial calendar year) of the preceding Calendar Year for the respective Product, other product(s), or Combination Product. In the initial Calendar Year, a forecasted weighted average sale price will be used for the Product, other product(s), or Combination Product. Any over or under payment due to a difference between forecasted and actual weighted average sale prices will be paid or credited in the first royalty payment of the following Calendar Year.

1.58 "Non-breaching Party" has the meaning assigned to such term in Section 14.3.

1.59 "Party" means, as applicable, Licensor or Elanco and, when used in the plural, means Licensor and Elanco.

1.60 "Party Specific Regulations" means all judgments, decrees, orders or similar decisions issued by any Governmental Authority specific to a Party, and all consent decrees, corporate integrity agreements, or other agreements or undertakings of any kind by a Party with any Governmental Authority, in each case as the same may be in effect from time to time and applicable to a Party's activities contemplated by this Agreement.

1.61 "Patent Rights" means all: (a) patents, (including, without limitation, all reissues, reexaminations, extensions, substitutions, re-registrations, re-validations, supplementary protection certificates and patents of addition); (b) patent applications (including, without limitation, all provisional applications, divisionals, continuations, continuations-in-part); and (iii) all patents and patent applications anywhere in the world that at any time, directly or indirectly, claim priority from, support a claim of priority of or contain substantially identical disclosure as any of the foregoing.

1.62 "Pharmacovigilance Agreement" means the agreement describing Adverse Event handling and reporting to Regulatory Authorities, including without limitation, timely reporting to the other Party of Adverse Events delivered under Section 10.3.

1.63 "Product" has the meaning assigned to such term in Recital A.

1.64 "Product Complaint" means a written, oral, or electronic communication that alleges deficiencies related to the safety, identity, strength, purity, quality, potency, durability, effectiveness, or performance of a product manufactured and/or distributed by Elanco that could be related to manufacturing, packaging, or labelling. Product Complaint includes also (a) suspected counterfeit products, which are products that are deliberately or fraudulently

mislabelled with respect to identity and/or source; a counterfeit drug, container, or label bears the trademark, trade name, or other identifying mark (e.g., shape or color), imprint, or device of a drug manufacturer, processor, packer, or distributor without authorization and with intent to mislead purchasers into believing the product is authentic, and (b) suspected tampering, which is the manipulation of any authentic product or packaging thereby rendering it false or misleading, with malicious or illegal intent.

1.65 "Quality Agreement" has the meaning assigned to such term in Section 8.1.2 (b).

1.66 "Registration" means, with respect to a Licensed Product in a particular country or legal jurisdiction, all approvals, licenses, registrations or authorizations of any Regulatory Authority, necessary for the manufacturing, use, storage, import, transport and sale of such Licensed Product in such country or legal jurisdiction.

1.67 "Registration Application" means a NADA in the U.S., or a comparable filing for Registration for the marketing, manufacture and sale (and pricing when applicable) of a Licensed Product in any other country or legal jurisdiction.

1.68 "Regulatory Authority" or "Regulatory Authorities" means any governmental authority that regulates the Licensed Products, including but not limited to the Environmental Protection Agency ("EPA"), FDA, including the Center for Veterinary Medicine ("CVM"), Food Safety and Inspection Service ("FSIS"), U.S. Department of Agriculture ("USDA") or any counterparts thereof in jurisdictions outside of the U.S. such as the European Medicines Agency ("EMA").

1.69 "Regulatory Materials" means the regulatory registrations, applications, authorizations and approvals (including approvals of NADAs, supplements and amendments, pre- and post-approvals, pricing and Third Party reimbursement approvals, and labeling approvals), Registration Applications, Registrations or other submissions made to or with any Regulatory Authority necessary for the research, development, manufacture, or commercialization of a Licensed Product in a regulatory jurisdiction, together with all related correspondence to or from any Regulatory Authority and all documents referenced in the complete regulatory chronology for each NADA, including all drug master file(s) ("DMF") (if any), or foreign equivalents of any of the foregoing.

1.70 "Royalty Term" has the meaning assigned to such term in Section 5.4.

1.71 "Safety Study" means that certain safety study being undertaken by the Licensor as of the Effective Date.

1.72 "Sublicensee" shall mean a Third Party to which Elanco grants a sublicense in accordance with the provisions of Section 7.1.

1.73 "Successful Completion" means completion of the Dose-Ranging Study being conducted by Licensor that meets the success criteria jointly proposed by the Parties in a collaborative effort and reviewed and approved by the JSC prior to the commencement of such study.

1.74 "Supply Agreement" has the meaning assigned to such term in Section 8.1.2(a).

1.75 "Tax" or "Taxation" means any form of tax or taxation, levy, duty, charge, social security charge, contribution or withholding of whatever nature (including any related fine, penalty, surcharge or interest).

1.76 "Taxing Authority" means any federal, national, provincial, state, local or foreign government, or any subdivision, agency, commission or authority thereof exercising Tax regulatory, enforcement, collection or other authority.

1.77 "Term" has the meaning assigned to such term in Section 14.1.

1.78 "Termination Date" has the meaning assigned to such term in Section 14.7.

1.79 "Territory" means the world.

1.80 "Third Party" means any person or entity who or which is neither a Party nor an Affiliate of a Party.

1.81 "Trademarks" has the meaning assigned to such term in Section 7.5.

1.82 "United States" or "U.S." means The United States of America, including its possessions, territories and commonwealths including Puerto Rico.

1.83 "Valid Claim" means a claim of an issued or granted Licensor Patent in any country that has not expired or lapsed, been abandoned or cancelled, or held or declared invalid or unenforceable, wherein such Licensor Patent was owned or Controlled by the Licensor prior to the Effective Date. For clarity, a Valid Claim of an issued or granted patent shall be deemed to exist during any issued or granted applicable patent term extension for the relevant patent.

2. OVERSIGHT OF THE COLLABORATION.

2.1 Joint Steering Committee.

2.1.1 The joint steering committee shall consist of four members, two from each Party ("Joint Steering Committee" or "JSC"). Each Party will provide the other Party with the names and contact information for its JSC members within thirty (30) days of the Effective Date. The JSC is responsible for:

(a) Fostering a positive relationship between the Parties;

(b) Establishing sub-committees as needed;

(c) Setting the strategic vision and ensuring that the various sub-committees make decisions and provide oversight and guidance that are consistent with that strategic vision;

(d) Reviewing and approving the Development Plans for each Licensed Product, and any updates to any of the foregoing from time to time proposed;

(e) Ensuring the goals and objects, and the target completion dates, set out in the Development Plan are being met;

(f) Monitoring the Development Plans for the achievement of milestones; Reviewing and approving the co-promotion plans in accordance with Section 4.3 of this Agreement; and

(g) Such other tasks jointly assigned by the Parties; provided, however, the JSC does not have the authority to amend this Agreement.

2.1.2 The JSC will terminate upon expiration or termination of this Agreement.

2.2 Joint Steering Committee Operating Principles.

2.2.1 In the event that a Party intends to replace an individual serving as a JSC member, the Party must notify the other Party thirty (30) calendar days following such change and include contact information of the incoming JSC member.

2.2.2 Any member of the JSC may designate a substitute to attend and perform the functions of that member at any meeting of the JSC.

2.2.3 Each Party may, in its discretion, invite non-member representatives of such Party to attend meetings of the JSC upon notice to the other Party.

2.2.4 The JSC shall meet four times annually (while aiming at meeting once each Calendar Quarter), unless agreed otherwise by the Parties in writing, on such dates, and at such places and times, as the Parties shall agree.

2.2.5 The Parties may elect to meet in-person, by means of telecommunications, video conferences, electronic mail or other correspondence.

2.2.6 Only the members of the JSC have voting rights and will attempt to reach consensus on any decision; in events where consensus cannot be obtained on a decision after actively attempting the resolve the matter for at least two (2) weeks, the JSC members will jointly escalate the matter to a designated senior executive at each Party. The JSC will provide the designated senior executive at each Party with a jointly prepared one-page memorandum summarizing the issue. Within thirty (30) days from the alert, a meeting of the designated senior executives will be scheduled to resolve the issue. Such meeting may take place in-person, by means of telecommunication or video conference. In the event a decision cannot be made jointly by both designated senior executives after at least two (2)

meetings of the designated senior executives, Elanco shall be authorized to make the decision.

2.2.7 Each Party shall be responsible for all travel and related costs and expenses for its members and approved invitees to attend meetings of, and otherwise participate on, the JSC.

3. THE DEVELOPMENT PROGRAM.

3.1 Acute Trial and Safety Study. The Parties recognize the Licensor has commenced work on the Acute Trial and the Safety Study for dogs prior to the Effective Date. Elanco agrees to reimburse Licensor for the expenses incurred in connection with both the Acute Trial and Safety Study, not to exceed the budget set forth on Exhibit 3.1.

3.2 Dose Ranging Study. Upon completion of the Acute Trial, Elanco agrees to fund the Dose Ranging Study. If Elanco is not satisfied, in its sole discretion, with the results of the Dose Ranging Study, Elanco may terminate this Agreement in accordance with Section 14.2.

3.3 Development Program. Upon successful completion of the Dose Ranging Study, Elanco shall commence a program of development including clinical and preclinical trials necessary for Registration of the Licensed Products, including for clarity Licensed Products incorporating any Improvements for the Field of Use, which shall be designed to develop and commercialize (with input from the JSC) such Licensed Products and any such Improvements (the "Development Program").

3.4 Development Operating Plan.

3.4.1 Within ninety (90) calendar days following completion of the Dose Ranging Study, the Parties will, through the JSC, review and approve an overall development plan, based on a draft developed by Elanco, (the "Development Plan" or "DP") which shall set forth, as appropriate, from time to time and among other things: (a) a description of the scope of development activities to be taken in the Territory and design of field trials, together with an allocation of responsibilities under the Development Program; (b) estimated timelines and associated third party expenses for development of the relevant Licensed Product.

3.4.2 The Development Plan may be updated from time to time, and submitted to the JSC for its review. Each such update shall set forth in reasonable detail: (a) estimated timelines for completion of clinical and pre-clinical studies to be undertaken by either Party hereunder; and (b) outlines of studies and protocols (where applicable).

3.5 Responsibilities of Licensor under the Development Program. As part of the Development Program and with respect to the Development Plan, Licensor shall:

3.5.1 Update Elanco on the progress of the Acute Trial for dogs through the JSC;

3.5.2 Review and provide input into the Development Plan within thirty (30) days of its receipt of the draft developed by Elanco;

3.5.3 Cause its representatives to the JSC to review the Development Plan within sixty (60) days of the submission of the Development Plan to the JSC;

3.5.4 Monitor the progress on the Development Plan; and

3.5.5 Perform such other responsibilities with respect to the Development Program and Development Plan as may be agreed upon by the Parties from time to time.

3.6 Responsibilities of Elanco under the Development Program. As part of the Development Program and with respect to the Development Plan, Elanco shall:

3.6.1 Monitor the progress on the Development Plan and seek changes as Elanco deems necessary;

3.6.2 Register the Licensed Products for use in the Territory pursuant to Section 10.1; and

3.6.3 Perform such other responsibilities with respect to the Development Program and Development Plan as may be agreed upon by the Parties from time to time.

3.7 Funding of Development Program. Except as otherwise provided in Sections 3.1 (Acute Trial and Safety Study) and 3.2 (Dose-Ranging Study), the Development Program shall be funded in accordance with budget incorporated into the Development Plan. Under no circumstance shall development expenses be assigned to Licensor under the Development Program or Development Plan without Licensor's prior written consent.

3.8 Termination of the Development Program. The Licensor's involvement in and funding of the Development Program shall terminate with respect to the Licensed Products on the first to occur of the following: (a) termination of this Agreement, or (b) mutual agreement of the Parties to cease development activities.

4. COMMERCIALIZATION PROGRAM.

4.1 Generally. The commercialization program shall include each Party's activities during the Term to advertise, market, promote, launch (including pre-launch activities) commercialize and sell the Licensed Product in the Territory (the "Commercialization Program").

4.2 Activities in the Elanco Exclusive Territory. Elanco or its Sublicensees, shall be responsible for, and shall, subject to this Section 4.2, have the exclusive right to direct all marketing, advertising, promotional, launch and sales activities related to the Licensed Products in the Elanco Exclusive Territory. As part of the Commercialization Program, Elanco shall:

4.2.1 use Commercially Reasonable Efforts to perform pre-commercialization analysis, planning, market preparation, and related marketing activities related to the Licensed Products for the applicable countries in the Elanco Exclusive Territory;

4.2.2 use Commercially Reasonable Efforts to launch the Licensed Products in the Elanco Exclusive Territory as soon as reasonably possible upon Registration;

4.2.3 use Commercially Reasonable Efforts to commercialize the Licensed Products following launch in the Territory; and

4.2.4 maintain customary commercial records, which shall properly reflect all work done and results achieved in connection with the Commercialization Program in the form required under all Applicable Laws and regulations in the Elanco Exclusive Territory. Licensor shall have the right, during normal business hours and upon reasonable notice, to inspect such records no more than once each Calendar Year. Licensor shall maintain such records and information contained therein in confidence in accordance with Section 12.2 and shall not use such records or information except to the extent otherwise permitted by this Agreement.

4.3 Co-Promotion; Activities in the Co-Promotion Territory. Elanco and Licensor shall jointly develop a plan (including a budget) for co-promoting the Licensed Products for chronic indications in canine in the Co-Promotion Territory which shall be reviewed and approved by the JSC six (6) months prior to First Commercial Sale of such Licensed Product. A separate plan for co-promoting the Licensed Products for an acute indication in any species covered in the Field shall be developed by Elanco and Licensor and reviewed and approved by the JSC six (6) months prior to First Commercial Sale of such Licensed Product. The co-promotion plans will include sales training and support to be provided by Licensor during the Co-Promotion Term. All activities under the co-promotion plans will be governed by the ethics and compliance principles set forth in Exhibit 4.3. The Parties shall pay for the expenses as agreed to in the co-promotion plans. Notwithstanding the foregoing, any expense paid by Elanco must be made in accordance with its policies and procedures, including the policy pertaining to travel and dining expenses.

4.4 Annual Minimum Sales. Within six (6) months of the First Commercial Sale for the chronic indication of the Licensed Product, the Parties shall meet to agree on the required minimum number of sales of Licensed Product that Elanco must sell in the Territory during the two year period commencing on January 1 after the third anniversary of the date of the First Commercial Sale for the chronic indication of the Licensed Product ("Annual Minimum Sales"). In the event the Parties fail to reach consensus within forty-five (45) days, Elanco shall have final authority to set the Annual Minimum Sales minimums. Thereafter, the Parties shall meet at least ninety (90) days prior to the end of the two (2) year period to set Annual Minimum Sales for the following two (2) year period. In the event the Parties are unable to agree upon required minimum number of sales of Licensed Product that Elanco must sell, the minimum shall be set at eighty percent (80%) of the minimum sales for the prior year. In the event Elanco fails to meet the Annual Minimum Sales for two (2) consecutive years, beginning three (3) years after the First Commercial Sale for the chronic indication of the Licensed Product, the Parties shall meet to discuss adjusting the Annual Minimum Sales commitment. If the Parties cannot agree to an

adjustment, Licensor shall have the right to terminate this Agreement, all licenses granted by Licensor to Elanco under this Agreement will be revoked and all rights to the Licensed Products will revert back to Licensor.

4.5 Competitive Products. During the Term, Elanco shall not commercialize a Competitive Product in the Territory.

5. MILESTONES; ROYALTIES.

5.1 On Signing. As consideration to Licensor for past work undertaken with respect to the Licensor Technology, and the rights granted to Elanco under this Agreement, a nonrefundable, non-creditable up-front payment of One Million Five Hundred Thousand U.S. Dollars (U.S. $1,500,000) together with reimbursement for the expenses incurred under the Acute Trial and Safety Study incurred will be due and payable from Elanco to Licensor within ten (10) calendar days of the Effective Date. All payments made to Licensor pursuant to this Agreement shall be sent via wire transfer to:

Beneficiary Bank Information
Bank Name: Bridge Bank, a division of Western Alliance Bank
ABA Routing #: [***]
Bank Address: 55 Almaden Blvd., San Jose, CA 95113, U.S.A.
Beneficiary Information
Account Name: Jaguar Animal Health Inc.
Account Number: [***]

Beneficiary Address: 201 Mission St., Suite 2375, San Francisco, CA 94105, U.S.A.

5.2 Development and Commercial Milestones. Provided that Elanco does not terminate the agreement in accordance with Section 3.2 and in partial consideration of the license and rights granted to it by Licensor under this Agreement, Elanco shall make to Licensor the following non-refundable milestone payments in accordance with Section 6 of this Agreement:

Milestone Event		Milestone Payment (in USD)
1.	Successful Completion of the Dose-Ranging Study	$ [***]
2.	First Commercial Sale of a Licensed Product for acute indications of diarrhea	$ [***]
3.	First Commercial Sale of a Licensed Product for chronic indications of diarrhea	$ [***]

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Milestone Event		Milestone Payment (in USD)
4.	Aggregate worldwide Net Sales of Licensed Products exceed $[***] in a Calendar Year during the Term of this Agreement	$ [***]
5.	Aggregate worldwide Net Sales of Licensed Products exceed $[***] in a Calendar Year during the Term of this Agreement	$ [***]

5.3 Royalty Payments to Licensor. As further consideration to Licensor for the license and other rights granted to Elanco under this Agreement, Elanco shall make the following royalty payments to Licensor:

Aggregate Net Sales of Licensed Products in the Territory during the Calendar Year	Royalty rate for a Licensed Product Covered by a Valid Claim	Royalty rate for a Licensed Product not Covered by a Valid Claim and no Competitive Product (U.S. Only)	Royalty rate for a Licensed Product not covered by a Valid Claim (OUS) and if in the U.S., Competitive Product has entered the market
Up to $[***]	[***]%	[***]%	[***]%
In excess of $[***]	[***]%	[***]%	[***]%

For clarity, in the event aggregate Net Sales in any Calendar Year exceed $[***] for a Licensed Product Covered by a Valid Claim, the first $[***] will be paid at the [***]% royalty rate and only Net Sales in excess of $[***] will be paid at the [***]% royalty rate.

5.4 Royalty Term; Reduction. Royalties shall be paid under Section 5.3, on a country-by-country basis and Licensed-Product by Licensed-Product basis, commencing with the First Commercial Sale of a Licensed Product in such country until the latest of: (a) the date on which there is no Valid Claim of any Licensor Patent Covering such Licensed Product in such country; (b) the expiration of any regulatory exclusivity in such country covering such Licensed Product; or (c) the fifteenth anniversary of the First Commercial Sale of a Licensed Product in such country ("Royalty Term").

5.5 Anti-Stacking Provision. Should Elanco determine that access to Third Party's patent rights is necessary for development or commercialization of the Licensed Product due to the infringement or potential infringement of such Third Party patent rights by the Licensor

***** CONFIDENTIAL TREATMENT REQUESTED**

Technology, Elanco will consult with Licensor before seeking access to such Third Party's Patent Rights. If Elanco pays compensation to a Third Party for access for a Licensed Product for which compensation is also due to Licensor, Elanco shall have the right to deduct from the royalties owed to Licensor for such Licensed Product, one half ($^1/_2$) of the royalties to be paid to said Third Party; provided, however, that the maximum deduction under this Section 5.5 shall not exceed 50% of the royalty otherwise payable under Section 5.3.

5.6 Blended Royalty Rates. The Parties hereby acknowledge and agree that: (a) Products involving the exercise of the Licensor Patents and/or the incorporation of the Licensor Know-How licensed pursuant to this Agreement, if separate royalty rates were to be negotiated by the Parties for the foregoing, would justify royalty rates of differing amounts with respect to sales of such Products; and (b) such royalties relating to the Licensor Patents and the Licensor Know-How would last for different royalty terms. In light of such considerations and for reasons of convenience, the Parties have hereby determined that a single, blended royalty rate for all Products, regardless of whether such Products involve the exercise of the Licensor Patents and/or the incorporation of the Licensor Know-How licensed pursuant to this Agreement, will apply during a single royalty term and that the utilization of such blended royalty rate is advantageous to both Parties.

6. PAYMENTS AND REPORTS.

6.1 Milestone Payments. Upon achievement by or on behalf of Elanco of any milestone event set forth in Section 5.2, as applicable, Elanco shall promptly notify Licensor of such achievement, and Elanco shall pay Licensor the corresponding milestone payment within sixty (60) calendar days after issuance by Licensor of an invoice for such milestone payment. With respect to Milestone 4 and 5, the provision by Elanco to Licensor of the report set forth in Section 6.2 specifying aggregate Net Sales in the applicable Calendar Year that achieve the applicable milestone event, shall constitute notice by Elanco of the achievement of the applicable Milestone. For clarity, Elanco shall be obligated to make a milestone payment corresponding to each of the events set forth in Section 5.2 only once, regardless of the number of Licensed Products that achieve such milestone event or the number of times such milestone event occurs for such Licensed Product.

6.2 Royalty Payments. Beginning with the Calendar Quarter in which the First Commercial Sale of a Licensed Product is made in the Territory that requires royalty payments to Licensor, and for each Calendar Quarter thereafter, royalty payments shall be made to Licensor in accordance with the royalty rates set forth in Section 5.3 (together with the statement described in this Section 6.2), within sixty (60) calendar days following the end of each such Calendar Quarter. Each royalty payment shall be accompanied by a report summarizing total Net Sales during the relevant Calendar Quarter, and the calculation of royalties due thereon. In the event that no royalties are payable in respect of a given Calendar Quarter, Elanco shall submit a royalty report so indicating.

6.3 Mode of Payment. All payments required under this Agreement shall be made in U.S. Dollars, regardless of the country(ies) in which sales are made, via wire transfer of immediately available funds as directed by the other Party from time to time.

6.4 Records Retention. Commencing with the First Commercial Sale of a Licensed Product, Elanco shall keep complete and accurate records pertaining to the sale of each Licensed Product for a period not less than three (3) Calendar Years after the year in which such sales occurred, and in sufficient detail to permit Licensor to confirm the accuracy of the royalties paid by Elanco hereunder.

6.5 Audits.

6.5.1 During the Term, at the request and expense of Licensor, Elanco shall permit an independent, certified public accountant, acceptable to both Parties, at reasonable times and upon reasonable written notice, to examine such records as may be necessary for the sole purpose of verifying the calculation and reporting of Net Sales and the correctness of any royalty or other payment made under this Agreement for any period within the preceding three (3) years. Licensor may audit Elanco for up to two (2) years following the termination or expiration of this Agreement. Each such period may only be audited one time, provided however, Elanco shall provide reasonable cooperation to Licensor's accountant with respect to any follow-up inquiries pertaining to any particular audit. Said accountant shall not disclose to Licensor or any other person any information obtained in the context of such audit, except that such accountant may disclose to Licensor the fact of a deficiency, the lack of a deficiency or any overpayment, and the degree thereof, including the dollar amount. All results of any such examination shall be made available to Elanco.

6.5.2 In the event that any audit reveals an under-payment in the amount of any payments that should have been paid by Elanco to Licensor, then such amount shall be paid within forty-five (45) calendar days after Licensor makes a demand therefor. In addition, if the underpayment is in excess of five percent (5%) of the amount due or Fifty Thousand U.S. Dollars ($50,000), whichever is greater, of the amount that actually should have been paid, then Elanco shall reimburse Licensor for its reasonable cost of the audit.

6.6 Taxes. In the event that Elanco is mandated under the laws of a country to withhold any Tax to any Taxing Authorities in such country in connection with any payment to Licensor, such amount shall be deducted from the payment to be made by Elanco, provided, that, Elanco shall promptly notify Licensor so that Licensor may take lawful actions to avoid and minimize such withholding. Elanco shall reasonably promptly furnish Licensor with copies of any Tax certificate or other documentation evidencing such withholding as necessary to satisfy the requirements of the relevant Governmental Authority related to any application by Licensor for foreign tax credit for such payment. Elanco agrees to cooperate with Licensor in claiming exemptions from such deductions or withholdings under any agreement or treaty from time to time in effect.

7. GRANT OF RIGHTS.

7.1 License Grants to Elanco. Subject to the terms and conditions set forth in this Agreement:

7.1.1 Licensor hereby grants to Elanco an exclusive (without any reservation of rights by Licensor), sublicenseable license under the Licensor Technology to use, develop, market, sell, offer to sell, import, export and commercialize the Licensed Products in the Territory during the Term;

7.1.2 Licensor hereby grants to Elanco a non-exclusive, sublicenseable license under the Licensor Technology to make or have made the Licensed Products to the extent permitted under the Supply Agreement in the Territory during the Term; and

7.1.3 Elanco hereby grants back to Licensor a non-exclusive, sublicenseable license under the Licensor Technology to develop and commercialize the Licensed Products in accordance with the Development Plan and co-promotion plan provided for in Section 4.3 in the Co-Promotion Territory during the Co-Promotion Term.

7.1.4

7.2 Licensor Retention of Rights. Licensor retains the right to practice and/or license the Licensor Technology outside of the Field of Use in the Territory and may retain any and all proceeds from any such license.

7.3 Sublicensing.

The license granted in Section 7.1.1 includes the right of Elanco to sublicense any and all of the licensed rights under Section 7.1.1 to one or more tiers of Sublicensees including but not limited to its Affiliates. All sublicenses granted to Third Parties will be pursuant to a written agreement that is in accordance with and not broader than the terms of this Agreement. Elanco shall remain responsible for the performance of any activities conducted by a Sublicensee, and for all payments owed to the Licensor therefrom.

7.4 Trademarks. Licensor hereby grants to Elanco a license in the Territory under the Trademarks and Alternate Trademarks, both as defined below, and their associated goodwill during the Term to use the Trademarks and Alternate Trademarks and their corresponding domain names for the development, sale, importation, exportation, lease or disposal of any Licensed Product. The license shall be exclusive (without any reservation of rights by Licensor) in the Elanco Exclusive Territory and shall be co-exclusive (with Licensor) in the Co-Promotion Territory during the Co-Promotion Term. During the Term, Elanco shall market the Licensed Products throughout the Territory under the Canalevia™ trademarks listed on Exhibit 7.4 (collectively, the

"Trademarks"). In countries in the Territory where the Canalevia™ trademark is unavailable, Licensor will seek an alternative trademark for the Licensed Products in such countries (each, an "Alternate Trademark"). Licensor will be solely responsible for and will use Commercially Reasonable Efforts to timely obtain the CanaleviaTM trademark, or an Alternate Trademark, for use on the Licensed Products. Licensor will initiate trademark filing activities

promptly following the execution of this Agreement in such countries of interest to Elanco. Licensor shall own all right, title and interest in and to such Trademarks and Alternate Trademarks. Elanco has the right to incorporate the Trademarks (and any Alternative Trademark, where applicable) within Elanco's trade dress. The rights to such trade dress shall remain with Elanco. The ownership and all goodwill from the use of the Trademarks (and Alternate Trademarks) and corresponding domain names shall vest in and inure to the benefit of Licensor. Licensor shall provide a complete listing of all Trademarks in Exhibit 7.4, including application number, registration number, renewal date, application filing date, and the like. Within 30 calendar days of a Licensor Trademark registration, Licensor shall provide notice to Elanco including the date of registration. No more than once a year, at Elanco's request, Licensor shall provide Elanco an updated Exhibit 7.4. Licensor shall be responsible for renewing the Trademarks and Alternate Trademarks at its expense. In the event of the institution or threatened institution of any suit by a Third Party against Elanco for trademark infringement involving the use, manufacture, sale, offer for sale, importation, distribution or marketing of a Licensed Product in the Territory, where such infringement claim is a result of the use of the Trademarks or Alternate Trademarks or corresponding domain names, Elanco shall promptly notify Licensor in writing of such suit. Licensor shall have the sole right to defend and control such suit at its own expense and at its sole discretion and shall be responsible for all damages incurred as a result thereof. Elanco hereby agrees to assist and cooperate with Licensor, at Licensor's reasonable request and expense, in the defense of any suit related to the use of the Trademarks or Alternate Trademarks or corresponding domain names (including, without limitation, consenting to being named as a nominal party thereto). During the pendency of such action and thereafter, Elanco shall continue to make all payments due under this Agreement. If Licensor finally prevails and receives an award from such Third Party as a result of such action (whether by way of judgment, award, decree, settlement or otherwise), such award shall be retained entirely by Licensor.

7.5 Trade-dress. Elanco shall identify on trade-dress for Licensed Products in the Territory that the Licensed Product is being manufactured by (or on behalf of) Licensor and distributed by Elanco pursuant to a license from Licensor to the extent legally permissible.

8. MANUFACTURING AND SUPPLY

8.1 Supply of Licensed Product.

8.1.1 Licensor shall be responsible for the manufacture and supply of Elanco's reasonable requirements of API, drug product or finished product in accordance with the Supply Agreement and in compliance with GxP, if applicable.

8.1.2 Prior to the first purchase of Licensed Products from Licensor by Elanco, the Parties will enter into negotiations and execute:

(a) an agreement governing the supply of active product ingredient and/or finished Product by Licensor to Elanco ("Supply Agreement") substantially in line with the terms attached hereto in Exhibit 8.1.2(a); and

(b) an agreement that addresses Product Complaints as well as procedures, testing, specifications and quality of raw materials and that sets forth the quality expectations, responsibilities, oversight and requirements relating to the manufacture and supply Licensed Products ("Quality Agreement").

8.1.3 Licensor shall manufacture the Licensed Products in accordance with the terms and conditions of this Agreement, the Supply Agreement and the Quality Agreement, and shall ensure that all Licensed Product delivered pursuant to such agreements shall conform with the specifications as mutually agreed upon in writing by the Parties, GxP and all Applicable Laws.

8.1.4 Notwithstanding any provisions of the Quality Agreement, following the Effective Date, Elanco shall have the right, one time per calendar year, upon reasonable notice during normal business hours, to conduct a quality audit of the manufacturing process to be used in the supply of the Licensed Products to ensure GxP compliance; provided however, that Elanco shall have the right to further audits if corrective actions are necessary based on the original audit to ensure that such corrections have been made or if quality concerns require an audit for causes related thereto. If any deficiency is identified by Elanco from the foregoing quality audit, the Parties shall agree to reasonable corrective actions to be implemented prior to the manufacture of the Licensed Products.

8.1.5 Licensor shall not move or otherwise modify the manufacturing processes without Elanco's prior consent, not to be unreasonably withheld, unless such moves or modifications are done according to the change control provisions in the Quality Agreement.

8.2 Packaging and Labeling. Elanco is responsible for all labeling and packaging for the Licensed Products. All designs will be submitted to the JSC for approval. The Licensed Product label will carry the Elanco name and brand.

9. OWNERSHIP; PATENTS AND KNOW-HOW.

9.1 Ownership. Licensor shall retain all right, title and interest in and to the Licensor Technology regardless of Elanco's preparation and filing of any Registration Applications, subject to the licenses granted to Elanco pursuant to Section 7.1. Elanco shall retain all right, title and interest in and to Elanco Platform Technology.

9.2 Improvements.

9.2.1 All right, title and interest in and to any Improvements shall be owned as follows:

(a) if related to the Elanco Platform Technology, it shall be owned solely by Elanco;

(b) if unrelated to the Elanco Platform Technology and made solely by employees or contractors of Licensor, it shall be owned solely by Licensor;

(c) if unrelated to the Elanco Platform Technology and made solely by employees or contractors of Elanco, it shall be owned solely by Elanco; and

(d) if unrelated to the Elanco Platform Technology and made by employees or contractors of both Parties, it shall be owned jointly by the Parties ("Joint Inventions"). Each Party shall have the right to exploit any Joint Inventions, to the extent it can do so without infringing on the other Party's other intellectual property rights, without compensation, liability or other obligation (including, without limitation, accounting obligations) to the other Party.

9.2.2 Elanco shall automatically receive a license to all Licensor's Improvements under Section 9.2.1 pursuant to the licenses granted in Section 7.1 of this Agreement.

9.2.3 Elanco hereby grants Licensor a non-exclusive, royalty-free, irrevocable, perpetual license to use all Elanco's Improvements (excluding any Know-How comprising Elanco Platform Technology) solely to commercialize Licensed Products in the Territory. This provision shall survive any termination or expiration of this Agreement.

9.3 Patent Notification, Prosecution, Maintenance and Extension.

9.3.1 Licensor shall provide a complete listing of all Licensor Patents existing as of the Effective Date in Exhibit 9.3.1, including application number, patent number, expiration date, assignee, filing date, priority information, and the like. Within 30 calendar days of a Licensor Patent issuing, Licensor shall provide notice to Elanco including the date of issuance and a copy of the issued claims. No more than once a year, at Elanco's request, Licensor shall provide Elanco an updated Exhibit 9.3.1.

9.3.2 Subject to the terms of the Napo License Agreement, each Party shall have full responsibility for, and shall control the preparation and prosecution of, and the maintenance of, all Patent Rights relating to the Patent Rights owned solely by it throughout the Territory. Each Party shall pay all costs and expenses of filing, prosecuting and maintaining such Patent Rights relating to Improvements owned solely by it. Notwithstanding the foregoing, Licensor agrees to provide Elanco copy of and to solicit Elanco's advice and review any patent application to the extent such are related to Licensor Patents and Licensor Improvements and all material prosecution matters related thereto within a reasonable time prior to submission of the same to the relevant patent authority. Except as provided by Section 9.3.4, the Parties shall bear their own costs of such activities for such Patent Rights.

9.3.3 Each Party agrees to promptly provide to the other Party with a complete written disclosure of any Improvement, except improvements to the Elanco Platform Technology, made by such Party. Licensor shall in its sole discretion, determine whether or not to proceed with the preparation and prosecution of a patent application directed to any Improvement owned solely by Licensor. Elanco shall determine, in its sole discretion, whether any Improvement owned solely by it shall, in its sole discretion, determine whether or not to

proceed with the preparation and prosecution of a patent application directed to any Improvement owned solely by Elanco.

9.3.4 Notwithstanding Section 9.3.3, upon written notice by Elanco to Licensor that a patent application should be filed for an Improvement owned by Licensor in a particular country in the Territory in which Elanco intends to commercialize the Licensed Product; Licensor shall, at its sole cost and expense, promptly file patent applications for any Improvement licensed to Elanco pursuant to Section 7.1 in such country.

9.3.5 Licensor and Elanco shall together determine whether or not to proceed with the preparation and prosecution of a patent application directed to any Joint Inventions. Licensor and Elanco shall share equally all costs and expenses of preparing, filing, prosecuting and maintaining patent applications and patents relating to Joint Inventions. If either Party elects not to pay for: (A) the filing of a patent application in any country in the Territory on any Joint Inventions, or (B) the further prosecution or maintenance of any Patent Rights directed to any Joint Invention in any country in the Territory, or (C) the filing of any divisional or continuing patent application (based on a prior patent application or patent) on a Joint Inventions in any country in the Territory, such Party shall notify the other Party in writing in a timely manner and the other Party may do so at its sole expense.

9.3.6 Each Party agrees to cooperate with the other Party to execute all lawful papers and instruments, to make all rightful oaths and declarations, and to provide consultation and assistance as may be reasonably necessary in the preparation, prosecution, maintenance and enforcement of the Patent Rights directed to Improvements.

9.3.7 Licensor, at Elanco's reasonable request, and subject to the terms of the Napo License Agreement, shall cooperate on the selection of Licensor Patents, if any, for term extension and in the filing of any term extensions, supplementary protection certificates or equivalents thereof offering patent protection beyond the initial term.

9.3.8 Licensor, at Elanco's reasonable request, shall cooperate in the submission of Licensor Patents for inclusion in the FDA Approved Animal Drug Products (Green Book) or any comparable listing under Applicable Laws in any country in the Territory.

9.4 Patent and Trademark Rights Enforcement and Defense.

9.4.1 If either Party learns of an infringement, unauthorized use, misappropriation or ownership claim or threatened infringement or other such activity (an "Infringement") by a Third Party with respect to a Licensed Patent within the Territory, such Party shall promptly notify the other Party in writing and shall promptly provide such other Party with available evidence of such Infringement.

9.4.2 Licensor shall have the first right, but not the duty, to institute, prosecute, and control any action or proceeding with respect to an Infringement based on any Licensor Technology or use of a Licensor owned Trademark or Alternate Trademark in the Territory. If Licensor (or its designee) does not take action to secure actual cessation of such infringement

(except by granting said Third Party a license under the infringed patents or trademarks) or institute an infringement proceeding against an offending Third Party within one hundred eighty (180) calendar days after a receipt of evidence of the Infringement, Elanco shall have the right, but not the duty, to institute, prosecute, and control any action or proceeding with respect to such Infringement. The costs and expenses of any such action (including fees of attorneys and other professionals) shall be borne by the Party instituting the action, or, if the Parties elect to cooperate in instituting and maintaining such action, such costs and expenses shall be borne by the Parties in such proportions as they may agree in writing. The non-instituting Party may be represented by counsel in such proceeding at the non-instituting Party's sole cost. In the event that Elanco bears costs under aforementioned sentence, Elanco may offset 50% of such costs from payments up to 50% of what is otherwise owed by Elanco under Sections 5.2 and 5.3. Each Party shall execute all necessary and proper documents, take such actions as shall be appropriate to allow the other Party to institute, prosecute, and control such Infringement actions and shall otherwise cooperate in the institution and prosecution of such actions (including, without limitation, consenting to being named as a nominal party thereto). Any award, damages or other monetary awards recovered (whether by way of settlement or otherwise) shall be applied first to reimburse both Parties for all reasonable out of pocket costs and expenses incurred by each Party with respect to such action on a pro rata basis and, if after such reimbursement any funds remain from such award, they shall be allocated as follows: (A) if Licensor has instituted and maintained such action alone, Licensor shall be entitled to retain such remaining funds; (B) if Elanco has instituted and maintained such action alone, Elanco shall be entitled to retain such remaining funds, but shall pay Licensor a royalty, as if such remaining funds constituted Net Sales made within the month the funds are received; or (C) if the Parties have cooperated in instituting and maintaining such action, the Parties shall allocate such remaining funds between themselves in the same proportion as they have agreed to bear the expenses of instituting and maintaining such action. The Parties shall not enter into any settlement that would adversely affect a Party's rights under this Agreement, impose any financial liability or obligation, compromise the validity or enforceability of a Licensor Patent, or constitute an admission of guilt or wrongdoing by a Party without the prior written consent of the Parties.

9.4.3 In the event the validity or enforceability of a Licensor Patent that Covers a Licensed Product is challenged by a Third Party, either as a counterclaim in an infringement action, a declaratory judgment action or administrative proceeding within the United States Patent and Trademark Office (such as an *Inter Partes* Review or Post Grant Review proceeding) or the like, the Parties shall cooperate to defend against the challenge and Licensor shall bear the costs of such defense, with such costs being reimbursed out of any award, settlement or other recovery as set forth with respect to infringement actions in Section 9.4.2.

9.4.4 The rights of enforcement set forth in this Section shall be subject to the Napo License Agreement with respect to the Napo Patents and the Napo Know-How.

9.5 Infringement Action by Third Parties. In the event of the institution or threatened institution of any suit by a Third Party against Elanco for patent infringement involving the use, manufacture, sale, offer for sale, importation, distribution or marketing of a Licensed Product in the Territory, where such infringement claim is a result of the use of the Licensor Technology, Elanco shall promptly notify Licensor in writing of such suit. Licensor shall defend and

indemnify Elanco in such suit at its own expense and shall be responsible for all damages incurred as a result thereof. Elanco may be represented by counsel in such proceeding at Elanco's sole cost. Elanco hereby agrees to assist and cooperate with Licensor, at Licensor's reasonable request and expense, in the defense of any suit related to the Licensor Technology. During the pendency of such action and thereafter, Elanco shall continue to make all payments due under this Agreement. If Licensor finally prevails and receives an award from such Third Party as a result of such action (whether by way of judgment, award, decree, settlement or otherwise), such award shall be retained entirely by Licensor. Elanco agrees in connection with any such defense proceedings by Licensor to use Commercially Reasonable Efforts to cooperate to minimize any damages incurred in connection with any such infringement claim.

10. REGULATORY MATTERS.

10.1 Regulatory Filings and Approvals.

10.1.1 Elanco shall be responsible, at its own expense, for preparing, filing and maintaining all required Registration Applications and Registrations for Licensed Products in the Elanco Exclusive Territory. Licensor shall be responsible, at its own expense, for preparing, filing and maintaining all required Registration Applications and Registrations for Licensed Products in the Co-Promotion Territory.

10.1.2 Each Party will provide the other Party in a timely manner with all information and assistance required by the other Party in order to file, obtain and maintain such required Registrations and to otherwise interact with Regulatory Authorities.

10.1.3 The Registrations in the Co-Promotion Territory will be filed in the name of Licensor and such Registrations shall be exclusively owned by Licensor. The Registrations in the Elanco Exclusive Territory will be filed in the name of Elanco and such Registrations will be exclusively owned by Elanco.

10.2 Licensed Product Withdrawals and Recalls. In the event that any Regulatory Authority threatens or initiates any action to remove any Licensed Product from the market in any country in the Territory, and in the event that a Party is notified of a Product Complaint, the Party who receives the notice shall notify the other Party of such event within one (1) business day after becoming aware of the action, threat, or requirement (as applicable). Elanco shall consult with Licensor prior to initiating a recall or withdrawal of Licensed Product in any country or regulatory jurisdiction in the Territory; provided, however, that the final decision as to whether to recall or withdraw a Licensed Product shall be made by Elanco. Elanco shall be responsible, at its sole expense, for conducting any recalls or taking such other necessary remedial action in the Territory, notwithstanding any indemnification rights or other recourse that Elanco might have against Licensor under the Supply Agreement.

10.3 Adverse Event Reporting. Representatives of each Party from the affected areas will begin meeting as soon as possible but no later than thirty (30) calendar days after the Effective Date of this Agreement and will work in good faith together to develop a

Pharmacovigilance Agreement within ninety (90) calendar days which shall, among others, provide for appropriate reporting of any Adverse Events.

11. REPRESENTATIONS AND WARRANTIES.

11.1 Representations and Warranties of Both Parties. Each Party hereby represents and warrants to the other Party, as of the Effective Date, that:

11.1.1 such Party: (a) is a corporation duly organized, validly existing and in good standing under the laws of the jurisdiction in which it is incorporated; (b) has the corporate power and authority and the legal right to own and operate its property and assets, to lease the property and assets it operates under lease, and to carry on its business as it is now being conducted; and (c) is in compliance and will be during the Term of this Agreement remain in compliance with all requirements of Applicable Law, except to the extent that any noncompliance would not have a material adverse effect on the properties, business, financial or other condition of such Party and would not materially adversely affect such Party's ability to perform its obligations under this Agreement;

11.1.2 such Party: (a) has the corporate power and authority and the legal right to enter into this Agreement and to perform its obligations hereunder; and (b) has taken all necessary corporate action on its part to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder. The Agreement has been duly executed and delivered on behalf of such Party, and constitutes a legal, valid, binding obligation, enforceable against such Party in accordance with its terms except to the extent that enforceability may be limited by applicable bankruptcy, insolvency or other laws affecting the enforcement of creditors' rights generally and subject to the general principles of equity (regardless of whether enforcement is sought in a court of law or equity);

11.1.3 such Party has obtained all necessary consents, approvals and authorizations of all governmental authorities and Third Parties required to be obtained by such Party in connection with this Agreement, other than any approvals required of applicable Regulatory Authorities as may be required under this Agreement from time to time; and

11.1.4 the execution and delivery of this Agreement and the performance of such Party's obligations hereunder: (a) do not conflict with or violate any requirement of any Applicable Law; and (b) do not conflict with, or constitute a default under, any contractual obligation of such Party.

11.2 Representations, Warranties and Covenants of Licensor. Licensor represents, warrants and covenants to Elanco, as of the Effective Date, and except as otherwise specified, at all times during the Term, that:

11.2.1 Parties' exercise of any rights under the Licensor Technology as contemplated by this Agreement will not infringe any Patent Right or, to Licensor's knowledge, other intellectual property right of any Third Party;

11.2.2 Napo has not misappropriated any Patent Right or other intellectual property right of any Third Party;

11.2.3 as of the Effective Date there is no pending litigation that alleges, and Licensor has not received any notice threatening such litigation or any other notice that, Licensor's activities relating to the Product violate or would violate any intellectual property rights of any Third Party;

11.2.4 as of the Effective Date, and to Licensor's knowledge, and except pursuant to the Napo License Agreement no person or entity, other than Licensor has any rights to or interest in the Licensor Technology or the Trademarks;

11.2.5 as of the Effective Date, Licensor has not given any notice to any Third Party asserting infringement by such Third Party of any of the Licensor Technology or the Trademarks and, to Licensor's knowledge, there is no unauthorized use, infringement or misappropriation of the Licensor Technology or the Trademarks;

11.2.6 as of the Effective Date, Licensor's activities relating to the Product have not violated, and by developing, making, using, marketing, selling, having sold, importing and distributing the Product as contemplated by this Agreement would not violate any Patent Rights or, to Licensor's knowledge, any valid intellectual property right of any Third Party;

11.2.7 Licensor has not executed or entered into any agreement with or granted to any Third Party, directly or indirectly, any rights that would conflict with the rights granted to Elanco under this Agreement;

11.2.8 as of the Effective Date, and to Licensor's knowledge: (A) Licensor has made available to Elanco (to the extent the same exists and is material to assessing the commercial, medical, clinical or regulatory potential of the Product) all information in its possession or control regarding the Product that is material, and (B) the information it has given to Elanco is accurate and complete;

11.2.9 as of the Effective Date, Exhibit 9.3.1 is an accurate and complete listing of all Licensor Patents and Exhibit 7.4 is an accurate and complete listing of all Trademarks;

11.2.10 as of the Effective Date, and to Licensor's knowledge, Licensor is not aware of any inventors of any Licensor Patent Rights other than those listed as inventors on applications filed for such Licensor Patent Rights;

11.2.11 as of the Effective Date, and to Licensor's knowledge, Licensor has taken reasonable steps to protect the confidentiality of Licensor Know-How; and

11.2.12 as of the Effective Date, and to Licensor's knowledge, it owns or controls all right, title and interest in and to the existing Licensor Technology and the Trademarks and such right, title and interest is free and clear of all encumbrances, security interests, options and licenses, except for

security interest granted to lenders in the normal course of business.

11.3 Representations, Warranties and Covenants of Elanco. Elanco represents, warrants and covenants to Licensor, as of the Effective Date, and except as otherwise specified, at all times during the Term, that:

11.3.1 it shall perform those activities assigned to it under the Development Program and this Agreement in compliance with Applicable Law, including GxP, in each case as applicable under the laws and regulations of the country where such activities are conducted, and will conduct such activities in accordance with the terms of this Agreement; and

11.3.2 it has not been debarred, and no employee or agent of Elanco involved or to be involved in carrying out Elanco's obligations under this Agreement has been debarred under the provisions of the Generic Drug Enforcement Act of 1992, 21 U.S.C. Sec. 335a(a) and (b) or sanctioned by a Federal Health Care Program (as defined in 42 U.S.C. § 1320a-7b(f)) including but not limited to, the federal Medicare or a state Medicaid program, or debarred, suspended, excluded, or otherwise declared ineligible from any Federal agency or program. In the event that Elanco (i) becomes debarred, suspended, excluded, sanctioned, or otherwise declared ineligible, or (ii) received notice of an action or threat of an action with respect to a debarment, suspension, exclusion, sanction, or ineligibility, Elanco agrees to immediately notify Licensor. Elanco also agrees that in the event that it becomes debarred, suspended, excluded, sanctioned or otherwise declared ineligible, it shall immediately notify Licensor in writing and cease all activities being performed pursuant to this Agreement, and Licensor shall have the right to immediately terminate this Agreement.

11.4 Disclaimers.

11.4.1 EXCEPT AS EXPRESSLY SET FORTH IN THIS SECTION 11, NEITHER PARTY MAKES ANY REPRESENTATIONS OR EXTENDS ANY WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, AND EACH PARTY EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE OR USE, OR NON-INFRINGEMENT.

11.4.2 EXCEPT WITH RESPECT TO A PARTY'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, NEITHER PARTY WILL BE LIABLE TO THE OTHER PARTY FOR INDIRECT, INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOST PROFITS ARISING FROM OR RELATING TO ANY BREACH OF THIS AGREEMENT, REGARDLESS OF ANY NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. NOTHING IN THIS SECTION IS INTENDED TO LIMIT OR RESTRICT THE INDEMNIFICATION RIGHTS OR OBLIGATIONS OF ANY PARTY WITH RESPECT TO CLAIMS BY THIRD PARTIES AGAINST A PARTY FOR INDIRECT, INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES.

12. PUBLICATION; CONFIDENTIALITY.

12.1 Notification and Review.

12.1.1 Both Parties recognize that each may wish to publish the results of their work relating to the subject matter of this Agreement. However, both Parties also recognize the importance of acquiring patent protection. Consequently, any proposed scientific publication, by either Party (including its Affiliates and/or Sublicensees), that includes information related to the Licensed Product and/or the other Party's Confidential Information, shall comply with this Section 12.1. At least forty-five (45) calendar days before a manuscript is to be submitted to a publisher, the publishing Party shall provide the JSC with a copy of the manuscript. If the publishing Party wishes to make an oral presentation or publish any abstract, it shall provide the JSC with a summary of such presentation or abstract, as the case may be, at least fifteen (15) business days before such oral presentation or before such abstract is to be submitted. Any oral presentation, including any question period, shall not include any Confidential Information unless both Parties otherwise agree in writing in advance of such oral presentation. Notwithstanding the foregoing, Elanco may publish clinical trial information on Elanco's online database. For the avoidance of doubt, this Section 12.1.1 does not apply to promotional material which Elanco may develop and make available in accordance with its internal policies.

12.1.2 The JSC shall, as appropriate, pass the manuscript, abstract, text or any other material provided under Section 12.1.1 to the patent counsel or other designated representative of the Party (the "Interested Party") reasonably believed by the JSC to own the underlying technology which is the subject matter of such manuscript, abstract, text or other material, for a determination by such Interested Party whether patentable subject matter is or may be disclosed. The Interested Party or the JSC, as applicable, shall notify the publishing Party in writing within thirty (30) calendar days of receipt of the proposed publication if such Interested Party, in good faith, determines that patentable subject matter is or may be disclosed, or if the Interested Party or the JSC, in good faith, believes Confidential Information (as defined in Section 12.2) is or may be disclosed. In the event the JSC, in its sole discretion, determines that patent applications should be filed, the publishing Party shall delay its publication or presentation for a period not to exceed one hundred twenty (120) calendar days from the JSC's receipt of the proposed publication or presentation to allow time for the filing of patent applications directed to such subject matter. In the event that the delay needed to complete the filing of any necessary patent application will exceed the one hundred twenty (120)-calendar-day period, the JSC will discuss the need for obtaining an extension of the publication delay beyond the one hundred twenty (120)-calendar-day period. If the JSC determines in good faith that Confidential Information is or may be disclosed, the JSC will determine mutually acceptable modifications to the proposed publication or presentation to avoid such disclosure.

12.1.3 Except as expressly provided in this Section 12, each Party agrees not to make any publication, public announcement or disclosure of the terms of this Agreement, without first obtaining the written approval of the other Party and agreement upon the nature and text of such public announcement or disclosure, which approval shall not be unreasonably withheld or delayed. Notwithstanding the foregoing, the Parties shall agree upon a press release to announce the execution of this Agreement, together with a corresponding question and answer

script for use in responding to inquiries about the Agreement and Licensor and Elanco may each disclose to Third Parties the information contained in such press release and question and answer script without the need for further approval by the other. Unless otherwise agreed by the Parties, there shall be no public disclosure of the financial terms of this Agreement, except as may be required by law.

12.1.4 Each Party agrees that it shall cooperate fully with the other with respect to all disclosures regarding this Agreement and any documents ancillary hereto required under Applicable Laws to the United States Securities and Exchange Commission and any other comparable governmental or regulatory agencies.

12.2 Confidentiality; Exceptions. Except to the extent expressly authorized by this Agreement or otherwise agreed in writing, the Parties agree that, for the longer of: (i) during the Term and for five (5) years thereafter; or (ii) ten (10) years from Effective Date; a receiving Party shall keep, and shall ensure that its Affiliates, and their officers, directors, employees and agents, keep, completely confidential and shall not publish or otherwise disclose and shall not use for any purpose other than as set forth in this Agreement: (i) any information furnished to it by the disclosing Party; or (ii) developed under or in connection with this Agreement by either Party; except in each of subclause (i) and (ii) to the extent that it can be established by the receiving Party by contemporaneous written records that such information: (A) was already known to the receiving Party, other than under an obligation of confidentiality, at the time of disclosure by the disclosing Party; (B) was generally available to the public or otherwise part of the public domain at the time of its disclosure to the receiving Party; (C) became generally available to the public or was otherwise part of the public domain after its disclosure hereunder and other than through any act or omission of the receiving Party in breach of this Agreement; or (D) was developed by the receiving Party independent of any disclosure received under this Agreement; or (E) was disclosed to the receiving Party, other than under an obligation of confidentiality, by a Third Party who had no obligation to the disclosing Party not to disclose such information to others (all such information to which none of the foregoing exceptions applies, "Confidential Information").

12.3 Authorized Disclosures. Notwithstanding Section 12.2, each Party may disclose Confidential Information of the disclosing Party that: (i) is submitted by a receiving Party to governmental authorities including, for the avoidance of doubt, any Regulatory Authorities, to facilitate the issuance of Registrations for the Licensed Product, provided that reasonable measures shall be taken to assure confidential treatment of such Confidential Information; (ii) is provided by the receiving Party to Third Parties under confidentiality agreements having provisions at least as stringent as those in this Agreement, for consulting, manufacturing development, manufacturing, external testing, marketing trials and to Third Parties who are sublicensees or other development/marketing partners hereunder with respect to any of the subject matter of this Agreement; or (iii) is otherwise required to be disclosed in compliance with Applicable Laws (including, without limitation and for the avoidance of doubt, the requirements of the U.S. Securities and Exchange Commission, Taxing Authorities and Nasdaq or any other stock exchange on which securities issued by a Party are traded) or order by a court or other regulatory body having competent jurisdiction. In addition, the restrictions contained in Section 12.2 shall not apply to Licensor or Elanco to the extent the Confidential Information relates to

any patent application related to: (A) any Licensor Technology solely owned by Licensor; or (B) any technology solely owned by Elanco, as the case may be.

12.4 Limitations on Use. Each Party shall use any Confidential Information obtained by such Party from the other Party, its Affiliates, or its sublicensees, pursuant to this Agreement or otherwise, solely in connection with the activities or transactions contemplated hereby or expressly permitted hereunder.

12.5 Remedies. Each Party shall be entitled, in addition to any other right or remedy it may have, at law or in equity, to an injunction, without the posting of any bond or other security, enjoining or restraining the other Party from any violation or threatened violation of this Section 12.

13. INDEMNIFICATION; INSURANCE.

13.1 By Elanco. Elanco shall indemnify, defend and hold harmless Licensor and its Affiliates, and their respective directors, officers, employees and agents, from and against any and all liabilities, damages, losses, costs and expenses (including the reasonable fees of attorneys and other professionals) for claims of any Third Party arising out of or resulting from:

13.1.1 negligence or wrongful intentional acts or omissions of Elanco, Sublicensees and their respective directors, officers, employees and agents, in connection with the activities contemplated under this Agreement;

13.1.2 any actual or alleged infringement of any Third Party rights (including, without limitation, any contractual, patent, trademark, copyright, or other intellectual property right) arising from the Parties' exercise of any rights under the Elanco Platform Technology (to the extent not arising under the Licensor Technology) as contemplated under the terms of this Agreement; or

13.1.3 any breach of any representation or warranty made by Elanco pursuant to Sections 11.1 or 11.3;

except for those losses for which Licensor, in whole or in part, has an obligation to indemnify Elanco pursuant to Section 13.2, as to which losses each Party shall indemnify the other to the extent of their respective liability for the losses.

13.2 By Licensor. Licensor shall indemnify, defend and hold harmless Elanco and its respective directors, officers, employees and agents, from and against any and all liabilities, damages, losses, costs and expenses (including the reasonable fees of attorneys and other professionals) for claims of any Third Party arising out of or resulting from:

13.2.1 negligence or wrongful intentional acts or omissions of Licensor or its Affiliates, and their respective directors, officers, employees and agents, in connection with the activities contemplated under this Agreement; or

13.2.2 any actual or alleged infringement or misappropriation of any Third Party rights (including, without limitation, any contractual, patent, trademark, copyright, or other intellectual property right) arising from the Parties' exercise of any rights under the Licensor Technology (to the extent

not arising under the Elanco Platform Technology) as contemplated under the terms of this Agreement; or

13.2.3 any breach of any representation or warranty made by Licensor pursuant to Sections 11.1 or 11.2;

except for those losses for which Elanco, in whole or in part, has an obligation to indemnify Licensor pursuant to Section 13.1, as to which losses each Party shall indemnify the other to the extent of their respective liability for the losses.

13.3 Notice. In the event that any person (an "Indemnitee") entitled to indemnification under Section 13.1 or 13.2 is seeking such indemnification, such Indemnitee shall inform the indemnifying Party of the claim as soon as reasonably practicable after such Indemnitee receives notice of such claim, shall permit the indemnifying Party to assume direction and control of the defense of the claim (including the sole right to settle it at the sole discretion of the indemnifying Party, provided that such settlement does not impose any obligation on the Indemnitee or the other Party) and shall cooperate as requested (at the expense of the indemnifying Party) in the defense of the claim.

13.4 Complete Indemnification. As the Parties intend complete indemnification, all costs and expenses, including without limitation, reasonable legal fees and expenses, actually incurred by an Indemnitee in connection with enforcement of Sections 13.1 and 13.2 shall also be reimbursed by the indemnifying Party.

13.5 Insurance. Each Party shall maintain, and shall require its Affiliates and sublicensees hereunder to maintain, a general liability and product liability insurance program on terms customary in the pharmaceutical industry covering all activities and obligations of it, and, as the case may be, its Affiliates, hereunder, or other programs with comparable coverage, up to and beyond the expiration or termination of this Agreement during (i) the period that any Licensed Product is being commercially distributed or sold by a Party, its Affiliates or Sublicensees, and (ii) a commercially reasonable period thereafter.

14. TERM; TERMINATION.

14.1 Term. This Agreement shall become effective as of the Effective Date and, unless earlier terminated pursuant to any other provisions of this Section 14, shall expire upon the end of the Royalty Term (the "Term").

14.2 Voluntary Termination. Elanco may terminate this Agreement (i) upon completion of the Dose Ranging Study as set forth in Section 3.2, or (ii) at any time by giving Licensor ninety (90) calendar days written notice of its intention to terminate.

14.3 Termination for Cause. Either Party (the "Non-breaching Party") may terminate this Agreement, without prejudice to any other remedies available to it at law or in equity, in the

event the other Party (the "Breaching Party") shall have materially breached or defaulted in the performance of any of its material obligations hereunder and such breach or default shall have continued for ninety (90) calendar days after written notice thereof was provided to the Breaching Party by the Non-breaching Party (or, if such breach or default cannot be cured within such ninety (90) calendar day period, if the Breaching Party does not commence and diligently continue actions to cure such breach or default during such ninety (90) calendar days). Any such termination under this Section 14.3 shall become effective at the end of such ninety (90)-calendar-day period unless the Breaching Party has cured any such noticed breach(es) or default(s) prior to the expiration of such ninety (90)- calendar-day period (or, if such breach(es) or default(s) cannot be cured within such ninety (90)- calendar-day period, if the Breaching Party has commenced and diligently continued actions to cure such breach(es) or default(s)). The right of either Party to terminate this Agreement as provided in this Section 14.3 shall not be affected in any way by its waiver or failure to take action with respect to any previous breach or default.

14.4 Termination for Bankruptcy. Either Party shall have the right to terminate this Agreement upon (a) a proceeding in bankruptcy in relation to the other Party that is not dismissed within ninety (90) calendar days, (b) insolvency of the other Party, or (c) dissolution of the other Party.

14.5 Termination for Patent Challenge. Licensor shall have the right to terminate this Agreement upon written notice if Elanco or any Affiliate challenges the validity, scope or enforceability of any Patent Right included in the Licensor Technology that is licensed to Elanco under this Agreement (other than as may be necessary or reasonably required to assert a cross-claim or a counter-claim or to respond to a court request or order or administrative law, request or order). If a Sublicensee challenges the validity, scope or enforceability of any Patent Right included in the Licensor Technology under which Sublicensee is sublicensed, then Elanco shall, upon written notice from Licensor, terminate such sublicense.

14.6 Termination for Failure to Satisfy Condition Precedent. In the event that the Condition Precedent is not satisfied within six (6) months of the Effective Date, Elanco may, in its sole discretion, elect to terminate this Agreement by providing written notice to Licensor.

14.7 Effect of Expiration or Termination.

(a) On the effective date of termination of this Agreement or expiry of the Term (the "Termination Date"), all licenses granted by Licensor to Elanco under this Agreement will be revoked.

(b) Upon the expiration of the Term or termination by Elanco for an uncured breach by Licensor pursuant to Section 14.3, Licensor will use Commercially Reasonable Efforts to assign to Elanco all Registrations, Trademarks and Alternate Trademarks in the Territory, including promptly submitting any necessary notices to Regulatory Authorities to effect such assignments. If Applicable Laws prevent or delay the transfer of ownership of any such Registration, Trademarks and Alternate Trademarks to Elanco, Licensor will grant, and does hereby grant, to Elanco an exclusive and irrevocable right of access and reference to such Registration, Trademark and Alternate Trademarks, as the case may be, for purposes of

developing and commercializing the Licensed Product in the Territory, and will reasonably cooperate to make the benefits of such Registration, Trademark and Alternate Trademarks, as the case may be, available to Elanco or its designee(s).

(c) Upon termination of the Agreement by Elanco for an uncured breach by Licensor pursuant to Section 14.3 or expiry of the Term, Licensor will further grant Elanco an exclusive, irrevocable and perpetual license to use the Licensor Know-How in connection with any development, manufacture, sale, importation, exportation, lease or disposal of any Licensed Product or performance of any Licensed Process in the Field of Use.

(d) All sublicenses granted prior to the Termination Date will remain in place provided that the sublicensees are in compliance with the terms and conditions of the sublicense agreements.

(e) Each Party shall promptly return or destroy all Confidential Information of the other Party that is not subject to a continuing license hereunder; provided, that, each Party may retain one (1) copy of the Confidential Information of the other Party in its archives solely for the purpose of establishing the contents thereof and ensuring compliance with its obligations hereunder.

(f) Upon termination by Licensor for an uncured breach by Elanco pursuant to Section 14.3 or by Elanco pursuant to Section 14.2, Elanco will use Commercially Reasonable Efforts to assign to Licensor all Registrations in the Territory, including promptly submitting any necessary notices to Regulatory Authorities to effect such assignments. If Applicable Laws prevent or delay the transfer of ownership of any such Registration to Licensor, Elanco will grant, and does hereby grant, to Licensor an exclusive and irrevocable right of access and reference to such Registration for purposes of developing and commercializing the Licensed Product in the Territory, and will reasonably cooperate to make the benefits of such Registration available to Licensor or its designee(s).

(g) Upon termination by Licensor for an uncured breach by Elanco pursuant to Section 14.3 or by Elanco pursuant to Section 14.2, Elanco will further grant Licensor an exclusive, irrevocable and perpetual license to use the Elanco Know-How (excluding any Know-How comprising the Elanco Platform Technology) solely for the sale, importation, exportation, lease or disposal of any Licensed Product in the Field of Use. At Licensor's request and sole expense, Elanco shall manufacture or have manufactured for Licensor the Licensed Products incorporating the Elanco Platform Technology using a contract manufacturer of Elanco's choosing.

14.8 Accrued Rights; Surviving Obligations.

14.8.1 Termination, relinquishment or expiration of this Agreement for any reason shall be without prejudice to any rights that shall have accrued to the benefit of any Party prior to such termination, relinquishment or expiration including, without limitation, any payment obligations under Section 5 and any and all damages arising from any breach hereunder.

14.8.2 In addition to the provisions of this Agreement which expressly survive as set forth elsewhere in this Agreement, all of the Parties' rights and obligations under, and/or the provisions contained in, Sections 6.4, 11.3.2, 14.7 and Articles 9, 10, 12, 13, and 16 shall survive the expiration, termination, or relinquishment of this Agreement.

14.9 Section 365(n) of the Bankruptcy Code. All rights and licenses granted under or pursuant to any Section of this Agreement are and shall otherwise be deemed to be for purposes of Section 365(n) of Title 11, of the United States Code (the "Bankruptcy Code") licenses of rights to "intellectual property" as defined in Section 101(56) of the Bankruptcy Code. The Parties shall retain and may fully exercise all of their respective rights and elections under the Bankruptcy Code. Upon the bankruptcy of any Party, the non-bankrupt Party shall further be entitled to a complete duplicate of, or complete access to, any such intellectual property, and such, if not already in its possession, shall be promptly delivered to the non-bankrupt Party, unless the bankrupt Party elects to continue, and continues, to perform all of its obligations under this Agreement.

15. FORCE MAJEURE.

Any delay in the performance of any of the duties or obligations of either Party hereto (except the payment of money due hereunder) shall not be considered a breach of this Agreement, and the time required for performance shall be extended for a period equal to the period of such delay, if such delay has been caused by or is the result of acts of God; acts of public enemy; insurrections; riots; injunctions; embargoes; labor disputes, including strikes, lockouts, job actions, or boycotts; fires; explosions; earthquakes; floods; shortages of energy; governmental prohibition or restriction; or other unforeseeable causes beyond the reasonable control and without the fault or negligence of the Party so affected. The Party so affected shall give prompt notice to the other Party of such cause, and shall take whatever reasonable steps are necessary to relieve the effect of such cause as rapidly as reasonably possible.

16. COMPLIANCE WITH LAWS AND REGULATIONS

16.1 Compliance with this Agreement. Each of the Parties shall, and shall cause their respective Affiliates to, comply in all material respects with the terms of this Agreement.

16.2 Compliance with Applicable Laws. The Parties have complied and will comply with all Applicable Laws and industry codes dealing with the subject matter of this Agreement including, without limitation, conflicts of interest, corruption or bribery, including, if applicable, the U.S. Foreign Corrupt Practices Act of 1977, as amended, and any laws enacted to implement the Organization of Economic Cooperation and Development Convention on Combating Bribery of Foreign Officials in International Business Transactions.

16.3 Compliance with Party Specific Regulations. The Parties agree to cooperate with each other as may reasonably be required to ensure that each is able to fully meet its obligations with respect to the Party Specific Regulations applicable to it. Neither Party shall be obligated to pursue any course of conduct that would result in such Party being in material breach of any

Party Specific Regulation applicable to it. All Party Specific Regulations are binding only in accordance with their terms and only upon the Party to which they relate.

16.4 Compliance with Internal Compliance Codes. All Internal Compliance Codes shall apply only to the Party to which they relate. The Parties agree to cooperate with each other to insure that each Party is able to comply with the substance of its respective Internal Compliance Codes and, to the extent practicable, to operate in a manner consist with its usual Compliance related processes.

16.5 Compliance Agreement. From time to time, the Parties shall discuss activities necessary to insure Compliance. If either Party requests, the Parties will negotiate in good faith and execute a written Compliance Agreement that will set forth and define the compliance policies, standards, and procedures the Parties will adhere to when conducting activities under this Agreement. The Compliance Agreement may also include provisions relating to interactions between the respective compliance organizations of the Parties, sharing of Compliance related information, execution of training, implementation and monitoring activities, and resolution of Compliance issues that may arise in accordance the rule established in Section 16.6.

16.6 Responsibility for Compliance; Disputes Regarding Compliance Matters. Each Party is solely responsible to ensure Compliance by it and its Affiliates. With respect to joint activities, in the event of any conflict between the Parties as to how to ensure Compliance that the Parties are unable to resolve, the more conservative view (i.e., the view least likely to risk non-Compliance) shall prevail.

16.7 Review Procedure for Marketing Materials and Activities. Any detailing, promoting, communication, marketing and selling activities, including promotional and educational materials and messages, used in connection with the activities contemplated by this Agreement shall comply in all material respects with Applicable Laws and Party Specific Regulations, and be consistent with the substance of the Internal Compliance Codes of both Parties. The Parties shall ensure that appropriate joint prior review procedures are established.

17. MISCELLANEOUS.

17.1 Relationship of Parties. Nothing in this Agreement is intended or shall be deemed to constitute a partnership, agency, employer-employee or joint venture relationship between the Parties. No Party shall incur any debts or make any commitments for the other, except to the extent, if at all, specifically provided herein.

17.2 Assignment. Except pursuant to a sublicense permitted under this Agreement, neither Party shall be entitled to assign its rights or delegate its obligations hereunder without the express written consent of the other Party hereto, except that each Party may assign its rights and transfer its duties hereunder to (i) an Affiliate or (ii) any acquirer of all or substantially all of its business (or that portion thereof to which this Agreement relates) or in the event of such Party's merger, consolidation or involvement in a similar transaction. No assignment and transfer shall

be valid or effective unless done in accordance with this Section 17.2 and unless and until the assignee/transferee shall agree in writing to be bound by the provisions of this Agreement.

17.3 Books and Records. Any books and records to be maintained under this Agreement by a Party shall be maintained in accordance with GAAP.

17.4 Further Actions. Each Party shall execute, acknowledge and deliver such further instruments, and do all such other acts, as may be necessary or appropriate in order to carry out the purposes and intent of this Agreement.

17.5 Notice. Any notice or request required or permitted to be given under or in connection with this Agreement shall be deemed to have been sufficiently given if in writing and personally delivered or sent by certified mail (return receipt requested), facsimile transmission (receipt verified), or overnight express courier service (signature required), prepaid, to the Party for which such notice is intended, at the address set forth for such Party below:

(a) In the case of Licensor, to:

Jaguar Animal Health, Inc.
201 Mission Street
Suite 2375
San Francisco, California 94105
Attention: Karen Wright, CFO
Facsimile No.: 415-371-8311
Telephone No.: 415-516-2732

With copy to:

Jaguar Animal Health, Inc.
201 Mission Street
Suite 2375
San Francisco, California 94105
Attention: Lisa Conte and Rustom Masalawala
Facsimile No.: 415-371-8311
Telephone No.: 415-516-2732

(b) in the case of Elanco, to:

Elanco Animal Health
2500 Innovation Way
Greenfield, IN
Facsimile No.: 317-276-9434
Telephone No.: 317-277-2405
Attention: General Counsel

With a copy to:

Elanco Animal Health
2500 Innovation Way
Greenfield, IN
Facsimile No.: 317-433-6353
Telephone No.: 317-277-7443
Attention: General Patent Counsel/EAM

or to such other address for such Party as it shall have specified by like notice to the other Party, provided that notices of a change of address shall be effective only upon receipt thereof. With respect to notices given pursuant to this Section 17.5: (a) if delivered personally or by facsimile transmission, the date of delivery shall be deemed to be the date on which such notice or request was given; (b) if sent by overnight express courier service, the date of delivery shall be deemed to be the next business day after such notice or request was deposited with such service; and (c) if sent by certified mail, the date of delivery shall be deemed to be the third business day after such notice or request was deposited with the U.S. Postal Service.

17.6 Use of Name. Except as otherwise provided herein, neither Party shall have any right, express or implied, to use in any manner the name or other designation of the other Party or any other trade name, trademark or logo of the other Party for any purpose in connection with the performance of this Agreement.

17.7 Waiver. Neither Party may waive or release any of its rights or interests in this Agreement except in writing. The failure of either Party to assert a right hereunder or to insist upon compliance with any term or condition of this Agreement shall not constitute a waiver of that right or excuse a similar subsequent failure to perform any such term or condition. No waiver by either Party of any condition or term in any one or more instances shall be construed as a continuing waiver of such condition or term or of another condition or term.

17.8 Severability. If any provision hereof should be held invalid, illegal or unenforceable in any jurisdiction, the Parties shall negotiate in good faith a valid, legal and enforceable substitute provision that most nearly reflects the original intent of the Parties and all other provisions hereof shall remain in full force and effect in such jurisdiction and shall be liberally construed in order to carry out the intentions of the Parties hereto as nearly as may be possible. Such invalidity, illegality or unenforceability shall not affect the validity, legality or enforceability of such provision in any other jurisdiction.

17.9 Amendment. No amendment, modification or supplement of any provisions of this Agreement shall be valid or effective unless made in writing and signed by a duly authorized officer of each Party.

17.10 Governing Law. This Agreement shall be governed by and interpreted in accordance with the laws of the State of New York, without regard to conflict of law principles.

17.11 Dispute Resolution.

17.11.1 The Parties recognize that disputes as to certain matters may from time to time arise during the Term which relate to a Party's rights and/or obligations hereunder.

(a) If the Parties cannot resolve any such dispute within thirty (30) calendar days after notice of a dispute from one Party to another, either Party may, by notice to another, have such dispute referred to the Joint Steering Committee.

(b) The Joint Steering Committee shall meet promptly to negotiate in good faith the matter referred and to determine a resolution. During such period of negotiations, any applicable time periods under this Agreement shall be tolled.

17.12 Entire Agreement. This Agreement, together with the Exhibits hereto, the Development Plans, the Supply Agreement, the Quality Agreement, the Pharmacovigilance Agreement, and any Exhibits thereto, each of the foregoing as updated from time to time as provided under this Agreement, sets forth the entire agreement and understanding between the Parties as to the subject matter hereof and merges all prior discussions and negotiations between them, and neither of the Parties shall be bound by any conditions, definitions, warranties, understandings or representations with respect to such subject matter other than as expressly provided herein or as duly set forth on or subsequent to the date hereof in writing and signed by a proper and duly authorized officer or representative of the Party to be bound thereby.

17.13 Parties in Interest. All of the terms and provisions of this Agreement shall be binding upon, inure to the benefit of and be enforceable by the Parties hereto and their respective permitted successors and assigns.

17.14 Descriptive Headings. The descriptive headings of this Agreement are for convenience only, and shall be of no force or effect in construing or interpreting any of the provisions of this Agreement.

17.15 Construction of Agreement. The terms and provisions of this Agreement represent the results of negotiations between the Parties and their representatives, each of which has been represented by counsel of its own choosing, and neither of which has acted under duress or compulsion, whether legal, economic or otherwise. Accordingly, the terms and provisions of this Agreement shall be interpreted and construed in accordance with their usual and customary meanings, and each of the Parties hereto hereby waives the application in connection with the interpretation and construction of this Agreement of any rule of law to the effect that ambiguous or conflicting terms or provisions contained in this Agreement shall be interpreted or construed against the Party whose attorney prepared the executed draft or any earlier draft of this Agreement.

17.16 Counterparts. This Agreement may be signed in counterparts, each and every one of which shall be deemed an original, notwithstanding variations in format or file designation which may result from the electronic transmission, storage and printing of copies of this Agreement from separate

computers or printers. Facsimile signatures shall be treated as original signatures.

[Signature Page Follows]

EXEUCTION COPY

IN WITNESS WHEREOF, each of the Parties has caused this Collaboration License, Development, Co-Promotion and Commercialization Agreement to be executed by its duly authorized representative as of the Effective Date.

JAGUAR ANIMAL HEALTH, INC.

By: /s/ Lisa A. Conte
Name: Lisa A. Conte
Title: President and CEO

ELANCO US, INC.

By: /s/ Jeffrey N. Simmons
Name: Jeffrey N. Simmons
Title: President

EXHIBIT 3.1

ACUTE TRIAL AND SAFETY STUDY BUDGET

Acute Trial Budget	[***]	[***]	[***]
Study Costs	[***]	[***]	[***]
Travel	[***]	[***]	[***]
Formulation	[***]	[***]	[***]
Assays	[***]	[***]	[***]
Consulting	[***]	[***]	[***]
Clinical Trial Product	[***]	[***]	[***]
Equipment/Study Supplies	[***]	[***]	[***]
Personnel	[***]	[***]	[***]
TOTAL	[***]	[***]	[***]

Safety Study Budget:	[***]
MPI Study Costs	[***]
Travel	[***]
EKG Labs to do crofelemer PK analysis	[***]
Personnel	[***]
Clinical Trial Product	[***]
Total	[***]

***** CONFIDENTIAL TREATMENT REQUESTED**

EXHIBIT 4.3

CO-PROMOTION

ETHICS & COMPLIANCE PRINCIPLES

Elanco is committed to the highest standards of corporate conduct in all of our business dealings globally. Being compliant and operating within ethical boundaries and with honesty and transparency is critical to our earning and retaining the trust of our customers, fulfilling our vision of food and companionship enriching life, and maintaining the privilege of operating in a highly regulated animal health industry. As a result, Elanco follows all federal, state, and local laws as well as all applicable industry codes when promoting our products. Elanco does not use marketing and sales incentive programs,

meetings, meals, entertainment, hospitality, gifts, contests and prizes, etc. to inappropriately get business, keep business, or gain an improper advantage. Elanco expects the same from our business partners, and, therefore, requires that the following principles be applied by *Licensor* in all circumstances.

1.1 ***Do not buy the business:*** *Do not bribe or offer, provide, or authorize any other inducement to any party in connection with products and do not create even the appearance of offering, giving, or authorizing a bribe or inducement in connection with products. This includes, but is not limited to:*

1.1.1 Meals, Entertainment, and Hospitality

- *Must be given unconditionally and in a transparent manner.*
- *Must be for the purpose of meeting a business objective.*
- *Must be reasonable and not be—or appear to be—lavish.*

1.1.2 Gifts

- *Must be given unconditionally and in a transparent manner.*
- *Must not be given to impose any obligation or condition on an external party to promote or prescribe a product.*
- *Must be reasonable and not be—or appear to be—lavish.*
- *Must <u>not</u> be in the form of cash, cash equivalents, or items that would constitute capital or operating expenses of the recipient.*
- *Must be either:*
  - *For the purpose of meeting a business objective and serving as a reminder of the Elanco brand and business relationship.*
  - *Reasonably related to an Animal Health Professional's work.*
  - *A culturally accepted item (e.g. flowers for the passing of a customer's spouse).*
  - *Must not be given to family members or other individuals or entities related to the recipient, unless they are eligible to receive them by virtue of their own relationship with Licensor.*

1.1.3 Fair Market Value

- *If contracting with Animal Health Professionals to provide services, they must be paid based on their qualifications to ensure payments made are fair, acceptable, and appropriate.*

1.2 ***Use only approved promotional and educational materials:*** *all materials used for educational and promotional purposes that are generated following execution of this agreement must be approved by Elanco through the appropriate process and not be altered in any way. Examples include, but are not limited to, literature, media, reminder items, speaker presentations, etc.*

1.3 ***Do not promote outside of the approved local label:*** *Only promote products in a manner consistent with the approved local label, as defined where the promotional activity takes place and where the recipient of the information practices. Additionally, do not prompt or encourage requests for off-label information. External speakers that may promote Elanco products are considered to be agents of Elanco by many regulatory agencies. As a result, speakers are required to abide by all laws, regulations, and industry codes governing the promotion of animal health products and interactions with animal health professionals and government officials. Never hire speakers to inappropriately obtain business, keep business, or gain an improper advantage.*

1.4 ***Do not disguise discounts:*** *Do not offer support to Animal Health Professionals, Government or Public Officials, or other private or public payers (for example, in the form of grants, donations, or product samples) to disguise discounts. This excludes commercial discounts where employees whose responsibilities include negotiating commercial transactions may offer and contract for commercial discounts in compliance with applicable laws and regulations.*

1.5 ***Respect the privacy of customer and consumer personal information (PI).***

- *Only use PI in ways that are consistent with what individuals have been told, would generally expect, or have specifically agreed to while also considering the context and sensitivity of the information.*
- *Collect and store only the amount of PI necessary to support the business need and/or to fulfil legal obligations.*
- *Keep the PI collected reasonably accurate, complete, and up-to-date while taking into account the original purposes for which it was collected.*
- *Use reasonable administrative, technical, and physical measures to safeguard PI against loss, misuse, theft, and unauthorized access, disclosure, modification, or destruction.*
- *Maintain and retain PI, including documentation of consent or notice (if applicable), for as long as the business need is valid.*

1.6 ***Comply with local law and international guidelines and principles:***

a. *<u>More Restrictive Local Law</u>: In the event that local laws, regulations, or industry codes are more restrictive than the content of this Appendix, then Licensor must comply with the local law, regulation, or industry code.*

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b. *<u>Less Restrictive Local Law</u>: If local laws, regulations, or industry codes are less restrictive than the content of this Appendix, then the standards set forth in this Appendix must be, at a minimum, complied with.*

In addition to the principles above to be applied by *Licensor*, all events, activities, or promotions (a) that are branded as an Elanco event, activity, or promotion or (b) where Elanco controls such event, activity, or promotion will be subject to Elanco's approval prior to the event, activity, or promotion occurring to ensure compliance to Elanco's policies and procedures.

EXHIBIT 7.4

TRADEMARKS

Applicant: Jaguar Animal Health, Inc.

Trademark: **CANALEVIA**

Application No.: 87/174,192

Filing Date: September 16, 2016

Goods/Class: Plant extracts for medical, veterinary and pharmaceutical purposes, namely, an anti-diarrhea medication for dogs; veterinary preparations for the treatment of diarrhea, in Class 5.

Filing Basis: Intent to use

EXHIBIT 8.1.2 (A)

SUPPLY AGREEMENT TERM SHEET

Term	Summary
Parties:	· Elanco US Inc. ("Elanco") · Jaguar Animal Health, Inc. ("Jaguar") · Each of the above a "Party," and collectively, the "Parties"
Definitions:	· Terms with capital letters used in this term sheet shall have the same meaning assigned to them in the License, Development, Co-Promotion and Commercialization Agreement between Elanco and Jaguar (the "License Agreement"), unless defined differently in this term sheet. This term sheet is intended to set forth the material terms of the Supply Agreement, as contemplated in the License Agreement. In accordance with the License Agreement, the Parties will incorporate the terms of this Term Sheet in a final, definitive Supply Agreement (a "Master Supply Agreement"). The Master Supply Agreement will have one or more sub-agreements for each Licensed Product. For example, the 125mg tableted Licensed Product may have a different sub-agreement than different formulations of the same Licensed Product or for different Licensed Products.
Term & Termination	· The term of the Master Supply Agreement shall be co-terminus with the Term of the License Agreement. The termination provisions of the Master Supply Agreement will match those in the License Agreement.
Agreement to supply Products:	· Licensed Products include the current 125mg tablet of Canalevia™ for the treatment of acute diarrhea in dogs ("Current Product"). · Additional Products may be added from time to time, including different strengths, formulations and indications, either through an amendment to the sub-agreement for the Current Product or by adding a new sub-agreement. · Licensed Products may be the API, drug product or finished product. · Throughout the Term, and starting six (6) months prior to anticipated first delivery of Licensed Product, Elanco will provide Jaguar with a rolling 18 month forecast of which the first three (3) months are binding. Upon the first delivery of Licensed Product(s) and throughout the Term, Elanco will issue purchase orders and Jaguar will deliver Licensed Products in accordance with the purchase orders; provided, however, that the launch quantities must be ordered at least six (6) months prior to the anticipated delivery date. The three (3) month period following the firm order period in each forecast may be adjusted by Elanco by up to twenty percent (20%) (in other words, the orders for such three (3) month period must be within eighty percent to one hundred twenty percent (80-120%) of the prior forecast for such month), unless specifically agreed to by Jaguar. Jaguar will base its production and inventory levels upon such forecasts and shall maintain a mutually agreed upon quantity and amount of API

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	and finished product inventory during the Term to meet anticipated demand.
Failure to Supply	· If Jaguar is unable to Materially Fulfil (to be defined in the Supply Agreement) its obligations under the Supply Agreement, it shall assist in the transition of the Licensed Products to a new agreement with Jaguar's subcontractors, including the Current Subcontractors, or an alternative supply chain.
Manufacture of Current Product	· The Current Product is manufactured using the following suppliers and contract manufacturers ("Current Subcontractors"): Crude Plant Latex suppliers: L&CH Negocios y Servicios E.I.R.L. (Peru) Corporacion Forestal Amazonico SAC (Peru) API or Drug Substance (Crofelemer) suppliers:

	Glenmark Pharmaceuticals Limited, Plot No. 3109-C, GIDC Industrial Estate Ankleshwar-393 002, Dist Bharuch, Gujarat State, India Glenmark Pharmaceuticals Limited, Plot No. B-25, Shendra Five Star MIDC Aurangabad, Maharashtra 431 001, India Indena (Milan, Italy)[1] Drug Product supplier: Patheon, Inc. (Cincinnati, Ohio, USA)
Manufacture of Products	· Jaguar will have the Licensed Product manufactured at designated cGMP approved facilities, including the Current Subcontractors, in accordance with US FDA guidelines or similar applicable guidelines for markets outside the US, the Licensed Product Specifications (as such term will be defined in the Master Supply Agreement), the MRD (as defined below), and Quality Agreement and Applicable Law. · Jaguar will have agreements in place with its subcontractors, including the Current Subcontractors, that require compliance with the applicable terms and conditions of the Master Supply Agreement. · Subject to Elanco's obligation to obtain and maintain the Registrations in the Elanco Exclusive Territory, Jaguar (and, as applicable, its designated subcontractor(s)) will maintain all licenses, permissions, authorizations, consents and permits needed to manufacture and supply the Licensed Products during the Term of, and in accordance with, the terms of the Master Supply Agreement. · Jaguar will not permit its subcontractor(s), including the Current Subcontractors, without Elanco's prior written consent, which will not be unreasonably withheld to: (i) make any changes to the Licensed Product

[1] Note: Indena is under certification to become GMP compliant and will become a Current Subcontractor once certified.

	Specifications or to the process or equipment used to manufacture the Licensed Product; or (ii) manufacture the Licensed Product in any facility other than the manufacturing facility specified in the Master Supply Agreement. Jaguar will provide Elanco two (2) months prior written notice of any such proposed change. · Jaguar will not change active ingredient suppliers or any of the Current Subcontractors without the prior written consent of Elanco, which will not be unreasonably withheld. Jaguar will use commercially reasonable efforts to give Elanco twelve (12) months prior written notice of any such proposed change. Jaguar will be responsible for all costs associated with any such change in active ingredient supplier or Current Subcontractor. · Jaguar will not change a drug product or packaging site without the prior written consent of Elanco, which will not be unreasonably withheld. Jaguar will be responsible for all costs associated with any change in drug product or packaging site. · Elanco will have the right to inspect any third party manufacturer (up to once per year, and with reasonable written notice). In addition, Elanco shall be permitted to audit such third party manufacturers as required for the Registrations it holds.
Quality Agreement	· Upon execution of the Master Supply Agreement, and in connection with the creation of any Work Order (as such term will be defined in the Master Supply Agreement), as applicable, the Parties (or in the case of Elanco, its designated Affiliate) shall enter into the Quality Agreement. The obligations set forth in the Quality Agreement, and any amendments thereto, shall become part of, and be incorporated into the Master Supply Agreement and the relevant Work Order. · The Quality Agreement will contain industry standard provisions, including but not limited to, rights to access and audit Jaguar facilities and systems, access to Jaguar production records, notification of external inspections, etc.
Manufacturing Responsibilities Document ("MRD")	· The Master Supply Agreement shall incorporate the applicable MRD.
Stability Testing	· Jaguar is responsible for stability testing.
Delivery:	· Licensed Products will be shipped FCA Jaguar's (or its designated manufacturer's) manufacturing premises (INCOTERMS 2010). Jaguar would deliver Licensed Products in accordance with Elanco's purchase orders as specified in the associated accepted purchase order. Elanco may choose to accept none, any, or all of any product delivered after thirty (30) days from delivery date. · Delays in delivery which are greater than ninety (90) days entitle Elanco to reject an order.

Title and Risk:	· Jaguar shall retain title and will retain risk of loss or other damage to the Licensed Products until delivered to Elanco, or Elanco's designee at Jaguar's or its designated manufacturer's manufacturing premises.
Acceptance and Rejection of Products; Product Warranty	Elanco reserves the right to reject any Licensed Product that does not conform to the Licensed Product Specifications, as agreed to in Quality Agreement. Elanco will provide notice that the Licensed Product has been rejected within thirty (30) days of receipt of the Licensed Product. Upon notice of rejection, Jaguar will accept return of the Licensed Product and, at Elanco's discretion, either replace the non-conforming Licensed Product with new Licensed Product meeting the Licensed Product Specifications as quickly as possible, or refund the purchase price paid by Elanco, plus Elanco's shipping costs, within thirty (30) days of the rejection notice. The Licensed Products would be subject to a product warranty which would cover the period following discovery of a latent defect.
Supply Price:	· The Supply Price for the Current Product would be [***]. The ratio shall be fixed on an annual basis in the last quarter of the

		prior calendar year. · [***] · Other Licensed Product pricing to be negotiated.
Payment	·	Jaguar will issue an invoice to Elanco upon delivery of the Licensed Products, and Elanco to pay the full amount invoiced within forty-five (45) days of receipt of the invoice. · Elanco may withhold payment of any amount that it may reasonably dispute in good faith until such dispute is resolved.
Taxes:	·	Each Party will be responsible for its own Taxes, including property taxes on property it owns or leases, income taxes on its business, and any other Taxes incurred by such Party in connection with its business and with performing its obligations under the Master Supply Agreement. · If Elanco is mandated under the laws of a country to withhold and remit any Tax to any Taxing Authority in such country in connection with any payment payable to Jaguar under the Master Supply Agreement or any sub-agreement, such amount shall be deducted from the payment to be made by Elanco to Jaguar.
Adverse Events,	·	If, during the Term of this Master Supply Agreement, Jaguar or its representatives or subcontractors, become aware of an adverse event

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Complaints and Returns		and/or complaint that results in the death of a human or animal that involves known or suspected counterfeiting of or tampering with Licensed Product, Jaguar will report such information to Elanco within twenty-four (24) hours to the appropriate Elanco Affiliate. All other adverse event or complaints shall be forward to Elanco within five (5) calendar days. Similarly, if Elanco, its Affiliates or representatives, becomes aware of any adverse event and/or complaint that results in the death of a human or animal that involves known or suspected counterfeiting of or tampering with any Licensed Product, Elanco will report such information within twenty-four (24) hours to Jaguar. All other adverse events or complaints shall be forwarded to Jaguar within five (5) calendar days.
Regulatory Inspections:	·	Jaguar agrees to inform Elanco within twenty-four (24) hours of any regulatory inquiry, communication or inspection which directly or indirectly affects the production of the Licensed Products. In the event of an inspection by any Governmental Authority which involves a Licensed Product, Elanco will be notified within twenty-four (24) hours of the issuance of the notice of inspection or the presence of an inspector. In the event there are written observations (or any other written communication) by a Governmental Authority which involve a Licensed Product, or any proposed written response by Jaguar to any such inspection, Elanco will be informed within twenty-four (24) hours and be provided with copies of all documentation within forty-eight (48) hours, and will have the opportunity to review and provide input to the response. If Elanco elects to provide input to the response, such input will be provided by Elanco to Jaguar as promptly as practicable.
Compliance with Applicable Laws	·	In the performance of any applicable services or obligations or supply of Licensed Products under the Master Supply Agreement, Jaguar shall comply with all Applicable Laws and professional or good practice standards or codes applicable to the nature of the Licensed Products.
Insurance:	·	Each Party must procure and maintain its own insurance policies (or equivalent self-insurance) in respect of personal injury, death and property damage in connection with the performance of their respective obligations under the Master Supply Agreement.
Governing Law and Venue:	·	Any disputes under or in connection with the Master Supply Agreement shall be resolved in accordance with the terms of the License Agreement.
Other Terms and Conditions	·	The Master Supply Agreement will contain other customary terms and conditions including, without limitation, provisions relating to indemnification, force majeure, confidentiality and assignment.

EXHIBIT 9.3.1

LICENSOR PATENTS

K&S #	Country	Title	Serial No.	Filing Date	Publication #	Publication Date	Patent No.	Issue Date	Status
13784.105003	UNITED STATES	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	10/919,969	8/17/2004	2005-0019389	1/27/2005	7323195	1/29/2008	ISSUED
13784.105003AT	AUSTRIA	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997			935417	5/6/2009	ISSUED
13784.105003AU	AUSTRALIA	Enteric	20303/02	3/4/2002			775330	11/11/2004	ISSUED

		Formulations of Proanthyocyanidin Polymer Antidiarrheal Compositions							
13784.105003BE	BELGIUM	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003CA	CANADA	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	2,269,078	10/14/1997		4/23/1998	2,269,078	1/24/2012	ISSUED
13784.105003CH	SWITZERLAND	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003DE	GERMANY	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003DK	DENMARK	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED

13784.105003EP	EUROPEAN PATENT CONVENT	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003EP1	EUROPEAN PATENT CONVENT	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	9003375.4	10/14/1997	EP2060183	5/20/2009			PUBLISHED
13784.105003EP2	EUROPEAN PATENT CONVENT	Method of Treating Secretory Diarrhea With Enteric Formulations of Proanthocyanidin Polymer	10177942.9	10/14/1997	2255661	12/1/2010			PUBLISHED
13784.105003ES	SPAIN	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003FI	FINLAND	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003FR	FRANCE	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003GB	UNITED	Enteric	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED

	KINGDOM	Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions							
13784.105003GR	GREECE	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003HK	HONG KONG	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	09110214.0	10/14/1997	1130158A	12/24/2009			PUBLISHED
13784.105003HK1	HONG KONG	Method of Treating Secretory Diarrhea With Enteric Formulations of Proanthocyanidin Polymer	11105290.3	5/27/2011	1151189A	1/27/2012			PUBLISHED
13784.105003IE	IRELAND	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003IN	INDIA	Enteric formulations of proanthocyanidin polymer antidiarrheal compositions	2297/MAS/97	10/14/1997			209532	9/4/2007	ISSUED
13784.105003IN1	INDIA	Enteric formulations of proanthocyanidin polymer antidiarrheal compositions	270/CHE/2007	2/7/2007					PENDING
13784.105003IN2	INDIA	Method of Treating Secretory Diarrhea With Enteric Formulations of Proanthocyanidin Polymer	2528/CHE/2011	7/22/2011	2528/CHE/2011A	8/31/2016			PUBLISHED
13784.105003IT	ITALY	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003JP	JAPAN	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	10-518632	10/14/1997			4195728	10/3/2008	ISSUED
13784.105003KR	SOUTH KOREA	Enteric formulations of proanthocyanidin polymer antidiarrheal compositions	1999-7003305	10/14/1997			0467532	1/13/2005	ISSUED
13784.105003LI	LIECHTENSTEIN	Enteric Formulations of Proanthocyanidin Polymer	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED

		Antidiarrheal Compositions							
13784.105003LU	LUXEMBOURG	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003MC	MONACO	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003MX	MEXICO	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	PA/a/1999/003517	10/14/1997			294817	1/17/2012	ISSUED
13784.105003MX1	MEXICO	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	MX/a//2012/000601	10/14/1997					PENDING
13784.105003NL	NETHERLANDS	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003NZ	NEW ZEALAND	Enteric Formulations of Proanthyocyanidin Polymer Antidiarrheal Compositions	335317	4/21/1999			335317	6/6/2001	ISSUED
13784.105003P	UNITED STATES	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	60/005,370	10/13/1995					CLOSED
13784.105003PC	WIPO	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	PCT/US1997/018845	10/14/1997	WO 1998/16111	4/23/1998			NAT PHASE
13784.105003PH	PHILIPPINES	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	I-58235	10/16/1997					ABANDONED
13784.105003PT	PORTUGAL	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003SE	SWEDEN	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	97912779.2	10/14/1997	EP0935417	4/23/1998	935417	5/6/2009	ISSUED
13784.105003TW	TAIWAN	Enteric Formulations of Proanthyocyanidin Polymer	86115262	10/16/1997	537898	6/21/2003	NI-179821	6/21/2003	ISSUED

		Antidiarrheal Compositions						
13784.105003US1	UNITED STATES	Method of Treating Secretory Diarrhea With Enteric formulations of proanthocyanidin polymer	09/712,033	11/14/2000			7341744	3/11/2008	ISSUED

13784.105003US10	UNITED STATES	COMPOSITIONS AND METHODS OF TREATMENT WITH PROANTHOCYANIDIN POLYMER ANTIDIARRHEAL COMPOSITIONS	14/023,598	9/11/2013	2014-0011869	1/9/2014			ABANDONED
13784.105003US2	UNITED STATES	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	11/998,170	11/28/2007					ABANDONED
13784.105003US3	UNITED STATES	COMPOSITIONS AND METHODS OF TREATMENT WITH PROANTHOCYANIDIN POLYMER ANTIDIARRHEAL COMPOSITIONS	14/276,231	5/13/2014	2014-0329896	11/6/2014			ABANDONED
13784.105003US4	UNITED STATES	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	08/559,396						ABANDONED
13784.105003US5	UNITED STATES	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	08/730,772	10/16/1996					ABANDONED
13784.105003US6	UNITED STATES	Enteric Formulations of Proanthocyanidin Polymer Antidiarrheal Compositions	09/066,989	4/23/1998					ABANDONED
13784.105003US8	UNITED STATES	Enteric formulations of proanthocyanidin polymer antidiarrheal compositions	11/998,171	11/28/2007					ABANDONED
13784.105003US9	UNITED STATES	Enteric formulations of proanthocyanidin polymer antidiarrheal compositions	12/175,131	7/17/2008	2009-0148397	6/11/2009	8574634	11/5/2013	ISSUED

21605.105007P	UNITED STATES	METHODS OF TREATING DIARRHEA IN COMPANION ANIMALS	62/101,663	1/9/2015					FORM FILED
21605.105007P2	UNITED STATES	METHODS OF TREATING DIARRHEA IN COMPANION ANIMALS	62/117,927	2/18/2015					FORM FILED
21605.105007PC	WIPO	METHODS OF TREATING DIARRHEA IN COMPANION ANIMALS	PCT/US16/12681	1/8/2016	WO 2016/112312	7/14/2016			PUBLISHED
	WIPO	METHOD FOR PRODUCING PROANTHOCYANIDIN POLYMER COMPOSITIONS FOR PHARMACEUTICAL FORMULATIONS	PCT/IB2010/02060	8/24/2010	WO2011024049	3/3/2011			
	EURASIA	METHOD FOR	EA20120090098	8/24/2010		1/30/2013	EA02381		ISSUED

		PRODUCING PROANTHOCYANIDIN POLYMER COMPOSITIONS FOR PHARMACEUTICAL FORMULATIONS				4	
	SOUTH AFRICA	METHOD FOR PRODUCING PROANTHOCYANIDIN POLYMER COMPOSITIONS FOR PHARMACEUTICAL FORMULATIONS	ZA20120002160	8/24/2010	8/28/2013	ZA20120 2160	ISSUED

Exhibit 10.43

[Jaguar ANIMAL HEALTH letterhead]

January 30, 2017

Ms. Jo Sandlin
Serious Change II LP
3555 Timmons Lane, Suite 800
Houston, TX 77027

Re: (i) Serious Change II LP Convertible Promissory Note with Jaguar Animal Health dated February 13, 2015 in the amount of $150,000, due July 31, 2017, per the terms of the original Note and Warrant Purchase Agreement originally dated for reference purposes as of December 23, 2014, (ii) the notification between Serious Change II LP Convertible Promissory Note and Jaguar Animal Health dated May 23, 2016 in the amount of $150,000, plus simple interest at the rate of twelve percent (12.0%) thereon from the date of February 13, 2015 through final cash payment date, due two weeks after the effective date of the Jaguar Animal Health and Napo Pharmaceuticals merger, to Serious Change II LP , (iii) the notification between Serious Change II LP Convertible Promissory Note and Jaguar Animal Health dated July 28, 2016 in the amount of $150,000, plus simple interest at the rate of twelve percent (12%) thereon from the date of February 13, 2015 through final cash payment due October 31, 2016, , (iv) the notification between Serious Change II LP Convertible Promissory Note and Jaguar Animal Health dated October 28, 2016 in the amount of $150,000, plus simple interest at the rate of twelve percent (12%) thereon from the date of February 13, 2015 through final cash payment date, due January 1, 2017 (v)the notification between Serious Change II LP Convertible Promissory Note and Jaguar Animal Health dated January 8, 2017 in the amount of $150,000, plus simple interest at the rate of twelve percent (12%) thereon from the date of February 13, 2015 through final cash payment date due January 31, 2017

Dear Ms. Sandlin,

Please accept this email as confirmation of your notification to Jaguar Animal Health, Inc. that Serious Change II LP requests the following cash and warrant consideration in regard to the above referenced convertible promissory note with Jaguar Animal Health:

1) The convertible promissory note of the principal sum of one hundred fifty thousand dollars ($150,000.00), plus simple interest at the rate of twelve percent (12.0%) thereon from the date of February 13, 2015 through January 31, 2018 on January 31, 2018 to Serious Change II LP (now totaling $185,458 as of Jan. 31, 2017); and

2) Warrant (Exhibit A) to purchase 370,916 shares of common stock of Jaguar Animal Health, Inc. for $0.51** per share upon exercise of this Warrant, at any time after the later of the date upon which the $150,000 Convertible Promissory Note between Serious Change II LP and Jaguar Animal Health, Inc. dated February 13, 2015 or 5:00 p.m. California time on Feb. 1, 2017, and before Jan. 31, 2019 (the Termination Date).

[Price equal to low trade price of JAGX on January 30, 2017]**

Thank you for your continued support and interest in Jaguar Animal Health, Ms. Sandlin.
Best,

/s/ Lisa Conte
Lisa Conte
CEO and President
Jaguar Animal Health, Inc.

ACCEPTED, ACKNOWLEDGED AND AGREED TO AS OF THE DATE FRIST ABOVE WRITTEN.
SERIOUS CHANGE II LP
By: Serious Change Management II GP LLC,
Its General Partner

By: /s/ Jo Sandlin
Jo Sandlin
Vice President

Exhibit A

THIS WARRANT AND THE SECURITIES ISSUABLE UPON EXERCISE OF THIS WARRANT, HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), AND MAY NOT BE SOLD, TRANSFERRED, ASSIGNED, HYPOTHECATED OR OTHERWISE TRANSFERRED UNLESS THERE IS AN EFFECTIVE REGISTRATION STATEMENT UNDER THE ACT COVERING SUCH SECURITIES, THE SALE IS MADE IN ACCORDANCE WITH RULE 144 UNDER THE ACT, OR THE COMPANY RECEIVES AN OPINION OF COUNSEL FOR THE HOLDER OF SUCH SECURITIES REASONABLY SATISFACTORY TO THE COMPANY STATING THAT SUCH SALE,

TRANSFER, ASSIGNMENT OR HYPOTHECATION IS EXEMPT FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF THE ACT

WARRANT TO PURCHASE COMMON STOCK
OF JAGUAR ANIMAL HEALTH, INC.

1. Number of Shares and Exercise Price Subject to Warrant. FOR VALUE RECEIVED, subject to the terms and conditions herein set forth (including but not limited to Section 9 below), the Holder (as defined below) is entitled to purchase from Jaguar Animal Health, Inc., a Delaware corporation (the "Company"), at any time the Warrant Stock (as defined below) on, or before, January 31, 2019 (the "Termination Date"), at a price per share equal to the Warrant Price (as defined below), and subject to adjustments as described below) upon exercise of this Warrant pursuant to Section 6 hereof. ***This Warrant is executed and delivered in consideration of Holder's extension of the due date under Holder's$150,000 Convertible Promissory Note between Serious Change II LP and Jaguar Animal Health, Inc. dated February 13, 2015.***

2. Definitions. As used in this Warrant, the following terms shall have the definitions ascribed to them below:

(a) "Change of Control" shall mean: (i) any "person" or "group" (within the meaning of Section 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended), becomes the "beneficial owner" (as defined in Rule 13d-3 under the Securities Exchange Act of 1934, as amended), directly or indirectly, of more than 50% of the outstanding voting securities of the Company having the right to vote for the election of members of the board of directors in a single transaction or series of related transactions, (ii) any reorganization, merger, consolidation, tender offer or similar transaction involving the Company or its securities with or into another entity, other than a transaction or series of related transactions in which the holders of the voting securities of the Company outstanding immediately prior to such transaction or series of related transactions retain, immediately after such transaction or series of related transactions, at least a majority of the total voting power represented by the outstanding voting securities of the Company or such other surviving or resulting entity or (iii) a sale, lease, exclusive license or other disposition of all or substantially all of the assets of the Company.

(b) "Common Stock" shall mean a share of common stock of the Company

(c) "Holder" shall mean SERIOUS CHANGE II LP or its permitted assigns.

(d) "Securities" shall mean the security issued in the Company's Common Stock.

(e) "Warrant Price" shall be $0.51 per share subject to adjustment from time to time in accordance with Section 3 below.

(f) "Warrant Stock" shall mean 370,916 shares of the Company's Securities subject to adjustment from time to time in accordance with Section 3 below.

3. Adjustments and Notices. The Warrant Price and Warrant Stock shall be subject to adjustment from time to time in accordance with the following provisions:

(a) Subdivision, Stock Dividends or Combinations. In case the Company shall at any time subdivide the outstanding shares of Securities subject to this Warrant or shall issue a stock dividend with respect to the Securities, the Warrant Price in effect immediately prior to such subdivision or the issuance of such dividend shall be proportionately decreased, and in case the Company shall at any time combine the outstanding shares of the Securities, the Warrant Price in effect immediately prior to such combination shall be proportionately increased, effective at the close of business on the date of such subdivision, dividend or combination, as the case may be. Simultaneously with any adjustment to the Warrant Price pursuant to this Section 3, the number of Warrant Stock shares that may be purchased upon exercise of this Warrant shall be increased or decreased proportionately, so that after such adjustment the aggregate Warrant Price payable hereunder for the increased or decreased number of Warrant Stock shares shall be the same as the aggregate Warrant Price in effect immediately prior to such adjustment

(b) Reclassification, Exchange, Substitution, In-Kind Distribution. Upon any reclassification, exchange, substitution, or other event that results in a change of the number and/or class of the Warrant Stock or upon the payment of a dividend in securities or property other than the Warrant Stock, the Holder shall be entitled to receive, upon exercise or conversion of this Warrant, the number and kind of securities and property that the Holder would have received for the Warrant Stock if this Warrant had been exercised immediately before the record date for such reclassification, exchange, substitution, or other event or immediately prior to the record date for such dividend. The Company or its successor shall promptly issue to the Holder a new Warrant for such new securities or other property. The new Warrant shall provide for adjustments which shall be as nearly equivalent as may be practicable to the adjustments provided for in this Section 3 including, without limitation, adjustments to the Warrant Price and to the number of securities or property issuable upon exercise of the new Warrant. The provisions of this Section 3(b) shall similarly apply to successive reclassifications, exchanges, substitutions, or other events and successive dividends.

(c) Notice of Adjustment Events. Upon any adjustment of the Warrant Price and any increase or decrease in the number of shares of Warrant Stock, then, and in each such case, the Company, as promptly as practicable thereafter, shall give written notice thereof to the Holder of this Warrant at the address of such Holder as shown on the books of the Company which notice shall state the Warrant Price as adjusted and the increased or decreased number of shares of Warrant Stock, setting forth in reasonable detail the method of calculation of each.

(d) Fractional Shares. No fractional shares shall be issuable upon exercise or conversion of the Warrant and the number of shares of Warrant Stock to be issued shall be rounded down to the nearest whole share. If a fractional share interest arises upon any exercise or conversion of the Warrant, the Company shall eliminate such fractional share interest by paying the Holder an amount computed by multiplying the fractional interest by the fair market value of a full share of the Warrant Stock.

4. No Stockholder Rights. This Warrant, by itself, as distinguished from any shares purchased hereunder, shall not entitle the Holder to any of the rights of a stockholder of the Company except as provided herein.

5. Representations, Warranties and Covenants.

(a) Reservation of Stock. The Company will, in connection with the execution and delivery of this Warrant, reserve from its authorized and unissued common stock, as applicable, a sufficient number of shares to provide for the issuance of the Warrant Stock in the form of common stock,

as applicable, upon the exercise or conversion of this Warrant. Issuance of this Warrant shall constitute full authority to the Company's officers who are charged with the duty of executing stock certificates to execute and issue the necessary certificates for shares of Warrant Stock issuable upon the exercise or conversion of this Warrant.

6. Exercise of Warrant. This Warrant may be exercised in whole or part by the Holder prior to the termination of this Warrant, as provided in Section 9 hereof, by the surrender of this Warrant, together with the Notice of Exercise and Investment Representation Statement in the forms attached hereto as Attachments 1 and 2, respectively, duly completed and executed at the principal office of the Company, specifying the portion of the Warrant to be exercised and accompanied by payment in full of the Warrant Price in cash or by check with respect to the shares of Warrant Stock being purchased. This Warrant shall be deemed to have been exercised immediately prior to the close of business on the date of its surrender for exercise as provided above, and the person entitled to receive the shares of Warrant Stock issuable upon such exercise shall be treated for all purposes as the Holder of such shares of record as of the close of business on such date. As promptly as practicable after such date, the Company shall issue and deliver to the person or persons entitled to receive the same a certificate or certificates for the number of full shares of Warrant Stock issuable upon such exercise. If the Warrant shall be exercised for less than the total number of shares of Warrant Stock then issuable upon exercise, promptly after surrender of the Warrant upon such exercise, the Company will execute and deliver a new Warrant, dated the date hereof, evidencing the right of the Holder to the balance of the Warrant Stock purchasable hereunder upon the same terms and conditions set forth herein.

7. Conversion. This Warrant shall not be exercisable on a "net exercise" basis, and the exercise price for this warrant shall always be paid in cash. In the event of a Change of Control transaction prior to the termination of this Warrant the Company shall notify the Holder of such transaction at least ten (10) days in advance and provide the Holder with the opportunity to exercise this Warrant.

8. Transfer of Warrant. This Warrant may not be transferred or assigned by the Holder in whole or in part, without the prior written consent of the Company.

9. Termination. This Warrant shall terminate on the first to occur of (i) 5:00 p.m. California time on the Termination Date, and (ii) the consummation of a Change of Control provided the Company has complied with the notice provisions in Section 7 above.

10. Successors and Assigns. Subject to the restrictions on transfer described in Section 8 above, and the termination provisions described in Section 9 above, the rights and obligations of the Company and the Holder shall be binding upon and benefit the successors, assigns, heirs, administrators and transferees of the parties.

11. Governing Law and Venue.

(a) This Warrant and all actions arising out of or in connection with this Warrant shall be governed by and interpreted in accordance with the laws of the State of California, without regard to the conflicts of law provisions in the State of California or any other state. The parties hereby consent to the personal and exclusive jurisdiction and venue of the California state courts and the federal courts located in San Francisco County, California.

(b) Notwithstanding the foregoing, except with respect to enforcing claims for injunctive or equitable relief, any dispute, claim or controversy arising out of or relating in any way to this Warrant or the interpretation, application, enforcement, breach, termination or validity thereof (including any claim of inducement of this Warrant by fraud and including determination of the scope or applicability of this agreement to arbitrate) or its subject matter (collectively, "Disputes") shall be

determined by binding arbitration before one arbitrator. The arbitration shall be administered by JAMS conducted in accordance with the expedited procedures set forth in the JAMS Comprehensive Arbitration Rules and Procedures as those Rules exist on the effective date of this Agreement, including Rules 16.1 and 16.2 of those Rules. Notwithstanding anything to the contrary in this Agreement, the Federal Arbitration Act shall govern the arbitrability of all Disputes. The arbitration shall be held in San Francisco County, California, and it shall be conducted in the English language. The parties shall maintain the confidential nature of the arbitration proceeding and any award, including the hearing, except as may be necessary to prepare for or conduct the arbitration hearing on the merits, or except as may be necessary in connection with a court application for a preliminary remedy, a judicial challenge to an award or its enforcement, or unless otherwise required by law or judicial decision. The arbitrator shall have authority to award compensatory damages only and shall not award any punitive, exemplary, or multiple damages, and the parties waive any right to recover any such damages. Judgment on any award in arbitration may be entered in any court of competent jurisdiction. Notwithstanding the above, each party shall have recourse to any court of competent jurisdiction to enforce claims for injunctive and other equitable relief.

(c) IN THE EVENT OF ANY DISPUTE BETWEEN THE PARTIES, WHETHER IT RESULTS IN PROCEEDINGS IN ANY COURT IN ANY JURISDICTION OR IN ARBITRATION, THE PARTIES HEREBY KNOWINGLY AND VOLUNTARILY, AND HAVING HAD AN OPPORTUNITY TO CONSULT WITH COUNSEL, WAIVE ALL RIGHTS TO TRIAL BY JURY, AND AGREE THAT ANY AND ALL MATTERS SHALL BE DECIDED BY A JUDGE OR ARBITRATOR WITHOUT A JURY TO THE FULLEST EXTENT PERMISSIBLE UNDER APPLICABLE LAW. To the extent applicable, in the event of any lawsuit between the parties arising out of or related to this Warrant, the parties agree to prepare and to timely file in the applicable court a mutual consent to waive any statutory or other requirements for a trial by jury.

12. Notices.

(a) Generally**.** All notices and other communications provided for or permitted hereunder shall be made by hand-delivery, or may be sent by email at the email address set forth below or by facsimile to any phone number provided by the parties hereto, or overnight air courier guaranteeing

next day delivery at the addresses set forth on the signature page hereof to the Holder and with respect to the Company at its principal place of business. All such notices and communications shall be deemed to have been duly given at the time delivered by hand, if personally delivered; if emailed or telecopied, during regular business hours in San Francisco, California, on the date transmitted or the next business day if transmitted after such regular business hours; and the next business day after timely delivery to the courier, if sent by overnight air courier guaranteeing next day delivery. The parties may change the addresses to which notices are to be given by giving five days prior notice of such change in accordance herewith. All communications shall be sent to the Company at 201 Mission Street, Suite 2375, San Francisco, California, 94105.

(b) Required Notices**.** If at any time prior to exercise of the Warrant, the Company: (i) declares any dividend upon the Company's common stock; (ii) effects any capital reorganization or reclassification of its capital stock, (iii) consummates a Change of Control; (iv) closes its IPO, or (v) any voluntary or involuntary liquidation, dissolution or winding up of the Company, then the Company shall provide Holder with at least ten (10) days prior written notice of such corporate action.

13. Legend**.** The Holder understands and agrees that all certificates evidencing the shares to be issued to the Holder may bear the following legend:

THESE SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"). THEY MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT AS TO THE SECURITIES UNDER THE ACT OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY THAT SUCH REGISTRATION IS NOT REQUIRED.

14. Amendments. Neither this Warrant nor any term hereof may be changed or waived orally, but only by an instrument in writing signed by the Company and the Holder of this Warrant.

ISSUED: January 31, 2017

Jaguar Animal Health, Inc.

Signature: /s/ Lisa A. Conte
Name: Lisa A. Conte
Title: President & CEO

Acknowledged and Agreed:

SERIOUS CHANGE II LP
By: Serious Change Management II GP LLC,
Its General Partner

By: /s/ Jo Sandlin
Name: Jo Sandlin
Title: Vice President

Attachment 1

NOTICE OF EXERCISE

TO: Jaguar Animal Health, Inc.

1. The undersigned hereby elects to purchase shares of the Warrant Stock of J, Inc. pursuant to the terms of the attached Warrant, and tenders herewith payment of the purchase price in full, together with all applicable transfer taxes, if any.

2. Please issue a certificate or certificates representing said shares of Warrant Stock in the name of the undersigned or in such other name as is specified below:

(Name)

(Address)

(Date) (Name of Warrant Holder)

By: _____

Title: _____

Attachment 2

INVESTMENT REPRESENTATION STATEMENT

Shares of Warrant Stock

(as defined in the attached Warrant) of

Jaguar Animal Health, Inc.

In connection with the purchase of the Warrant Stock, the undersigned hereby represents to Jaguar Animal Health, Inc. (the "Company") as follows:

(a) The Warrant Stock to be received upon the exercise of the Warrant (the "Securities") will be acquired for investment for its own account, not as a nominee or agent, and not with a view to the sale or distribution of any part thereof, and the undersigned has no present intention of selling, granting participation in or otherwise distributing the same, but subject, nevertheless, to any requirement of law that the disposition of its property shall at all times be within its control. By executing this Investment Representation Statement, the undersigned further represents that it does not have any contract, undertaking, agreement or arrangement with any person to sell, transfer, or grant participations to such person or to any third person, with respect to the Securities.

(b) The undersigned understands that the Securities are not registered under the Securities Act of 1933, as amended (the "Act"), and applicable state securities laws, on the ground that the issuance of such securities is exempt pursuant to Section 4(2) of the Act and state law exemptions relating to offers and sales not by means of a public offering, and that the Company's reliance on such exemptions is predicated on the undersigned's representations set forth herein.

(c) The undersigned agrees that in no event will it make a disposition of the Securities unless and until (i) it shall have notified the Company of the proposed disposition and shall have furnished the Company with a statement of the circumstances surrounding the proposed disposition, and if requested by the Company, (ii) it shall have furnished the Company with an opinion of counsel satisfactory to the Company and the Company's counsel to the effect that (A) appropriate action necessary for compliance with the Act and any applicable state securities laws has been taken or an exemption from the registration requirements of the Act and such laws is available, and (B) the proposed transfer will not violate any of said laws.

(d) The undersigned acknowledges that an investment in the Company is highly speculative and represents that it is able to fend for itself in the transactions contemplated by this Investment Representation Statement, is an "Accredited Investor" as that term is defined in Rule 501 of Regulation D promulgated under the Act or has such knowledge and experience in financial and business matters as to be capable of evaluating the merits and risks of its investments, and has the ability to bear the economic risks (including the risk of a total loss) of its investment. The undersigned represents that it has had the opportunity to ask questions of the Company concerning the Company's business and assets and to obtain any additional information which it considered necessary to verify the accuracy of or to amplify the Company's disclosures, and has had all questions which have been asked by it satisfactorily answered by the Company.

(e) The undersigned acknowledges that the Securities must be held indefinitely unless subsequently registered under the Act or an exemption from such registration is available. The undersigned is aware of the provisions of Rule 144 promulgated under the Act which permit limited resale of shares purchased in a private placement subject to the satisfaction of certain conditions, including, among other things, the existence of a public market for the shares, the availability of certain current public information about the Company, the resale occurring not less than one year after a party has purchased and paid for the security to be sold, the sale being through a "broker's transaction" or in

transactions directly with a "market makers" (as provided by Rule 144(f)) and the number of shares being sold during any three-month period not exceeding specified limitations.

Dated: _____

_____
(Typed or Printed Name)

By: _____
(Signature)

_____
(Title)

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Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

Jaguar Animal Health, Inc.
San Francisco, California

We hereby consent to the incorporation by reference in the Registration Statements on Form S-1 (Nos. 333-213751 and 333-214956) and Form S-8 (Nos. 333-204280 and 333-215303) of Jaguar Animal Health, Inc. of our report dated February 15, 2017, relating to the financial statements, which appear in this Form 10-K. Our report contains an explanatory paragraph regarding the Company's ability to continue as a going concern.

/s/ BDO USA, LLP
BDO USA, LLP
San Francisco, California
February 15, 2017

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Exhibit 31.1

PRINCIPAL FINANCIAL OFFICER'S CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Lisa A. Conte, certify that:

1. I have reviewed this annual report on Form 10-K of Jaguar Animal Health, 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(s) 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)) 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) 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

c) 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(s) 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 15, 2017

/s/ LISA A. CONTE

Lisa A. Conte
Chief Executive Officer and President
(Principal Executive Officer)

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Exhibit 31.2

PRINCIPAL FINANCIAL OFFICER'S CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Karen S. Wright, certify that:

1. I have reviewed this annual report on Form 10-K of Jaguar Animal Health, 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(s) 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)) 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) 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

c) 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(s) 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 15, 2017

/s/ KAREN S. WRIGHT

Karen S. Wright
Chief Financial Officer
(Principal Financial Officer)

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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 Jaguar Animal Health, Inc. (the "Company") on Form 10-K for the year ended December 31, 2016, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned officer of the Company certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to such officer's knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 15, 2017

/s/ LISA A. CONTE

Lisa A. Conte
Chief Executive Officer and President
(Principal Executive Officer)

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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 Jaguar Animal Health, Inc. (the "Company") on Form 10-K for the year ended December 31, 2016, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned officer of the Company certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to such officer's knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 15, 2017

/s/ KAREN S. WRIGHT

Karen S. Wright
Chief Financial Officer
(Principal Financial Officer)

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