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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, 2020

☐ **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 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.)

200 Pine Street, Suite 400
San Francisco, California 94104
(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	**Trading Symbol(s)**	**Name of each exchange on which registered**
Common Stock, Par Value $0.0001 Per Share	JAGX	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 ☐ No ☒

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

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted 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 such files). Yes ☒ No ☐

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

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

Large accelerated filer ☐	Accelerated filer ☐	Non-accelerated filer ☒	Smaller reporting company ☒ Emerging growth company ☒

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

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☐

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

As of June 30, 2020, the aggregate market value of the registrant's common stock held by non-affiliates was approximately $14,755,325 based upon the closing sales price of the registrant's common stock on The Nasdaq Capital Market on such date.

The number of shares of the registrant's common stock outstanding as of March 19, 2021 was 127,906,558 shares of voting common stock and 2,120,785 shares of non-voting common stock, par value $0.0001 per share, outstanding (convertible into 2,020 shares of voting common stock).

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the proxy statement for the registrant's 2021 Annual Meeting of Stockholders, or Proxy Statement, to be filed within 120 days of the end of the fiscal year ended December 31, 2020 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 Health, our logo, Napo Pharmaceuticals, Napo EU, Mytesi, Equilevia, 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.

ITEM 1. BUSINESS

BUSINESS

We are a commercial stage pharmaceuticals company focused on developing novel, plant-based, non-opioid, and sustainably derived prescription medicines for people and animals with GI distress, specifically chronic, debilitating diarrhea. Our wholly-owned subsidiary, Napo Pharmaceuticals, Inc. (“Napo”), focuses on developing and commercializing proprietary plant-based human gastrointestinal pharmaceuticals for the global marketplace from plants used traditionally in rainforest areas. Our marketed drug Mytesi (crofelemer 125 mg delayed-release tablets) is a product approved by the U.S. Food and Drug Administration (“FDA”) for the symptomatic relief of noninfectious diarrhea in adults with HIV/AIDS on antiretroviral therapy and the only oral plant-based botanical prescription medicine approved under FDA Botanical Guidance.

Jaguar was founded in San Francisco, California as a Delaware corporation on June 6, 2013. Napo formed Jaguar to develop and commercialize animal health products. Effective as of December 31, 2013, Jaguar was a wholly-owned subsidiary of Napo, and Jaguar was a majority-owned subsidiary of Napo until the close of our initial

public offering on May 18, 2015. On July 31, 2017, the merger of Jaguar Animal Health, Inc. and Napo became effective, at which point Jaguar Animal Health's name changed to Jaguar Health, Inc. and Napo began operating as a wholly-owned subsidiary of Jaguar focused on human health and the ongoing commercialization of Mytesi, and development of follow-on indications for, crofelemer. Most of the activities of the Company are now focused on the commercialization of Mytesi and development of follow-on indications for crofelemer and a second-generation anti-secretory product, lechlemer, that has yet to be approved by the FDA. In the field of animal health, we have limited activities which are focused on developing and commercializing first-in-class gastrointestinal products for dogs, dairy calves, foals, and high value horses.

We believe Jaguar is poised to realize a number of synergistic, value adding benefits—an expanded pipeline of potential blockbuster human follow-on indications of crofelemer, and a second-generation anti-secretory agent, as well as a pipeline of potential animal health indications for crofelemer—upon which to build global partnerships. As previously announced, Jaguar, through Napo, now holds extensive global rights for Mytesi, and crofelemer manufacturing is being conducted at a multimillion-dollar commercial manufacturing facility. Additionally, several of the drug product candidates in Jaguar's crofelemer pipeline are backed by what we believe are strong Phase 2 clinical proof of concept evidence from completed human clinical trials.

Mytesi is a novel, first-in-class anti-secretory agent which has a basic normalizing effect, acting locally in the gut, and this mechanism of action has the potential to benefit multiple disorders that cause diarrhea. Mytesi is in development for multiple possible follow-on indications, including cancer therapy-related diarrhea ("CTD"); orphan-drug indications for symptomatic relief of diarrhea in infants and children with congenital diarrheal disorders ("CDD") and for adult and pediatric patients with short bowel syndrome ("SBS"); and for supportive care for diarrhea relief in inflammatory bowel diseases ("IBD"); diarrhea-predominant irritable bowel syndrome ("IBS-D"); and for idiopathic/functional diarrhea. Additionally, the Company is exploring the conditional marketing authorization regulatory pathway in Europe to support development and commercialization of crofelemer for a proposed indication of diarrhea in acutely infected COVID-19 patients. Subsequent clinical studies may also be conducted in post COVID recovery patients suffering from "long-hauler" syndrome. A second-generation proprietary anti-secretory agent, lechlemer, is undergoing development for symptomatic relief of diarrhea resulting from cholera. Crofelemer has previously also received an orphan-drug designation for treatment of diarrhea associated with SBS.

Napo has a direct sales force of 9 sales representatives and a national sales director covering U.S. geographies with the highest commercial potential. In November 2019, we hired Ian Wendt, a seasoned industry veteran with a broad range of experience that includes commercializing supportive care and HIV treatments, as Vice President of Commercial Strategy. He was promoted to Chief Commercial Officer in 2020. With support provided by concomitant marketing, promotional activities, patient education programs and peer education initiatives described below, we expect continued growth in the number of patients treated with Mytesi. Mr. Wendt will lead business development initiatives that pave the way for crofelemer's final development for the cancer therapy-related diarrhea ("CTD") market and our commercial role for this next important, potential indication for Mytesi.

The goal of Napo's internal sales team is to deliver a frequent and consistent selling message to targeted, high-volume prescribers of antiretroviral therapies ("ART") and to gastroenterologists who see large numbers of HIV patients. In 2017 we released the results of a survey of 350 people living with HIV and AIDS regarding the topic of "*Talking to Your Doctor About Symptoms.*" The survey results show that diarrhea remains prevalent in those living with HIV/AIDS, with 27% of respondents reporting that they currently have diarrhea, and 56% reporting that they have had diarrhea in the past. Additionally, the results of a 2017 Napo-sponsored survey of 271 U.S. board certified gastroenterologists indicate that the number one GI complaint for people living with HIV/AIDS is diarrhea, and 93% of U.S. gastroenterologists see patients with HIV/AIDS in their practice.

Key to the success of our sales representatives in growing Mytesi sales is differentiating and targeting the right doctors—those HIV specialists who are high prescribers of ART and those gastrointestinal doctors who see large populations of people living with HIV/AIDS. The target list of prescribers for our sales reps includes a pool of approximately 1,300 high volume ART prescribing HIV specialists, and gastroenterologists who see the largest number of people living with HIV/AIDs, and we've strategically focused our sales force in the US geographies with the highest potential, including San Francisco, Sacramento, Seattle, southern California, Arizona, Nevada, Florida,

New York City/Long Island, Connecticut, New Jersey, Pennsylvania, Maryland, Kansas, Texas, Missouri, Chicago, Michigan, Atlanta, Louisiana, DC, Virginia, North Carolina, South Carolina, Indianapolis, and Ohio.

Medical education presentations led by health care providers (“HCPs”) participating in the Napo Speakers Bureau—a group that includes HIV/AIDS specialists, infectious disease specialists, gastroenterologists, colorectal surgeons, nurse practitioners, doctors of pharmacology, and physician assistants—focus on the prevalence and pathophysiology of gastrointestinal consequences of HIV infection and on the latest treatment options for HIV-related diarrhea. Presentations given by patient advocate members provide information to HIV/AIDS patients about the prevalence of diarrhea in people living with HIV/AIDS (“PLWHA”) and offer guidance about talking to HCPs regarding diarrhea-related concerns.

With the introduction of newer antiretroviral (“ARV”) drug therapy, there has been a reduction in the severity of ARV-induced diarrhea. However, a significant portion of this patient population still suffers from diarrhea caused by HIV enteropathy, which is due to the direct and indirect effects of HIV on the intestinal mucosa. Chronic diarrhea remains a significant complaint of PLWHA, particularly those who are older and have lived with the virus in their gut for 10+ years. According to data from the U.S. Centers for Disease Control and Prevention, currently more than 70% of people living with HIV are over age 50.

Napo is on many AIDS Drug Assistance Program (“ADAP”) formularies. ADAPs provide life-saving HIV treatments to low income, uninsured, and underinsured individuals living with HIV/AIDS in all 50 states and the territories. The ADAP program provides Mytesi free of charge to patients who qualify and copay support for some patients who have insurance coverage. Based on data from healthcare research firm Decision Resource Group, approximately 86% of ADAP-eligible US lives now have access to Mytesi, which is now on the ADAP formularies for 30 states, including the five programs with the largest enrollment.

Napo has an agreement with the ADAP Crisis Task Force. The agreement establishes a reduced price provided by Napo to ADAPs in all U.S. states for purchases of Mytesi. Formed in 2002, the Task Force negotiates reduced drug prices for all ADAPs. Task Force membership is currently comprised of representatives from Arizona, California, Florida, Illinois, Massachusetts, New York, North Carolina, Tennessee, Texas, Virginia, and Washington state HIV/AIDS divisions. Per the terms of the agreement, all state ADAPs are guaranteed the same reduced price for the drug. ADAPs provide HIV related services and approved medications to more than half a million people in the U.S. each year, and we expect this agreement to help further expand the number of patients able to benefit from the novel, first in class anti secretory mechanism of action of Mytesi.

As announced in May 2020, Napo launched a program to educate insurance companies about the benefits of Mytesi and negotiate better access to Mytesi for commercially insured patients. We believe that our enhanced Mytesi market access strategy will engage select payors in contracting discussions with the objective of removing barriers for patients in order to allow them to more easily start on – and stay on – Mytesi. This initiative represents a commercial opportunity to employ a strategic mechanism that is well-established in the U.S. pharmaceutical industry to help patients access Mytesi.

Napo expanded the NapoCares Patient Support Program for Mytesi in April 2020 as part of the Company's enhanced market access strategy. The expansion meaningfully increased co-pay support for commercially insured patients, which includes allowing the co-pay amount to remain the same whether a patient fills a 30-day or a 90-day prescription of Mytesi. The expansion also increased the income ceiling from two times the Federal poverty limit to five times the Federal poverty limit, which will allow more low-income patients to receive Mytesi at no cost. The co-pay program and patient assistance program are components of a comprehensive suite of patient support services Napo rolled out in the second quarter of 2020 with the support of AssistRx, a specialty therapy initiation and patient support company.

As announced in October 2020, Napo has launched a Web-based component of the NapoCares patient support program to automate and streamline the patient prescription process for Mytesi. The iAssist platform is designed to simplify the prescription process for specialty therapies like Mytesi by providing electronic prescribing, prior authorizations, signatures and patient consent; instant access to patient eligibility information; customized

electronic enrollment forms; and access to all platform features at any time from a PC or mobile device. Starting patients on specialty therapies like Mytesi can be a complex and time-consuming process. Implementation of this new, cloud-based system supports the ongoing goal of our NapoCares program to remove barriers for patients to access Mytesi, making it faster and easier for patients to start and stay on the drug by streamlining communications between prescribers, pharmacies, patients, and payers.

iAssist helps patients begin their medication sooner, because the platform facilitates rapid fulfillment of prescriptions and enrollment in patient support services, along with real-time confirmation for commercially and government insured patients of benefits coverage. The system provides visibility through the prescription process that allows patient status tracking and proactive follow-up support by their providers.

The iAssist platform is provided by AssistRx, a company with experience supporting HIV patients, and a significant percentage of Mytesi providers already leverage the iAssist platform as part of their practice workflow.

Jaguar and Napo are planning to develop and commercialize crofelemer for an indication of treatment of diarrhea in acutely infected COVID-19 patients. Subsequent clinical studies may also be conducted in post COVID recovery patients suffering from long-hauler syndrome. An estimated 20%-40% of people with COVID-19 experience diarrhea, nausea, or vomiting before other symptoms (Source: https://www.ucsf.edu/magazine/covid-body).

The term “long-hauler”, also referred to as long COVID, Post-Acute Sequelae of SARS-CoV-2 infection (“PASC”), and chronic COVID syndrome (“CCS”) , refers to COVID-19 survivors who suffer with symptoms which may include gastrointestinal distress (i.e. diarrhea, constipation, nausea, pain), fatigue, brain fog, forgetfulness, cardiovascular effects, and arthritis, for an extended period after recovery. It is theorized that these symptoms may result when the immune system in COVID-19 survivors continues to overreact even though the infection has passed. Long-hauler syndrome appears to be predominant in younger COVID-19 recovery patients and those who experienced a mild/asymptomatic case.

Our focus on the new potential indication of symptomatic relief of COVID-related diarrhea for crofelemer is driven primarily by the evidence of diarrhea in acute and long-hauler COVID-19 recovery patients. Enteropathy, an intestinal inflammatory chronic syndrome typically affecting long-term HIV/AIDS survivors, manifests as chronic diarrhea. We believe this situation is analogous to what we are seeing right now in acute and COVID-19 recovery patients, who report long-term diarrhea or other gastrointestinal dysfunctions. Endpoints being explored for possible clinical trials of crofelemer would include symptomatic relief of diarrhea, as well as potential reduction in inflammatory gut markers, and explore possible gut biome changes, and/or reduction in viral fecal shedding.

Napo has conducted intellectual property filings in support of the development of crofelemer for the potential indication of addressing inflammatory diarrhea, including for example, in acute COVID and/or long-hauler post-COVID recovery situation. As with all potential follow-on indications, Napo prioritizes IP protection. Napo currently holds approximately 144 patents, the majority of which do not expire until 2027 - 2031, and approximately 39 patents pending.

On February 18, 2021, Jaguar signed a memorandum of understanding (the “MOU”) with the lead sponsor of a to-be-formed special purpose acquisition company (the “Dragon SPAC”), which is pursuing listing on AIM Italia. Per the MOU, Napo EU, Jaguar’s wholly-owned subsidiary in Italy, will be the named target of the Dragon SPAC and has granted the Dragon SPAC exclusivity to negotiate and finalize the documentation for a contemplated merger transaction. Based on the MOU, Jaguar anticipates providing an exclusive license to Napo EU for the development, manufacture and commercialization of all planned crofelemer indications in Europe (excluding Russia), which rights and obligations shall be assumed by the combined company following a merger of Napo EU with the Dragon SPAC. The cornerstone of the license agreement will be the proposed COVID-related indication; however, the expected license will include all crofelemer pipeline indications of Napo Pharmaceuticals, Inc., Jaguar’s wholly owned U.S.-based subsidiary, with certain obligations to be met by Napo EU to maintain the license, indication by indication.

The Dragon SPAC is in the process of being formed with lead sponsorship by Josh Mailman. A well-known, New York City-based impact investor. Mailman co-founded Social Venture Network (now Social Venture Circle) in 1987, founded the Threshold Foundation in 1981, and founded Business for Social Responsibility in 1992. He is also the managing director of Serious Change L.P., a $100 million privately held impact fund he started in 2006, serves on the boards of Benefithub, Giving Assistant, Baltix Design, and Red Rabbit, and is an advisor to Social Venture Circle and the Threshold Foundation.

It is estimated that as high as one-third of COVID-19-infected patients develop acute and/or chronic or long-hauler syndrome – a constellation of post-viral infection symptoms (Source: Dr. Fauci Warns These COVID Symptoms Can Last for Months, Alex Korab, Newsbreak. https://www.newsbreak.com/news/2104072336660/dr-fauci-warns-these-covid-symptoms-can-last-for-months). According to a November 1, 2020 *Wall Street Journal* article, the majority of the more than 300 long-COVID patients being seen at New York City's Mount Sinai Health System Center for Post-Covid Care appeared to have developed a dysautonomia-like condition, and about 40% to 50% of these patients also reported symptoms such as gastrointestinal issues, headaches and shortness of breath (Source: Doctors Begin to Crack Covid's Mysterious Long-Term Effects, Sarah Toy, Sumathi Reddy, Daniela Hernandez, *Wall Street Journal*, November 1, 2020. https://www.msn.com/en-us/health/health-news/doctors-begin-to-crack-covid-s-mysterious-long-term-effects/ar-BB1aAS6V). Based on these figures, the long-hauler population experiencing gastrointestinal distress could potentially range between 20 to 70 million people just in Europe.

Our intention is to focus clinical exploration for the proposed COVID-related indication for crofelemer in Europe, where single-payer healthcare systems are interested in preventative measures to diagnose and treat symptoms early that can potentially reduce the burden of chronic illness later.

The Company has engaged a regulatory agent in Europe and had a meeting with European regulatory authorities in March 2021. As part of Jaguar’s investigation into the feasibility of the conditional marketing authorization pathway, which provides a fast-track clinical review process during public health emergencies, the Company plans to request meetings with the European Medicines Agency (“EMA”), Swiss Agency for Therapeutic Products (“Swissmedic”), and the Medicines and Healthcare products Regulatory Agency (“MHRA”) of the United Kingdom. The EMA, in particular, has established regulatory approval schemes for COVID-19-related treatments. The Company has engaged a European regulatory firm that has experience with the conditional approval pathway in Europe.

In October 2020, Napo initiated its pivotal Phase 3 clinical trial of Mytesi for prophylaxis of diarrhea in adult cancer patients receiving targeted therapy. The Phase 3 pivotal clinical trial is a 24-week (two 12-week stages), randomized, placebo-controlled, double-blind study to evaluate the safety and efficacy of Mytesi in providing prophylaxis of diarrhea in adult cancer patients with solid tumors receiving targeted cancer therapy-containing treatment regimens. Mytesi or placebo treatment will start concurrently with the targeted cancer therapy regimen. The primary endpoint will be assessed at the end of the initial (Stage I) 12-week double-blind placebo-controlled primary treatment phase. After completing the Stage I treatment phase, the subjects will have the option to remain on their assigned treatment arm and reconsent to enter into the Stage II 12-week extension phase. The safety and efficacy of orally administered Mytesi will be evaluated for the prophylaxis of diarrhea in adult cancer patients receiving targeted cancer therapies with or without standard chemotherapy regimens. The assessment of the frequency of diarrhea will be measured by the number of loose and/or watery stools for the Stage I treatment period.

A significant proportion of patients undergoing cancer therapy experience diarrhea. Novel “targeted cancer therapy” agents, such as epidermal growth factor receptor (“EGFR”) antibodies and tyrosine kinase inhibitors (“TKIs”), with or without cycle chemotherapy agents, may activate intestinal chloride ion channel-mediated secretory pathways leading to increased electrolyte and fluid content in the gut lumen, which results in passage of loose/watery stools, i.e. secretory diarrhea.

Many cancer patients on targeted therapy require drug holidays or dose reductions in their therapy due to diarrhea. Reducing frequency of watery stools will provide symptomatic relief of diarrhea and should allow better adherence to the therapeutic dosing of any targeted therapies, potentially leading to better clinical outcomes. We have learned from business development discussions with cancer drug manufacturers that adoption and continued use of

targeted cancer therapies is directly related to the ability of patients to tolerate use of the therapies – highlighting the importance of supportive care drugs like Mytesi to help manage cancer treatment-related diarrhea in this patient population.

As announced in June 2020, a preclinical study evaluating the effects of crofelemer (Mytesi) in providing symptomatic relief of diarrhea associated with the irreversible pan-HER TKI neratinib was presented as an e-poster at the American Association for Cancer Research Virtual Annual Meeting II, which took place June 22 - 24, 2020. The study provides scientific rationale for the use of crofelemer in providing symptomatic relief of watery diarrhea in patients receiving a targeted cancer therapy drug like neratinib with or without cycle chemotherapy in future clinical studies.

This 28-day preclinical pharmacological study in healthy female dogs was designed to evaluate the scientific rationale for the use of crofelemer in reducing the severity and incidence of diarrhea associated with a tyrosine kinase inhibitor (neratinib). The study was conducted without the prophylaxis or concomitant use of loperamide and demonstrated that crofelemer caused an approximate 30% reduction in the incidence and severity of diarrhea associated with daily oral administration of neratinib, which was statistically significant, within the 28-day period. Crofelemer also demonstrated significant improvement in the proportion of responder dogs, and there was a trend for fewer neratinib dose reductions in both crofelemer treatment groups when compared to the control group.

In October 2020, the Company held a “Diarrhea Dialogues” virtual event for the financial and business community to address the importance of diarrhea and supportive care for cancer patients as it relates to chronic lower GI tract distress, and the debilitating effects of diarrhea experienced as a result of cancer and/or cancer therapy. Speakers addressed the impact of diarrhea on cancer patients; common side effects of cancer therapies and management of symptoms; data and experience of diarrhea in cancer patients and the importance of the patient and physician dialogue to the management of CTD.

A 28-day preclinical toxicology and safety study in dogs began January 6, 2021 to support development of lechlemer, Napo’s second generation, plant-based anti-secretory drug candidate for the symptomatic relief of diarrhea from cholera. Napo is receiving preclinical services from the National Institute of Allergy and Infectious Diseases (“NIAID”) to support lechlemer development. NIAID is part of the National Institutes of Health. Under NIAID's suite of preclinical services, NIAID-funded contractors are conducting the 28-day dog study.

We are grateful for NIAID's support to conduct this important 28-day toxicity and safety study in dogs, which is expected to support the Investigational New Drug (“IND”) application we plan to file for lechlemer. As previously announced, a 28-day preclinical toxicology study in rats to support lechlemer development for the symptomatic relief of diarrhea from cholera was initiated in July of last year. Under NIAID's suite of preclinical services, NIAID-funded contractors also conducted the initial 7-day dog and rat toxicology studies, and completion of these shorter studies allowed for initiation of the longer-term, 28-day, IND-enabling toxicity studies.

We believe that lechlemer, which has the same mechanism of action as crofelemer and is significantly less costly to produce, may support development efforts to receive a priority review voucher from the FDA for an indication for the symptomatic relief of diarrhea from cholera. Priority review vouchers are granted by the FDA as an incentive to develop treatments for neglected diseases and rare pediatric diseases. Priority review vouchers are transferable and, in past transactions by other companies, have sold for prices ranging from $67 million to $350 million. Additionally, we believe lechlemer represents a long-term pipeline opportunity as a second-generation anti-secretory agent, on a global basis, for multiple gastrointestinal diseases - especially in resource-constrained countries, in part, because requirements often exist in such regions for drug prices to decrease annually.

Cholera is an acute diarrheal illness caused by infection of the intestine with the bacterium Vibrio cholerae. According to the Centers for Disease Control and Prevention of the U.S. Department of Health & Human Services, an estimated 3-5 million cholera cases and more than 100,000 cholera-related deaths occur each year around the world. The infection is often mild or without symptoms but can sometimes be severe. Approximately one in 10 of infected persons will have severe disease characterized by profuse watery diarrhea, vomiting, and leg cramps. In these people, rapid loss of body fluids leads to dehydration and shock. Without treatment, death can occur within hours. The largest

cholera outbreak in recorded history recently occurred in Yemen. According to Oxfam, the number of cholera cases in Yemen in 2019 was the second largest ever recorded in a country in a single year, surpassed only by the numbers in Yemen in 2017. According to the Brookings Institution, cholera continues to spread in Yemen, with 180,000 new cases reported in the first eight months of 2020.

Lechlemer is a drug candidate under the botanical guidance of the FDA. It is a standardized and proprietary Napo botanical extract that is distinct from Mytesi (crofelemer), the company's FDA-approved drug product, and lechlemer is sustainably derived from the same source as Mytesi: the *Croton lechleri* tree.

The Company has previously presented Phase 2 data on crofelemer for the treatment of devastating dehydration in cholera patients from the renowned International Centre for Diarrhoeal Disease Research (icddr,b) in Bangladesh. Napo plans to follow the same study design for lechlemer.

In September 2020, Jaguar launched the Entheogen Therapeutics (“ETI”) initiative to support the discovery and development of novel, natural medicines derived from psychoactive plant compounds for treatment of mood disorders, neuro-degenerative diseases, addiction, and other mental health disorders. The initiative is initially focused on plants with the potential to treat depression and leverages Napo’s proprietary library of approximately 2,300 plants with medicinal properties. According to statistics available from the National Institute of Mental Health Disorders, part of the National Institutes of Health, approximately 9.5% of American adults ages 18 and over will suffer from a depressive illness (major depression, bipolar disorder, or dysthymia) each year.

Field research collaborations conducted in the past by members of the scientific strategy team (“SST”) of Jaguar’s predecessor company Shaman Pharmaceuticals, who are also members of the ETI SST, yielded possible applications for a compound called alstonine. Alstonine is derived from a plant used by traditional healers in Nigeria, and has demonstrated a potential novel mechanism of action for the treatment of difficult to manage conditions such as schizophrenia.

The ETI SST consists of leading and globally renowned ethnobotanists, physicians, and pharmacologists as well as experts in the fields of natural product chemistry and neuropharmacology. We believe the wealth of expertise, experience, and commitment of the ETI SST – comprised of multiple members of the original SST that contributed to development of Jaguar's proprietary library of approximately 2,300 plants – will play an instrumental role in advancing our shared initial goal of identifying plants in our library that may have the potential to treat mood disorders and neurodegenerative diseases, such as Alzheimer's disease, Parkinson's disease, and amyotrophic sclerosis. Mood disorders and neurodegenerative diseases affect hundreds of millions of people around the globe and represent classic unmet medical needs.

While Jaguar and Napo remain steadfastly focused on the commercial success of Mytesi and on the development of potential crofelemer follow-on indications in the area of gastrointestinal health, the Company believes the same competencies and multi-disciplinary scientific strategy that led to the development of crofelemer will support collaborative efforts with potential partners to develop novel first-in-class prescription medicines derived from psychoactive plants.

Canalevia (crofelemer delayed-release tablets) is Jaguar’s oral plant-based drug candidate to treat chemotherapy-induced diarrhea (“CID”) in dogs and exercise-induced diarrhea (“EID”) in dogs. As announced in August 2020, the FDA's Center for Veterinary Medicine (“CVM”) has confirmed the completeness of Jaguar's Reasonable Expectation of Effectiveness technical section for CID, as well as the Chemistry, Manufacturing and Controls (“CMC”) and Environmental Impact technical sections of the Company's applications for conditional approval of Canalevia for both CID and EID under the Minor Use/Minor Species (“MU/MS”) section of The Minor Use and Minor Species Animal Health Act of 2004. We expect that Canalevia could be available under conditional approval to treat both CID and EID in the second half of 2021.

According to current estimates, more than 230,000 dogs in the U.S. receive chemotherapy treatment for various cancers each year, and roughly one in four (more than 50,000 dogs) will experience diarrhea as a side effect of

treatment. There currently is no FDA-approved anti-secretory prescription product to manage this type of debilitating diarrhea in dogs.

Managing this type of debilitating diarrhea in dogs undergoing cancer treatment is not only a comfort issue for dogs, it may also help dogs better tolerate their chemotherapy once CID is under control and improve the home and living environment for dog owners. For these reasons, we believe Canalevia will be an important treatment option for veterinary healthcare teams and dog owners.

Our management team has significant experience in gastrointestinal product development for both humans and animals. Napo was founded 30 years ago to perform drug discovery and development by leveraging the knowledge of traditional healers working in rainforest areas. Ten members of the Jaguar and Napo team have been together for more than 15 years. Dr. Steven King, our chief sustainable supply, ethnobotanical research and intellectual property officer, and Lisa Conte, our founder, president and CEO, have worked together for more than 30 years. Together, these dedicated personnel successfully transformed crofelemer, which is extracted from trees growing in the rainforest, to Mytesi, which is a natural, sustainably harvested, FDA-approved drug available from essentially any pharmacy in the United States.

As announced in February 2020, the American Botanical Council named Napo the recipient of the 2019 Varro E. Tyler Commercial Investment in Phytomedicinal Research Award in recognition of Napo's ongoing commitment to the sustainable development and production of natural therapeutic preparations. Specifically, this award acknowledges the successful development and approval of crofelemer, which is derived from the medicinal *Croton lechleri* tree in the Amazon rainforest. Previous recipients of this award include Jaguar’s partner, Italy-based Indena S.p.A., one of the world's largest producers of clinically-tested botanical extracts for the food, dietary supplement, cosmetic, and pharmaceutical markets.

Pipeline within a product—crofelemer

According to the World Health Organization, there are nearly 1.7 billion cases of diarrheal disease globally every year, and the disease caused an estimated 1.5 million deaths in 2012. Although not all types of diarrhea are secretory in nature, we view the current, initial approval of Mytesi as the opening of the door to an important pipeline—underscored by the current approval by the FDA of the CMC for this natural product, as well as acknowledgement by the FDA of the safety of the product for chronic use for the approved indication.

Crofelemer is in development for the symptomatic relief of cancer therapy-related diarrhea. As announced in October 2020, Napo has initiated its pivotal Phase 3 clinical trial of crofelemer (Mytesi) for prophylaxis of diarrhea in adult cancer patients receiving targeted therapy. A significant proportion of patients undergoing cancer therapy experience diarrhea. Novel targeted cancer therapy agents, such as epidermal growth factor receptor antibodies and tyrosine kinase inhibitors, with or without cycle chemotherapy agents, may activate intestinal chloride secretory pathways leading to increased chloride secretion into the gut lumen, coupled with significant loss of water that would result in secretory diarrhea.

According to data appearing in “Treatment Guidelines for CID” (chemotherapy induced diarrhea) in the April 2004 issue of Gastroenterology and Endoscopy News, diarrhea is the most common adverse event reported in chemotherapy patients. Approved third-party supportive care products for chemotherapy induced nausea and vomiting (“CINV”) include Sustol, Aloxi, Akynzeo and Sancuso. According to Transparency Market Research, sales of therapeutics for the prevention of CINV approximated $620 million in 2013, and sales of such therapeutics are expected to reach $1 billion in 2020.

Diarrhea has been reported as the most common side effect of the recently approved CDK 4/6 inhibitor abemaciclib and the pan HER TKI neratinib, with occurrence ranging from 86% to >95% and grade 3 over 40%, in published studies. Diarrhea in this patient population has the potential to cause dehydration, potential infections, and non-adherence to treatment. A novel anti diarrheal like Mytesi may hold promise for treating secretory diarrhea—and therefore also support long term cancer treatment adherence—in this population.

An ongoing investigator-initiated trial (“IIT”), HALT D, utilizing Mytesi is underway. Enrollment is ongoing for this study in breast cancer patients receiving regimens containing Herceptin and Perjeta. Top line results for the study are expected to be available in the second half of 2021. This study, which is not required to support the clinical program for Mytesi for FDA approval for CTD, is sponsored by Georgetown University and funded by Genentech, a member of the Roche Group. The study’s primary endpoint has an 81% power to detect a 40% difference in the percent and/or number of patients experiencing any grade of diarrhea for two consecutive days at a p value of 0.1. (The statistical power of a study, sometimes referred to as a study’s sensitivity, is a measure of how likely the study is to distinguish an actual effect from one of chance). For the sake of clarity, the estimates of the percent of patients experiencing such diarrhea is postulated to be 60% in the placebo patients and 20% in the study’s crofelemer treated arms. An interim analysis was conducted to ensure that the study has a chance to ultimately achieve the primary endpoint.

Previously, Georgetown University's Data Safety Monitoring Committee (“DSMC”) reviewed the interim analysis for futility for the study and notified the Principal Investigator that the study is allowed to enroll to completion. At that point in time, enrollment in the study exceeded 85%. The treatment period for each patient is 3 months.

Napo expects to initiate a Phase 1/2 pediatric study of crofelemer in the second half of 2021 at US and Middle East sites for infants and children with CDD.

CDD is a group of rare, chronic intestinal channel diseases, with onset in early infancy, that are characterized by severe, lifelong diarrhea and a lifelong need for nutritional intake either parenterally or with a feeding tube. CDD is related to specific genetic defects inherited as autosomal recessive traits. The incidence of CDD is prevalent in regions where consanguineous marriage (related by blood) is part of the culture. CDD is directly associated with serious secondary conditions including dehydration, metabolic acidosis, and failure to thrive, prompting the need for immediate therapy to prevent death and limit lifelong disability.

In December 2019, a clinical research study was initiated and sponsored by The University of Texas Health Science Center at Houston (“UTHealth”) and is being supported by Napo. The study will evaluate the safety and effectiveness of crofelemer for treatment of chronic idiopathic diarrhea in patients. Chronic idiopathic diarrhea is a common complaint of patients presenting to family practitioners and internists, and is one of the most common reasons for referral to gastroenterologists. It is estimated that the prevalence of chronic idiopathic diarrhea in developed countries (including the U.S.) is approximately 3-5%. It has a significant negative effect on health-related quality of life and causes a high economic burden on patients and society. The American Gastroenterological Association Burden of Illness study (2012) showed that the estimated annual direct and indirect costs associated with chronic idiopathic diarrhea is up to $524 million per year and $136 million per year, respectively. The principal investigator for the Study is Dr. Brooks D. Cash, MD, AGAF, FACG, FACP, FASGE, Chief - Division of Gastroenterology, Hepatology and Nutrition, Sterling Professor of Medicine, McGovern Medical School at UTHealth, Co-Director, Ertan Digestive Disease Center at Memorial Hermann-Texas Medical Center. The Study is titled Yield of Diagnostic Tests and Management of Crofelemer for Chronic Idiopathic Diarrhea in Non-HIV Patients: A Pilot Study, and is a single-center trial at UTHealth.

Crofelemer is also being evaluated in another investigator-initiated trial for the management of functional diarrhea in non-HIV patients. The principal investigator for this clinical study is Dr. Anthony Lembo, Professor, Gastroenterology, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA. This clinical study is a randomized double-blind, placebo-controlled study in adult subjects with functional diarrhea. Eligible patients will have functional diarrhea defined by Rome IV criteria as >25% loose watery stools and <25% hard/lumpy stools. The study plans to randomize 80 patients and the subjects will be randomized 1:1 for 4 weeks to either the placebo or crofelemer 125 mg delayed-release tablets (Mytesi) arm, administered twice daily for 4 weeks. Following the four-week placebo-controlled period, all subjects will receive Mytesi for an additional four weeks in an open label extension phase. The safety and tolerability of crofelemer and the clinical response during the placebo-controlled period will be evaluated in this study. Subjects will be allowed to use limited amounts of an antimotility drug (loperamide) during the placebo-controlled and open-label extension phase to manage uncontrolled diarrhea.

However, no more than 11 doses of 2 mg loperamide will be permitted during any given week per subject. Topline results for this study are expected in the fourth quarter of 2021.

Napo has previously received orphan drug designation from the FDA for adult and/or pediatric SBS. The Orphan Drug Act provides for granting special status to a drug or biological product to treat a rare disease or condition upon request of a sponsor. Orphan drug designation qualifies the sponsor of the drug for various development incentives, including extended exclusivity, tax credits for qualified clinical testing, and relief of filing fees.

Jaguar's and Napo's portfolio development strategy involves meeting with Key Opinion Leaders ("KOLs") to identify indications that are potentially high-value because they address important medical needs that are significantly or globally unmet, obtain input on protocol practicality and protocol generation, and then strategically sequencing indication development priorities, second-generation product pipeline development, and partnering goals on a global basis, as well as identifying possible opportunities for a Special Protocol Assessment ("SPA") from the FDA. When granted, SPA provides that, upon request, FDA will evaluate within 45 days certain protocols to assess whether they are adequate to meet scientific and regulatory requirements identified by the sponsor. In 2007, under the SPA process, Napo obtained agreement with the FDA for the design of the pivotal study protocol for the currently approved indication of crofelemer (Mytesi) for the symptomatic relief of noninfectious diarrhea in adults with HIV/AIDS on antiretroviral therapy. The 2007 SPA agreement was an important milestone for Napo, allowing Napo to address and mitigate regulatory uncertainty prior to the completion of its final Phase 3 trial of crofelemer for its currently approved indication.

Mytesi is the only antidiarrheal drug that has been approved by the US FDA for the treatment of chronic, noninfectious diarrhea in adult HIV/AIDS patients receiving antiretroviral therapy ("ART"). This approval was on the basis of the drug's safety and efficacy in reducing the number of weekly and daily watery stools in patients and improvement of stool consistency, from unformed to formed stools, over a 24-week treatment period.

Unlike other available diarrhea treatments, crofelemer does not act by inhibiting intestinal motility. It has minimal oral absorption and does not have any clinically significant food or drug interactions, thereby allowing patients to maintain their appropriate dosing of treatment to suppress their viral load and maintain adequate CD4 levels in PLWHA. Crofelemer is also the only approved antidiarrheal drug that is approved for chronic use. Moreover, it is not an opioid, like other traditionally used treatments; thus avoiding both the acute side effect of constipation and the potential for abuse. Napo plans to ensure an adequate supply of Mytesi tablets to support any requests for administration of Mytesi to address the COVID-19 pandemic.

Napo's HIV Scientific Advisory Board has focused primarily on physician education, and community and global awareness regarding the importance and availability of solutions for neglected comorbidities, such as the first-in-class anti-secretory mechanism of action of Mytesi for its currently approved indication.

According to a 2017 report from Research and Markets, the combined global market for prescription and OTC gastrointestinal agents is expected to reach $21 billion by 2025. Jaguar estimates that a first in class anti secretory agent should be able to achieve a significant portion of the market share.

There are significant barriers to entry for Mytesi (crofelemer). Through Napo, we hold an extensive global patent portfolio. At the present time, we hold approximately 144 issued worldwide patents, with coverage in many cases that extends until 2031. These issued patents cover multiple indications, including HIV-AIDS diarrhea, irritable bowel syndrome ("IBS"), IBD, manufacturing, enteric protection from gastric juices, among others. We also have approximately 42 pending patent applications worldwide in the human health areas that are being prosecuted.

Mytesi is the first oral drug approved by the FDA under botanical guidance, which provides another barrier to entry from potential generic competition. The FDA requires that the manufacturer of crofelemer use a validated proprietary bioassay to release the drug substance and drug product of Mytesi. While most generic products are fashioned to meet chemical release specifications that are in the public domain, the specifics of this assay are not publicly available. There is no pathway by which a generic product can be developed for a drug approved under

botanical guidance. In addition, Mytesi is minimally absorbed systemically, so the classic approach of creating a generic drug by matching pharmacokinetic blood levels is not possible. A generic player would have to conduct costly and risky clinical trials.

While Jaguar's commercial and development efforts have evolved to focus primarily on Mytesi and human pipeline indications since its merger with Napo, the Company is continuing limited initiatives related to Canalevia, our drug product candidate for treatment of CID in dogs and EID in dogs. CID in dogs is typically caused by the same mechanism of action as in humans, and hence the work in dogs serves as a preclinical proof of concept for the diarrhea in humans that is related to targeted cancer therapy. CID is an interesting model for human medical need and is being pursued as a prescription indication for animal health. We believe there is an important unmet medical need for the treatment of CID in dogs. Certain cancer treatment agents provided to dogs are human drugs or have the same mechanism of action as human cancer drugs, and these agents and mechanisms of action often have meaningful rates of diarrhea in humans as well.

As announced in August 2020, the FDA's CVM has confirmed the completeness of Jaguar's Reasonable Expectation of Effectiveness technical section for CID, as well as the CMC and Environmental Impact technical sections of the Company's applications for conditional approval of Canalevia for both CID and EID in dogs under the MU/MS section of The Minor Use and Minor Species Animal Health Act of 2004. We expect that Canalevia could be available under conditional approval to treat both CID and EID in the second half of 2021.

The Target Animal Safety Technical Section contains data from a 2017 target animal safety study indicating that the no-observed-adverse-effect level ("NOAEL") of Canalevia in dogs is approximately six times greater than previously demonstrated and that Canalevia is also safe for use in puppies. The safety of veterinary drugs is most commonly addressed through the conduct of target animal safety studies that provide for the determination of the NOAEL.

The 2017 toxicology study is the first study to demonstrate the safety of Canalevia in puppies as young as 12 weeks of age. Prior crofelemer toxicology studies only involved adult dogs.

As previously announced, Jaguar has received MUMS designation status from the FDA for Canalevia for the indication of CID in dogs. MUMS designation is modeled on the orphan-drug designation for human drug development and offers possible financial incentives to encourage MUMS drug development, such as the availability of grants to help with the cost of developing the MUMS drug.

For Jaguar's second proposed indication for Canalevia, EID in dogs, the Company is leveraging the use of many of the same major technical sections that have been submitted in support of the Company's application for Canalevia for the indication of CID in dogs.

Crofelemer is extracted and purified from the *Croton lechleri* tree, which we sustainably harvest and manage through programs that we have been developing over the past 30 years. This process has involved working with local and indigenous communities to plant trees, obtaining permits for export, and creating a supply network that is robust and reliable.

We continue to have working relationships with partners that began in the 1990s. Additionally, through the establishment of a nonprofit called the Healing Forest Conservancy, our team has created a long-term mechanism for benefit sharing that recognizes the intellectual contribution of indigenous populations. This program is intended to contribute to the continued strength and effectiveness of the valued and strategically important relationships we have carefully cultivated over the past 30 years.

Product Pipeline

In addition to our Mytesi (crofelemer) product that is approved by the U.S. FDA for the symptomatic relief of noninfectious diarrhea in adults with HIV/AIDS on antiretroviral therapy, we are also developing a pipeline of prescription drug product candidates to address unmet needs in gastrointestinal health through Napo. Mytesi (crofelemer) is a novel, first-in-class anti-secretory agent which has a basic normalizing effect locally in the gut and lumen, and this mechanism of action has the potential to benefit multiple disorders. Clinical trials demonstrated that nearly 80% of Mytesi users experienced an improvement in their diarrhea over a four-week period. At week 20 of the

pivotal trial, over half the patients had no watery stools, or a 100% decrease, and 83% had at least a 50% decrease in watery stools. Our Mytesi pipeline currently includes prescription drug product candidates for four follow-on indications, several of which are backed by Phase 2 evidence from completed Phase 2 trials. In addition, a second-generation proprietary anti-secretory agent, lechlemer, is in development for cholera-related diarrhea.

Napo Prescription Drug Product Candidates

Product Candidates	Indication	Completed Milestones	Current Phase of Development	Anticipated Near-Term Milestones*
Mytesi	CTD	• Initiated pivotal Phase 3 clinical trial in October 2020 • Two investigator-initiated (“IIT”) clinical trials funded by Genentech-Roche (HALT D study) & a third-party cancer agent manufacturer	Phase 3	• Enrollment in Phase 3 trial ongoing • Top line results of HALT-D IIT expected in 2H 2021
Mytesi	Supportive care for IBD	• Safety • Multiple Phase 2 studies completed in various secretory diarrhea (not IBD)	Phase 2	• Protocol development with KOLs for discussions with FDA
Formulation of crofelemer	Rare disease indications (SBS & CDD)	• Phase 1 study • Previously received orphan drug designation for SBS	Phase 2	• Initiate Phase 1/2 CDD study in 1H 2022
Mytesi	IBS-D”	• Phase 1 study • Two Phase 2 studies completed	Phase 2	• Publication of supplemental analysis of Phase 2 data
Mytesi	Idiopathic/functional diarrhea	• Safety • Initiated clinical study initiated at The University of Texas Health Science Center at Houston (“UTH”) • Multiple Phase 2 studies completed in various secretory diarrhea • IIT request accepted	Phase 2	• Top line results of UTH trial expected Q4 2021
NP-300 (SB-300, lechlemer)	Second-generation anti-secretory agent for multiple indications including cholera	• Animal and human studies in secretory diarrhea; successful cholera trial design for anti-secretory mechanism of action with API	Pre IND	• Pre clinical toxicology funded by NIAID • Formulation / POC

*Clinical trials are funding dependent

Estimated Size of Mytesi Target Markets

We believe the medical need for Mytesi is significant, compelling, and unmet, and that doctors are looking for a drug product with a mechanism of action that is distinct from the options currently available to resolve diarrhea. A growing percentage of HIV patients have lived with the virus in their gut for 10+ years, often causing gut enteropathy and chronic or chronic-episodic diarrhea. According to data from the U.S. Centers for Disease Control and Prevention, by 2020 more than 70% of Americans with HIV are expected to be 50 and older (1).

Market	Number of Competitors for Mytesi's Approved/ Anticipated Labelled Indication	Market Size/Potential
HIV-D	0	We estimate the U.S. market revenue potential for Mytesi to be approximately $100 million in gross annual sales
CTD	0	An estimated 650,000 U.S. cancer patients receive chemotherapy in an outpatient oncology clinic(2). Comparable supportive care (i.e., CINV) product sales of ~$620 million in 2013(3). Global CINV market projected to reach a valuation of $2.7 billion by 2022(4)
IBD	0	Estimated 1,171,000 Americans have IBD(5)
IBS-D	3	Most IBS products have an estimated revenue potential of greater than $1.0 billion(6)
CDD/SBS	0	Financial benefits of Orphan-drug Designation
Cholera (hydration maintenance) PRV (SB-300)	0	In recent transactions by other companies, priority review vouchers have sold for $67 million to $350 million(7)

(1) HIV Among People Aged 50 and Older (https://www.cdc.gov/hiv/group/age/olderamericans/index.html)

(2) Centers for Disease Control and Prevention. Preventing Infections in Cancer Patients: Information for Health Care Providers (cdc.gov/cancer/preventinfections/providers.htm)

(3) Heron Therapeutics, Inc. Form 10-K for the fiscal year ended December 31, 2016

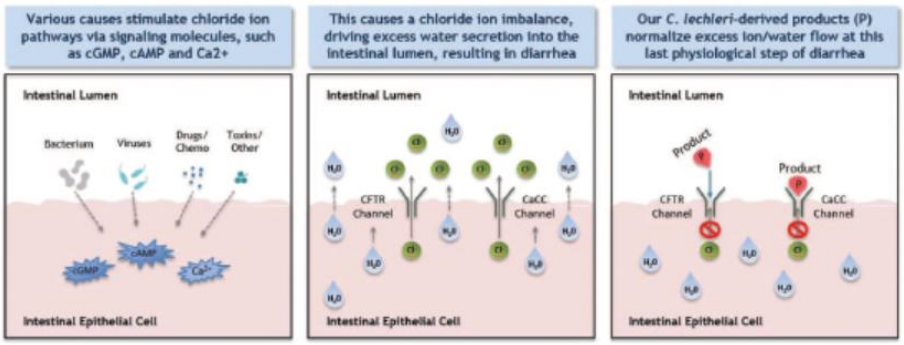
(4) Report published by Allied Market Research, titled, "Chemotherapy-induced Nausea and Vomiting (CINV) Market-Global Opportunity Analysis and Industry Forecast, 2014-2022" (https://www.prnewswire.com/news-releases/chemotherapy-induced-nausea-and-vomiting-cinv-market-expected-to-reach-2659-million-by-2022-611755395.html)

(5) Kappelman, M. et al. Recent Trends in the Prevalence of Crohn's Disease and Ulcerative Colitis in a Commercially Insured US Population. Dig Dis Sci. 2013 Feb; 58(2): 519-525

(6) Merrill Lynch forecasts peak US sales of roughly $1.5 bn for Ironwood's Linzess (https://247wallst.com/healthcare-business/2015/04/27/key-analyst-sees-nearly-30-upside-in-ironwood/); Rodman & Renshaw estimate peak annual sales of Synergy Pharmaceuticals' Trulance at $2.3 bn in 2021 (https://www.benzinga.com/analyst-ratings/analyst-color/17/04/9304883/what-synergys-new-patents-mean-for-its-commercial-prospe)

(7) In Aug. 2015, AbbVie Inc. bought a priority review voucher from United Therapeutics Corp for $350 million (https://www.wsj.com/articles/united-therapeutics-sells-priority-review-voucher-to-abbvie-for-350-million-1439981104). In July 2014, BioMarin announced that it had sold a priority review voucher to Sanofi and Regeneron for $67.5 million. (https://investors.biomarin.com/2014-07-30-BioMarin-Sells-Priority-Review-Voucher-for-67-5-Million).

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



Business Strategy

Our goal is to become a leading pharmaceutical company with first-in-class, sustainably derived products that address significant unmet gastrointestinal medical needs globally. To accomplish this goal, we plan to:

Expand Mytesi by leveraging our significant gastrointestinal knowledge, experience and intellectual property portfolio

Mytesi is a novel, first-in-class anti-secretory agent which has a basic normalizing effect locally on the gut, and this mechanism of action has the potential to benefit multiple gastrointestinal disorders. Our Mytesi (crofelemer) product is approved by the U.S. FDA for the symptomatic relief of noninfectious diarrhea in adults with HIV/AIDS on antiretroviral therapy. Jaguar, through Napo, holds extensive global rights for Mytesi. Mytesi is in development for multiple possible follow-on indications, including diarrhea related to targeted cancer therapy; orphan-drug indications for infants and children with congenital diarrheal disorders and short bowel syndrome; supportive care for inflammatory bowel disease; irritable bowel syndrome; and for idiopathic/functional diarrhea. In addition, a second-generation proprietary anti-secretory agent is in development for cholera.

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, GMP manufacturing, and regulatory strategy. Key members of this team successfully developed Mytesi.

Establish and expand commercial capabilities in Mytesi sales and marketing efforts

Napo’s direct sales organization is comprised of Mytesi field sales representatives strategically positioned to cover U.S. geographies with the highest potential. With support provided by concomitant marketing, promotional activities, patient empowerment programs, including an integrated social digital campaign, and medical education initiatives described below, we expect a proportional response in the number of patients treated with Mytesi.

Leverage our relationships with key opinion leaders regarding development of follow-on indications

Approximately 19 KOLs who are recognized specialists in HIV patient care, CTD, IBD, IBS, cholera, SBS, and CDD are currently participating in our scientific advisory board or KOL advisory program in some manner.

Establish partnerships to support moving pipeline indications to pivotal clinical trials

Jaguar is actively pursuing the development of a robust pipeline of potential follow-on indications for crofelemer, and the Company's goal is to establish partnerships to support moving pipeline indications to pivotal clinical trials.

Strategically sequence the development of follow-on indications of Mytesi and seek geographically-focused licensing opportunities

As announced September 24, 2018, Jaguar and Knight Therapeutics Inc. ("Knight") entered into a Distribution, License and Supply Agreement that grants Knight the exclusive right to commercialize Mytesi and related products in Canada and Israel.

Although it is possible that we may enter into additional corporate partnering relationships related to Mytesi, our intention would be to retain all or co-commercialization and promotional rights in the U.S., so that we do not become primarily a royalty-collecting organization, and we are opposed to entering into any Mytesi partnering relationship that would require splitting indications. We are seeking to put limited geographically-focused partnerships in place in the near term, while also considering possibilities for a worldwide partnership with a leading global entity (excluding the U.S. exclusive commercial rights) in the field of gastrointestinal care and cancer in the long term.

Reduce risks relating to product development

Risk reduction is a key focus of our product development planning. Mytesi is approved for chronic indication, providing us the ability to leverage this corresponding safety data when seeking approval for planned follow-on indications that are also chronic or chronic episodic indications. In an effort to reduce risk further, we have implemented the following approach: first, we meet with key opinion leaders, typically at medical conferences. Next, we confirm unmet medical needs with these key opinion leaders and discuss the practicality of patient enrollment and trial implementation. We then generate protocols to discuss with the FDA, seeking, when possible, special protocol assessments. Our goal is to have de-risked the program as much as we believe we possibly can, by the time we start devoting significant funds to a clinical trial, in particular the regulatory pathway. We believe this approach will lead to better long-term outcomes for our products in development.

We believe that Jaguar is poised to realize a number of synergistic, value adding benefits—and an expanded pipeline of important human follow-on indications and a second-generation anti secretory agent—upon which to build global partnerships.

In May 2016, the New Drug Application ("NDA") and commercial rights for human applications of crofelemer (Mytesi) previously licensed to Salix Pharmaceuticals, Inc. ("Salix") were transferred to Napo. The active pharmaceutical ingredient ("API") in Mytesi is crofelemer, our proprietary gastrointestinal anti-secretory agent sustainably harvested from the rainforest.

Diarrhea is a common adverse event seen with targeted cancer drugs and/or chemotherapy agents typically used in breast and colon cancers, and in particular in the more recently introduced therapeutic classes of EGFR monoclonal antibodies and TKI often used for chronic adjuvant care management of cancer. The increased need for and use of these agents has made diarrhea one of the most disabling issues for cancer patients.

We will seek partnerships outside the United States for the above indications while focusing on development and commercial access in the United States directly. We are also focused on investigating (lechlemer) for various gastrointestinal indications. Lechlemer is a proprietary Jaguar pharmaceutical product, a standardized botanical extract distinct from crofelemer, also sustainably derived from the *Croton lechleri* tree.

We believe lechlemer, which has the same mechanism of action as crofelemer and is significantly less costly to produce, may support efforts to receive a priority review voucher from the U.S. FDA for a cholera indication. Priority review vouchers are granted by the FDA to drug developers as an incentive to develop treatments for neglected diseases and rare pediatric diseases. Additionally, we believe lechlemer represents a long-term pipeline opportunity as a second-generation anti-secretory agent, on a global basis, for multiple gastrointestinal diseases—especially in resource-constrained countries where the cost of goods is a factor, in part, because requirements often exist in such regions for drug prices to decrease annually.

The Company has presented Phase 2 data on crofelemer for the treatment of devastating dehydration in cholera patients from the renowned International Centre for Diarrhoeal Disease Research (icddr,b) in Bangladesh, and Napo plans to follow the same study design for a trial conducted in association with icddr,b in support of the development of lechlemer for potential cholera-related indication.

As announced, a 28-day preclinical toxicology and safety study in dogs began January 6, 2021 to support development of lechlemer, Napo’s second generation, plant-based anti-secretory drug candidate for the symptomatic relief of diarrhea from cholera. Napo is receiving preclinical services from the NIAID to support lechlemer development. NIAID is part of the National Institutes of Health. Under NIAID's suite of preclinical services, NIAID-funded contractors are conducting the 28-day dog study.

As previously announced, a 28-day preclinical toxicology study in rats to support lechlemer development for the symptomatic relief of diarrhea from cholera was initiated in July of last year. Under NIAID's suite of preclinical services, NIAID-funded contractors also conducted the initial 7-day dog and rat toxicology studies, and completion of these shorter studies allowed for initiation of the longer-term, 28-day, IND-enabling toxicity studies.

Our portfolio development strategy is based on identifying indications that are potentially high-value because they address important medical needs that are significantly or globally unmet, and then strategically sequencing indication development priorities, second-generation product pipeline development, and partnering goals on a global basis.

Our technology for proprietary gastrointestinal disease products is central to the product pipelines of both human and veterinary indications. Crofelemer is also the API in Canalevia, our lead prescription drug product candidate, intended for the treatment of CID and EID in dogs.

Mytesi Clinical Data

Mytesi has been clinically demonstrated to have:

- Minimal absorption, with plasma concentrations below the level of detection
- No clinically relevant drug-drug interactions
- No effect on viral load or CD4 counts
- Adverse events comparable to those with placebo

The efficacy of Mytesi 125-mg delayed-release tablets twice daily was evaluated in a randomized, double-blind, 24-week, multicenter study (the ADVENT trial) comprised of a placebo-controlled (1 month) treatment period and a placebo-free (5 month) treatment period. The study enrolled HIV-positive patients on stable ART with a

history of diarrhea for 1 month or more. In the Mytesi 125mg bid group, more than twice as many patients (18% vs. 8% on placebo, p<0.01) achieved the highly rigorous endpoint defined as reduction to ≤2 watery stools per week for 2 out of the 4 weeks in the placebo-controlled period (the average baseline in the ADVENT population was 20 watery stools per week).

In a supplemental analysis of the ADVENT study population, 78% of patients in the Mytesi 125mg BID group experienced a decrease in watery stools at week 4. Among these patients that experienced a decrease, 61% had at least a 50% decrease in watery stools. At week 20, 89% of patients in the Mytesi BID group experienced a decrease in watery stools. Among these patients that experienced a decrease, 83% had at least a 50% decrease in watery stools, and over half of patients had no watery stools at all (100% decrease).

Products in Development

Cancer Therapy-Related Diarrhea ("CTD")

CTD is a common problem with a relevant mechanism for crofelemer

National Cancer Institute Criteria for Grading Severity of Diarrhea

	Grade 1	Grade 2	Grade 3	Grade 4
Patients without a colostomy	Increase of <4 stools per day over pretreatment	Increase of 4 to 6 stools per day or nocturnal stools	Increase of ≥7 stools per day or incontinence; need for parenteral support for hydration	Physiologic consequences requiring intensive care; hemodynamic collapse

Diarrhea is a common adverse event seen with chemotherapy agents and/or targeted therapy drugs such as EGFR and TKI's and EGFR monoclonal antibodies (for breast, lung, and other malignancies). The increased need for and use of these agents has made diarrhea one of the most disabling issues for cancer patients. Crofelemer offers the potential for an appropriate mechanism of action against this likely secretory diarrhea and has prompted interest among physicians concerned about this diarrheal symptom, stimulating the aforementioned investigator-initiated trials. Diarrhea is also a common adverse event seen with chemotherapy agents used in colorectal and gastric cancers, and chronic maintenance chemotherapy. There are currently no anti-diarrhea agents approved generally for chemotherapy-induced diarrhea.

Clinical Study

A study titled *HALT-D: DiarrHeA Prevention and ProphyLaxis with Crofelemer in HER2 Positive Breast Cancer Patients Receiving Trastuzumab, Pertuzumab, and Docetaxel or Paclitaxel with or without Carboplatin* is currently underway in conjunction with Georgetown University. The primary objective of the study is to characterize the incidence and severity of diarrhea in patients receiving investigational therapy in the setting of prophylactic anti-diarrheal management.

As we announced on August 19, 2019, statistically significant top line results have been achieved in a key preclinical pharmacological study to evaluate the effects of crofelemer on diarrhea induced in healthy dogs by a maximally tolerated dose of a specific TKI. The results of the study, which was funded by a third-party cancer agent manufacturer of an FDA-approved TKI, are expected to provide additional scientific rationale and support for the use of crofelemer in providing symptomatic relief of noninfectious diarrhea in human patients receiving TKI-and/or-other targeted cancer therapy-containing regimens in future human clinical investigations. The top line results of the study show that combined crofelemer groups demonstrated superior benefit for "responders" (p= 0.01). The results from this key preclinical study show concordance and remarkable similarity to the substantial benefits that were observed in the pivotal human trial of crofelemer (ADVENT trial) that resulted in the approval of the drug for the symptomatic relief

of noninfectious diarrhea in adult patients with HIV/AIDS on antiretroviral therapy. We are applying our lessons from the ADVENT trial and this preclinical study in our clinical study design that we are discussing with the FDA to allow the conduct of a single pivotal study for CTD in all solid tumor human patients.

As we announced on October 22, 2019, additional findings from the above preclinical study evaluating the effects of crofelemer on diarrhea induced by a specific TKI show that the animals in the crofelemer groups received approximately 20% higher doses of the TKI than the animals in the placebo group through the four weeks of the treatment period. The TKI dose reductions over the four-week period were statistically higher for the control group compared to the crofelemer QID group and trending toward statistical significance in the BID group. In general, the treatment effect of crofelemer was 1.5 to 2.5 times better than placebo for multiple endpoints in this study. Specifically, the preclinical study showed that crofelemer treatment resulted in lesser incidence and severity of diarrhea with the maintenance and tolerability of a higher dose of the selected TKI. The study points to potential benefits Jaguar hopes to see in future human studies of crofelemer's ability to provide symptomatic relief of noninfectious diarrhea in patients receiving a targeted cancer therapy in an adjuvant or metastatic setting.

Irritable Bowel Syndrome—Diarrhea Predominant (“IBS-D”)

Diarrhea is a common symptom of IBS, a frustrating, underdiagnosed and undertreated condition. IBS-D is a subtype characterized mainly by loose or watery stools at least 25 percent of the time. According to the U.S. FDA, studies estimate that IBS affects 10 to 15 percent of adults in the United States.

Abdominal pain is the key symptom of IBS, and the pain, which is associated with a change in stool frequency or consistency, can be severe. To improve the diagnosis and outcomes for IBS patients and to update clinicians on the latest research, Dr. William Chey, a gastroenterologist and professor of medicine and nutrition sciences at the University of Michigan, along with an international team of collaborators, compiled *Rome IV*, an updated compendium of diagnostic criteria on functional GI disorders such as IBS. *Rome IV* contains a chapter titled Centrally Mediated Disorders of Gastrointestinal Pain.

Although new agents for IBS-D have come on the market, there is an unmet medical need for long-term, safe management of the abdominal pain associated with IBS-D. We recognize that patients suffering from IBS-D may require a poly-pharmacy approach to lifetime management of their disease. Mytesi, which represents a novel mechanistic approach with the benefit of a long-term safety profile, could possibly be an important addition to the treatment of IBS-D, if approved for this indication.

Mytesi has been demonstrated to be safe for chronic use, and two studies provide statistically significant results of crofelemer use for abdominal pain in women.

The largest group of IBS sufferers are those with the subtype referred to as mixed diarrhea and constipation (“IBS-M”). IBS-M is also referred to as IBS-A, because the condition often involves frequent alternating between IBS-D and constipation predominant (“IBS-C”). IBS-M is distressing for patients as well as difficult to diagnose and manage, and is often associated with pain and urgency as well as significant abdominal distension and bloating. No approved drugs currently exist for IBS-M. Leading gastroenterologists have stated that IBS-C drugs may cause diarrhea in an IBS-M patient, and an IBS-D drug may cause significant constipation. Since Mytesi has not caused constipation in clinical trials or real-world experience, we therefore, believe an opportunity exists for an IBS-M indication for Mytesi. Resultingly, and due to the demonstrated safety of Mytesi for chronic use and its demonstrated benefit for abdominal pain in women, Napo is considering expanding development efforts to evaluate the IBS-M indication.

Clinical Study

Crofelemer has been tested in safety studies and two significant Phase 2 studies for IBS-D as detailed below.

Completed Studies—IBS-D

As we announced on January 8, 2020, a study appearing in the December 2019 issue of *Clinical and Translational Gastroenterology*, a peer-reviewed journal published by the American College of Gastroenterology, indicates that crofelemer could be a treatment option for abdominal pain associated with IBS-D. This multicenter, phase 2, randomized, double-blind, placebo-controlled trial evaluated the effect of crofelemer on abdominal pain in women with IBS-D. A total of 240 women were enrolled, and participants were randomized to crofelemer (125 mg) or placebo twice daily for 12 weeks. Following an analysis by the FDA-issued revised recommendations for outcome measures in IBS clinical trials in 2010, the proportion of monthly abdominal pain responders was significantly higher in the crofelemer group during months 1 through 2 (58.3% vs 45.0%, p = 0.030) as well as during the entire 3 months (54.2% vs 42.5%, p = 0.037) when compared with placebo. No significant differences were observed in the proportion of stool consistency monthly responders based on the revised FDA guidelines.

These observed trends of improvement in monthly abdominal pain responders suggest that crofelemer may have a use for treatment in abdominal pain in IBS-D patients without having significant changes to bowel habits. Currently, there are very few treatment options to address the visceral pain associated with IBS-D. Crofelemer has a distinct and novel antisecretory mechanism of action of modulation of cystic fibrosis transmembrane conductance regulator CFTR and/or calcium-activated chloride channels that may provide a new non-opiate or antibiotic-based option to treat the visceral abdominal pain and discomfort for IBS-D patients.

IBS is a gastrointestinal condition defined by abdominal pain and altered bowel habits in the absence of another disease that can account for these symptoms. IBS is the most commonly diagnosed gastrointestinal condition and has a population prevalence of up to 12% in North America and is more prevalent in women than in men. Currently, IBS is a clinical diagnosis based on abdominal pain associated with a change in bowel habits. Patients with IBS, but particularly those with IBS-D, report significantly reduced quality of life, higher indirect costs, and greater impairments in daily and work activities.

Phase 2a—a randomized double-blind placebo-controlled, dose-ranging (placebo, 125 mg, 250 mg, and 500 mg bid) study over a 12-week treatment period in 246 patients with IBS-D (Rome II criteria), including both males and females, whose average age was 50 years old.

n = 245 subjects
61 placebo
62 125 mg crofelemer BID
59 250 mg crofelemer BID
62 500 mg crofelemer BID

IBS symptoms (pain, urgency, stool frequency and consistency, and adequate relief) were self-reported by the patients via an interactive voice response system. Patients needed to exhibit active disease during the two-week baseline period as defined by a mean daily stool frequency greater than or equal to 2/day, pain score greater than or equal to 1 and stool consistency greater than or equal to 3 (5-point Lickert scale for pain and consistency) to be enrolled. Patients received treatment for 12 weeks followed by a two-week treatment free period.

The protocol-specified primary efficacy measure was daily stool consistency. Statistical analysis of the primary endpoint found no significant differences between placebo and any of the crofelemer dose groups ($p \geq 0.1434$), and no significant dose relationship was seen with regard to change from Baseline to Month 3 in stool consistency scores ($p = 0.1165$) in the ITT population.

A supplementary analysis of Rome Foundation-defined stool consistency and abdominal pain showed positive results. Responders were subjects who had a stool consistency score of ≥ 4 for < 25% of days in a given week and ≥ 30% improvement in abdominal pain scores in a given week (i.e., Rome Foundation-defined stool consistency and abdominal pain responders).

When we look at a supplemental analysis at a reduction in a composite abdominal pain/stool consistency endpoint, the regulatory endpoint in accordance with FDA guidance, we see at the 125 mg dose bid a significant 15% difference with just women patients compared to placebo; and a significant 11% when we include both men and women. The current IBS-D products on the market have a 7-8% reduction (Viberzi and Xifaxan).

In this analysis, Rome Foundation-defined stool consistency and abdominal pain responders were significantly more likely during the entire 3 months in the 125 mg BID group when compared with placebo (24.2% versus 13.1%, p = 0.0399) and there was a statistical trend in favor of crofelemer 125 mg BID during Months 1 through 2 (27.4% versus 16.4%, p = 0.0640). Similar positive effects of crofelemer 125 mg BID were observed in female subjects (n = 183). When the supplementary analysis was applied to the female patients, crofelemer at a dose of 125 mg BID was superior to placebo at Month 3 (26.1% vs 10.9%, p=0.0337).

- Results: The 125mg bid of crofelemer exhibited a consistent response during each month among most efficacy endpoints in women with IBS-D reaching statistical significance ($p<0.05$) for pain.
    - Crofelemer had little effect on the stool consistency score, though there was a trend toward reduced stool frequency.
    - Treatment benefits were not apparent in men, although relatively few men enrolled in the trial (13-16/group).
- As with previous trials of crofelemer, no drug-related serious adverse events were reported. Adverse event rates were similar across all dose groups, although, in the two highest doses (250 and 500 mg bid), there was a higher percentage of dropouts. There were no drug-related or dose-related differences in constipation. During the two-week treatment-free follow-up period symptoms approached baseline levels.

Safety: Crofelemer at doses of 125, 250 and 500 mg had a safety profile that was generally similar to placebo among men and women with IBS-D.

Phase 2—a Randomized, double-blind, placebo-controlled study to assess the safety and efficacy of crofelemer for the symptomatic treatment of diarrhea predominant irritable bowel syndrome (IBS-D) in 240 female subjects 18 years or older with active IBS-D according to the Rome II criteria for the diagnosis of IBS-D.

The study consisted of a 2-week screening period and a 12-week blinded treatment period followed by a 4-week treatment-free follow-up period. During the 12-week treatment period, 240 subjects were given 125 mg of crofelemer BID or placebo BID and recorded daily assessments of their IBS symptoms in the interactive voice response system.

The primary endpoint was the change from baseline for the overall percentage of abdominal pain/discomfort free days (“PFDs”). On a daily basis, respondents recorded the intensity of their abdominal pain/discomfort for that day using the 5-point Likert scale: 0=none, 1=mild, 2=moderate, 3=intense, 4=severe. Any day that a score of zero (0) was recorded was considered a PFD.

Stool consistency and abdominal pain endpoints were analyzed using definitions of symptom improvement from a recent FDA guidance on IBS endpoints (March 2010) and recommendations of the Rome Foundation (letter dated 28 June 2010) concerning the IBS endpoints described in this guidance.

Results: The overall increase in pain-free days (protocol-specified primary endpoint) for subjects in the crofelemer group was not statistically significant when compared with subjects in the placebo group (p = 0.5107)

A supplementary analysis of abdominal pain showed positive results. Responders were subjects who had ≥ 30% improvement in abdominal pain scores a given week (i.e., FDA-defined abdominal pain responders; this definition of abdominal pain responders was presented in the March 2010 guidance on IBS endpoints).

In this analysis, abdominal pain responders were significantly more likely during Months 1 through 2 (58.3% versus 45.0%, p = 0.0303) and during the entire 3 months (54.2% versus 42.5%, p = 0.0371) in the crofelemer group when compared to placebo.

Safety: The overall safety profile for crofelemer 125 mg BID for 12 weeks was comparable to that observed with placebo and was consistent with the IBS population under study.

Rare Pediatric Disease Indications: CDD and SBS

CDD is a group of rare, chronic intestinal channel diseases, occurring in early infancy, that are characterized by severe, lifelong diarrhea and a lifelong need for nutritional intake either parenterally or with a feeding tube. CDD is related to specific genetic defects inherited as autosomal recessive traits, and the incidence of CDD is much more prevalent in regions where consanguineous marriage is part of the culture. CDD is directly associated with serious secondary conditions, including dehydration, metabolic acidosis, and failure to thrive, prompting the need for immediate therapy to prevent death and limit lifelong disability.

Potential Orphan-Drug: CDD and SBS

Clinical Study—CDD

We have completed safety studies of crofelemer in children as young as 3 months of age, and Napo expects to initiate a Phase 1/2 study in the second half of 2021 at US and Middle East sites for an investigator-initiated trial of crofelemer, the active pharmaceutical ingredient in Mytesi, for CDD in pediatric patients.

A pre-clinical study in mice, conducted by an independent third-party investigator, is underway to support possible orphan-drug designation for crofelemer for CDD. This animal model study is examining the effects of crofelemer on diarrhea caused by microvillous inclusion disease (“MVID”), a very rare autosomal recessive disorder which belongs to the CDD category.

SBS is a complex condition characterized by malabsorption of fluids and nutrients due to congenital deficiencies or surgical resection of small bowel segments. Consequently, patients suffer from symptoms such as debilitating diarrhea, malnutrition, dehydration and imbalances of fluids and salts. This could be due to either a genetic disorder or premature birth. In countries such as the United Arab Emirates and Saudi Arabia, SBS occurs with much higher incidence.

We previously received orphan-drug status for Mytesi (crofelemer) for the proposed SBS pediatric indication and are pursuing orphan-drug status for CDD. The mission of the FDA Office of Orphan Products Development is to advance the evaluation and development of products (drugs, biologics, devices, or medical foods) that demonstrate promise for the diagnosis and/or treatment of rare diseases or conditions.

IBD—Supportive Care:

KOLs identified an unmet need to treat diarrhea in IBD patients, particularly in specific subsets of patients. KOLs felt all IBD patients who undergo ileal pouch-anal anastomosis surgery suffer severe, chronic diarrhea following the procedure. Because this is a highly-motivated patient population with a low placebo-responder risk, we believe a relatively small proof-of-concept trial is the appropriate next step from a development standpoint.

KOLs felt crofelemer’s novel mechanism of action might also prove to be an effective treatment for diarrhea that results from bile acid malabsorption, which has been shown to occur in approximately 30% of patients with IBD.

Additionally, KOLs felt crofelemer's novel mechanism of action might prove to be an effective treatment for diarrhea experienced by patients receiving IV infusions of Entyvio, a Takeda Pharmaceuticals prescription medicine used in adults with moderate to severe ulcerative colitis or Crohn's disease. Secretory diarrhea occurs when the intestine does not complete absorption of electrolytes and water from luminal contents. This can happen when a nonabsorbable, osmotically active substance is ingested ("osmotic diarrhea") or when electrolyte absorption is impaired ("secretory diarrhea").

Secretory diarrhea can result from bacterial toxins, luminal secretagogues (such as bile acids or laxatives), reduced absorptive surface area caused by disease or resection, circulating secretagogues (such as various hormones, drugs, and poisons), and medical problems that compromise regulation of intestinal function. These studies in acute diarrhea support the normalizing aspect of the mechanism of action, regardless of the cause of the diarrhea, and are supportive of the supportive care indication under development in IBD patients.

Clinical Study

Mytesi has safety studies that support chronic use for the currently approved indication and has demonstrated statistically significant results in multiple supportive care settings, though not specifically in IBD patients. The next steps would include a Phase 2 proof of concept study for supportive care in patients with IBD.

Completed Study—Travelers' Diarrhea (supportive care)

Phase 2—a study of crofelemer in 184 persons in a double-blind, placebo-controlled study for the symptomatic treatment of acute diarrhea among travelers to Jamaica and Mexico.

The study was designed to evaluate the effectiveness of crofelemer in the treatment of travelers' diarrhea.

A total of 184 persons from the United States who acquired diarrhea in Jamaica or Mexico were enrolled in a double-blind, placebo-controlled study examining the effectiveness of three doses of crofelemer in reducing illness. Subjects were treated with 125 mg, 250 mg, or 500 mg crofelemer or a matching placebo four times a day for 2 days. Subjects kept daily diaries of symptoms and were seen each day for 3 days. Of the subjects, 169 (92%) were included in the efficacy analysis.

The most common etiological agent identified was enterotoxigenic Escherichia coli, found in 19% of subjects. The mean time interval from taking the first dose of medication until passage of the last unformed stool during 48-hour therapy ("TLUS48") was 38.7 hours for the placebo group.

TLUS48 was shortened by crofelemer:

30.6 h for the 125-mg dose group ($p = 0.005$);

30.3 h for the 250-mg group; and

32.6 h for the 500-mg group ($p = 0.01$).

Treatment failures were seen in 29.3% in the placebo group compared with 7.3% ($p = 0.01$), 4.3 ($p = 0.002$), and 9.8 ($p = 0.026$) in the three treatment groups. Crofelemer was well tolerated at all doses.

The study provided statistically significant results of crofelemer use for shortening the duration of travelers' diarrhea. This antisecretory approach works directly against the pathophysiology of travelers' diarrhea and is not likely to potentiate invasive forms of diarrhea or to produce posttreatment constipation.

Cholera/General Watery Diarrhea

According to the Centers for Disease Control and Prevention of the U.S. Department of Health & Human Services, Cholera is an acute, diarrheal illness caused by infection of the intestine with the bacterium *Vibrio cholerae*. An estimated 3-5 million cases and over 100,000 deaths occur each year around the world. The infection is often mild or without symptoms, but can sometimes be severe. Approximately one in 10 (5-10%) of infected persons will have severe disease characterized by profuse watery diarrhea, vomiting, and leg cramps. In these people, rapid loss of body fluids leads to dehydration and shock. Without treatment, death can occur within hours. At this time, for example, the largest cholera outbreak in recorded history is occurring in Yemen.

We are investigating lechlemer for the indication of cholera/general watery diarrhea. Lechlemer is a distinct and proprietary Napo pharmaceutical formulation of a standardized botanical extract, also sustainably derived from the *Croton lechleri* tree. We believe lechlemer represents a long-term pipeline opportunity as a second-generation anti-secretory agent, on a global basis, for multiple gastrointestinal diseases. Additionally, we believe lechlemer, which has the same mechanism of action as crofelemer and is significantly less costly to produce, may support efforts to receive a priority review voucher from the U.S. FDA for a cholera indication. Priority review vouchers are granted by the FDA to drug developers as an incentive to develop treatments for neglected diseases and rare pediatric diseases. If approved for this indication, lechlemer could serve as long-term pipeline anti-secretory agent for cholera/general watery diarrhea in geographies where cost of goods is a critical factor, for example, in resource-constrained regions and countries in which a requirement exists for drug prices to decrease annually.

Clinical Study

We have initiated CMC and have multiple animal and human studies in secretory diarrheas. We have also completed a successful trial design for cholera with an anti-secretory mechanism of action, published studies with crofelemer in patients with cholera and other acute severe watery diarrhea disease.

As announced, a 28-day preclinical toxicology and safety study in dogs began January 6, 2021 to support development of lechlemer, Napo’s second generation, plant-based anti-secretory drug candidate for the symptomatic relief of diarrhea from cholera. Napo is receiving preclinical services from the NIAID to support lechlemer development. NIAID is part of the National Institutes of Health. Under NIAID's suite of preclinical services, NIAID-funded contractors are conducting the 28-day dog study.

As previously announced, a 28-day preclinical toxicology study in rats to support lechlemer development for the symptomatic relief of diarrhea from cholera was initiated in July of last year. Under NIAID's suite of preclinical services, NIAID-funded contractors also conducted the initial 7-day dog and rat toxicology studies, and completion of these shorter studies allowed for initiation of the longer-term, 28-day, IND-enabling toxicity studies.

Completed Studies—Cholera and Severe Acute Dehydrating Watery Diarrhea

Phase 2 study of crofelemer in the treatment acute, severely dehydrating watery diarrhea with confirmed cholera with the use of an antibiotic (azithromycin) and oral rehydration therapy in 100 adult patients between 18 and 55 in Bangladesh.

A total of 100 adult patients, from Bangladesh, between the ages of 18 and 55, with acute, severely dehydrating watery diarrhea with confirmed cholera were treated with crofelemer on a background of an antibiotic (azithromycin) and oral rehydration therapy. After a four-hour period of rapid rehydration therapy, patients were randomized 1:2:2 to placebo or 125 mg or 250 mg oral dose of crofelemer. Crofelemer or placebo doses were administered about one hour after the oral administration of azithromycin (1 gm dose). The primary objective was to evaluate the safety and effects of crofelemer on reducing the watery stool output normalized to body weight (mL/kg) in the first 24 hours on the background of azithromycin and rehydration therapy. Crofelemer was well tolerated and there were no drug related adverse events in this study. Both doses of crofelemer produced approximately 25-30% reduction in median watery stool volumes in the 0-6 and 0-12 hour period following initiation of therapy. Crofelemer showed a strong trend in the reduction of watery stool output in the 0-6 hour and 0-12 hour intervals (p=0.07). Upon

exclusion of three outlier patients, the crofelemer dose of 125 mg produced a statistically significant reduction in the normalized stool output (p=0.028), and the dose of 250 mg crofelemer showed a strong trend for reduction of watery stool output (p=0.07).

In another study, the effects of crofelemer were evaluated in patients with acute dehydrating watery diarrhea caused by various bacterial pathogens, such as enterotoxic strains of Escherichia coli and Vibrio cholerae infection. Crofelemer was evaluated in adult Indian patients with acute watery diarrhea of less than 24-hour duration with suspected bacterial infections, without the use of antibiotics. In this study, patients received oral doses of placebo or crofelemer at a dose of 250 mg every 6 hours for 2 days on the background of oral rehydration therapy only. The use of antibiotics was prohibited in this study. A total of 98 patients were randomized into this study (47 in placebo group and 51 in the crofelemer group). Primary endpoints for this study were changes in stool weight, frequency, consistency, duration of diarrhea. Secondary endpoints included the assessment of clinical symptoms scored as a total of 7-item GI index. Clinical success was defined as no diarrhea within 48 hours from the study start date, and treatment failure was defined as no improvement/worsening of symptoms after 24 hours, fever, bloody stools or dehydration.

Results: 98 patients (51 crofelemer, 47 placebo) were enrolled in the study. Sixteen patients (4 in the crofelemer group and 12 in the placebo group) used antibiotics and were considered as treatment failures and were excluded from the “per protocol efficacy analysis.” Groups were similar in age, weight, vital signs, stool frequency, consistency, dehydration and GI index.

The crofelemer group had improvement over baseline and compared to placebo at day 3. More specifically, crofelemer showed superior effects in reducing stool weight (61% vs 11%), stool frequency (65% vs 21%), reversion to soft stool (92% vs 49%) and improved the 7-item GI index (70% C vs 33% P), (all $p<0.05$).

Crofelemer was well tolerated with no related serious adverse events or concerning changes in lab values. Progression to dehydration and report of fecal incontinence was more common in the placebo group ($p<0.05$).

Conclusions: Clinical success (cessation of diarrhea within 48 hours of 1st dose) was achieved in 79% of crofelemer patients compared to 28% placebo patients ($p<0.05$).

Competition

There are several significantly larger pharmaceutical companies competing with us in the gastrointestinal segment. These companies include GW Pharmaceuticals, Lexicon Pharmaceuticals, Valeant Pharmaceuticals International, Merck & Co., Inc., and Allergan plc, as well as smaller pharmaceutical companies.

Diarrhea in adult patients living with HIV/AIDs. We are not aware of any other FDA-approved drugs for the symptomatic relief of diarrhea in HIV/AIDs patients. HIV/AIDs patients also use loperamide and over the counter anti-diarrheal remedies such as Mylanta or Kaopectate to treat their diarrhea, but these medicines affect motility and can result in rebound diarrhea.

Diarrhea predominant irritable bowel syndrome. Two drugs were approved in 2015 for the treatment of diarrhea predominant irritable bowel syndrome, Allergan plc’s Virbezi and Xifaxan, which is marketed by Valeant Pharmaceuticals International. Also, Lotronex was approved by the FDA in 2000 but was withdrawn from the market and later reintroduced in 2002 under a Risk Management Program. With the exception of Lotronex, the sponsors of Verbezi and Xifaxan employ extensive media and print promotion for the commercialization of these products. We are seeking a partner to further the clinical development and commercialization of crofelemer for IBS-D. There are currently numerous trials ongoing for IBS-D.

Pediatric diarrhea. Acute diarrhea in children is commonly treated by a change in diet, oral rehydration therapy and/or antibiotics, assuming the cause of the diarrhea is bacterial in nature. Children aged 12 and younger are advised not to use anti-motility drugs (loperamide, for example) unless directed to do so by a physician. There are

recent clinical trials for probiotics and zinc sulfate. Other recent anti-diarrheal studies in children include a safety and tolerability study of Fidaxomicin for C difficile associated diarrhea.

Cancer therapy-related diarrhea. We are not aware of any FDA-approved drugs specifically indicated for cancer therapy-related diarrhea, including chemotherapy-related diarrhea. A recent Phase 2b trial of elsiglutide for the treatment of chemotherapy induced diarrhea in colorectal cancer patients did not meet statistical significance. Opioids and over the counter drugs are commonly used to treat chemotherapy induced diarrhea, but these drugs affect motility. Certain tyrosine-kinase inhibitor chemotherapy agents have diarrhea as a significant side effect. For example, FDA guidance suggests diarrhea prophylaxis prior to initiating adjuvant therapy with neratinib.

Congenital Diarrheal Disorders and Short Bowel Syndrome. We are not aware of any FDA-approved drugs specifically indicated for congenital diarrheal disorders. In the U.S., Takeda Pharmaceuticals' GATTEX® (teduglutide) is indicated for the treatment of adults and pediatric patients 1 year of age and older with short bowel syndrome who are dependent on parenteral support, and Zorbtive® is a recombinant human growth hormone indicated for the treatment of short bowel syndrome in adult patients receiving specialized nutritional support.

Cholera. We are not aware of any FDA-approved drugs specifically indicated as an anti-secretory agent for use to address the devastating dehydration in cholera patients.

Irritable Bowel Syndrome. If we receive regulatory approval for Mytesi for IBS, we expect to compete with major pharmaceutical and biotechnology companies that operate in the gastrointestinal space, such as Sucampo AG, Takeda Pharmaceuticals, Allergan, Inc., Ironwood Pharmaceuticals, Inc., Synergy Pharmaceuticals Inc., Sebela Pharmaceuticals, Inc. and Salix Pharmaceuticals. Because Mytesi is approved with chronic safety and several of the other agents have safety concerns, there is likely to be an opportunity for a polypharmaceutical approach to long-term management of these patients, removing a direct competitive scenario from Mytesi's potential entry to the marketplace and disease indication.

To our knowledge, there are currently no FDA-approved anti-secretory products, in particular which act locally in the gut with the chronic safety profile of crofelemer, in development or on the market. Crofelemer represents a new tool in gastrointestinal disease management.

Distribution and Marketing Agreements

Effective January 16, 2019, Napo engaged Cardinal Health as its exclusive third party logistics distribution agent for commercial sales for the Company's Mytesi product and to perform certain other services which include, without limitation, storage, distribution, returns, customer support, financial support, EDI and system access support (Exclusive Distribution Agreement).

In addition to the terms and conditions of the Agreement, Cardinal Health's purchase of products, and assumption of title therein, is set forth in the Title Model Addendum. The Title Model Addendum states that upon receipt of product at the 3PL Facility (Cardinal Health in La Vergne, Tennessee) from the Company, title and risk of loss for the Mytesi product purchased by Cardinal Health (excluding consigned inventory) shall pass to Cardinal Health, and title and risk of loss for consigned inventory shall remain with Client until purchased by Cardinal Health in accordance with this Addendum. Napo considers Cardinal Health the Company's exclusive customer for Mytesi products per the Cardinal Health Exclusive Distribution agreement.

Manufacturing

The plant material used to manufacture is crude plant latex ("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. Napo's collaborating suppliers obtain CPL and arrange for the shipment of CPL to Napo's third-party contract manufacturer.

Napo's third-party contract manufacturer, India-based Glenmark Life Sciences Ltd. ("Glenmark"), a research-driven, global, integrated pharmaceutical company, is Napo's primary manufacturer of crofelemer, the active pharmaceutical ingredient in Mytesi. Glenmark processes CPL into crofelemer utilizing a proprietary manufacturing process. The processing occurs at an FDA-approved Glenmark facility. Additionally, Napo plans to establish a second processing site, which will be operated by Indena S.p.A. ("Indena"), a Milan, Italy-based contract manufacturer dedicated to the identification, development and production of high-quality active principles derived from plants, for use in the pharmaceutical, health food and personal care industries. Indena has completed the required technology transfer and feasibility and preparing for validation activities to support commercial scale manufacturing.

As we announced on August 2, 2019, Indena has successfully developed an improved crofelemer manufacturing process, effectively increasing yield and realizing reduced cost through increased manufacturing efficiencies while retaining the same phytochemical profile without compromising product quality, safety, purity and efficacy. The modified process allows Napo to support the increased crofelemer manufacturing demand expected if crofelemer receives FDA approval for new indications, including approval for the symptomatic relief of CTD. The improved process supports Jaguar's goal of increasing product yield, lowering the cost of goods, and securing manufacturing capacity to support future growth.

Canalevia will be manufactured using the same drug substance and drug product processes used to manufacture Mytesi.

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 crofelemer and the botanical extract, SB-300.

We have contracts in place with all the manufacturers and third-party testing labs required to manufacture Mytesi and lechlemer. We are finalizing a master service agreement with Indena for the manufacture of Crofelemer.We are evaluating alternate drug substance and drug product manufacturers to establish redundancy for DP manufacturing.

Proprietary Library of Medicinal Plants

We possess a proprietary library of more than 2,300 medicinal plants.

Intellectual Property

Trademarks

We plan to market all of our products under a trademark or trademarks we select, and we will own all rights, title and interest, including all goodwill, associated with such trademarks. Mytesi is a registered trademark owned by Napo.

License Agreements

Termination, Asset Transfer and Transition Agreement

On September 19, 2017 (the "Transfer Date"), Napo entered into the Termination, Asset Transfer and Transition Agreement (the "Glenmark Transition Agreement") with Glenmark. The Glenmark Transition Agreement supersedes the Glenmark Collaboration Agreement and returns to Napo certain rights which Napo licensed to Glenmark pursuant to the Glenmark Collaboration Agreement related to the development and commercialization of crofelemer for certain specified human indications in India and 140 other countries largely in developing regions (the "Transferred Assets").

As a result of the execution of the Glenmark Transition Agreement, the Company, through Napo, now hold extensive global rights for Mytesi, and also hold commercial rights to the existing regulatory approvals for crofelemer in Brazil, Ecuador, Zimbabwe and Botswana.

Patent Portfolio

Napo

Napo owns a portfolio of patents and patent applications covering formulations of and methods of treatment with proanthocyanidin polymers isolated from Croton spp. or Calophyllum spp., including Mytesi (crofelemer). The patent family associated with International Patent publication WO1998/16111 relates to enteric protected formulations of proanthocyanidin polymers isolated from Croton spp. or Calophyllum spp., including crofelemer, and methods of treating watery diarrhea using these enteric protected formulations. There is one U.S. patent in force in this family, US 7,341,744, which has a term until at least June 23, 2019, which term has been extended under 35 U.S.C. 156 by 1,075 days. Based upon the June 23, 2019 expiration date, the expiration date for crofelemer is June 2, 2022, to account for the regulatory delay in obtaining human marketing approval for crofelemer.

Napo additionally owns a family of patents arising from International Patent Application Publication WO2012/058664 that cover methods of treating HIV associated diarrhea and HAART associated diarrhea with proanthocyanidin polymers isolated from Croton spp. or Calophyllum spp., including crofelemer. In the U.S., there are two issued patents, US 8,962,680 and US 9,585,868, both of which expire October 31, 2031. Outside the U.S., patent protection for methods of treating HIV associated diarrhea has been obtained in Australia, Europe, Hong Kong, Japan, Kenya, Mexico, Russia, Ukraine, South Africa, and Zimbabwe, with expiration dates of October 31, 2031, and applications are pending in Brazil, Hong Kong, Canada, China, and Malaysia. Napo also has patent families related to methods of treating diarrhea predominant irritable bowel syndrome, methods of treating constipation predominant irritable bowel syndrome, and methods of treating inflammatory bowel disease, familial adenomatous polyposis and colon cancer, with proanthocyanidin polymers isolated from Croton spp. or Calophyllum spp., including crofelemer. In particular, for diarrhea predominant irritable bowel syndrome, Napo has two issued U.S. patents, US 8,846,113 and US 9,980,938, which expire on February 9, 2027, as well as issued patents in Australia, Canada, Europe, Gulf States, Hong Kong, Japan, South Korea, Mexico, New Zealand, Singapore, and Taiwan and pending applications in Bangladesh, Bolivia, Chile, Mexico, Panama, Peru, Paraguay, Thailand, and Venezuela, all of which are estimated to expire April 30, 2027; for constipation predominant irritable bowel syndrome, Napo has three issued U.S. patents, with terms to at least April 30, 2027, patents in Australia, Canada, Europe, Hong Kong, Mexico, New Zealand, and Singapore, all of which are estimated to expire April 30, 2027; and for inflammatory bowel disease, familial adenomatous polyposis and/or colon cancer, Napo has two issued U.S. patents, US 8,852,649 and US 9,987,250 with terms until at least January 4, 2028, as well as issued patents in Australia, Hong Kong, and Europe and Canada, which have estimated expiration dates of April 30, 2027. Napo has a pending U.S. non provisional application for the treatment of CID with crofelemer filed on March 9, 2018, as well as International and Taiwanese applications, and two International Patent Applications on other human indications including for the treatments of short bowel syndrome and congenital diarrhea disorder filed on May 31, 2018, with pending national phase applications in the United States, Australia, Canada, China, Europe, Israel, Jordan, Japan and the Gulf States.

For methods of manufacturing proanthocyanidin polymers isolated from Croton spp. or Calophyllum spp., including crofelemer, Napo owns issued patents in India, South Africa, and Eurasia with terms at least until August 26, 2029. Napo also owns issued patents in India, Russia, and South Africa and pending applications in Argentina, Brazil, and Venezuela that also cover methods of manufacturing proanthocyanidin polymers isolated from Croton spp. or Calophyllum spp., including crofelemer, with terms at least until January 17, 2032. Lastly, Napo owns two U.S. patents covering a formulation of NP 500 (nordihydroguiaretic acid (“NDGA”)) and its use in treating a metabolic disorder that have terms until April 23, 2031.

Government Regulation

The FDA and comparable regulatory authorities in state and local jurisdictions and in other countries impose substantial and burdensome requirements upon companies involved in the clinical development, manufacture,

marketing and distribution of prescription drugs such as those Napo is developing. These agencies and other federal, state and local entities regulate, among other things, the research and development, testing, manufacture, quality control, safety, effectiveness, labeling, storage, record keeping, approval, advertising and promotion, distribution, post-approval monitoring and reporting, sampling and export and import of Napo's drug product candidates. To comply with the regulatory requirements in each of the jurisdictions in which Napo is seeking to market and subsequently sell its prescription products, Napo is establishing processes and resources to provide oversight of the development, approval processes and launch of its products and to position those products in order to gain market share.

U.S. Government Regulation

In the United States, the FDA approves and regulates drugs under the Federal Food, Drug, and Cosmetic Act ("FDCA"), and its implementing regulations.

The process of obtaining regulatory approvals and the subsequent compliance with applicable federal, state, local and foreign statutes and regulations requires the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or after approval, may subject an applicant to a variety of administrative or judicial sanctions, such as the FDA's refusal to approve pending NDAs, withdrawal of an approval, imposition of a clinical hold, issuance of warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement or civil or criminal penalties.

The process required by the FDA before a drug may be marketed in the United States generally involves the following:

- completion of pre-clinical laboratory tests, animal studies and formulation studies in compliance with the FDA's good laboratory practice, or good laboratory practices ("GLPs") regulations;
- submission to the FDA of an investigational new drug application, or IND, which must become approved before human clinical trials may begin;
- approval by an institutional review board, or IRB, of the study protocol and informed consent forms for the clinical site before each trial may be initiated. Multiple sites may necessitate the involvement of multiple IRBs and submissions;
- performance of adequate and well-controlled human clinical trials in accordance with good clinical practices ("GCPs"), requirements to establish the safety and efficacy of the proposed drug product for each indication;
- submission to the FDA of an NDA which would include the study reports of the clinical trials, chemistry and manufacturing of the active pharmaceutical ingredient and the final dosage form as well as other required sections to be included in the NDA;
- satisfactory completion of an FDA advisory committee review, if applicable;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the product is produced to assess compliance with current good manufacturing practices ("cGMPs"), requirements and to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity; and
- FDA review and approval of the NDA.

Pre-clinical Studies

Pre-clinical studies include laboratory evaluation of the drug product's chemistry, toxicity and formulation, as well as animal studies to assess potential safety and efficacy. An IND sponsor must submit the results of the pre-clinical tests, together with manufacturing information, analytical data and any available clinical data or literature, among other things, to the FDA as part of an IND. Some pre-clinical testing may continue even after the IND is submitted. An IND automatically becomes effective 30 days after receipt by the FDA, unless before that time the FDA raises concerns or questions related to one or more proposed clinical trials and places the clinical trial on a clinical hold. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. As a result, submission of an IND may not result in the FDA allowing clinical trials to commence.

Clinical Trials

Clinical trials involve the administration of the investigational new drug to human subjects pursuant to a clinical protocol, under the supervision of qualified investigators in accordance with GCPs requirements, which include the requirement that all research subjects provide their informed consent in writing for their participation in any clinical trial. Clinical trials are conducted under protocols detailing, among other things, the objectives or endpoints of the trial, the parameters to be used in monitoring safety, and the effectiveness criteria to be evaluated. A protocol for each clinical trial and any subsequent protocol amendments must be submitted to the FDA under the IND. In addition, an IRB at each institution participating in the clinical trial must review and approve the plan for any clinical trial before it commences at that institution. Information about certain clinical trials must be submitted within specific timeframes to the National Institutes of Health, or NIH, for public dissemination on their www.clinicaltrials.gov website.

Human clinical trials are typically conducted in three sequential phases, which may overlap or be combined:

- Phase 1: The drug is initially introduced into healthy human subjects or patients with the target disease or condition and tested for safety, dosage tolerance, absorption, metabolism, distribution, excretion and, if possible, to gain an early indication of its effectiveness depending on the endpoints set forth in the protocol.

- Phase 2: The drug is administered to a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance and optimal dosage.

- Phase 3: The drug is administered to an expanded patient population, generally at geographically dispersed clinical trial sites, in well-controlled clinical trials to generate enough data to statistically evaluate the efficacy and safety of the product for approval, to establish the overall risk-benefit profile of the product, and to provide adequate information for the labeling of the product.

Progress reports detailing the results of the clinical trials must be submitted at least annually to the FDA and more frequently if serious adverse events occur. Phase 1, Phase 2 and Phase 3 clinical trials may not be completed successfully within any specified period, or at all. Furthermore, the FDA or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the drug has been associated with unexpected serious harm to patients.

Special Protocol Assessment

The special protocol assessment, or SPA, process is designed to facilitate the FDA's review and approval of drugs by allowing the FDA to evaluate issues related to the adequacy of certain clinical trials, including Phase 3 clinical trials that can form the primary basis for a drug product's efficacy claim in an NDA. Upon specific request by

a clinical trial sponsor, the FDA will evaluate the protocol and respond to a sponsor's questions regarding, among other things, primary efficacy endpoints, trial conduct and data analysis, within 45 days of receipt of the request.

The FDA ultimately assesses whether the protocol design and planned analysis of the trial are acceptable to support regulatory approval of the product candidate with respect to effectiveness of the indication studied. All agreements and disagreements between the FDA and the sponsor regarding a SPA must be clearly documented in a SPA letter or the minutes of a meeting between the sponsor and the FDA.

Even if the FDA agrees to the design, execution and analyses proposed in protocols reviewed under the SPA process, the FDA may revoke or alter its agreement under the following circumstances:

- public health concerns emerge that were unrecognized at the time of the protocol assessment;
- the director of the review division determines that a substantial scientific issue essential to determining safety or efficacy has been identified after testing has begun;
- a sponsor fails to follow a protocol that was agreed upon with the FDA; or
- the relevant data, assumptions, or information provided by the sponsor in a request for SPA change, are found to be false statements or misstatements, or are found to omit relevant facts.

A documented SPA may be modified, and such modification will be deemed binding on the FDA review division, except under the circumstances described above, if FDA and the sponsor agree in writing to modify the protocol and such modification is intended to improve the study.

Marketing Approval

Assuming successful completion of the required clinical testing, the results of the pre-clinical studies and clinical trials, together with detailed information relating to the product's chemistry, manufacture, controls and proposed labeling, among other things, are submitted to the FDA as part of an NDA requesting approval to market the product for one or more indications. In most cases, the submission of an NDA is subject to a substantial application user fee. Under the Prescription Drug User Fee Act ("PDUFA"), guidelines that are currently in effect, the FDA has a goal of ten months from the date of "filing" of a standard NDA for a new molecular entity to review and act on the submission. This review typically takes twelve months from the date the NDA is submitted to the FDA because the FDA has approximately two months to make a "filing" decision.

In addition, under the Pediatric Research Equity Act of 2003, as amended and reauthorized, certain NDAs or supplements to an NDA must contain data that are adequate to assess the safety and effectiveness of the drug for the claimed indications in all relevant pediatric subpopulations; this would include information which supports dosing and administration for each pediatric subpopulation for which the product is safe and effective. The FDA may, on its own initiative or at the request of the applicant, grant deferrals for submission of some or all pediatric data until after approval of the product for use in adults or full or partial waivers from the pediatric data requirements.

The FDA may also require submission of a risk evaluation and mitigation strategy, or REMS, plan to ensure that the benefits of the drug outweigh its risks. The REMS plan could include medication guides, physician communication plans, assessment plans, and/or elements to assure safe use, such as restricted distribution methods, patient registries, or other risk minimization tools.

The FDA may also require other information as part of the NDA filing, such as an environmental impact statement. The FDA can waive some or delay compliance with some of these requirements.

The FDA conducts a preliminary review of all NDAs within the first 60 days after submission, before accepting them for filing, to determine whether they are sufficiently complete to permit substantive review. The FDA may request additional information rather than accept an NDA for filing. In this event, the application must be resubmitted with the additional information. The resubmitted application is also subject to review before the FDA

accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth substantive review. The FDA reviews an NDA to determine, among other things, whether the drug is safe and effective and whether the facility in which it is manufactured, processed, packaged or held meets standards designed to assure the product's continued safety, quality and purity.

The FDA may refer an application for a novel drug to an advisory committee. An advisory committee is a panel of independent experts, including clinicians and other scientific experts, that reviews, evaluates and provides a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Before approving an NDA, the FDA typically will inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMPs requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving an NDA, the FDA may inspect one or more clinical trial sites to assure compliance with GCPs requirements.

After evaluating the NDA and all related information, including the advisory committee recommendation, if any, and inspection reports regarding the manufacturing facilities and clinical trial sites, the FDA may issue an approval letter, or, in some cases, a complete response letter. A complete response letter must contain a statement of specific items that prevent the FDA from approving the application and will also contain conditions that must be met in order to secure final approval of the NDA and may require additional clinical or pre-clinical testing in order for FDA to reconsider the application. Even with submission of this additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval. If and when those conditions have been met to the FDA's satisfaction, the FDA will typically issue an approval letter. An approval letter authorizes commercial marketing of the drug with specific prescribing information for specific indications.

Even if the FDA approves a product, it may limit the approved indications for use the of product, require that contraindications, warnings or precautions be included in the product labeling, require that post-approval studies, Phase 4 clinical trials, be conducted to further assess a drug's safety after approval, require testing and surveillance programs to monitor the product after commercialization, or impose other conditions, including distribution and use restrictions or other risk management mechanisms under a REMS, which can materially affect the potential market and profitability of the product. The FDA may prevent or limit further marketing of a product based on the results of post-marketing studies or surveillance programs. After approval, some types of changes to the approved product, such as adding new indications, manufacturing changes, and additional labeling claims, are subject to further testing requirements and FDA review and approval.

Post-Approval Requirements

Drugs manufactured or distributed pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to recordkeeping, periodic reporting, product sampling and distribution, advertising and promotion and reporting of adverse experiences with the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims are subject to prior FDA review and approval. New secondary indications must be supported by clinical trials or data. There also are continuing, annual user fee requirements for any marketed products and the establishments at which such products are manufactured, as well as new application fees for supplemental applications with clinical data.

The FDA may impose a number of post-approval requirements as a condition of approval of an NDA. For example, the FDA may require post-marketing testing, including Phase 4 clinical trials, and surveillance to further assess and monitor the product's safety and effectiveness after commercialization.

In addition, drug manufacturers and other entities involved in the manufacture and distribution of approved drugs are required to register their establishments with the FDA and state agencies, and are subject to periodic

unannounced inspections by the FDA and these state agencies for compliance with cGMPs requirements. Changes to the manufacturing process are strictly regulated and often require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMPs requirements and impose reporting and documentation requirements upon the sponsor and any third-party manufacturers that the sponsor may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain cGMPs compliance.

Once approval is granted, the FDA may withdraw the approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in mandatory revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical trials to assess new safety risks; or imposition of distribution or other restrictions under a REMS program. Other potential consequences include, include, but are not limited to:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters or holds on post-approval clinical trials;
- refusal of the FDA to approve pending NDAs or supplements to approved NDAs, or suspension or revocation of product approvals;
- product seizure or detention, or refusal to permit the import or export of products; or
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising and promotion of products that are placed on the market. Drugs may be promoted only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant liability. In addition, the FDA regulates the purity and or consistency of the approved product. Products, if deemed adulterated, can lead to serious consequences as set forth above as well as civil and criminal penalties.

Foreign Government Regulation

To the extent that any of Napo's product candidates, once approved, are sold in a foreign country, Napo may be subject to similar foreign laws and regulations, which may include, for instance, applicable post-marketing requirements, including safety surveillance, anti-fraud and abuse laws and implementation of corporate compliance programs and reporting of payments or other transfers of value to healthcare professionals.

In order to market Napo's future products in the EEA (which is comprised of the 27 Member States of the EU plus Norway, Iceland and Liechtenstein) and many other foreign jurisdictions (e.g., in Europe, the United Kingdom and Switzerland), a sponsor must obtain separate regulatory approvals. More concretely, in the EEA, medicinal products can only be commercialized after obtaining a Marketing Authorization, or MA. There are two types of marketing authorizations:

- the Community MA, which is issued by the European Commission through the Centralized Procedure, based on the opinion of the Committee for Medicinal Products for Human Use of the European Medicines Agency, or EMA, and which is valid throughout the entire territory of the EEA. The Centralized Procedure is mandatory for certain types of products, such as biotechnology medicinal products, orphan medicinal products and medicinal products indicated for the treatment of AIDS, cancer, neurodegenerative disorders, diabetes, auto-immune and viral diseases. The Centralized Procedure is

optional for products containing a new active substance not yet authorized in the EEA, or for products that constitute a significant therapeutic, scientific or technical innovation or which are in the interest of public health in the EU; and

- National MAs, which are issued by the competent authorities of the Member States of the EEA and only cover their respective territory, are available for products not falling within the mandatory scope of the Centralized Procedure. Where a product has already been authorized for marketing in a Member State of the EEA, this National MA can be recognized in another Member State through the Mutual Recognition Procedure. If the product has not received a National MA in any Member State at the time of application, it can be approved simultaneously in various Member States through the Decentralized Procedure.

Under the above-described procedures, before granting the MA, the EMA or the competent authorities of the Member States of the EEA make an assessment of the risk-benefit balance of the product on the basis of scientific criteria concerning its quality, safety and efficacy.

In the EEA, new products authorized for marketing, or reference products, qualify for eight years of data exclusivity and an additional two years of market exclusivity upon marketing authorization. The data exclusivity period prevents generic or biosimilar applicants from relying on the pre-clinical and clinical trial data contained in the dossier of the reference product when applying for a generic or biosimilar marketing authorization in the EU during a period of eight years from the date on which the reference product was first authorized in the EU. The market exclusivity period prevents a successful generic or biosimilar applicant from commercializing its product in the EU until 10 years have elapsed from the initial authorization of the reference product in the EU. The 10-year market exclusivity period can be extended to a maximum of eleven years if, during the first eight years of those 10 years, the marketing authorization holder obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to their authorization, are held to bring a significant clinical benefit in comparison with existing therapies.

In the EEA, marketing authorization applications for new medicinal products not authorized have to include the results of studies conducted in the pediatric population, in compliance with a pediatric investigation plan, or PIP, agreed with the EMA's Pediatric Committee ("PDCO"). The PIP sets out the timing and measures proposed to generate data to support a pediatric indication of the drug for which marketing authorization is being sought. The PDCO can grant a deferral of the obligation to implement some or all of the measures of the PIP until there are sufficient data to demonstrate the efficacy and safety of the product in adults. Further, the obligation to provide pediatric clinical trial data can be waived by the PDCO when these data is not needed or appropriate because the product is likely to be ineffective or unsafe in children, the disease or condition for which the product is intended occurs only in adult populations, or when the product does not represent a significant therapeutic benefit over existing treatments for pediatric patients. Once the marketing authorization is obtained in all Member States of the EU and study results are included in the product information, even when negative, the product is eligible for six months' supplementary protection certificate extension. For orphan-drug designated medicinal products, the 10-year period of market exclusivity is extended to 12 years.

Other U.S. Healthcare Laws

In addition to FDA restrictions on marketing of pharmaceutical and biological products, other U.S. federal and state healthcare regulatory laws restrict business practices in the pharmaceutical industry, which include, but are not limited to, state and federal anti-kickback, false claims, data privacy and security and physician payment and drug pricing transparency laws.

The U.S. federal Anti-Kickback Statute prohibits, among other things, any person or entity from knowingly and willfully offering, paying, soliciting, receiving or providing any remuneration, directly or indirectly, overtly or covertly, to induce or in return for purchasing, leasing, ordering, or arranging for or recommending the purchase, lease, or order of any good, facility, item or service reimbursable, in whole or in part, under Medicare, Medicaid or other federal healthcare programs. The term "remuneration" has been broadly interpreted to include anything of value. The Anti-Kickback Statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on

the one hand and prescribers, purchasers, formulary managers and beneficiaries on the other. Although there are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution, the exceptions and safe harbors are drawn narrowly. Practices that involve remuneration that may be alleged to be intended to induce prescribing, purchases, or recommendations may be subject to scrutiny if they do not meet the requirements of a statutory or regulatory exception or safe harbor. Failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the U.S. federal Anti-Kickback Statute. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all its facts and circumstances. Several courts have interpreted the statute's intent requirement to mean that if anyone purpose of an arrangement involving remuneration is to induce referrals of federal healthcare covered business, the statute has been violated.

Additionally, the intent standard under the U.S. federal Anti-Kickback Statute was amended by the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively, the ACA, to a stricter standard such that a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. In addition, the ACA codified case law that a claim including items or services resulting from a violation of the U.S. federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal civil False Claims Act. The majority of states also have anti-kickback laws, which establish similar prohibitions and, in some cases, may apply to items or services reimbursed by any third-party payor, including commercial insurers.

The federal false claims and civil monetary penalties laws, including the civil False Claims Act, prohibit any person or entity from, among other things, knowingly presenting, or causing to be presented, a false, fictitious or fraudulent claim for payment to, or approval by, the federal government, knowingly making, using, or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government, or from knowingly making a false statement to avoid, decrease or conceal an obligation to pay money to the U.S. federal government. A claim includes "any request or demand" for money or property presented to the U.S. government. Actions under the civil False Claims Act may be brought by the Attorney General or as a qui tam action by a private individual in the name of the government. Violations of the civil False Claims Act can result in very significant monetary penalties and treble damages. Several pharmaceutical and other healthcare companies have been prosecuted under these laws for, among other things, allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies' marketing of products for unapproved, or off-label, uses. Companies also have been prosecuted for allegedly violating the Anti-Kickback Statute and False Claims Act as a result of impermissible arrangements between companies and healthcare practitioners or as a result of the provision of remuneration by the companies to the healthcare practitioners. In addition, the civil monetary penalties statute imposes penalties against any person who is determined to have presented or caused to be presented a claim to a federal health program that the person knows or should know is for an item or service that was not provided as claimed or is false or fraudulent. Many states also have similar fraud and abuse statutes or regulations that apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor.

Violations of fraud and abuse laws, including federal and state anti-kickback and false claims laws, may be punishable by criminal and civil sanctions, including fines and civil monetary penalties, the possibility of exclusion from federal healthcare programs (including Medicare and Medicaid), disgorgement and corporate integrity agreements, which impose, among other things, rigorous operational and monitoring requirements on companies. Similar sanctions and penalties, as well as imprisonment, also can be imposed upon executive officers and employees of such companies. Given the significant size of actual and potential settlements, it is expected that the government authorities will continue to devote substantial resources to investigating healthcare providers' and manufacturers' compliance with applicable fraud and abuse laws.

The federal Health Insurance Portability and Accountability Act ("HIPAA") of 1996 created additional federal criminal statutes that prohibit, among other actions, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, including private third-party payors, knowingly and willfully embezzling or stealing from a healthcare benefit program, willfully obstructing a criminal investigation of a healthcare offense and knowingly and willfully falsifying, concealing or covering up a material fact or making any

materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services. Similar to the U.S. federal Anti-Kickback Statute, the ACA broadened the reach of certain criminal healthcare fraud statutes created under HIPAA by amending the intent requirement such that a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation.

In addition, there has been a recent trend of increased federal and state regulation of payments made to physicians and certain other healthcare providers. The ACA imposed, among other things, new annual reporting requirements through the Physician Payments Sunshine Act for covered manufacturers for certain payments and "transfers of value" provided to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members. Failure to submit timely, accurately and completely the required information for all payments, transfers of value and ownership or investment interests may result in civil monetary penalties of up to an aggregate of $150,000 per year and up to an aggregate of $1 million per year for "knowing failures." Covered manufacturers must submit reports by the 90th day of each subsequent calendar year. In addition, certain states require the implementation of compliance programs and compliance with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government, impose restrictions on marketing practices and/or tracking and reporting of gifts, compensation and other remuneration or items of value provided to physicians and other healthcare professionals and entities.

Napo may also be subject to data privacy and security regulation by both the federal government and the states in which Napo conducts its business. HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act ("HITECH"), and their respective implementing regulations, including the Final HIPAA Omnibus Rule, published on January 25, 2013, impose specified requirements relating to the privacy, security and transmission of individually identifiable health information held by covered entities and their business associates. Among other things, HITECH made HIPAA's security standards directly applicable to "business associates," defined as independent contractors or agents of covered entities that create, receive, maintain or transmit protected health information in connection with providing a service for or on behalf of a covered entity. HITECH also increased the civil and criminal penalties that may be imposed against covered entities, business associates and possibly other persons, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorney's fees and costs associated with pursuing federal civil actions. In addition, state laws govern the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same requirements, thus complicating compliance efforts.

Coverage and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any pharmaceutical products for which Napo obtains regulatory approval. In the United States and markets in other countries, patients who are prescribed treatments for their conditions and providers performing the prescribed services generally rely on third-party payors to reimburse all or part of the associated healthcare costs. Patients are unlikely to use Napo's products unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost of Napo's products. Sales of any products for which Napo receives regulatory approval for commercial sale will, therefore depend, in part, on the availability of coverage and adequate reimbursement from third-party payors. Third-party payors include government authorities, managed care plans, private health insurers and other organizations. In the United States, the process for determining whether a third-party payor will provide coverage for a pharmaceutical or biological product typically is separate from the process for setting the price of such product or for establishing the reimbursement rate that the payor will pay for the product once coverage is approved. Third-party payors may limit coverage to specific products on an approved list, also known as a formulary, which might not include all of the FDA-approved products for a particular indication. A decision by a third-party payor not to cover Napo's product candidates could reduce physician utilization of Napo's products once approved and have a material adverse effect on Napo's sales, results of operations and financial condition. Moreover, a third-party payor's decision to provide coverage for a pharmaceutical or biological product does not imply that an adequate reimbursement rate will be approved. Adequate third-party reimbursement may not be available to enable Napo to maintain price levels sufficient to realize an appropriate return on Napo's investment in product development. Additionally, coverage and

reimbursement for products can differ significantly from payor to payor. One third-party payor's decision to cover a particular medical product or service does not ensure that other payors will also provide coverage for the medical product or service, or will provide coverage at an adequate reimbursement rate. As a result, the coverage determination process will require Napo to provide scientific and clinical support for the use of Napo's products to each payor separately and will be a time-consuming process.

In the EEA, governments influence the price of products through their pricing and reimbursement rules and control of national health care systems that fund a large part of the cost of those products to consumers. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed to by the government. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost effectiveness of a particular product candidate to currently available therapies. Other member states allow companies to fix their own prices for medicines, but monitor and control company profits. The downward pressure on health care costs in general, particularly prescription products, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross border imports from low-priced markets exert commercial pressure on pricing within a country.

The containment of healthcare costs has become a priority of federal, state and foreign governments, and the prices of pharmaceutical or biological products have been a focus in this effort. Third-party payors are increasingly challenging the prices charged for medical products and services, examining the medical necessity and reviewing the cost-effectiveness of pharmaceutical or biological products, medical devices and medical services, in addition to questioning safety and efficacy. If these third-party payors do not consider Napo's products to be cost-effective compared to other available therapies, they may not cover Napo's products after FDA approval or, if they do, the level of payment may not be sufficient to allow Napo to sell its products at a profit.

Healthcare Reform

A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and other third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medical products. For example, in March 2010, the ACA was enacted, which, among other things, increased the minimum Medicaid rebates owed by most manufacturers under the Medicaid Drug Rebate Program; introduced a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected; extended the Medicaid Drug Rebate Program to the utilization of prescriptions of individuals enrolled in Medicaid managed care plans; imposed mandatory discounts for certain Medicare Part D beneficiaries as a condition for manufacturers' outpatient drugs covered under Medicare Part D; subjected drug manufacturers to new annual fees based on pharmaceutical companies' share of sales to federal healthcare programs; created a new Patient Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research; creation of the Independent Payment Advisory Board, once empaneled, will have authority to recommend certain changes to the Medicare program that could result in reduced payments for prescription drugs; and establishment of a Center for Medicare Innovation at the CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending. Since its enactment, the U.S. federal government has delayed or suspended the implementation of certain provisions of the ACA.

Napo expects that the ACA, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and lower reimbursement and additional downward pressure on the price that Napo receives for any approved product. Any reduction in reimbursement from Medicare or other government-funded programs may result in a similar reduction in payments from private payors. Moreover, recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products. The implementation of cost containment measures or other healthcare reforms may prevent Napo from being able to generate revenue, attain profitability or commercialize Napo's drugs.

Additionally, on August 2, 2011, the Budget Control Act of 2011 created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This included aggregate reductions of Medicare

payments to providers of 2% per fiscal year, which went into effect on April 1, 2013, and due to subsequent legislative amendments to the statute, will stay in effect through 2025 unless additional action is taken by Congress. On January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several types of providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. More recently, there has been heightened governmental scrutiny recently over the manner in which manufacturers set prices for their marketed products, which have resulted in several recent Congressional inquiries and proposed bills designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for pharmaceutical products.

Napo expects that additional state and federal healthcare reform measures will be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in reduced demand for Napo's products once approved or additional pricing pressures.

Animal Health Business

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.

Certain U.S. 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. The approval of prescription drugs intended for animal use is regulated by the FDA's CVM. 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.

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 the 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 we meet 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. We have received MUMS designation for Canalevia for the indication of chemotherapy-induced diarrhea, or CID, in dogs. Additionally, the FDA has indicated that the use of Canalevia for the treatment of EID in dogs qualifies as a "minor use", which means that Canalevia is also eligible for conditional approval for the indication of EID in dogs.

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 its product candidates.

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 animal 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 animal 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 ("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 animal non-prescription products are currently subject to regulation in the United States. The CVM 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 ("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.

Legal Proceedings

From time to time, we may become involved in litigation relating to claims arising from the ordinary course of business. Other than as set forth below, 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.

July 2017 Complaint Relating to the Merger

On July 20, 2017, a putative class action complaint was filed in the United States District Court, Northern District of California, Civil Action No. 3:17-cv-04102, by Tony Plant (the "Plaintiff") on behalf of shareholders of the Company who held shares on April 12, 2017 and were entitled to vote at the 2017 Special Shareholders Meeting, against the Company and certain individuals who were directors as of the date of the vote (collectively, the "Defendants"), in a matter captioned Tony Plant v. Jaguar Animal Health, Inc., et al. (Jaguar Health, Inc. was formerly known as Jaguar Animal Health, Inc.), making claims arising under Section 14(a) and Section 20(a) of the Exchange Act and Rule 14a-9, 17 C.F.R. § 240.14a-9, promulgated thereunder by the SEC. The claims alleged false and misleading information provided to investors in the Joint Proxy Statement/Prospectus on Form S-4 (File No. 333-217364) declared effective by the Commission on July 6, 2017 related to the solicitation of votes from shareholders to approve the merger and certain transactions related thereto. The Company accepted service of the complaint and summons on behalf of itself and the United States-based director Defendants on November 1, 2017. The Company has not accepted service on behalf of, and Plaintiff has not yet served, the non-U.S.-based director Defendants.

By order dated September 20, 2018, the court dismissed the lawsuit for failure to state a claim. Plaintiff was entitled to amend that complaint within 20 days from the date of dismissal. On October 10, 2018, Plaintiff filed a second amended complaint to focus on the Company's commercial strategy in support of Equilevia and the related disclosure statements in the Form S-4 described above. On November 6, 2018, the Defendants moved to dismiss the second amended complaint. The court denied the Defendants' motion to dismiss on June 28, 2019. The Company answered the second amended complaint on August 2, 2019; the answer denied the material allegations of the second amended complaint. Following the completion of document discovery, the parties engaged in a mediation that resulted in an agreement in principle to settle the litigation on a class-wide basis for $2.6 million, subject to court approval. Plaintiff filed a motion for preliminary approval of the proposed settlement on December 30, 2020. The court preliminarily approved the proposed settlement, and authorized Plaintiff to provide settlement class members with notice of the proposed settlement, in an order dated February 2, 2021. The final settlement approval hearing is currently scheduled for May 27, 2021. Assuming that the court gives final approval to the proposed settlement following the final settlement approval hearing, the entire settlement consideration will be provided by the Company's director and officer liability insurance carrier.

Corporate Information

We were incorporated in the State of Delaware on June 6, 2013. Our principal executive offices are located at 200 Pine Street, Suite 400, San Francisco, CA 94014 and our telephone number is (415) 371-8300. Our website address is https://jaguar.health. The information contained on, or that can be accessed through, our website is not part of this prospectus. Our voting common stock is listed on the NASDAQ Capital Market and trades under the symbol "JAGX." On July 31, 2017, we completed the acquisition of Napo pursuant to the Agreement and Plan of Merger, dated March 31, 2017, by and among the Company, Napo, Napo Acquisition Corporation, and Napo's representative (the "Merger").

Employees

As of December 31, 2020, we had 34 employees. Five employees hold D.V.M. or Ph.D. degrees. Eleven of our employees are engaged in research and development activities and 14 employees are engaged in sales and marketing. 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 5,263 rentable square feet of office space from Peacock Construction, Inc.

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. Anyone 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.

Risk Factor Summary

The following is a summary of the principal risks that could adversely affect our business, operations and financial results.

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.
- We expect to incur significant additional costs as we continue commercialization efforts for current prescription drug candidates or other product candidates, and undertake the clinical trials necessary to obtain any necessary regulatory approvals, which will increase our losses.
- We will need to raise substantial additional capital in the future in the event that we conduct clinical trials for new indications 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.
- We are substantially dependent on the success of our current lead prescription drug product, Mytesi, and cannot be certain that necessary approvals will be received for planned Mytesi follow-on indications or that these product candidates will be successfully commercialized, either by us or any of our partners.
- 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.
- Mytesi faces significant competition from other pharmaceutical companies, both for its currently approved indication and for planned follow-on indications, and our operating results will suffer if we fail to compete effectively.
- We may be unable to obtain, or obtain on a timely basis, regulatory approval for our existing or future human or animal prescription drug product candidates under applicable regulatory requirements, which would harm our operating results.
- The results of our earlier studies of Mytesi may not be predictive of the results in any future clinical trials and species-specific formulation studies, respectively, and we may not be successful in our efforts to develop or commercialize line extensions of Mytesi.
- 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.

- 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 human or animal product candidates on a timely basis, or at all.
- Even if we obtain regulatory approval for planned follow-on indications of Mytesi, or for Canalevia or our other product candidates, they may never achieve market acceptance. Further, even if we are successful in the ongoing commercialization of Mytesi, we may not achieve commercial success.
- Human and animal gastrointestinal health products are subject to unanticipated post-approval safety or efficacy concerns, which may harm our business and reputation.
- Future federal and state legislation may result in increased exposure to product liability claims, which could result in substantial losses.
- 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.
- We are dependent on two suppliers for the raw material used to produce the active pharmaceutical ingredient in Mytesi. The termination of either of these contracts would result in a disruption to product development and our business will be harmed.
- We are dependent upon third-party contract manufacturers, both for the supply of the active pharmaceutical ingredient in Mytesi, as well as for the supply of finished products for commercialization.
- 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 human products and product candidates, if approved, and generate product or other revenue.
- We will need to increase the size of our organization and may not successfully manage such growth.
- If approved, our animal health 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, it will need to obtain additional approvals, which may not be granted.
- If our human or animal 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.
- We may not maintain the benefits associated with MUMS designation, including market exclusivity.
- The market for our human products, and the gastrointestinal 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.
- Insurance coverage for Mytesi for its current approved indication could decrease or end, or Mytesi might not receive insurance coverage for any approved follow-on indications, which could lead to lower revenue and harm our operating results.
- 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.
- 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.
- Fluctuations in the exchange rate of foreign currencies could result in currency transactions losses.
- There are other gastrointestinal-focused human pharmaceutical companies, and we face competition in the marketplaces in which we operate or plan to operate.
- Our obligations to Streeterville are secured by a security interest in all of Napo's lechlemer assets, so if we default on those obligations, Streeterville could foreclose on our assets.
- Our royalty interests require us to make minimum royalty payments, even if we do not sell a sufficient amount of products to cover the amount of such payments, which may strain our cash resources.
- Failure in our information technology systems, including by cyber-attacks or other data security incidents, could significantly disrupt our operations.
- The novel coronavirus global pandemic could adversely impact our business, including our supply chain, clinical trials and commercialization of Mytesi.
- Long-term remote work arrangements may adversely affect our business.
- Substantially all of our revenue for recent periods has been received from a single customer.

Risks Related to Our Intellectual Property

- We cannot be certain that our patent strategy will be effective to protect against competition
- 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.
- 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 proprietary position depends upon the botanical guidance of our drug approval and patents that are formulation or method-of-use patents, which do not prevent a competitor from using the same human or animal drug for another use.
- We may be involved in lawsuits to protect or enforce our patents, which could be expensive, time-consuming and unsuccessful, and third parties may challenge the validity or enforceability of our patents and they may be successful.
- If we are unable to prevent disclosure of our trade secrets or other confidential information to third parties, our competitive position may be impaired.
- Changes in U.S. patent law could diminish the value of patents in general, thereby impairing our ability to protect our products.
- We may not be able to protect our intellectual property rights throughout the world, which could impair our business.
- Our business could be harmed if we fail to obtain certain registered trademarks in the United States or in other countries.
- We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.
- Even if we receive any of the 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.
- 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.
- 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.
- 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 their regulatory reach in the future, which would result in additional expense and could delay or prevent the commercialization of these products.
- Even if Napo receives the required regulatory approvals for Napo's current or future prescription drug product candidates and non-prescription products, Napo will be subject to ongoing obligations and continued regulatory review, which may result in significant additional expense.
- Any of Napo's current or future prescription drug product candidates or non-prescription products may cause or contribute to adverse medical events that Napo would be required to report to regulatory authorities and, if Napo fails to do so, Napo could be subject to sanctions that would harm Napo's business.
- Legislative or regulatory reforms make it more difficult and costly for Napo to obtain regulatory clearance or approval of any of Napo's current or future product candidates and to produce, market, and distribute Napo's products after clearance or approval is obtained.

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.
- We have material weaknesses in our internal control over financial reporting related to our financial statement close process and policies. If we fail to remediate the material weakness, or experience any additional material

weaknesses in the future or otherwise fail to maintain an effective system of internal controls in the future, we may not be able to accurately report our financial condition or results of operations which may adversely affect investor confidence in us and, as a result, the value of our common stock.

- We currently have a limited amount of common stock available for new securities issuances, which may restrict us from accessing additional capital through the sale of new securities.
- If our shares become subject to the penny stock rules, it would become more difficult to trade our 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 shares of common stock has recently increased significantly to a level that we do not believe is consistent with any recent change in our financial condition or results of operations. If the trading price of our shares of common stock decreases rapidly, investors could lose a significant portion of their investment.
- A possible "short squeeze" due to a sudden increase in demand of our common stock that largely exceeds supply may lead to further price volatility in our common stock.
- You may not be able to resell our common stock when you wish to sell them or at a price that you consider attractive or satisfactory.
- If securities or industry analysts do not publish research or reports about our company, or if they issue adverse or misleading opinions regarding us or our stock, our stock price and trading volume could decline.
- You may be diluted by conversions of outstanding shares of non-voting common stock and exercises of outstanding options and warrants.
- 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 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.
- 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.
- 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.
- 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 effected two reverse stock splits since January 1, 2018, and have received stockholder approval for a third reverse stock split, which if effectuated, may not achieve one or more of our objectives.

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.

During the time period between our formation in June 2013 and the consummation of the Merger on July 31, 2017, our operations were primarily limited to the research and development of our animal prescription drug product candidate, Canalevia, to treat various forms of diarrhea in dogs, our non-prescription product, Neonorm Calf, to help dairies and calf farms proactively retain fluid in calves, the ongoing commercialization of Neonorm Foal, our antidiarrheal for newborn horses, and Equilevia, our non-prescription, personalized, premium product for total gut health in high-performance equine athletes. Since the consummation of the Merger on July 31, 2017, our operations have been primarily focused on research, development and the ongoing commercialization of our lead prescription drug product, Mytesi, which is approved by the U.S. FDA for the symptomatic relief of noninfectious diarrhea in adults with HIV/AIDS on antiretroviral therapy. 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 human health products beyond Mytesi for HIV-related diarrhea or animal health products, obtain any required

marketing approval for any of our animal prescription drug product candidates or successfully overcome the risks and uncertainties frequently encountered by companies in emerging fields such as the animal health industry or the gastrointestinal health industry in general. Our revenues to date have been insufficient to offset our expenses, and we expect to continue to incur significant research and development and other expenses. Our net loss and comprehensive loss for the years ended December 31, 2020 and 2019 was $33.8 million and $38.5 million, respectively. As of December 31, 2020, we had total stockholders' equity of $17.2 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 human and veterinary drug product candidates, conduct species-specific formulation studies for our non-prescription products and increase 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 our financial statements, we believe that current liquidity will be sufficient to fund the Company's obligations through March 31, 2022, 12 months after these consolidated financial statements are issued. If we are unable to continue as a viable entity, our stockholders may lose their entire investment.

We expect to incur significant additional costs as we continue commercialization efforts for current prescription drug candidates or other product candidates, and undertake the clinical trials necessary to obtain any necessary regulatory approvals, which will increase our losses.

Napo commenced sales of Mytesi for adults with HIV/AIDS on antiretroviral therapy in September 2016. 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 gastrointestinal health industry, including physicians as applicable.

We are actively identifying additional products for development and commercialization, and will continue to expend substantial resources for the foreseeable future to develop Mytesi and lechlemer. 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 in the event that we conduct clinical trials for new indications 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.

While we have sufficient cash on hand to fund our operating plan through March 31, 2022. 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 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 through public or private equity or debt financings or other sources such as strategic collaborations. 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 or potential license arrangements.

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 Mytesi 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 or we may not have sufficient authorized shares to raise additional capital. 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 our current lead prescription drug product, Mytesi, and cannot be certain that necessary approvals will be received for planned Mytesi follow-on indications or that these product

candidates will be successfully commercialized, either by us or any of our partners.

Other than Mytesi, we currently do not have regulatory approval for any of our prescription drug product candidates. Our current efforts are primarily focused on the ongoing commercialization of Mytesi, and development efforts related to Mytesi. With regard to Mytesi, we are focused on marketing the product in the United States as well as on development efforts related to a follow-on indication for Mytesi in CTD, an important supportive care indication for patients undergoing primary or adjuvant chemotherapy for cancer treatment, and symptomatic relief of COVID-related diarrhea. Mytesi is also in development for other possible follow-on indications, including orphan-drug indications for symptomatic relief of diarrhea in infants and children with CDD and for adult and pediatric patients with SBS; and for supportive care for diarrhea relief in IBD; IBS-D; and for idiopathic/functional diarrhea. In addition, a second-generation proprietary anti-secretory agent is in development for cholera. Mytesi previously received orphan-drug designation for SBS. 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 Mytesi.

Substantial time and capital resources have been previously devoted by third parties in the development of crofelemer, the active pharmaceutical ingredient, or API, in Mytesi and Canalevia, and the development of the botanical extract used in Equilevia and Neonorm. Both crofelemer and the botanical extract used in Equilevia and Neonorm were originally developed at Shaman Pharmaceuticals, Inc. (“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 of 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 Equilevia and 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 was the current interim chief executive officer of Napo and a member of Napo’s board of directors prior to the Merger. While at Napo, certain members of our management team, including Ms. Conte and Dr. King, continued the development of crofelemer. Following the merger of Jaguar and Napo in July 2017, Napo became Jaguar’s wholly-owned subsidiary. If we are not successful in the development and commercialization of Mytesi, our business and our prospects will be harmed.

The successful development and commercialization of Mytesi will depend on a number of factors, including the following:

- our ability to demonstrate to the satisfaction of the FDA and any other regulatory bodies, the safety and efficacy of Canalevia;
- our ability and that of our contract manufacturers to manufacture supplies of Mytesi and to develop, validate and maintain viable commercial manufacturing processes that are compliant with current good manufacturing practices, or cGMPs, if required;
- our ability to successfully market Mytesi, whether alone or in collaboration with others;
- the availability, perceived advantages, relative cost, relative safety and relative efficacy of our prescription drug product candidates compared to alternative and competing treatments;
- the acceptance of our prescription drug product candidates and non-prescription products as safe and effective by physicians, veterinarians, patients, animal owners and the human and animal health community, as applicable;
- 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 ("USPTO").

Many of these factors are beyond our control. Accordingly, we may not be successful in developing or commercializing Mytesi, Neonorm, Equilevia, Canalevia or any of our other potential products. If we are unsuccessful or are significantly delayed in commercializing Mytesi, 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 is focused on the commercial performance of Mytesi, a key element of our strategy is to identify, develop and commercialize a portfolio of products to serve the gastrointestinal health market. Most of our potential products are based on our knowledge of medicinal plants. Our current focus is primarily on product candidates whose active pharmaceutical ingredient or botanical extract has been successfully commercialized or demonstrated to be safe and effective in human or animal 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;
- an outside party may develop a cure for any disease state that is the target indication for any of our planned or approved drug products;
- 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 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 physicians, veterinarians, patients, animal owners, key opinion leaders and other decision-makers in the gastrointestinal health market, as applicable.

While we are developing 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.

Mytesi faces significant competition from other pharmaceutical companies, both for its currently approved indication and for planned follow-on indications, and our operating results will suffer if we fail to compete effectively.

The development and commercialization of products for human gastrointestinal health is highly competitive and our success depends on our ability to compete effectively with other products in the market. During the ongoing commercialization of Mytesi for its currently approved indication, and during the future commercialization of Mytesi

for any planned follow-on indications, if such follow-on indications receive regulatory approval, we expect to compete with major pharmaceutical and biotechnology companies that operate in the gastrointestinal space, such as Takeda Pharmaceuticals, Allergan, Inc., Ironwood Pharmaceuticals, Inc., Synergy Pharmaceuticals Inc., Sebela Pharmaceuticals, Inc. and Salix Pharmaceuticals.

Many of our competitors and potential competitors in the human gastrointestinal space have substantially more financial, technical and human resources and greater ability to lower costs of manufacturing and sales and marketing than we do. Many also have more experience in the development, manufacture, regulation and worldwide commercialization of human gastrointestinal health products.

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

We may be unable to obtain, or obtain on a timely basis, regulatory approval for our existing or future human or animal 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 human and animal health products are subject to extensive regulation. We are typically not permitted to market our prescription drug product candidates in the United States until we receive approval of the product from the FDA through the filing of an NDA or NADA, as applicable. To gain approval to market a prescription drug, 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 for the intended indications. Likewise, 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 cGMPs. 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 ("CROs"), and other third parties to conduct our toxicology studies and for certain other product development activities. The results of toxicology studies, other initial development activities, and/or 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. 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, if applicable, 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 maybe 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 human or animal 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 Mytesi may not be predictive of the results in any future clinical trials and species-specific formulation studies, respectively, and we may not be successful in our efforts to develop or commercialize line extensions of Mytesi.

Our human and animal product pipeline includes a number of potential indications of Mytesi, our lead prescription product. The results of our studies and other 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 clinical studies and formulation studies, respectively. Failure can occur at any time during the conduct of these trials and other development activities. Even if our formulation/clinical studies and other development activities are completed as planned, the results may not be sufficient to pursue a particular line extension for Mytesi. Further, even if we obtain promising results from our clinical trials or species-specific formulation studies, as applicable, we may not successfully commercialize any line extension. Because line extensions are developed for a particular market, we may not be able to leverage our experience from the commercial launch of Mytesi in new 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 human and animal gastrointestinal health 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 new indications for Mytesi, 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 human or animal 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, GCPs 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 planned follow-on indications of Mytesi, or for Canalevia or our other product candidates, they may never achieve market acceptance. Further, even if we are successful in the ongoing commercialization of Mytesi, we may not achieve commercial success.

If we obtain necessary regulatory approvals for planned follow-on indications of Mytesi or for Canalevia or our other product candidates, such products may still not achieve market acceptance and may not be commercially successful. Market acceptance of Mytesi, Canalevia, 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 physicians or veterinarians, as applicable, and, in the case of animal products, products approved for use in humans that are used extra-label in animals;
- the acceptance by physicians, veterinarians, companion animal owners, as applicable, of our products as safe and effective;
- the cost in relation to alternative treatments and willingness on the part of physicians, veterinarians, patients and animal owners, as applicable, 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 Mytesi to achieve market acceptance or commercial success would harm our financial condition and results of operations.

Human and animal gastrointestinal health 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 human and animal gastrointestinal 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, such as Mytesi, 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 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, and the resignation of our former Chief Financial Officer and Treasurer, Karen Wright, in August 2019, 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. To help attract, retain, and motivate qualified management and other personnel, we use share-based incentive awards such as employee stock options and restricted stock units. However, given the volatility in our stock price, it may be more difficult and expensive to recruit and retain employees, particularly senior management, through grants of stock or stock options. If our share-based compensation ceases to be viewed as a valuable benefit, our ability to attract, retain, and motivate qualified management and other personnel could be weakened, which could harm our results of operations and 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 human gastrointestinal health field is intense because there are a limited number of individuals who are trained or experienced in the field. 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 Mytesi. 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 Mytesi is 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 Mytesi and anticipated line extensions.

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

We have contracted with third parties for the formulation of API and botanical extract into finished products for our studies. We have also 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. Glenmark is the current manufacturer of crofelemer, the active API in Canalevia, for Mytesi, and the manufacturer on file for the NADA to which we have a right of reference. As announced in October of 2015, we have entered into an agreement with Patheon, a provider of drug development and delivery solutions, under which Patheon provides enteric-coated tablets to us for use in humans and 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 Mytesi and Canalevia. We currently have sufficient quantities of the API used in Mytesi to support our projected sales efforts. We are working with our contract manufacturers to increase API manufacturing capacity of the API to support the sales forecast for 2022 and beyond. If our contract manufacturer cannot manufacture sufficient quantities of the API in a timely manner, we could suffer losses due to lost sales opportunities. We currently have sufficient quantities of the botanical extract used in Neonorm and Equilevia to support planned commercialization efforts for Neonorm and Equilevia. However, we will require additional quantities of the botanical extract if our ongoing commercialization efforts for Neonorm or our ongoing commercial launch of Equilevia is successful. If we are not successful in reaching agreements with third parties on terms that we consider commercially reasonable for manufacturing and formulation of Mytesi, or if our contract manufacturer and formulator are not able to produce sufficient quantities or quality of the Mytesi API or finished product under their agreements, it could delay our plans and harm our business prospects. For example, as a result of the outbreak in 2020 of SARS-CoV-2, the virus that causes COVID-19, that originated in Wuhan, China and then spread globally, our suppliers and contract manufacturer could be disrupted by worker absenteeism, quarantines, or other travel or health-related restrictions or could incur increased costs associated with ensuring the safety and health of their personnel. If our suppliers or contract manufacturer is so affected, our supply chain could be disrupted, our product shipments could be delayed, our costs could be increased and our business could be adversely affected.

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 cGMPs. If our third-party

contractors do not maintain compliance with these strict regulatory requirements, they and we 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 (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 human products and product candidates, if approved, and generate product or other revenue.

We currently have limited sales, marketing or distribution capabilities, and prior to Napo's launch of Mytesi for the symptomatic relief of noninfectious diarrhea in adults with HIV/AIDS on antiretroviral therapy, and our launch of Neonorm for preweaned dairy calves, we had no experience in the sale, marketing and distribution of human or 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 Mytesi, and, if approved, Canalevia. If we are not successful in commercializing Mytesi, for its currently approved indication or for any potential Mytesi follow-on indication, either on our own or through one or more distributors, or in generating upfront licensing or other fees, including through the contemplated merger transaction between the Dragon SPAC and Napo EU and associated licensing arrangement that is currently under discussions, we may never generate significant revenue and may continue to incur significant losses, which would harm our financial condition and results of operations.

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

As of December 31, 2020, we had 34 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.

If approved, our animal health 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, it will need to obtain additional approvals, which may not be granted.

If our animal health 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 new animal 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 new indications, our ability to expand our animal health 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 use our products for extra-label uses, we may not promote our animal health products for extra-label uses. We note that extra-label uses are uses for which the product has not received approval. 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 animal health 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 human or animal 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 human or animal prescription drug product candidates are approved by regulatory authorities, there may be increased risk of product liability if physicians, veterinarians, patients, animal owners or others, as applicable, attempt to use such products extra-label, including the use of our products for indications or in species for which they have not been approved. Furthermore, the use of an approved human or animal 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 human or animal 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 gastrointestinal health 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 were granted MUMS designation for Canalevia for the indication of CID in dogs, we became 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 us, 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 human products, and the gastrointestinal 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 human products because the gastrointestinal 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 physicians, as applicable, the willingness of patients, as applicable, 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 human 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 patients to pay for our products may be less than we anticipate, and may be negatively affected by overall economic conditions.

Insurance coverage for Mytesi for its current approved indication could decrease or end, or Mytesi might not receive insurance coverage for any approved follow-on indications, which could lead to lower revenue and harm our operating results.

For its current approved indication, Mytesi is currently covered by all of the top 10 commercial insurance plans, representing more than 245 million U.S. lives. In 50% of these plans it is currently on Tier 3 with no restrictions, and in 50% it is currently on Tier 3 with a prior authorization required. In the top 10 Managed Medicare plans, which represent 24 million covered lives, Mytesi is currently covered on 10% of plans. Mytesi is currently covered on Medicaid in all 50 states. However, the nature or extent of coverage for Mytesi by any of these plans or programs could change or be terminated, or Mytesi might not receive insurance coverage for any approved follow-on indications. Either outcome could lead to significantly lower revenue and significantly harm our operating results.

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 may commercialize Canalevia and its line extensions in jurisdictions outside the United

States. As a result, we may 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.

There are other gastrointestinal-focused human pharmaceutical companies, and we face competition in the marketplaces in which we operate or plan to operate.

Our commercial success in the human drug arena remains dependent on maintaining or establishing a competitive position in the market for the current, approved specialty indication of Mytesi as well as for planned Mytesi follow-on indications. In the IBS-D market in particular, several competitors have commercially available products approved for our planned IBS-D indication. The availability of our competitors' products could limit the demand, and the price we are able to charge, for any drug candidate we develop. The inability to compete with existing or subsequently introduced drug candidates would have a material adverse impact on our business, financial condition and prospects.

Our obligations to Streeterville are secured by a security interest in all of Napo's lechlemer assets, so if we default on those obligations, Streeterville could foreclose on our assets.

Our obligations under the secured promissory note issued to Streeterville Capital, LLC ("Streeterville") are secured by a first priority security interest in all existing and future lechlemer technology held by Napo, including intellectual property, as provided in the Security Agreement, dated January 19, 2021 between Napo and Streeterville. As a result, if we default on our obligations under these agreements, Streeterville could foreclose on its security interests and liquidate some or all of these assets, which would harm our plans to develop and commercialize lechlemer, financial condition and results of operations and could require us to reduce or cease operations with respect to lechlemer.

Our royalty interests require us to make minimum royalty payments, even if we do not sell a sufficient amount of products to cover such payments, which may strain our cash resources.

Since March 2020, we have sold royalty interests to certain lenders that entitle such lenders to receive future royalties on sales of our products. These royalty interests require us to make minimum royalty payments beginning 2021, even if we do not sell a sufficient amount of product to cover such payments, which may strain our cash resources. The total minimum royalty payments will be $2.3 million in 2021, $6.7 million in 2022, $18.0 million in 2023, and $11.3 million in 2024.

Failure in our information technology systems, including by cyber attacks or other data security incidents, could significantly disrupt our operations.

Our operations depend, in part, on the continued performance of our information technology systems. Our information technology systems are potentially vulnerable to physical or electronic break-ins, computer viruses, phishing attacks and other types of disruptions. We have and continue to experience cyber attacks of varying degrees. Our security measures may also be breached due to employee error, malfeasance, system errors or other vulnerabilities. Such breach or unauthorized access or attempts by outside parties to fraudulently induce employees or users to disclose sensitive information in order to gain access to our data could result in significant legal and financial exposure, and damage to our reputation that could potentially have an adverse effect on our business. Because the techniques used to obtain unauthorized access, or sabotage systems change frequently, become more sophisticated, and often are not recognized until launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures. Additionally, cyber attacks could also compromise trade secrets and other sensitive information and result in such information being disclosed to others and becoming less valuable, which could negatively affect our business. Although we have information technology security systems, a successful cybersecurity attack or other data security incident could result in the misappropriation and/or loss of confidential or personal information, create system interruptions, deploy malicious software that attacks our systems, or result in financial losses. It is possible that a cybersecurity attack might not be noticed for some period of time. The occurrence of a cyber security attack or incident could result in business interruptions from the disruption of our information

technology systems, or negative publicity resulting in reputational damage with our shareholders and other stakeholders and/or increased costs to prevent, respond to or mitigate cybersecurity events. In addition, the unauthorized dissemination of sensitive personal information or proprietary or confidential information could expose us or other third-parties to regulatory fines or penalties, litigation and potential liability, or otherwise harm our business.

The novel coronavirus global pandemic could adversely impact our business, including our supply chain, clinical trials and commercialization of Mytesi.

As a result of the outbreak of SARS-CoV-2, the virus that causes COVID-19, we may experience disruptions that could severely impact our supply chain, ongoing and future clinical trials and commercialization of Mytesi. For example, COVID-19 has resulted in increased travel restrictions and the shutdown or delay of business activities in various regions, including certain activities of our contract manufacturers in India and in Italy. To the extent our suppliers and contract manufacturer are unable to comply with their obligations under our agreements with them or they are otherwise unable to deliver or are delayed in delivering raw materials, Mytesi API or finished products to us due to COVID-19, our ability to continue meeting commercial demand for Mytesi in the United States or advancing development of our product candidates may become impaired. Travel restrictions and shutdowns in business operations as a result of the outbreak may also limit our ability to pursue business development activities, including limiting onsite diligence of manufacturing facilities owned or operated by the Company and our contractors.

Such travel restrictions and shutdowns in business operations may also adversely impact our commercialization of Mytesi, including limiting the ability of our marketing and sales force to engage with healthcare providers and patient groups, and could result in patients postponing visits to healthcare provider facilities, healthcare providers temporarily closing their offices or restricting patient visits, pharmacies being closed or suffering supply chain disruptions, healthcare provider and/or pharmacy employees being unavailable and general disruptions in the operations of payors, distributors, logistics providers and other third parties that are necessary for Mytesi to be prescribed and reimbursed.

COVID-19 continues to rapidly evolve. The extent to which COVID-19, and mutated variants of SARS-CoV-2 – the virus that causes COVID-19, may impact our business, including our supply chain, clinical trials, commercialization of Mytesi and distribution channels, will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the pandemic, the duration of the pandemic, travel restrictions and social distancing in the United States and other countries, business closures or business disruptions and the effectiveness of actions taken in the United States and other countries to contain and treat the pandemic.

Long-term remote work arrangements may adversely affect our business.

Many of our employees have been working remotely the past year and will continue to do so this year. An extended period of remote work arrangements could strain our business continuity plans, introduce operational risk, including but not limited to cyber-security risks, impair the effectiveness of our internal controls over financial reporting and impact our ability to manage our business.

Substantially all of our revenue for recent periods has been received from a single customer.

Substantially all of our revenue has been derived from one customer. Except for the shelter-in-place mandate, we have not been made aware by our customer if they have experienced other issues arising due to COVID-19 that may materially impact our financial condition, liquidity or results of operations. We will continue to have dialogues with our customer.

Risks Related to Intellectual Property

We cannot be certain that our patent strategy will be effective to protect against competition

Our commercial success depends in large part on obtaining and maintaining patent, trademark and trade secret protection of our human or animal products, both prescription and non-prescription, our current human or animal product candidates and any future human or animal product candidates, and their respective components, formulations, methods used to manufacture them and methods of treatment, as well as successfully defending our patents and other intellectual property rights against third-party challenges. Our ability to stop unauthorized third parties from making, using, selling, offering to sell or importing our products or our product candidates is dependent upon the extent to which we have rights under valid and enforceable patents, trade secrets and other similar intellectual property that cover these activities. 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.

We have a portfolio of United States and foreign issued patents and pending applications related to our products and product candidates. We have three issued United States patents listed in the FDA's Orange Book for Mytesi. We plan to rely on certain of these issued patents as protection for Canalevia. The strength of patents in the field of pharmaceuticals and animal health involves complex legal and scientific questions and can be uncertain. We cannot be certain that pending applications will issue as patents. For those patents that are already issued and even if other 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 may not adequately protect our intellectual property or prevent others from designing around their claims. If the patents we have are not maintained or their scope is significantly narrowed or if we are not able to obtain issued patents from pending applications, our business and prospects would be harmed.

The Leahy-Smith America Invents Act, patent reform legislation enacted in 2011, could increase the uncertainties and costs surrounding the prosecution of any patent applications and the enforcement or defense of any patents that issue. The Leahy-Smith Act introduced 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 is entitled to the patent on an invention regardless of whether another inventor had made the invention earlier. The USPTO developed 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 our patents and any other 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 and, in certain jurisdictions, pending applications, 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 fail to maintain the patents and patent applications covering our prescription drug products, 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 a product or 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 products, 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 human or animal 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.

Our proprietary position depends upon the botanical guidance of our drug approval and patents that are formulation or method-of-use patents, which do not prevent a competitor from using the same human or animal drug 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 Mytesi and Canalevia, have expired, and the issued patents and applications relevant to our products and product candidates cover methods of use for crofelemer and the botanical extract in Neonorm and Equilevia.

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, physicians may recommend that patients use our products extra-label, and 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.

We may be involved in lawsuits to protect or enforce our patents, which could be expensive, time-consuming and unsuccessful, and third parties may challenge the validity or enforceability of our patents and they may be successful.

We intend to rely upon a combination of regulatory exclusivity periods, patents, trade secret protection, and confidentiality agreements to protect the intellectual property related to Mytesi, our current prescription drug product candidates, 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 human or animal 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. The United States Patent and Trademark Office has issued a patent term extension certificate extending the term of US 7,341,744 by 1075 days under 35 USC 156. With respect to requests for patent term extensions, 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. To counter infringement or unauthorized use of any patents we may obtain, we may be required to file infringement claims, 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 one of our products, 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 and challenges to validity of patents in certain foreign jurisdictions is common as well. 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. Under the Hatch-Waxman Act, a competitor seeking to market a generic form of Mytesi before the expiration of any of the patents listed in the FDA's Orange Book for Mytesi could file an ANDA with a certification under 21 U.S.C. § 3559(j)(2)(A)(iv) that each of these patents (except for those which the ANDA filer states it will market only after its expiration) is either invalid, unenforceable or not infringed. We may assert the patents in Hatch-Waxman litigation against the party filing the ANDA to keep the competing product off of the market until the patents expire but there is a risk that we will not succeed. The party filing the ANDA may also counterclaim in the litigation that our patents are not valid or unenforceable, and the court may find one or more claims of our patents invalid or unenforceable. If this occurs, a competing generic product could be marketed prior to expiration of our patents listed in the Orange Book, which would harm our business.

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 one or

more of our products or 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 or other basis for a finding of invalidity. 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, 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.

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.

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 human or animal pharmaceutical product companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the human and animal health industries 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 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 human and animal 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.

Our registered and pending U.S. trademarks include MYTESI®, JAGUAR HEALTH®, the Jaguar Health Logo®, NAPO®, Napo Logo®, Napo EU, CANALEVIA, EQUILEVIA, NEONORM®, JAGUAR ANIMAL HEALTH®, and the Jaguar Animal Health Logo®. We also own registered and pending applications for the CANALEVIA mark in a number of foreign 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 were successful in defending against any such claims, such litigation could result in substantial cost and be a distraction to our management and employees.

Even if we receive any of the 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 cGMPs, GLPs and GCPs 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 and/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. 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.

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 such event 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 their 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 (“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 its 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.

Even if Napo receives the required regulatory approvals for Napo's current or future prescription drug product candidates and non-prescription products, Napo 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 Napo's current or future prescription drug product candidates, or if necessary, Napo's non-prescription products, the manufacturing processes, clinical development, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion and recordkeeping for the product is 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 cGMPs, GLPs and GCPs for any studies that Napo conducts post-approval. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with Napo's 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 studies;
- refusal by the FDA, or other regulators to approve pending applications or supplements to approved applications filed by Napo or Napo's 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 Napo's product candidates or require certain changes to the labeling or require additional clinical work concerning safety and efficacy of the product candidates. Napo 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 Napo is slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if Napo is not able to maintain regulatory

compliance, Napo may lose any marketing approval that Napo may have obtained and Napo may not achieve or sustain profitability, which would harm Napo's business. In addition, failure to comply with these regulatory requirements could result in significant penalties.

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

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

If Napo is successful in commercializing any of Napo's current or future prescription drug product candidates or non-prescription products, certain regulatory authorities will require that Napo report certain information about adverse medical events if those products may have caused or contributed to those adverse events. The timing of Napo's obligation to report would be triggered by the date Napo becomes aware of the adverse event as well as the nature of the event. Napo may fail to report adverse events Napo becomes aware of within the prescribed timeframe. Napo may also fail to appreciate that Napo has become aware of a reportable adverse event, especially if it is not reported to Napo as an adverse event or if it is an adverse event that is unexpected or removed in time from the use of Napo's products. If Napo fails to comply with Napo's reporting obligations, the regulatory authorities could take action including, but not limited to, criminal prosecution, seizure of Napo's products, facility inspections, removal of Napo's 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 make it more difficult and costly for Napo to obtain regulatory clearance or approval of any of Napo's current or future product candidates and to produce, market, and distribute Napo's 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 Napo intends 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 Napo's business and Napo's 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 Napo's current or future products and product candidates. Napo cannot determine what effect changes in regulations, statutes, legal interpretation or policies, when and if promulgated, enacted or adopted may have on Napo's 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 Napo's financial results. In addition, delays in receipt of or failure to receive regulatory clearances or approvals for any future products would harm Napo's business, financial condition, and results of operations.

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.

If we fail to satisfy the continued listing requirements of The Nasdaq Capital Market, such as the minimum closing bid price requirement, Nasdaq may take steps to delist our common stock.

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.

We have material weaknesses in our internal control over financial reporting related to staff turnover in our accounting department. We did not maintain a sufficient complement of internal personnel with appropriate knowledge, experience and/or training commensurate with our financial reporting requirements. We did not have adequate policies and procedures in place to ensure the timely, effective review of assumptions used in measuring the fair value of certain financial instruments. We did not have adequate policies and procedures in place to ensure the timely, effective review of compliance with contractual covenants in certain financial instruments. If we fail to remediate the material weakness, or experience any additional material weaknesses in the future or otherwise fail to maintain an effective system of internal controls in the future, we may not be able to accurately report our financial condition or results of operations which may adversely affect investor confidence in us and, as a result, the value of our common stock.

Our management is responsible for establishing and maintaining adequate internal control over our financial reporting, as defined in Rule 13a-15(f) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”).

In connection with preparation of our financial statements for the year ended December 31, 2020, we identified material weaknesses in our internal control over financial reporting related to our financial statement preparation and review process. The primary factors contributing to the material weaknesses were as follows:

- We did not have adequate policies and procedures in place to ensure the timely and effective preparation and review of the financial statements.
- We did not have sufficient resources with appropriate knowledge, experience and/or training commensurate with our financial reporting requirements to assist us in our timely and efficient preparation and review over our financial reporting

Remediation Efforts to Address Material Weaknesses

To remediate the material weaknesses described above, management will add controls to further enhance and revise the design of the existing controls including:

- Establishing policies and procedures to ensure timely review, by qualified personnel, of assumptions used in measuring fair value of certain financial instruments.
- Reassessing the design and operation of internal controls over financial reporting and review procedures over the preparation of our financial statements.
- Hiring permanent accounting personnel and used consultants to provide support during our quarterly and annual preparation, review, and reporting of our financial statements.
- Maintaining adequate internal qualified personnel to properly supervise and review the information provided by the outside consulting technical experts to ensure certain significant complex transactions and technical matters were properly accounted for.

We cannot assure you that the planned measures in response to these material weaknesses will be sufficient to remediate such material weaknesses or to avoid potential future material weaknesses.

If we are unable to remediate these material weaknesses, or if we identify one or more other material weaknesses in our internal control over financial reporting, we will continue to be unable to conclude that our internal controls are effective. If we are unable to confirm that our internal control over financial reporting is effective we could lose investor confidence in the accuracy and completeness of our financial reports, which could cause the price of our common stock to decline.

We currently have a limited amount of common stock available for new securities issuances, which may restrict us from accessing additional capital through the sale of new securities.

Our Third Amended and Restated Certificate of Incorporation, as amended, authorizes us to issue up to 200,000,000 shares of common stock, 127,908,578 of which are issued and outstanding and 12,580,327 of which are reserved for issuance upon exercise of options and warrants and vesting of RSUs as of March 19, 2021. Accordingly, we have a limited number of shares of common stock available for additional issuances. Our failure to increase our authorized shares may restrict our ability to access additional capital through the sale of new securities, which may harm our financial position and business prospects.

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.

We have experienced and may continue to experience significant volatility in the price of our common stock. From November 1, 2020 through March 19, 2021, the share price of our common stock ranged from a high of $4.47 to a low of $0.185. The reason for the volatility in our stock is not well understood and may continue. Factors that may have contributed to such volatility include, but are not limited to, those discussed previously in this "Risk Factors" section of this report and others, such as:

- delays in the commercialization of Mytesi, 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 our company 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 gastrointestinal health products;
- product liability claims, other litigation or public concern about the safety of our prescription drug product or product candidates and non-prescription products or any such future products;
- market conditions in the human or animal industry, in general, or in the gastrointestinal health sector, in particular, including performance of our competitors;
- future issuances of shares of common stock or other securities;
- uncertainties related to COVID-19;
- general economic conditions in the United States and abroad; and

- market speculation regarding any of the foregoing.

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 were found to be at fault in connection with a decline in our stock price.

The trading price of our shares of common stock has recently increased significantly to a level that we do not believe is consistent with any recent change in our financial condition or results of operations. If the trading price of our shares of common stock decreases rapidly, investors could lose a significant portion of their investment.

The trading price of our shares of common stock has recently increased significantly. On December 31, 2020, the closing price of our shares of common stock on the Nasdaq Capital Market was $0.82 per share. We believe that the sharp increase in the trading price of our shares of common stock is the result of a number of factors outside our control, including social media posts that have drawn attention to our company and increased trading in our shares of common stock by retail investors. These social media posts were not sponsored or endorsed by us. There has been no recent change in our financial condition or results of operations that is consistent with the increase in the trading price of our shares of common stock. The recent increase in the trading price of our shares of common stock may not be sustained. In the event of a rapid decrease in the trading price of our shares of common stock, investors could lose a significant portion of their investment.

A possible "short squeeze" due to a sudden increase in demand of our common stock that largely exceeds supply may lead to further price volatility in our common stock.

Investors may purchase shares of our common stock to hedge existing exposure in our common stock or to speculate on the price of our common stock. Speculation on the price of our common stock may involve long and short exposures. To the extent aggregate short exposure exceeds the number of shares of our common stock available for purchase in the open market, investors with short exposure may have to pay a premium to repurchase our common stock for delivery to lenders of our common stock. Those repurchases may in turn, dramatically increase the price of our common stock until investors with short exposure are able to purchase additional shares of common stock to cover their short position. This is often referred to as a "short squeeze." A short squeeze could lead to volatile price movements in shares of our common stock that are not directly correlated to the performance or prospects of our company and once investors purchase the shares necessary to cover their short position the price of our common stock may decline.

You may not be able to resell our common stock when you wish to sell them or at a price that you consider attractive or satisfactory.

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 may 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.

If securities or industry analysts do not publish research or reports about our company, or if they issue 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 conversions of outstanding shares of non-voting common stock and exercises of outstanding options and warrants.

As of March 19, 2021, we had (i) outstanding options to purchase an aggregate of 4,441,821 shares of our common stock at a weighted average exercise price of $4.33 per share, (ii) outstanding options to purchase an aggregate of 121,892 shares of our common stock issuable upon exercise of outstanding inducement options as of March 19, 2021, with a weighted-average exercise price of $0.59 per share, (iii) 6,042,465 shares of our common stock available for grant under our Equity Incentive Plans, (iv) 378,182 shares of our common stock available for grant under our New Hire Inducement Plan (v) 1,590,354 shares of our common stock issuable upon exercise of warrants outstanding as of March 19, 2021, with a weighted-average exercise price of $2.04, and (vi) 5,613 shares of our common stock issuable upon vesting of outstanding RSUs.

The exercise of such options and warrants and conversion of the non-voting common stock will result in further dilution of your investment. In addition, you may experience further 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 third 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 third 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 employees 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 they find 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.

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 a smaller reporting company ("SRC"), 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 SRC. 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 remained an "emerging growth company" as of 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). However, as of January 1, 2021, we no longer qualify as an "emerging growth company".

We effected two reverse stock splits since January 1, 2018, and have received stockholder approval for a third reverse stock split, which if effectuated which may not achieve one or more of our objectives.

We have effected two reverse stock splits since January 1, 2018, and have received stockholder approval authorizing our board of directors to effectuate a reverse stock split at a ratio not less than 1-for-2 and not greater than 1-for 20, with the exact ratio, if approved and effected at all, to be set within that range at the discretion of our board of directors and publicly announced by us on or before December 9, 2021. While we currently have no intentions to effectuate a reverse stock split, we may do so in the future for various reasons, including to increase the per share market price of our common stock to the extent required to remain in compliance with the Nasdaq minimum bid price requirement or increase the number of authorized shares of our common stock available for issuance.

If we were to effectuate a reverse stock split, there can be no assurance that the market price per share of our common stock after a reverse stock split will remain unchanged or increase in proportion to the reduction in the number of shares of our common stock outstanding before the reverse stock split. The market price of our shares may fluctuate and potentially decline after a reverse stock split. Accordingly, the total market capitalization of our common stock after a reverse stock split may be lower than the total market capitalization before the reverse stock split. Moreover, the market price of our common stock following a reverse stock split may not exceed or remain higher than the market price prior to the reverse stock split.

Additionally, there can be no assurance that a reverse stock split will result in a per-share market price that will attract institutional investors or investment funds or that such share price will satisfy investing guidelines of institutional investors or investment funds. As a result, the trading liquidity of our common stock may not necessarily improve. Further, if a reverse stock split is effected and the market price of our common stock declines, the percentage decline may be greater than would occur in the absence of a reverse stock split.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our corporate headquarters are located at 200 Pine Street, Suite 400, San Francisco, California.

ITEM 3. LEGAL PROCEEDINGS

July 2017 Complaint Relating to the Merger

On July 20, 2017, a putative class action complaint was filed in the United States District Court, Northern District of California, Civil Action No. 3:17-cv-04102, by Tony Plant (the “Plaintiff”) on behalf of shareholders of the Company who held shares on April 12, 2017 and were entitled to vote at the 2017 Special Shareholders Meeting, against the Company and certain individuals who were directors as of the date of the vote (collectively, the “Defendants”), in a matter captioned Tony Plant v. Jaguar Animal Health, Inc., et al. (Jaguar Health, Inc. was formerly known as Jaguar Animal Health, Inc.), making claims arising under Section 14(a) and Section 20(a) of the Exchange Act and Rule 14a-9, 17 C.F.R. § 240.14a-9, promulgated thereunder by the SEC. The claims alleged false and misleading information provided to investors in the Joint Proxy Statement/Prospectus on Form S-4 (File No. 333-217364) declared effective by the Commission on July 6, 2017 related to the solicitation of votes from shareholders to approve the merger and certain transactions related thereto. The Company accepted service of the complaint and summons on behalf of itself and the United States-based director Defendants on November 1, 2017. The Company has not accepted service on behalf of, and Plaintiff has not yet served, the non-U.S.-based director Defendants.

By order dated September 20, 2018, the court dismissed the lawsuit for failure to state a claim. Plaintiff was entitled to amend that complaint within 20 days from the date of dismissal. On October 10, 2018, Plaintiff filed a second amended complaint to focus on the Company’s commercial strategy in support of Equilevia and the related disclosure statements in the Form S-4 described above. On November 6, 2018, the Defendants moved to dismiss the second amended complaint. The court denied the Defendants’ motion to dismiss on June 28, 2019. The Company answered the second amended complaint on August 2, 2019; the answer denied the material allegations of the second

amended complaint. Following the completion of document discovery, the parties engaged in a mediation that resulted in an agreement in principle to settle the litigation on a class-wide basis for $2.6 million, subject to court approval. Plaintiff filed a motion for preliminary approval of the proposed settlement on December 30, 2020. The court preliminarily approved the proposed settlement, and authorized Plaintiff to provide settlement class members with notice of the proposed settlement, in an order dated February 2, 2021. The final settlement approval hearing is currently scheduled for May 27, 2021. Assuming that the court gives final approval to the proposed settlement following the final settlement approval hearing, the entire settlement consideration will be provided by the Company's director and officer liability insurance carrier.

May 2020 Letter from the Committee on Oversight and Reform of the U.S. House of Representatives

On May 4, 2020, Jaguar Health, Inc. received a letter from the Committee on Oversight and Reform of the U.S. House of Representatives (the "Committee") regarding the list price adjustment of Mytesi. Among other things, the Committee expressed an interest in understanding whether the price adjustment was connected to the Company's expectation that it could market crofelemer to treat coronavirus patients given the Company's submission of a request to the U.S. Food and Drug Administration for Emergency Use Authorization ("EUA") for crofelemer for the symptomatic relief of diarrhea and other gastrointestinal symptoms in patients with COVID-19 and for patients with COVID-19 who have diarrhea associated with certain antiviral treatments, which submission was denied by the FDA on April 7, 2020 as previously disclosed.

The Company intends to cooperate with the Committee's inquiry and has prepared a public statement regarding the price adjustment, which is available on the Company's website at https://jaguarhealth.gcs-web.com/company-statement. In its statement, the Company explains that the decision to adjust the price for crofelemer was made in December 2019 as part of expanding the Company's comprehensive patient access program, and had the Company received EUA, it would have deferred the price adjustment until after the emergency use period ended.

Other than as described above, 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 common stock trades on The Nasdaq Capital Market under the symbol "JAGX."

Holders

As of March 19, 2021 there were approximately 21 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

Other than as provided on our quarterly reports on Form 10-Q filed with the SEC on May 15, 2020, August 13, 2020 and November 16, 2020 and our current reports on Form 8-K filed with the SEC on March 6, 2020, March 26, 2020, May 22, 2020, September 2, 2020, September 28, 2020 (as amended on October 9, 2020), November 20, 2020 (as amended on November 27, 2020 and December 4, 2020), December 18, 2020, and December 29, 2020, there were no unregistered sales of equity securities during the period.

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 3(a)(9) of the Securities Act, Section 4(a)(2) of the Securities Act, or 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

Jaguar was founded in San Francisco, California as a Delaware corporation on June 6, 2013. Napo formed Jaguar to develop and commercialize animal health products. Effective as of December 31, 2013, Jaguar was a wholly-owned subsidiary of Napo, and Jaguar was a majority-owned subsidiary of Napo until the close of our initial public offering on May 18, 2015. On July 31, 2017, the merger of Jaguar Animal Health, Inc. and Napo became effective, at which point Jaguar Animal Health's name changed to Jaguar Health, Inc. and Napo began operating as a wholly-owned subsidiary of Jaguar focused on human health and the ongoing commercialization of, and development of follow-on indications for Mytesi. Most of the activities of the Company are now focused on the commercialization of Mytesi and development of follow-on indications for crofelemer and a second-generation anti-secretory product, lechlemer that has yet to be approved by the FDA. In the field of animal health, we have limited activities which are focused on developing and commercializing first-in-class gastrointestinal products for dogs, dairy calves, foals, and high value horses.

We believe Jaguar is poised to realize a number of synergistic, value adding benefits—an expanded pipeline of potential blockbuster human follow-on indications of crofelemer, and a second-generation anti-secretory agent, as well as a pipeline of potential animal health indications for crofelemer—upon which to build global partnerships. As previously announced, Jaguar, through Napo, now holds extensive global rights for Mytesi, and crofelemer manufacturing is being conducted at a multimillion-dollar commercial manufacturing facility. Additionally, several of the drug product candidates in Jaguar's Mytesi pipeline are backed by what we believe are strong Phase 2 and proof of concept evidence from completed human clinical trials.

Mytesi is a novel, first-in-class anti-secretory agent which has a basic normalizing effect locally on the gut, and this mechanism of action has the potential to benefit multiple disorders. Mytesi is in development for multiple possible follow-on indications, including CTD; orphan-drug indications for CDD and SBS; supportive care for IBD; IBS; and for idiopathic/functional diarrhea. Additionally, the Company is exploring the conditional marketing authorization regulatory pathway in Europe to support development and commercialization of crofelemer for the proposed indication of treatment of diarrhea associated with COVID-19, and a second-generation proprietary anti-secretory agent, lechlemer, is in development for cholera. Crofelemer previously received orphan-drug designation for the use of crofelemer in the treatment of SBS.

Financial Operations Overview

On a consolidated basis, we have not yet generated enough revenue to date to achieve break even or positive cash flow, and we expect to continue to incur significant research and development and other expenses. Our net loss was $33.8 million and $38.5 million for the years ended December 31, 2020 and 2019, respectively. As of December 31, 2020, we had total stockholders' equity of $17.2 million, an accumulated deficit of $166.9 million, and cash of $8.1 million. We expect to continue to incur losses and experience increased expenditures 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 additional commercialization activities.

Revenue

Our product and collaboration revenue consists of the following:

- Revenues from the sale of our human drug Mytesi, which is sold through distributors and wholesalers.

- Revenues from the sale of our animal products branded as Neonorm Calf and Neonorm Foal. Our Neonorm and Botanical extract products are primarily sold to distributors, who then sell the products to the end customers.

- Our policy typically permits returns if the product is damaged, defective, or otherwise cannot be used when received by the customer if the product has expired. Returns are accepted for product that will expire within six months or that have expired up to one year after their expiration dates. Estimates for expected returns of expired products are based primarily on an ongoing analysis of our historical return patterns.

See “Results of Operations” below for more detailed discussion on revenues

Cost of Revenue

Cost of revenue consists of direct drug substance and drug product materials expense, direct labor, distribution fees, royalties and other related expenses associated with the sale of our products.

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 and 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. It also includes expenses with a third-party provider for the transfer of the Mytesi manufacturing process, and the related feasibility and validation activities.

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 due to the start-up costs associated with our clinical trials for other indications.

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 Mytesi. We do not currently have any marketing or promotional expenses related to Neonorm Calf or Neonorm Foal for the years ended December 31, 2020 and 2019.

We expect sales and marketing expense to increase going forward as we focus on expanding our market access activities and commercial partnerships for the development of follow-on indications of Mytesi and crofelemer.

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.

In the near term, we expect general and administrative expense to remain flat as we focus on our pipeline development and market access expansion. This will include efforts to grow the business.

Interest Expense

Interest expense consists primarily of non-cash and cash interest costs related to our borrowings.

Critical Accounting Policies and Significant Judgments and Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles (“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 the consolidated financial statements, appearing elsewhere in this report.

Revenue Recognition

The Company recognizes revenue in accordance with ASC Topic 606, Revenue from Contracts with Customers (“ASC 606”).

We recognize revenue in accordance with the core principle of ASC 606 or when there is a transfer of control of promised goods or services to customers in an amount that reflects the consideration that we expect to be entitled to in exchange for those goods or services.

We recognize the incremental costs of obtaining a contract as an expense when incurred if the amortization period of the asset that we otherwise would have recognized is one year or less.

We do not to adjust the amount of consideration for the effects of a significant financing component if, at contract inception, the expected period between the transfer of promised goods or services and customer payment is one year or less.

We have elected to treat shipping and handling activities as fulfillment costs.

Additionally, we have elected to record revenue net of sales and other similar taxes.

Contracts – Cardinal Health

Effective January 16, 2019, Napo engaged Cardinal Health as its exclusive third party logistics distribution agent for commercial sales for the Company's Mytesi product and to perform certain other services which include, without limitation, storage, distribution, returns, customer support, financial support, Electronic Data Interchange ("EDI") and system access support (Exclusive Distribution Agreement).

In addition to the terms and conditions of the Exclusive Distribution Agreement, Cardinal Health's purchase of products, and assumption of title therein, is set forth in the Title Model Addendum. The Title Model Addendum states that upon receipt of product at the 3PL Facility (Cardinal Health in La Vergne, Tennessee) from the Company, title and risk of loss for the Mytesi product purchased by Cardinal Health (excluding consigned inventory) shall pass to Cardinal Health, and title and risk of loss for consigned inventory shall remain with Napo until purchased by Cardinal Health in accordance with this Addendum. Napo considers Cardinal Health the Company's exclusive customer for Mytesi products per the Cardinal Health Exclusive Distribution Agreement.

Jaguar's Neonorm and botanical extract products are primarily sold to distributors, who then sell the products to the end customers. Since 2014, we entered into several distribution agreements with established distributors such as Animart, Vedco, VPI, RJ Matthews, Henry Schein, and Stockmen Supply to distribute the Company's products in the United States, Japan, and China. The distribution agreements and the related purchase order together meet the contract existence criteria under ASC 606-10-25-1. Jaguar sells directly to its customers without the use of an agent.

Performance obligations

For animal products sold by Jaguar, the single performance obligation identified above is the Company's promise to transfer the Company's animal products to distributors based on specified payment and shipping terms in the arrangement. Product warranties are assurance-type warranties that do not represent a performance obligation. For the Company's human product, Mytesi, which is sold by Napo, the single performance obligation identified above is the Company's promise to transfer Mytesi to Cardinal Health, the Company's exclusive distributor for the product, based on specified payment and shipping terms as outlined in the Exclusive Distribution Agreement.

Transaction price

For contracts with Cardinal Health, for both Jaguar and Napo, the transaction price is the amount of consideration to which the Company expects to collect in exchange for transferring promised goods or services. The transaction price of Mytesi and Neonorm is the Wholesaler Acquisition Cost ("WAC"), net of estimated discounts, returns, and price adjustments.

Allocate transaction price

For contracts with Cardinal Health, for both Jaguar and Napo, the entire transaction price is allocated to the single performance obligation contained in each contract.

Revenue recognition

For contracts with Cardinal Health, for both Jaguar and Napo, a single performance obligation is satisfied at a point in time, upon the free on board ("FOB") terms of each contract when control, including title and all risks, has transferred to the customer.

Disaggregation of Product Revenue

Human

Sales of Mytesi are recognized as revenue when the products are delivered to the wholesaler. Net revenues from the sale of Mytesi were $9.3 million and $5.7 million for the years ended December 31, 2020 and 2019, respectively.

Animal

The Company recognized Neonorm revenues of $76,000 and $102,000 for the years ended December 31, 2020 and 2019, respectively. Revenues are recognized upon shipment, which is when title and control is transferred to the buyer. 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.

Contracts – Atlas Sciences, LLC

Effective April 15, 2020, the Company entered into a patent purchase agreement with Atlas Sciences, LLC ("Atlas"), pursuant to which Atlas agreed to purchase certain patents and patent applications relating to Napo's NP-500 drug product candidate (the "Patent Rights") for an upfront cash payment of $1.5 million.

Concurrent with the Patent Rights sale, the Company entered into a license agreement with Atlas (the "License Agreement"), pursuant to which Atlas granted the Company an exclusive 10-year license to use the Patent Rights and improvements thereon to develop and commercialize NP-500 in all territories worldwide except Greater China (i.e., China, Hong Kong, Taiwan and Macau), inclusive of the right to sublicense NP-500 development and commercialization rights ("The License").

Included in the arrangement with Atlas, the Company was obligated to initiate a proof of concept Phase 2 study of NP-500 under an investigational new drug ("IND") application with the U.S. Food and Drug Administration or an IND-equivalent dossier under appropriate regulatory authorities (the "Phase 2 study") within nine months of April 15, 2020. The Company would incur a trial delay fee if the Company failed to initiate the Phase 2 study by this date, for any reason, including the timely receipt of adequate funding to initiate the Phase 2 study. Atlas had the right to terminate the License in the event that the Company (i) failed to complete the Phase 2 study within five years of April 15, 2020 or (ii) had not timely initiated the Phase 2 study and thereafter failed to make three or more consecutive trial delay payments.

Performance obligations

The Patent Rights sale to Atlas and the Phase 2 study to be performed by the Company, identified above, represent a single transaction with two separate performance obligations; with the sale of the Patent Rights, the Company transferred control of the internally generated Patent Rights to Atlas at the date of sale.

Transaction price

For the contract with Atlas, the upfront payment of $1.5 million from Atlas as consideration for the Patent Rights sale and the Phase 2 study, is variable consideration that is fully constrained due to the potential incurrence of a Trial Delay Fee of $2.5 million if the Phase 2 study had not been initiated by January 15, 2021. The Company's

method for estimating the variable consideration was to use the most likely amount method. The Company fully constrained the value of the variable consideration based on inherent uncertainty of timing of clinical trials. Accordingly, at inception, the total transaction price of $1.5 million is deferred and the transaction price is zero.

Allocate transaction price

For the contract with Atlas, the transaction price of $1.5 million as follows: (i) $1.0 million was allocated to the Phase 2 study using the cost-plus margin approach based on the price quoted by a third-party contract research organization, and (ii) $529,000 was allocated to the Patent sale using the Residual method.

Revenue recognition

For the contract with Atlas, control of the Patent Rights transferred to Atlas on the date of sale (at a point-in-time); and with the Phase 2 study, the services were to be transferred to Atlas over the estimated 13.2 months of the study, which was set to run between October 2020 and November 2021.

In September 2020, the Company made the decision not to initiate the Phase 2 study and intended to negotiate the payment of the trial delay fee of $2.5 million and terminate this obligation in the contract. Because of this decision, the allocated transaction price for that performance obligation will not be recognized as revenue. Likewise, the allocated transaction price for the Patent sale will not be recognized as revenue, as its recognition was dependent on initiating the Phase 2 study on or before January 15, 2021.

The Company derecognized $1.5 million in deferred revenue and the excess of the trial delay fee was recognized in "General and Administrative Expenses" in the consolidated statements of operations. The payment was deemed not in exchange for a distinct good or service.

The Company evaluated the nature of the consideration payable to the customer and the rights and obligations in the related contract and concluded that the excess payment or loss should be presented as part of the "General and Administrative Expenses" due to the following factors:

- No revenue has been recognized from the transaction as performance obligations were not satisfied.
- The Company settled the trial delay fee in full in October 2020, which constitutes termination of the customer relationship considering that Atlas cannot compel the Company or has no recourse to force the Company to initiate the Phase 2 Study. The Company does not anticipate future revenue contract with Atlas.
- The trial delay fee is a penalty in its economic term, subject to accounting for contingencies and provisions under relevant authoritative guidance.

In October 2020, the Company entered into a fee settlement agreement with Atlas pursuant to which the Company agreed to issue 2,000,000 shares of common stock and pre-funded warrants to purchase 6,218,954 shares of common stock as complete settlement and satisfaction of the trial delay fee of $2.5 million that the Company incurred pursuant to its license agreement with Atlas dated April 15, 2020. The pre-funded warrants were exercisable immediately and could be exercised at any time until all of the pre-funded warrants were exercised in full. The nominal exercise price of each pre-funded warrant was $0.0001. The settlement resulted to a loss amounting to $1.0 million. As of December 31, 2020, the shares of common stock have all been issued and the pre-funded warrants have all been exercised.

Indefinite-lived Intangible Assets

Acquired in-process research and development (“IPR&D”) are intangible assets initially recognized at fair value and classified as indefinite-lived assets until the successful completion or abandonment of the associated

research and development efforts. During the development period, these assets will not be amortized as charges to earnings; instead these assets will be tested for impairment on an annual basis or more frequently if impairment indicators are identified. In connection with each annual impairment assessment and any interim impairment assessment in which indicators of impairment have been identified, we compare the fair value of the asset as of the date of the assessment with the carrying value of the asset on the consolidated balance sheet. If impairment is indicated by this test, the intangible asset is written down by the amount by which the discounted cash flows expected from the intangible asset is less than its carrying value. Fair value determinations require considerable judgement and are sensitive to changes in underlying assumptions, estimates regarding our future plans, as well as industry and economic conditions. These assumptions and estimates include projected revenues and income growth rates, terminal growth rates, competitive and consumer trends, market-based discount rates, and other factors. If current expectations of growth rates are not met or market factors outside of our control, such as discount rates, change significantly, this may lead to a further impairment in the future. Based on the results of the impairment test, the Company recorded an impairment charge of zero and $4.0 million during the years ended December 31, 2020 and 2019, respectively. The impairment loss is measured based on the excess of the carrying amount over the asset's fair value.

Modifications to Liability-classified Instruments

For the years ended December 31, 2020 and 2019, the Company modified certain debt instruments and Series D Perpetual Preferred Stock which is a liability-classified preferred stock (see Note 7 of the consolidated financial statements). In accounting for debt modifications and exchange transactions, it is the Company's policy to first determine whether it qualifies as a troubled debt restructuring ("TDR") pursuant to the guidance provided in ASC 470-60. A debt modification or exchange transaction that is not within the scope of the ASC 470-60 is accounted for under ASC 470-50 to determine if the transaction is a mere modification or an extinguishment.

Modifications to Equity-classified Instruments

For the years ended December 31, 2020 and 2019, the Company modified certain equity-classified warrants (see Note 8 of the consolidated financial statements). It is the Company's policy to determine the impact of modifications to equity-classified warrants by analogy to the share-based compensation guidance of ASC 718, Compensation - Stock Compensation ("ASC 718"). The model for a modified share-based payment award that is classified as equity and remains classified in equity after the modification is addressed in ASC 718-20-35-3. Pursuant to that guidance, the incremental fair value from the modification is recognized as an expense in the statements of operations to the extent the modified instrument has a higher fair value; however, in certain circumstances, such as when an entire class of warrants are modified, the measured increase in fair value may be more appropriately recorded as a deemed dividend, depending upon the nature of the warrant modification.

For the years ended December 31, 2020 and 2019, the Company modified the terms of its Series B Convertible Preferred Stock and Series 1, 2 and Bridge Note Warrants in one transaction (see Note 8 of the consolidated financial statements) and Series C Perpetual Preferred Stock (see Note 9 of the consolidated financial statements). For amendments to preferred stock, it is the Company's policy to measure the impact by analogy to ASC 470-50 in determining if such an amendment is an extinguishment or a modification. If the amendment results in an extinguishment, the Company follows the SEC staff guidance in ASC 260-10-S99-2 and ASC 470-20.

Results of Operations

Comparison of the Years Ended December 31, 2020 and 2019

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, 2020 and 2019 together with the change in such items in dollars and as a percentage.

(in thousands)	Year Ended December 31, 2020	2019	Variance	Variance %
Product revenue	$ 9,385	$ 5,775	$ 3,610	62.5 %
Total revenue	9,385	5,775	3,610	62.5 %
Operating Expenses				
Cost of product revenue	3,280	3,816	(536)	(14.0)%
Research and development	6,413	5,820	593	10.2 %
Sales and marketing	6,609	6,936	(327)	(4.7)%
General and administrative	14,387	13,502	885	6.6 %
Settlement of Tempesta Royalty Settlement Agreement	—	649	(649)	(100.0)%
Impairment of indefinite-lived intangible assets	—	4,000	(4,000)	(100.0)%
Series B convertible preferred stock inducement expense	1,647	—	1,647	100.0 %
Series 3 warrants inducement expense	3,696	—	3,696	100.0 %
Total operating expenses	36,032	34,723	1,309	3.8 %
Loss from operations	(26,647)	(28,948)	2,301	(7.9)%
Interest expense	(2,792)	(5,731)	2,939	(51.3)%
Other income, net	190	81	109	134.6 %
Change in fair value of financial instruments	(2,696)	1,010	(3,706)	(366.9)%
Loss on extinguishment of debt and exchange of Series D perpetual preferred stock	(1,864)	(4,941)	3,077	(62.3)%
Loss before income tax	(33,809)	(38,529)	4,720	(12.3)%
Income tax expense	—	(10)	10	(100.0)%
Net loss and comprehensive loss	(33,809)	(38,539)	4,730	(12.3)%
Deemed dividend attributable to accretion of Series A redeemable convertible preferred stock	(1,332)	(895)	(437)	49 %
Deemed dividend attributable to Series B preferred stock	—	(4,240)	4,240	(100)%
Deemed dividend attributable to Series B-1 convertible preferred stock	—	(530)	530	(100)%
Deemed dividend attributable to Series C perpetual preferred stock	(2,521)	—	(2,521)	100 %
Stock dividend attributable to Series C perpetual preferred stock	(130)	—	(130)	100 %
Deemed dividend attributable to the Series 1 warrant modification	—	(522)	522	(100)%
Deemed dividend attributable to Series 1, Series 2 and Bridge warrant holders	(856)	—	(856)	100 %
Net loss attributable to common shareholders	$ (38,648)	$ (44,726)	$ 6,078	(13.6)%

Revenue

Product revenue

The increase in product revenue of $3.6 million for the year ended December 31, 2020 compared to 2019 was mostly due to the list price adjustment of Mytesi that occurred in April 2020.

Due to the Company's arrangements, including elements of variable consideration, gross product sales are reduced in order to reflect the expected consideration to arrive at net product sales. Deductions to reduce gross product sales to net product sales for the years ended December 31, 2020 and 2019 are as follows:

	Year Ended December 31,			
(in thousands)	2020	2019	Variance	Variance %
Gross product sales				
Mytesi	$ 20,434	$ 8,249	$ 12,185	147.7 %
Neonorm	77	102	(25)	(24.5)%
Total gross product sales	20,511	8,351	12,160	145.6 %
Medicare rebates	(1,738)	(500)	(1,238)	247.6 %
Sales discounts	(7,046)	(1,451)	(5,595)	385.6 %
Sales returns	(273)	(120)	(153)	127.5 %
Wholesaler fee	(2,069)	(505)	(1,564)	309.7 %
Net product sales	$ 9,385	$ 5,775	$ 3,610	62.5 %

Cost of Product Revenue

	Year Ended December 31,			
(in thousands)	2020	2019	Variance	Variance %
Cost of Product Revenue				
Material cost	$ 1,800	$ 2,145	$ (345)	(16.1)%
Direct labor	724	586	138	23.5 %
Distribution fees	430	404	26	6.4 %
Royalties	44	25	19	76.0 %
Other	282	656	(374)	(57.0)%
Total	$ 3,280	$ 3,816	$ (536)	(14.0)%

The decrease in cost of product revenue of $536,000 for the year ended December 31, 2020 compared to 2019 was primarily due to:

- Material costs decreased $345,000 from $2.1 million for the year ended December 31, 2019 to $1.8 million in 2020 mainly consisting of a decrease of $166,000 in Mytesi inventory sold, a year-end contractual credit of $93,000 received from the Company's contract manufacturer, and a campaign batch cancelation fee of $78,000.

- Other costs decreased $374,000 from $656,000 for the year ended December 31, 2019 to $282,000 in mainly consisting of $115,000 less in write-offs of non-conforming inventory, and a decrease in equipment maintenance of $55,000.

Research and Development Expense

The following table presents the components of research and development ("R&D") expense for the years ended December 31, 2020 and 2019:

(in thousands)	Year Ended December 31, 2020	2019	Variance	Variance %
Research and Development:				
Personnel and related benefits	$ 1,771	$ 1,725	$ 46	2.7 %
Materials expense and tree planting	94	103	(9)	(8.7)%
Travel, other expenses	45	164	(119)	(72.6)%
Clinical and contract manufacturing	1,674	1,760	(86)	(4.9)%
Stock-based compensation	749	869	(120)	(13.8)%
Other	2,080	1,199	881	73.5 %
Total	$ 6,413	$ 5,820	$ 593	10.2 %

The change in R&D expense of $593,000 for the year ended December 31, 2020 compared to 2019 was due primarily to:

- Other expenses increased $881,000 from $1.2 million for the year ended December 31, 2019 to $2.1 million in 2020 mainly consisting of consulting, formulation and regulatory fees. Consulting expenses increased $775,000 due to an increase in clinical trial consultants, which is consistent with the increased activity in development of multiple follow-on indications for Mytesi. Direct R&D testing costs also increased $25,000 due to an increase in R&D work.

- Stock-based compensation decreased $120,000 from $869,000 for the year ended December 31, 2019 to $749,000 in 2020 primarily due to higher prior year expense incurred for options granted with upfront vesting to existing employees.

- Travel, other expenses decreased $119,000 from $164,000 for the year ended December 31, 2019 to $45,000 in 2020 due to reduced travel as a result of the COVID-19 pandemic.

- Clinical and contract manufacturing expenses decreased $86,000 from $1.8 million for the year ended December 31, 2019 to $1.7 million in 2020 primarily due to a decrease in contract manufacturing costs for enhanced manufacturing process improvements.

Sales and Marketing Expense

The following table presents the components of sales and marketing ("S&M") expense for the years ended December 31, 2020 and 2019:

(in thousands)	Year Ended December 31, 2020	2019	Variance	Variance %
Sales and Marketing:				
Personnel and related benefits	$ 3,323	$ 4,198	$ (875)	(20.8)%
Stock-based compensation	220	161	59	36.6 %
Direct marketing fees and expense	2,187	1,396	791	56.7 %
Other	879	1,181	(302)	(25.6)%
Total	$ 6,609	$ 6,936	$ (327)	(4.7)%

The change in S&M expense of $327,000 for the year ended December 31, 2020 compared to 2019 was due primarily to:

- Personnel and related benefits decreased $875,000 from $4.2 million for the year ended December 31, 2019 to $3.3 million in 2020 due to sales force reduction.
- Other expenses decreased $302,000 from $1.2 million for the year ended December 31, 2019 to $879,000 in 2020 due to reduced travel as a result of the COVID-19 pandemic.
- Direct marketing and sales expense increased $791,000 from $1.4 million for the year ended December 31, 2019 to $2.2 million in 2020 due to an increase in marketing programs for Mytesi related to the expanding market access through specialty pharmacy channels.

General and Administrative Expense

The following table presents the components of general and administrative ("G&A") expense for the years ended December 31, 2020 and 2019:

	Year Ended December 31,			
(in thousands)	2020	2019	Variance	Variance %
General and Administrative:				
Personnel and related benefits	$ 1,845	$ 1,812	$ 33	1.8 %
Audit, tax and accounting services	706	815	(109)	(13.4)%
Third-party consulting services	845	2,002	(1,157)	(57.8)%
Legal services	2,449	1,895	554	29.2 %
Travel, other expenses	38	245	(207)	(84.5)%
Stock-based compensation	1,855	1,959	(104)	(5.3)%
Rent and lease expense	690	796	(106)	(13.3)%
Public company expense	1,179	651	528	81.1 %
Other	4,780	3,327	1,453	43.7 %
Total	$ 14,387	$ 13,502	$ 885	6.6 %

The change in G&A expenses of $885,000 for the year ended December 31, 2020 compared to 2019 was due primarily to:

- Other general and administrative expenses increased $1.5 million from $3.3 million for the year ended December 31, 2019 to $4.8 million in 2020 largely due to $1.0 million charge for Atlas trial delay penalty, an increase in state business and manufacturing licenses of $90,000, and $306,000 increase of D&O liability insurance.
- Legal services increased $554,000 from $1.9 million for the year ended December 31, 2019 to $2.4 million in 2020 primarily due to $218,000 increase in fees related to legal proceedings, $243,000 increase in fees related to addressing a congressional inquiry, and $59,000 increase in promotional material compliance review to support increase in marketing programs for Mytesi, and $70,000 increase in patent related legal fees.
- Public company expenses increased $528,000 from $651,000 for the year ended December 31, 2019 to $1.2 million in 2020 largely due to $460,000 increase in investor relations and communications consulting expenses and $76,000 in underwriter settlement agreement costs.

- Third-party consulting fees decreased $1.2 million from $2.0 million for the year ended December 31, 2019 to $845,000 in 2020. This was primarily due to the restructuring initiatives implemented in the Finance and Accounting department.

- Travel, other expenses decreased $207,000 from $245,000 for the year ended December 31, 2019 to $38,000 in 2020 due to reduced travel as a result of the COVID-19 pandemic.

- Audit, tax and accounting services fees decreased $109,000 from $815,000 for the year ended December 31, 2019 to $706,000 in 2020, mostly due to change in the timing of services received.

- Rent and lease expense decreased $106,000 from $796,000 for the year ended December 31, 2019 to $690,000 in 2020 primarily due to the move of the Company's administrative headquarters in August 2020 that resulted in lower recurring rent expense.

- Stock-based compensation expense decreased $104,000 from $2.0 million for the year ended December 31, 2019 to $1.9 million in 2020 due to an increase in the volume of option grants.

Settlement of Tempesta Royalty License Agreement

A royalty license agreement settlement liability decreased from $649,000 in the year ended December 31, 2019 to zero in 2020. In October 2019, the Company and Tempesta settled a dispute, pursuant to which Tempesta received $50,000 in cash, an unsecured promissory note issued by the Company in the aggregate principal amount of $550,000 and 40,000 shares of the Company's common stock in exchange for the cessation of all royalty payments by Napo to Dr. Tempesta under the License Agreements.

Impairment of Indefinite-lived Intangible Assets

Acquired IPR&D are intangible assets initially recognized at fair value and classified as indefinite-lived assets until the successful completion or abandonment of the associated research and development efforts. During the development period, these assets will not be amortized as charges to earnings; instead these assets will be tested for impairment on an annual basis or more frequently if impairment indicators are identified. The Company recorded an impairment of indefinite-lived assets of zero and $4.0 million in the years ended December 31, 2020 and 2019, respectively. The impairment loss is measured based on the excess of the carrying amount over the asset's fair value.

Series B Convertible Preferred Stock Inducement Expense

On March 24, 2020, the Company entered into a Warrant Exercise and Preferred Stock Amendment Agreement with a holder of its Series 2 warrants previously issued in the Company's registered public offering on July 23, 2019, pursuant to which the holder agreed to exercise in cash its warrants to purchase an aggregate of 1,250,000 shares of common stock, at a reduced exercise price of $0.5227 per share for gross proceeds to the Company of approximately $653,000. As further inducement to enter into the Amendment Agreement, the Company agreed to reduce the conversion price of the Company's Series B Convertible Preferred Stock from $2.00 to $0.4456. The modification of the conversion price of the Series B Convertible Preferred shares were qualitatively considered an extinguishment and the Company followed the guidance in ASC 260-10-S99-2 and recorded an expense of $1.6 million and derecognizing the Series B Convertible Preferred shares.

Series 3 Warrants Inducement Expense

In May 2020, concurrent with the May 2020 modification of the exercise price of the Series 1, Series 2 and Bridge Warrants and inducement offer, the Company issued unregistered Series 3 Warrants to purchase 8,670,852 shares of common stock. The Series 3 Warrants have an exercise price of $0.53 per share and are exercisable beginning the earlier of (i) six months from their May 22, 2020 issuance date and (ii) receipt of the requisite Stockholder Approval (defined below), and expire five years thereafter. In addition to the fixed settlement method at

$0.53 per warrant share, the Series 3 Warrants have two contingent settlement methods: (i) if at the time of exercise there is no effective registration statement, then the holders of the 8,670,852 warrants may exercise the warrants in a "cashless exercise," under which the holders will receive the aggregate warrants less the number of warrants equal to the exercise price; or (ii) a cashless exercise feature wherein, regardless if there is an effective registration statement, following the requisite Stockholder Approval, each such Series 3 Warrant will be exercisable into one share of common stock for no consideration (the "Alternate Cashless Exercise").

The Series 3 Warrants were initially valued at $3.7 million using the Black-Scholes-Merton option pricing model as follows: probability-weighted exercise price of $0.05 per share, stock price of $0.44 per share, expected life of 5.50 years, volatility of 141%, and a risk-free rate of 0.34%. The Series 3 Warrants were classified as liabilities on the Company's consolidated balance sheets.

A Special Meeting of Stockholders was held on July 21, 2020, whereupon a proposal to approve the "Alternate Cashless Exercise" settlement method for the Series 3 Warrants was approved.

In 2020, certain holders of the Series 3 Warrants agreed to exercise a total of 8,456,352 shares for a 1-for-1 exchange of common shares in an Alternate Cashless Exercise. The aggregate fair value of the common stock issued upon the exercise of the Series 3 Warrants as of the exercise date was $6.1 million.

As of December 31, 2020, the remaining Series 3 Warrants are valued at $175,000 using the Black-Scholes option pricing model with inputs as follows: probability-weighted exercise price of $0 per share, stock price of $0.815 per share, expected life of 4.89 years, volatility of 142%, and a risk-free rate of 0.36%.

Interest Expense, net

Interest expense decreased $2.9 million from $5.7 million for the year ended December 31, 2019 to $2.8 million in 2020 primarily due to interest expense incurred on the March 2019 Bridge Notes and interest expense incurred on warrants issued concurrently.

Change in Fair Value of Financial Instruments

Change in fair value of financial instruments increased $3.7 million from a gain of $1.0 million for the year ended December 31, 2019 to a loss of $2.7 million in 2020 entirely due to losses incurred on the change in fair value of liability classified warrants.

Loss on Extinguishment of Debt and Exchange of Series D Perpetual Preferred Stock

The loss on extinguishment of debt and conversion of Series D Perpetual Preferred Stock decreased $3.0 million from $4.9 million for the year ended December 31, 2019 to $1.9 million in 2020 is due to the following:

- During 2019, the Company recorded $2.6 million in extinguishment losses from exchanges of principal and related accrued interest for shares of the Company's common stock;
- In May 2019, the Company recorded a $2.0 million extinguishment loss from the exchange of the two outstanding Napo convertible notes for Exchange Note 1 and Exchange Note 2; and
- In July 2019, the Company recorded a $336,000 extinguishment loss from paying off twenty-one Bridge Notes prior to maturity;
- During 2020, the Company recorded a $560,000 extinguishment loss from exchanges of the outstanding Exchange Note 1 for shares of the Company's common stock; and

- In December 2020, the Company recorded a $1.3 million loss from exchanges of Series D Perpetual Preferred Stock for shares of the Company’s common stock.

Deemed Dividend Attributable to Accretion of Series A Redeemable Convertible Preferred Stock

The Company recorded a deemed dividend charge of $1.3 million for the year ended December 31, 2020 compared to $894,000 in 2019, for the accretion of the redemption amount and carrying value of the Series A Convertible Preferred Stock.

Deemed Dividend Attributable to Series B Convertible Preferred Stock

On the July 23, 2019 issuance date, the effective conversion price per share was less than the fair value of the underlying common stock. As a result, the Company determined that there was a beneficial conversion feature of $4.2 million. Because the Company's Series B Preferred Stock does not have a stated conversion date and was immediately convertible at the issuance date, the Company recorded a deemed dividend charge of $4.2 million for the accretion of the discount on the Series B Convertible Preferred Stock.

Deemed Dividend Attributable to Series B-1 Convertible Preferred Stock

On October 3 and October 9, 2019, in two separate transactions, the Company exercised its purchased put option, see Note 9 to the consolidated financial statements, to require the Exercising Holder to exercise all of its 1,250,000 Series 1 warrants, see Note 8 to the consolidated financial statements, upon which the Company issued 1,250,000 common shares to the Exercising Holder in return for aggregate gross proceeds of $1,750,000. In consideration (the strike price) of the exercising the warrants, the Company issued 63 shares of Series B-1 Convertible Preferred Stock to the Exercising Holder. On the issuance dates, the effective conversion price was less than the fair value of the underlying common stock. As a result, the Company determined that there was a total beneficial conversion feature of $530,000.

Stock Dividend Attributable to Series C Perpetual Preferred Stock

The Company recorded a $130,000 stock dividend attributable to the Series C Perpetual Preferred Stock for the year ended December 31, 2020. The Series C Perpetual Preferred shares were entitled to receive 10% cumulative stock dividends, to be payable in arrears on a monthly basis for 24 consecutive months. Dividends payable on the Series C Perpetual Preferred shares shall be payable through the Company’s issuance of Series C Perpetual Preferred share by delivering to each record holder the calculated number of payment-in-kind dividend shares.

Deemed Dividend Attributable to Series C Perpetual Preferred Stock

The Company recorded a deemed dividend of $2.5 million for the year ended December 31, 2020 that resulted from the series of exchanges of Series C Perpetual Preferred Stock in October and December 2020.

Deemed Dividend Attributable to the Series 1 Warrant Modification

The Company recorded a deemed dividend of $522,000 for the year ended December 31, 2019 that resulted from the modification of the Series 1 Warrants in September 2019.

Deemed Dividend Attributable to Series 1, Series 2 and Bridge Warrant Holders

The Company recorded a deemed dividend of $856,000 for the year ended December 31, 2020 that resulted from the modification of the Series 1, Series 2 and Bridge Warrants in May 2020.

Liquidity and Capital Resources

Sources of Liquidity

We have incurred net losses since our inception. For the years ended December 31, 2020 and 2019, we had net losses of $33.8 million and $38.5 million, respectively, and we expect to incur additional losses in the near-term future. At December 31, 2020, we had an accumulated deficit of $166.9 million. To date, we have generated only limited revenue, and we may never achieve revenue sufficient to offset our expenses.

We had cash of $8.1 million as of December 31, 2020. We believe our current capital is sufficient to fund our operating plan through one year from the issuance of these consolidated financial statements.

The Company has funded operations primarily through the issuance of equity and debt financing, in addition to sales of commercial products. Cash provided by financing activities in 2020 are as follows:

- On February 24, 2020, the Company entered into a warrant exercise agreement with a holder of Series 1 Warrants previously issued in the Company's registered public offering on July 23, 2019 and its warrants previously issued in private placements in March through June of 2019 ("Bridge Warrants"), pursuant to which the Holder agreed to exercise in cash its warrants to purchase an aggregate of 458,022 shares of the Company's common stock, par value $0.0001 per share, at a reduced exercise price of $0.692 per share for gross proceeds to the Company of approximately $317,000.

- On March 4, 2020, the Company entered into a royalty interest purchase agreement with Iliad Research and Trading, L.P. ("Iliad"), a Utah limited partnership affiliated with CVP, pursuant to which the Company sold a royalty interest entitling Iliad to receive $500,000 of future royalties on sales of Mytesi and certain upfront license fees and milestone payments from licensees and/or distributors for an aggregate purchase price of $350,000.

- On March 23, 2020, the Company entered into a Private Investment in Public Equity ("PIPE") with certain investors, pursuant to which the Company agreed to issue and sell to the Investors in a private placement an aggregate of 1,714,283 unregistered shares for an aggregate purchase price of approximately $719,000.

- On March 24, 2020, the Company and Ionic Ventures LLC ("Ionic Ventures") entered into a Warrant Exercise and Preferred Stock Amendment Agreement with a holder of Series 2 Warrants previously issued in the Company's registered public offering on July 23, 2019, pursuant to which the Holder agreed to exercise in cash its warrants to purchase an aggregate of 1,250,000 shares of common stock, at a reduced exercise price of $0.5227 per share for gross proceeds of approximately $653,000. As further inducement to enter into the Amendment Agreement, the Company agreed to reduce the conversion price of the Company's Series B Convertible Preferred Stock from $2.00 to $0.4456.

- On May 12, 2020, the Company entered into an accounts receivable purchase agreement ("Purchase Agreement") with Oasis Capital, pursuant to which Oasis Capital may from time to time in its discretion purchase accounts receivable of the Company on a recourse basis. Under the terms of the Purchase Agreement, Oasis Capital initially purchased certain accounts receivable with a face amount of $2.8 million for a purchase price of $1.0 million. On June 26, 2020, the Company entered into an amendment to the accounts receivable purchase agreement with Oasis Capital pursuant to which Oasis Capital purchased certain accounts receivable with a face amount of $2.8 million for a purchase price of $1.2 million. On August 13, 2020, the Company entered into an amendment to the accounts receivable purchase agreement with Oasis Capital pursuant to which Oasis Capital purchased certain accounts receivable with a face amount of $3.1 million for a purchase price of $1.3 million. On September 9, 2020, the Company entered into an amendment to the accounts receivable purchase agreement with Oasis Capital pursuant to which Oasis Capital purchased certain accounts receivable with a face amount

of $2.3 million for a purchase price of $985,000. On October 9, 2020, the Company entered into an amendment to the accounts receivable purchase agreement with Oasis Capital pursuant to which Oasis Capital purchased certain accounts receivable with a face amount of $2.1 million for a purchase price of $895,000. On December 3, 2020, the Company entered into an amendment to the accounts receivable purchase agreement with Oasis Capital pursuant to which Oasis Capital purchased certain accounts receivable with a face amount of $3.8 million for a purchase price of $1.6 million.

- On May 22, 2020, the Company entered into warrant exercise inducement offer letters with certain holders of Series 1 Warrants, Series 2 Warrants, and Bridge Warrants pursuant to which such holders agreed to exercise for cash Series 1 Warrants to purchase 4,572,040 shares of common stock, Series 2 Warrants to purchase 4,005,062 shares of common stock, and Bridge Warrants to purchase 93,750 shares of common stock in exchange for the Company's agreement to issue new Series 3 Warrants to purchase up to 8,670,852 shares of common stock ("Series 3 Warrants") to such holders as an inducement for the exercise of the Series 1 Warrants, Series 2 Warrants and Bridge Warrants by such holders. The Company received aggregate gross proceeds of $4.25 million from the exercise of the Original Warrants and the Bridge Warrants by such holders.

- In July, August and October 2020, the Company received proceeds of $627,000 from holders of Series 1 Warrants and Series 2 Warrants who exercised warrants to purchase 1,279,266 shares of common stock.

- On October 5, 2020, the Company entered into an At The Market Offering Agreement (the "ATM Agreement") with Ladenburg Thalmann & Co. Inc. ("Ladenburg"), pursuant to which the Company may offer and sell, from time to time through Ladenburg, shares of common stock, subject to the terms and conditions of the ATM Agreement. As of December 31, 2020, the Company sold 3,814,925 shares of common stock under the ATM Agreement resulting in net proceeds of approximately $1.3 million after commissions and expenses of approximately $78,000. Subsequent to December 31, 2020, the Company sold 2,009,554 shares of common stock under this agreement resulting in net proceeds of approximately $5.5 million after commissions and expenses of approximately $170,000.

- On October 8, 2020, the Company entered into a royalty interest purchase agreement with Iliad, pursuant to which the Company sold a royalty interest entitling Iliad to receive $12.0 million of future royalties on sales of Mytesi and certain upfront license fees and milestone payments from licensees and/or distributors for an aggregate purchase price of $6.0 million. As of November 13, 2020, the Company's weekly VWAP failed to meet the minimum VWAP of $0.3035 for the first two weeks of November, warranting an additional $6.0 million Royalty Repayment Amount to be added in the outstanding balance commencing on May 10, 2021 for the purpose of cash interest calculation.

- On December 22, 2020, the Company entered into a royalty interest purchase agreement with Irving Park Capital, LLC ("Irving"), a Utah limited liability company affiliated with CVP, pursuant to which the Company sold a royalty interest entitling Irving to receive $12.0 million of future royalties on sales of Mytesi and certain upfront license fees and milestone payments from licensees and/or distributors for an aggregate purchase price of $6.0 million.

We expect our expenditures will continue to increase as we continue our efforts to develop our products and continue development of our pipeline in the near term. We believe our current capital is sufficient to fund our operating plan through one year from the issuance of these consolidated financial statements. 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, including but not limited to the contemplated merger transaction between the Dragon SPAC and Napo EU and associated licensing arrangement that is currently under discussions, it would have a negative effect on our operating plan. We plan to finance our 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 us on acceptable terms on a timely basis, if at all, or that we will generate sufficient cash from operations to adequately fund operating needs or ultimately achieve profitability. If we are unable to obtain an adequate level of financing needed for the long-term development and commercialization of our products, we will need to curtail planned activities and reduce costs. Doing so will likely have an adverse effect on our ability to execute on our business plan.

Cash Flows for Year Ended December 31, 2020 compared to the Year Ended December 31, 2019

The following table shows a summary of cash flows for the years ended December 31, 2020 and 2019:

(in thousands)	Year Ended December 31, 2020	2019
Total cash used in operating activities	$ (15,278)	$ (20,457)
Total cash used in investing activities	(7)	—
Total cash provided by financing activities	19,492	21,772
Net increase (decrease) in cash	$ 4,207	$ 1,315

Cash Used in Operating Activities

During the year ended December 31, 2020, net cash used in operating activities of $15.3 million resulted from our net loss of $33.8 million adjusted by depreciation and amortization expenses of $1.7 million, interest paid on the conversion of debt to equity of $0.6 million, a loss on extinguishment of debt and conversion of Series D Perpetual Preferred Stock of $1.9 million, a loss on recourse obligation on secured borrowing of $15,000, amortization of operating lease right-of-use assets of $553,000, expense on modifications of warrants of $86,000, inducement charge of $1.6 million on the modification of Series B Convertible Preferred Stock, stock-based compensation of $2.8 million, other stock and warrant payments of $1.1 million, amortization of debt discounts and debt issuance costs and non-cash interest expense of $2.7 million, $2.5 million in shares issued to Atlas Sciences for settlement of the Trial Delay Fee, an increase in fair value of financial instruments of $2.7 million, and $3.7 million charge for Series 3 Warrants issued as an inducement to exercise equity-classified Series 1, Series 2 and Bridge warrants, offset by changes in operating assets and liabilities of $3.5 million.

During the year ended December 31, 2019, cash used in operating activities of $20.5 million resulted from our net loss of $38.5 million, adjusted by non-cash depreciation and amortization expense of $1.7 million, impairment of indefinite-lived intangible assets of $4.0 million, a debt extinguishment loss of $4.9 million, amortization of operating lease right-of-use-assets of $191,000, stock-based compensation of $3.0 million, other stock compensation of $189,000, a note settlement expense of $550,000, amortization of interest expense from debt discount and issuance costs of $5.2 million, offset by a change in fair value of warrants of $1.0 million, and net of changes in operating assets and liabilities of $662,000.

Cash Used in Investing Activities

During the year ended December 31, 2020, cash used in investing activities was $7,000. During the year ended December 31, 2019, no cash was used in investing activities.

Cash Provided by Financing Activities

During the year ended December 31, 2020, net cash provided by financing activities of $19.5 million consisted of $12.3 million in net proceeds received from issuances of a notes payable, $7.1 million received from borrowings secured by the Company's trade receivables, $668,000 in net proceeds received from 1,714,283 shares of common stock issued via a PIPE financing, $5.8 million in net proceeds received from 12,481,395 shares of common stock issued on exercise of Series 1, Series 2, and 2019 Bridge Note warrants, and $1.3 million in net proceeds received from issuance of other shares of common stock, offset by $7.3 million in principal payments of the notes payable, secured borrowings and insurance premium borrowings, $185,000 million in issuance costs from shares issued as part of the underwriter settlement agreement, and $142,000 other payments of issuance costs.

During the year ended December 31, 2019, net cash provided by financing activities of $21.8 million primarily consisted of $2.6 million in net proceeds received from 195,319 shares of common stock issued to Oasis Capital via an option to increase the equity line of credit, $266,000 in net proceeds received from 19,019 shares issued in a registered direct public offering to Oasis Capital, $14.0 million in net proceeds received from the July 2019 public offering, $1.5 million received in PIPE financings, $1.7 million in net proceeds received from issuance to Oasis Capital of Pre-Funded Warrants to purchase up to an aggregate of 2,222,223 shares of the Company's common stock, $1.8 million in proceeds received from issuance of Series 1 warrants via put options, less $100,000 from notes payable interest expense.

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.

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

Not applicable.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Jaguar Health, Inc.
Index to Financial Statements

Report of Independent Registered Public Accounting Firm

To the Board of Directors and
Stockholders of Jaguar Health, Inc.:

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Jaguar Health, Inc. ("Company") as of December 31, 2020 and 2019, and the related consolidated statements of operations, changes in convertible preferred stock and stockholders' equity, and cash flows for each of the two years in the period ended December 31, 2020, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2020, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting 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.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Mayer Hoffman McCann P.C.

We have served as the Company's auditor since 2019.
San Diego, California
March 31, 2021

JAGUAR HEALTH, INC.
CONSOLIDATED BALANCE SHEETS

(In thousands, except share and per share data)	December 31, 2020	December 31, 2019
Assets		
Current assets:		
Cash	$ 8,090	$ 3,495
Restricted cash	—	388
Accounts receivable	2,098	1,692
Accounts receivable - pledged	2,434	—
Other receivable	28	2
Inventory	2,782	2,129
Operating lease - right-of-use asset	—	553
Prepaid expenses and other current assets	2,360	1,263
Total current assets	17,792	9,522
Property and equipment, net	677	710
Intangible assets, net	24,337	26,024
Other assets	37	154
Total assets	$ 42,843	$ 36,410
Liabilities, convertible preferred stock and stockholders' equity		
Current liabilities:		
Accounts payable	$ 4,759	$ 5,352
Accrued liabilities	4,493	2,922
Warrant liability	179	3
Operating lease liability	—	337
Notes payable, net of discount, current	3,789	6,778
Series D perpetual preferred stock: $0.0001 par value; 977,300 and zero shares authorized at December 31, 2020 and December 31, 2019, respectively; zero shares issued and outstanding at December 31, 2020 and December 31, 2019	—	—
Total current liabilities	13,220	15,392
Notes payable, net of current portion	12,421	450
Total liabilities	25,641	15,842
Commitments and contingencies (See Note 5)		
Series A redeemable convertible preferred stock: $0.0001 par value, zero and 5,524,926 shares authorized at December 31, 2020 and December 31, 2019, respectively; zero and 5,524,926 shares issued and outstanding at December 31, 2020 and December 31, 2019, respectively; (redemption amount of zero and $12,739 at December 31, 2020 and December 31, 2019, respectively; liquidation preference of zero and $9,199 at December 31, 2020 and December 31, 2019, respectively)	—	9,895
Stockholders' equity		
Series B convertible preferred stock: $0.0001 par value, zero and 11,000 shares authorized at December 31, 2020 and December 31, 2019, respectively; zero and 1,971 shares issued and outstanding at December 31, 2020 and December 31, 2019, respectively	—	476
Series B-2 convertible preferred stock: $0.0001 par value, 10,165 shares authorized at December 31, 2020 and December 31, 2019; zero and 10,165 shares issued and outstanding at December 31, 2020 and December 31, 2019, respectively	—	1,236
Series C perpetual preferred stock: 1,011,000 and zero shares authorized at December 31, 2020 and December 31, 2019, respectively; zero shares issued and outstanding at December 31, 2020 and December 31, 2019	—	—
Common stock - voting: $0.0001 par value, 150,000,000 shares authorized at December 31, 2020 and December 31, 2019; 114,022,368 and 14,273,061 shares issued and outstanding at December 31, 2020 and December 31, 2019, respectively	11	1
Common stock - non-voting: $0.0001 par value, 50,000,000 shares authorized at December 31, 2020 and December 31, 2019; 2,120,786 and 40,301,237 shares issued and outstanding at December 31, 2020 and December 31, 2019, respectively	—	4
Additional paid-in capital	184,090	142,046
Accumulated deficit	(166,899)	(133,090)
Total stockholders' equity	17,202	10,673
Total liabilities, convertible preferred stock and stockholders' equity	$ 42,843	$ 36,410

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

JAGUAR HEALTH, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

(In thousands, except share and per share data)	Year Ended December 31, 2020	2019
Product revenue	$ 9,385	$ 5,775
Total revenue	9,385	5,775
Operating expenses		
Cost of product revenue	3,280	3,816
Research and development	6,413	5,820
Sales and marketing	6,609	6,936
General and administrative	14,387	13,502
Settlement of Tempesta Royalty License Agreement	—	649
Impairment of indefinite-lived intangible assets	—	4,000
Series B convertible preferred stock inducement expense	1,647	—
Series 3 warrants inducement expense	3,696	—
Total operating expenses	36,032	34,723
Loss from operations	(26,647)	(28,948)
Interest expense	(2,792)	(5,731)
Other income, net	190	81
Change in fair value of financial instruments	(2,696)	1,010
Loss on extinguishment of debt and exchange of Series D perpetual preferred stock	(1,864)	(4,941)
Loss before income tax	(33,809)	(38,529)
Income tax expense	—	(10)
Net loss and comprehensive loss	(33,809)	(38,539)
Deemed dividend attributable to accretion of Series A redeemable convertible preferred stock	(1,332)	(895)
Deemed dividend attributable to Series B convertible preferred stock	—	(4,240)
Deemed dividend attributable to Series B-1 convertible preferred stock	—	(530)
Deemed dividend attributable to Series C perpetual preferred stock	(2,521)	—
Stock dividend attributable to Series C perpetual preferred stock	(130)	—
Deemed dividend attributable to the Series 1 warrant modification	—	(522)
Deemed dividend attributable to Series 1, Series 2 and Bridge warrant holders	(856)	—
Net loss attributable to common shareholders	$ (38,648)	$ (44,726)
Net loss per share, basic and diluted	$ (1.00)	$ (9.01)
Weighted-average common shares outstanding, basic and diluted	38,642,650	4,965,337

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

JAGUAR HEALTH, INC.
CONSOLIDATED STATEMENTS OF CHANGES
IN CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY

(In thousands, except share data)	Series A Convertible Preferred Stock Shares	Series A Convertible Preferred Stock Amount	Series B Convertible Preferred Stock Shares	Series B Convertible Preferred Stock Amount	Series B-1 Convertible Preferred Stock Shares	Series B-1 Convertible Preferred Stock Amount	Series B-2 Convertible Preferred Stock Shares	Series B-2 Convertible Preferred Stock Amount	Series C Perpetual Preferred Stock Shares	Series C Perpetual Preferred Stock Amount	Common Stock - voting Shares	Common Stock - voting Amount	Common Stock - non-voting Shares	Common Stock - non-voting Amount	Additional paid-in capital	Accumulated deficit	Total Stockholders Equity
Balances as of January 1, 2019	5,524,926	$ 9,000	—	$ —	—	$ —	—	$ —	—	$ —	351,472	$ —	40,301,237	$ 4	$ 99,930	$ (94,551)	$ 5,383
Issuance of common stock, net of offering costs, put exercise	—	—	—	—	—	—	—	—	—	—	195,319	—	—	—	2,602	—	2,602
Issuance of common stock, net of offering costs, March 2019 registered offering	—	—	—	—	—	—	—	—	—	—	19,019	—	—	—	266	—	266
Issuance of common stock in exchange of notes payable and accrued interest	—	—	—	—	—	—	—	—	—	—	395,970	1	—	—	8,223	—	8,224
Issuance of common stock in exchange of accrued interest, January 2019	—	—	—	—	—	—	—	—	—	—	19,752	—	—	—	447	—	447
Issuance of common stock in exchange of CVP Exchange Notes	—	—	—	—	—	—	—	—	—	—	1,119,440	—	—	—	6,673	—	6,673
Issuance of Series B convertible preferred stock, net of offering costs of $875	—	—	10,787	2,605	—	—	—	—	—	—	—	—	—	—	—	—	2,605
Beneficial conversion feature of the Series B convertible preferred stock	—	—	—	(4,240)	—	—	—	—	—	—	—	—	—	—	4,240	—	—
Deemed dividend on the Series B convertible preferred stock	—	—	—	4,240	—	—	—	—	—	—	—	—	—	—	(4,240)	—	—
Issuance of common stock in Class A Units, net	—	—	—	—	—	—	—	—	—	—	2,886,500	—	—	—	1,394	—	1,394
Issuance of Series 1 warrants in Class A and B Units	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,026	—	5,026
Issuance of Series 2 warrants in Class A and B Units	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,026	—	5,026
Modification of Series 1 warrants	—	—	—	—	—	—	—	—	—	—	—	—	—	—	522	—	522
Deemed dividend attributable to Series 1 warrant modification	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(522)	—	(522
Bridge warrant reclassification from liability to equity	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4,259	—	4,259
LOC warrant reclassification from liability to equity	—	—	—	—	—	—	—	—	—	—	—	—	—	—	71	—	71
Issuance of common stock upon conversion of Series B convertible preferred stock	—	—	(8,816)	(2,129)	—	—	—	—	—	—	4,408,000	—	—	—	2,129	—	—
Fractional shares	—	—	—	—	—	—	—	—	—	—	(14)	—	—	—	—	—	—
Issuance of common stock for Tempesta settlement, October 2019	—	—	—	—	—	—	—	—	—	—	40,000	—	—	—	49	—	49
Issuance of common stock upon exercise of Series 1 warrants, October 2019	—	—	—	—	—	—	—	—	—	—	277,774	—	—	—	389	—	389
Issuance of preferred stock to Ionic Ventures, October 2019	—	—	—	—	63	530	—	—	—	—	—	—	—	—	(530)	—	—
Beneficial conversion feature of the Series B-1 convertible preferred stock, October 2019	—	—	—	—	—	(530)	—	—	—	—	—	—	—	—	530	—	—
Deemed dividend on the Series B-1 convertible preferred stock, October 2019	—	—	—	—	—	530	—	—	—	—	—	—	—	—	(530)	—	—
Issuance of common stock upon exercise of Series 1 warrants, October 2019	—	—	—	—	—	—	—	—	—	—	972,226	—	—	—	1,360	—	1,360
Issuance costs from issuance of Series B-1 preferred stock, October 2019	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(20)	—	(20
Issuance of common stock in exchange for services, October 2019	—	—	—	—	—	—	—	—	—	—	166,667	—	—	—	140	—	140
Issuance of prepaid equity forward contracts, November 2019, net of offering costs of $65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,713	—	1,713
Issuance of common stock upon settlement of prepaid equity forward contracts, November 2019	—	—	—	—	—	—	—	—	—	—	986,000	—	—	—	10	—	10
Conversion of Series B convertible preferred stock into common stock, December 2019	—	—	—	—	(63)	(530)	—	—	—	—	630,063	—	—	—	531	—	1
Issuance of Series B-2 preferred stock in exchange for prepaid equity forward contracts and Jaguar Health common stock, December 2019	—	—	—	—	—	—	10,165	1,236	—	—	(695,127)	—	—	—	(1,236)	—	—
Issuance of common stock in PIPE Financing, December 2019	—	—	—	—	—	—	—	—	—	—	2,500,000	—	—	—	1,035	—	1,035
Issuance of warrants in PIPE Financing, December 2019	—	—	—	—	—	—	—	—	—	—	—	—	—	—	465	—	465
Accretion to redemption value of contingently redeemable preferred stock	—	895	—	—	—	—	—	—	—	—	—	—	—	—	(895)	—	(895
Stock-based compensation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,989	—	2,989
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(38,539)	(38,539
Balances as of December 31, 2019	5,524,926	$ 9,895	1,971	$ 476	—	$ —	10,165	$ 1,236	—	$ —	14,273,061	$ 1	40,301,237	$ 4	$ 142,046	$ (133,090)	$ 10,673

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

(In thousands, except share data)	Series A Convertible Preferred Stock Shares	Series A Convertible Preferred Stock Amount	Series B Convertible Preferred Stock Shares	Series B Convertible Preferred Stock Amount	Series B-1 Convertible Preferred Stock Shares	Series B-1 Convertible Preferred Stock Amount	Series B-2 Convertible Preferred Stock Shares	Series B-2 Convertible Preferred Stock Amount	Series C Perpetual Preferred Stock Shares	Series C Perpetual Preferred Stock Amount	Common Stock - voting Shares	Common Stock - voting Amount	Common Stock - non-voting Shares	Common Stock - non-voting Amount	Additional paid-in capital	Accumulated deficit	Total Stockholders' Equity
Balances as of January 1, 2020	5,524,926	$ 9,895	1,971	$ 476	—	$ —	10,165	$ 1,236	—	$ —	14,273,061	$ 1	40,301,237	$ 4	$ 142,046	$ (133,090)	$ 10,673
Shares issued on conversion of Series 1, Series 2, and 2019 Bridge Note warrants	—	—	—	—	—	—	—	—	—	—	548,962	—	—	—	392	—	392
Shares issued on exercise of Series 2 warrants and inducement offer conversion of Series B-1 convertible preferred stock	—	—	—	—	—	—	—	—	—	—	1,250,000	1	—	—	2,340	—	2,341
Shares issued on conversion of Series 1, Series 2, and 2019 Bridge Note warrants, net of issuance costs of $461; May 2020	—	—	—	—	—	—	—	—	—	—	8,670,852	1	—	—	3,787	—	3,788
Shares issued on conversion of Series 1, Series 2, and 2019 Bridge Note warrants; June 2020	—	—	—	—	—	—	—	—	—	—	732,315	—	—	—	359	—	359
Modification of Series 1, Series 2 and Bridge warrants	—	—	—	—	—	—	—	—	—	—	—	—	—	—	856	—	856
Deemed dividend attributable to Series 1, Series 2 and Bridge warrant holders	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(856)	—	(856)
Shares issued on conversion of Series 3 warrants	—	—	—	—	—	—	—	—	—	—	8,456,352	1	—	—	6,056	—	6,057
Shares issued on conversion of Series 1 and Series 2 warrants	—	—	—	—	—	—	—	—	—	—	1,279,266	—	—	—	626	—	626
Shares issued to Atlas Sciences for settlement of Trial Delay Fee	—	—	—	—	—	—	—	—	—	—	2,000,000	—	—	—	612	—	612
Shares issued on conversion of warrants of Atlas for settlement of Trial Delay Fee	—	—	—	—	—	—	—	—	—	—	6,218,954	1	—	—	1,903	—	1,904
Shares issued in PIPE financing, net of issuance costs of $51	—	—	—	—	—	—	—	—	—	—	1,714,283	—	—	—	668	—	668
Shares issued in underwriter settlement agreement	—	—	—	—	—	—	—	—	—	—	100,000	—	—	—	45	—	45
Warrants issued in underwriter settlement agreement	—	—	—	—	—	—	—	—	—	—	—	—	—	—	31	—	31
Underwriter settlement agreement offering cost	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(185)	—	(185)
Conversion of Series B-2 convertible preferred stock into common stock	—	—	—	—	—	—	(10,165)	(1,236)	—	—	2,246,286	—	—	—	1,236	—	—
Conversion of Series B convertible preferred stock into common stock	—	—	(1,971)	(476)	—	—	—	—	—	—	4,423,251	—	—	—	476	—	—
Shares issued to Oasis as consideration under the March 2020 equity purchase agreement	—	—	—	—	—	—	—	—	—	—	68,807	—	—	—	33	—	33
Shares issued to Oasis under the March 2020 equity purchase agreement, put option exercise, net of issuance costs of $13	—	—	—	—	—	—	—	—	—	—	52,000	—	—	—	10	—	10
Series A convertible preferred stock redeemed and Series C perpetual preferred issued under the Exchange transaction	(5,524,926)	(11,227)	—	—	—	—	—	—	842,500	4,717	—	—	—	—	150	—	4,867
Stock dividend attributable to Series C perpetual preferred stock of $8 per share	—	—	—	—	—	—	—	—	16,310	130	—	—	—	—	(130)	—	—
Extinguishment of Series C perpetual preferred stock	—	—	—	—	—	—	—	—	—	(2,521)	—	—	—	—	2,521	—	—
Deemed dividend attributable to Series C perpetual preferred stock	—	—	—	—	—	—	—	—	—	2,521	—	—	—	—	(2,521)	—	—
Shares issued to third party for services	—	—	—	—	—	—	—	—	—	—	275,000	—	—	—	105	—	105
Shares issued to Sagard Capital in exchange of services	—	—	—	—	—	—	—	—	—	—	2,289,474	—	—	—	879	—	879
Shares issued in exchange of CVP Exchange Notes	—	—	—	—	—	—	—	—	—	—	21,471,724	2	—	—	6,511	—	6,513
Shares issued on conversion of warrants to Pacific Capital Management in exchange of promissory note	—	—	—	—	—	—	—	—	—	—	50,000	—	—	—	24	—	24
Shares issued to PoC Capital in payment of contracted research fees	—	—	—	—	—	—	—	—	—	—	1,333,333	—	—	—	437	—	437
Shares issued to Iliad in exchange of Royalty Interest	—	—	—	—	—	—	—	—	—	—	1,314,974	—	—	—	256	—	256
Shares issued on exchange of Series C perpetual preferred stock	—	—	—	—	—	—	—	—	(858,810)	(4,847)	8,453,880	1	—	—	4,846	—	—
Warrants issued and converted to common stock in exchange for Series C preferred stock	—	—	—	—	—	—	—	—	—	—	7,057,692	1	—	—	(1)	—	—
Shares issue on exchange of Series D convertible preferred stock	—	—	—	—	—	—	—	—	—	—	15,889,871	2	—	—	7,875	—	7,877

(In thousands, except share data)	Series A Convertible Preferred Stock Shares	Series A Convertible Preferred Stock Amount	Series B Convertible Preferred Stock Shares	Series B Convertible Preferred Stock Amount	Series B-1 Convertible Preferred Stock Shares	Series B-1 Convertible Preferred Stock Amount	Series B-2 Convertible Preferred Stock Shares	Series B-2 Convertible Preferred Stock Amount	Series C Perpetual Preferred Stock Shares	Series C Perpetual Preferred Stock Amount	Common Stock - voting Shares	Common Stock - voting Amount	Common Stock - non-voting Shares	Common Stock - non-voting Amount	Additional paid-in capital	Accumulated deficit	Total Stockholders' Equity
Conversion of non-voting common stock to voting common stock	—	—	—	—	—	—	—	—	—	—	36,361	—	(38,180,451)	(4)	4	—	—
Shares issued in At The Market offering, net of offering costs of $78	—	—	—	—	—	—	—	—	—	—	3,814,925	—	—	—	1,207	—	1,207
Accretion to redemption value of redeemable preferred stock	—	1,332	—	—	—	—	—	—	—	—	—	—	—	—	(1,332)	—	(1,332)
Fractional shares	—	—	—	—	—	—	—	—	—	—	190	—	—	—	—	—	—
Shares issued upon exercise of stock options	—	—	—	—	—	—	—	—	—	—	555	—	—	—	—	—	—
Stock-based compensation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,824	—	2,824
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(33,809)	(33,809)
Balances as of December 31, 2020	—	$ —	—	$ —	—	$ —	—	$ —	—	$ —	114,022,368	$ 11	2,120,786	$ —	$ 184,090	$ (166,899)	$ 17,202

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

JAGUAR HEALTH, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)	Year Ended December 31, 2020	Year Ended December 31, 2019
Cash flows from operating activities		
Net loss	$ (33,809)	$ (38,539)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization expense	1,727	1,737
Impairment of indefinite-lived intangible assets	—	4,000
Interest paid on the conversion of debt to equity	611	—
Loss on recourse obligation on secured borrowing	15	—
Loss on extinguishment of debt and conversion of Series D perpetual preferred stock	1,864	4,941
Amortization of operating lease right-of-use-assets	553	191
Expense on modification of warrants	86	—
Series B convertible preferred stock inducement expense	1,647	—
Series 3 warrants issued as an inducement to exercise equity-classified Series 1, Series 2 and Bridge warrants	3,696	—
Stock-based compensation	2,824	2,989
Issuance of common stock in exchange for services	984	140
Issuance of common stock in Tempesta settlement agreement	—	49
Issuance of warrants and common stock in underwriter settlement agreement	76	—
Issuance of common stock as consideration paid under the Oasis Capital Equity Purchase Agreement	33	—
Tempesta settlement note expense	—	550
Amortization of debt issuance costs and debt discount and non-cash interest expense	2,670	5,157
Shares issued to Atlas for settlement of Trial Delay Fee	612	—
Shares issued on conversion of warrants of Atlas for settlement of Trial Delay Fee	1,904	—
Change in fair value of financial instruments	2,696	(1,010)
Changes in assets and liabilities		
Accounts receivable	(2,840)	(696)
Other receivable	(26)	(8)
Inventory	(653)	1,213
Prepaid expenses and other current assets	(955)	(247)
Other non-current assets	893	109
Operating lease liabilities	(337)	(133)
Deferred rent	—	222
Accounts payable	(743)	(63)
Accrued expenses	1,194	(1,059)
Total cash used in operating activities	(15,278)	(20,457)
Cash flows from investing activities		
Purchase of equipment	(7)	—
Total cash used in investing activity	(7)	—
Cash flows from financing activities		
Proceeds from issuance of notes payable, net of issuance costs of $50 and debt discount	12,300	—
Proceeds from receivables secured borrowing, net of debt discount and issuance costs of $640	7,057	—
Proceeds from issuance of short-term notes payable	—	5,050
Repayment of short-term notes payable	—	(5,050)
Repayment of notes payable	(406)	(100)
Repayment of insurance premium financing	(681)	—
Repayment of receivables secured borrowing	(6,207)	—
Proceeds from issuance of common stock	—	2,878
Proceeds from issuance of common stock in Class A Units, net of issuance costs, July 2019	—	2,249
Payment of underwriting discounts, commissions and other associated offering costs for Class A Units	—	(875)
Proceeds from issuance of Series 1 Warrants in Class A and B Units, July 2019	—	5,026
Proceeds from issuance of Series 2 Warrants in Class A and B Units, July 2019	—	5,026
Proceeds from issuance of Series B convertible preferred stock, net of issuance costs, July 2019	—	4,240
Payment of underwriting discounts, commissions and other associated offering costs for Class B Units	—	(1,635)
Proceeds from issuance of common stock in PIPE financing, net of issuance costs	668	1,500
Proceeds from issuance of common stock in At The Market Offering, net of $78 offering costs	1,281	—
Proceeds from issuance of Series B-2 convertible preferred for pre-funded warrants, November 2019	—	1,778
Proceeds from issuance of Series 1 warrants via put option, October 2019	—	1,750
Proceeds from issuance of common stock on conversion of Series 1, Series 2, and 2019 Bridge Note warrants, net of issuance costs of $486	5,797	—
Proceeds from issuance of common stock on conversion of Oasis Capital an Equity Purchase Agreement put options, net of issuance costs of $13	10	—
Issuance costs, pre-funded warrants, November 2019	—	(65)
Issuance costs from shares issued on underwriter settlement agreement	(185)	—
Payments of deferred offering costs	(142)	—
Total cash provided by financing activities	19,492	21,772
Net increase in cash and restricted cash	4,207	1,315
Cash and restricted cash at beginning of period	3,883	2,568
Cash and restricted cash at end of period	$ 8,090	$ 3,883

JAGUAR HEALTH, INC.
STATEMENTS OF CASH FLOWS (continued)

	Year Ended	
	December 31, 2020	December 31, 2019
Supplemental schedule of cash flow information		
Cash paid for interest	$ 757	$ 142
Supplemental schedule of non-cash financing and investing activities		
Common stock issued as redemption of notes payable and related interest	$ 6,165	$ 15,345
Insurance premium financing	$ 776	$ —
Deemed dividend attributable to modification of Series 1 warrants	$ —	$ 522
Deemed dividend attributable to Series B convertible preferred stock	$ —	$ 4,240
Deemed dividend attributable to Series C perpetual preferred stock	$ 2,521	$ —
Common stock issued upon conversion of Series B convertible preferred stock	$ —	$ 2,128
Issuance of warrants with Notes Payable	$ —	$ 5,006
Reclassification of Bridge Note warrants from liability to equity	$ —	$ 4,259
Issuance of March 2019 letter of credit warrant	$ —	$ 116
Reclassification of March 2019 LOC warrants from liability to equity	$ —	$ 71
Accretion to redemption value of Series A contingently redeemable convertible preferred stock	$ 1,332	$ 894
Conversion of Series B-2 convertible preferred stock into common stock	$ 1,236	$ —
Shares issued on exercise of Series B convertible preferred shares	$ 476	$ —
Extinguishment of Series A redeemable convertible preferred stock	$ 11,227	$ —
Issuance of Series C perpetual preferred stock	$ 4,717	$ —
Issuance of Series D perpetual preferred stock	$ 6,404	$ —
Common stock issued as redemption of Series D perpetual preferred stock	$ 6,575	$ —
Shares issued on exercise of Series 3 warrants	$ 6,057	$ —
Stock dividend attributable to Series C perpetual preferred stock	$ 130	$ —
Shares issued to PoC Capital in payment of contracted research fees	$ 437	$ —
Deemed dividend attributable to Series 1, Series 2 and Bridge warrant holders	$ 856	$ —
Cash and Restricted Cash:		
Cash	$ 8,090	$ 3,495
Restricted cash	—	388
Total cash and restricted cash	$ 8,090	$ 3,883

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

Jaguar Health, Inc.
Notes to Financial Statements

1. Organization and Business

Jaguar Health, Inc. (“Jaguar” or the “Company”), formerly known as Jaguar Animal Health, Inc., was incorporated on June 6, 2013 (inception) in Delaware. The Company was a majority-owned subsidiary of Napo 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. The Company's activities are subject to significant risks and uncertainties, including failing to secure additional funding in order to timely complete the development and commercialization of products.

On July 31, 2017, Jaguar completed a merger with Napo pursuant to the Agreement and Plan of Merger dated March 31, 2017 by and among Jaguar, Napo, Napo Acquisition Corporation (“Merger Sub”), and Napo's representative (the “Merger Agreement”). In accordance with the terms of the Merger Agreement, upon the completion of the merger, Merger Sub merged with and into Napo, with Napo surviving as the wholly-owned subsidiary (the “Merger” or “Napo Merger”). Immediately following the Merger, Jaguar changed its name from “Jaguar Animal Health, Inc.” to “Jaguar Health, Inc.” Napo now operates as a wholly-owned subsidiary of Jaguar focused on human health and the ongoing commercialization of Mytesi, a Napo drug product approved by the U.S. FDA for the symptomatic relief of noninfectious diarrhea in adults with HIV/AIDS on antiretroviral therapy.

The Company manages its operations through two segments – human health and animal health and is headquartered in San Francisco, California.

Nasdaq Communication and Compliance

Minimum Stockholders’ Equity Requirement

On August 17, 2020, the Company received a letter from the Staff of the Listing Qualifications Department (the “Staff”) of The Nasdaq Stock Market LLC (“Nasdaq”) notifying the Company that it no longer complies with Nasdaq Listing Rule 5550(b)(1) due to the Company’s failure to maintain a minimum of $2.5 million in stockholders’ equity (or meet the alternatives of market value of listed securities of $35 million or net income from continuing operations).

On September 9, 2020, the Company received a letter from Nasdaq stating that, based on the Company’s Current Report on Form 8-K filed on September 2, 2020, the Staff has determined that the Company complied with Nasdaq Listing Rule 5550(b)(1). However, if the Company failed to evidence compliance with Nasdaq Listing Rule 5550(b)(1) upon filing its next periodic report, the Company may be subject to delisting.

Minimum Bid Price Requirement

On September 11, 2020, the Company received written notice from Nasdaq indicating that, based upon the Company’s continued non-compliance with the minimum $1.00 bid price requirement for continued listing on The Nasdaq Capital Market (the “Rule”), as set forth in Nasdaq Listing Rule 5550(a)(2), as of September 11, 2020, and notwithstanding the Company’s compliance with the quantitative criteria necessary to obtain a second 180-day period within which to evidence compliance with the Rule, as set forth in Nasdaq Listing Rule 5810(c)(3)(A), Nasdaq determined to delist the Company’s securities from Nasdaq unless the Company timely requested a hearing before the Nasdaq Hearings Panel (the “Hearings Panel”).

On October 22, 2020, the hearing was held with the Hearings Panel. On October 28, 2020, the Company received formal notice that the Hearings Panel granted the Company an extension through December 23, 2020 to evidence compliance with the Rule. In order to comply with the Rule, the Company must have a closing bid price of at least $1.00 per share for a minimum of ten consecutive business days by December 23, 2020.

As the Company consistently reached a closing bid price of above $1.00 in 2021, on January 21, 2021, the Company received a letter from the Nasdaq Office of General Counsel that the Company has regained compliance with the bid price and warrant concerns, as required by the Hearings Panel decision dated October 28, 2020. Accordingly, the Hearings Panel has determined to continue the listing of the Company's securities on The Nasdaq Stock Market and is closing this matter.

Liquidity

The Company, since its inception, has incurred recurring operating losses and negative cash flows from operations and has an accumulated deficit of $166.9 million as of December 31, 2020. The Company expects to incur substantial losses and negative cash flows in future periods. Further, the Company's future operations, which include the satisfaction of current obligations, are dependent on the success of the Company's ongoing development and commercialization efforts, as well as securing of additional financing and generating positive cash flows from operations.

In January 2021, the Company was able to reduce the outstanding balance of a secured promissory note by $1.8 million through common stock exchange and raised $20.5 million from a registered public offering and an at-the-market agreement. As of the issuance date of the consolidated financial statements, the Company has cash of $33.8 million. Based on the Company's current operating plan and forecasted operations, management believes that existing cash will be sufficient to fund the Company's obligations for at least 12 months after these consolidated financial statements are issued.

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").

Principles of Consolidation

The consolidated financial statements have been prepared in accordance with U.S. GAAP and applicable rules and regulations of the Securities and Exchange Commission ("SEC") and include the accounts of the Company and its wholly-owned subsidiaries. All inter-company transactions and balances have been eliminated in consolidation.

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 the valuation of stock options, valuation of Series C Perpetual Preferred Stock and Series D Perpetual Preferred Stock, valuation of warrant liabilities, acquired IPR&D, and useful lives assigned to long-lived assets; valuation adjustments for excess and obsolete inventory; allowance for doubtful accounts; deferred taxes and valuation allowances on deferred tax assets; evaluation and measurement of contingencies; and recognition of

revenue, including estimates for product returns. Those estimates could change, and as a result, actual results could differ materially from those estimates.

In March 2020, the World Health Organization declared the COVID-19 outbreak to be a pandemic. During the year ended December 31, 2020, the Company's financial results were not significantly affected by the COVID-19 outbreak. The Company has considered all information available as of the date of issuance of these financial statements and the Company is not aware of any specific events or circumstances that would require an update to its estimates or judgments, or a revision to the carrying value of its assets or liabilities. These estimates may change as new events occur and additional information becomes available. The extent to which the COVID-19 outbreak affects the Company's future financial results and operations will depend on future developments which are highly uncertain and cannot be predicted, including new information which may emerge concerning the severity of the outbreak, and current or future domestic and international actions to contain and treat it.

Cash and Restricted Cash

Our cash on deposit may exceed United States federally insured limits at certain times during the year. We maintain cash accounts with certain major financial institutions in the United States. Restricted cash represents cash not available to us for immediate and general use. Amounts included in restricted cash primarily relate to security deposits and a letter of credit with a financial institution, both in connection with office space lease agreements.

Accounts Receivable

Accounts receivable is recorded net of allowances for discounts for prompt payment and credit losses. The Company estimates an allowance for credit losses by considering factors such as historical experience, credit quality, the age of the accounts receivable balances, and current economic conditions that may affect a customer's ability to pay. The corresponding expense for the credit loss allowance is reflected in general and administrative expenses. The credit loss allowance was immaterial as of December 31, 2020 and 2019.

Concentrations

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.

For the years ended December 31, 2020 and 2019, substantially all of the Company's revenue was derived from the sale of Mytesi. In looking at sales by the Company to distributors whose net revenue percentage of total net revenue was equal to or greater than 10%, for fiscal year 2020 and 2019 the Company earned Mytesi revenue primarily from one major pharmaceutical distributor located in the United States. For the years ended December 31, 2020 and 2019, one customer comprised 97% and 91%, respectively of total net revenues.

The Company is subject to credit risk from its accounts receivable related to its sales. The Company generally does not perform evaluations of customers' financial condition and generally does not require collateral. For the years ended December 31, 2020 and 2019, one customer comprised 95% and 99%, respectively of total accounts receivable.

The Company is subject to concentration risk from its suppliers. The Company sources raw material used to produce the active pharmaceutical ingredient in Mytesi from two suppliers and is dependent on a single third-party contract manufacturer, both for the supply of the active pharmaceutical ingredient in Mytesi, as well as for the supply of finished products for commercialization.

Fair Values

The Company's financial instruments include accounts receivable, accounts payable, accrued liabilities, warrant liabilities, equity-linked financial instruments and debt. The recorded carrying amount of accounts receivable, accounts payable and accrued liabilities reflect their fair value due to their short-term nature. Other financial liabilities are initially recorded at fair value, and subsequently measured at either fair value or amortized cost using the effective interest method. See Note 3 for the fair value measurements.

Inventory

Inventory is stated at the lower of cost or net realizable value. Cost is determined using the first-in, first-out method. Cost is initially recorded at the invoiced amount of raw materials or active pharmaceutical ingredient, including the sum of qualified expenditures and charges in bringing the inventory to its existing condition and location. The Company calculates inventory valuation adjustments when conditions indicate that 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 net realizable value.

Property and Equipment

Land is stated at cost, reflecting fair value of the property at July 31, 2017, the date of the Napo merger. Equipment is stated at cost, net of accumulated depreciation. Equipment begins to be depreciated when it is placed into service. Depreciation is calculated using the straight-line method over estimated useful lives ranging between 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 the consolidated statements of 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.

Definite-lived intangible assets are amortized on a straight-line basis over the estimated periods benefited, and are reviewed when impairment indicators are identified.

Indefinite-lived Intangible Assets

Acquired in-process research and development ("IPR&D") are intangible assets acquired in the July 2017 Napo merger. Under ASC 805, IPR&D are initially recognized at fair value and classified as indefinite-lived assets until the successful completion or abandonment of the associated research and development efforts. During the development period, these assets will not be amortized as charges to earnings; instead these assets will be tested for impairment on an annual basis or more frequently if impairment indicators are identified. An impairment loss is measured based on the excess of the carrying amount over the asset's fair value. The Company recorded an impairment of zero and $4.0 million in the years ended December 31, 2020 and 2019, respectively.

Leases

ASC 842, '*Leases*," requires lessees to recognize right-of-use assets and lease liabilities for all leases with a term greater than 12 months regardless of their classification on the balance sheet and to provide expanded disclosures about leasing arrangements. The Company adopted ASC 842 on January 1, 2019, using the optional transition method with no restatements of comparative periods. There was no effect on the Company's accumulated deficit upon adoption.

At the inception of an arrangement, the Company determines whether the arrangement is or contains a lease based on the unique facts and circumstances present. Operating lease liabilities and their corresponding right-of-use assets are recorded based on the present value of lease payments over the expected lease term. Because the interest rate implicit in lease contracts is typically not readily determinable, the Company utilizes its incremental borrowing rate, which is the rate incurred to borrow on a collateralized basis over a similar term, an amount equal to the lease payments in a similar economic environment. Certain adjustments to the right-of-use asset may be required for items such as initial direct costs paid or incentives received.

Operating Lease

The Company had a non-cancelable operating lease with CA-Mission Street Limited Partnership for its offices in San Francisco, California, through September 30, 2020. The lease agreement called for monthly base rents between $38,000 and $41,000 over the term of the lease. The lease agreement was not renewed during the year ended December 31, 2020.

The Company entered into a sublease agreement with Peacock Construction, Inc., a California corporation, for office space located in San Francisco, California. The term of the sublease began on August 31, 2020 and will expire on May 31, 2021, unless earlier terminated in accordance with the contract. The rent under the sublease is $15,000 per month beginning October 1, 2020, which includes operating expenses and taxes. On October 1, 2020, the Company transitioned its operations from its existing premises to the sublease premises, which the Company expects will serve as its principal administrative headquarters.

The Company elected not to apply the recognition requirements to short-term leases, and instead recognize the lease payments in profit or loss on a straight-line basis over the lease term. As a result, there was no right-of-use asset and lease liability recognized related to the sublease.

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

The Company recognizes revenue in accordance with ASC Topic 606, *Revenue from Contracts with Customers* ("ASC 606").

The Company's policy typically permits returns if the product is damaged, defective, or otherwise cannot be used when received by the customer if the product has expired. Returns are accepted for product that will expire within six months or that have expired up to one year after their expiration dates. Estimates for expected returns of expired products are based primarily on an ongoing analysis of our historical return patterns.

The Company recognizes revenue in accordance with the core principle of ASC 606 or when there is a transfer of control of promised goods or services to customers in an amount that reflects the consideration that the Company expects to be entitled to in exchange for those goods or services.

The Company recognizes the incremental costs of obtaining a contract as an expense when incurred if the amortization period of the asset that the Company otherwise would have recognized is one year or less.

The Company does not adjust the amount of consideration for the effects of a significant financing component if, at contract inception, the expected period between the transfer of promised goods or services and customer payment is one year or less.

The Company has elected to treat shipping and handling activities as fulfillment costs.

Additionally, the Company elected to record revenue net of sales and other similar taxes.

Contracts – Cardinal Health

Effective January 16, 2019, Napo engaged Cardinal Health as its exclusive third-party logistics distribution agent for commercial sales for the Company's Mytesi product and to perform certain other services which include, without limitation, storage, distribution, returns, customer support, financial support, EDI and system access support (the "Exclusive Distribution Agreement").

In addition to the terms and conditions of the Exclusive Distribution Agreement, Cardinal Health's purchase of products, and assumption of title therein, is set forth in the Title Model Addendum. The Title Model Addendum states that upon receipt of product at the 3PL Facility (Cardinal Health in La Vergne, Tennessee) from the Company, title and risk of loss for the Mytesi product purchased by Cardinal Health (excluding consigned inventory) shall pass to Cardinal Health, and title and risk of loss for consigned inventory shall remain with the Company until purchased by Cardinal Health in accordance with the Title Model Addendum. Napo considers Cardinal Health the Company's exclusive customer for Mytesi products per the Exclusive Distribution Agreement.

The Company's Neonorm and botanical extract products are primarily sold to distributors, who then sell the products to the end customers. Since 2014, the Company has entered into several distribution agreements with established distributors such as Animart, Vedco, VPI, RJ Matthews, Covetrus, and Stockmen Supply to distribute the Company's products in the United States, Japan, and China. The distribution agreements and the related purchase order together meet the contract existence criteria under ASC 606-10-25-1. The Company sells directly to its customers without the use of an agent.

Performance obligations

For animal products sold by the Company, the single performance obligation identified above is the Company's promise to transfer the Company's animal products to distributors based on specified payment and shipping terms in the arrangement. Product warranties are assurance-type warranties that do not represent a performance obligation. For the Company's human product, Mytesi, which is sold by Napo, the single performance obligation identified above is the Company's promise to transfer Mytesi to Cardinal Health, the Company's exclusive distributor for the product, based on specified payment and shipping terms as outlined in the Exclusive Distribution Agreement.

Transaction price

For contracts with Cardinal Health, for the Company, the transaction price is the amount of consideration to which the Company expects to collect in exchange for transferring promised goods or services. The transaction price of Mytesi and Neonorm is the Wholesaler Acquisition Cost ("WAC"), net of discounts, returns, and price adjustments.

Allocate transaction price

For contracts with Cardinal Health, for the Company, the entire transaction price is allocated to the single performance obligation contained in each contract.

Revenue recognition

For contracts with Cardinal Health, for the Company, a single performance obligation is satisfied at a point in time, upon the FOB terms of each contract when control, including title and all risks, has transferred to the customer.

Disaggregation of Product Revenue

Human

Sales of Mytesi are recognized as revenue when the products are delivered to the wholesaler. Net revenues from the sale of Mytesi were $9.3 million and $5.7 million for the years ended December 31, 2020 and 2019, respectively.

Animal

The Company recognized Neonorm revenues of $76,000 and $102,000 for the years ended December 31, 2020 and 2019, respectively. Revenues are recognized upon shipment, which is when title and control is transferred to the buyer. 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.

Contracts – Atlas Sciences, LLC

Effective April 15, 2020, the Company entered into a patent purchase agreement with Atlas Sciences, LLC (“Atlas”), pursuant to which Atlas agreed to purchase certain patents and patent applications relating to Napo’s NP-500 drug product candidate (the “Patent Rights”) for an upfront cash payment of $1.5 million.

Concurrent with the Patent Rights sale, the Company entered into a license agreement with Atlas (the “License Agreement”), pursuant to which Atlas granted the Company an exclusive 10-year license to use the Patent Rights and improvements thereon to develop and commercialize NP-500 in all territories worldwide except Greater China (i.e., China, Hong Kong, Taiwan and Macau), inclusive of the right to sublicense NP-500 development and commercialization rights (“The License”).

Included in the arrangement with Atlas, the Company was obligated to initiate a proof of concept Phase 2 study of NP-500 under an investigational new drug (“IND”) application with the U.S. Food and Drug Administration or an IND-equivalent dossier under appropriate regulatory authorities (the “Phase 2 study”) within nine months of April 15, 2020. The Company would incur a trial delay fee if the Company failed to initiate the Phase 2 study by this date, for any reason, including the timely receipt of adequate funding to initiate the Phase 2 study. Atlas had the right to terminate the License in the event that the Company (i) failed to complete the Phase 2 study within five years of April 15, 2020 or (ii) had not timely initiated the Phase 2 study and thereafter failed to make three or more consecutive trial delay payments.

Performance obligations

The Patent Rights sale to Atlas and the Phase 2 study to be performed by the Company, identified above, represent a single transaction with two separate performance obligations; with the sale of the Patent Rights, the Company transferred control of the internally generated Patent Rights to Atlas at the date of sale.

Transaction price

For the contract with Atlas, the upfront payment of $1.5 million from Atlas as consideration for the Patent Rights sale and the Phase 2 study, is variable consideration that is fully constrained due to the potential incurrence of a Trial Delay Fee of $2.5 million if the Phase 2 study had not been initiated by January 15, 2021. The Company's method for estimating the variable consideration was to use the most likely amount method. The Company fully constrained the value of the variable consideration based on inherent uncertainty of timing of clinical trials. Accordingly, at inception, the total transaction price of $1.5 million is deferred and the transaction price is zero.

Allocate transaction price

For the contract with Atlas, the transaction price of $1.5 million is allocated as follows: (i) $1.0 million was allocated to the Phase 2 study using the cost-plus margin approach based on the price quoted by a third-party contract research organization, and (ii) $529,000 was allocated to the Patent sale using the Residual method.

Revenue recognition

For the contract with Atlas, control of the Patent Rights transferred to Atlas on the date of sale (at a point-in-time); and with the Phase 2 study, the services were to be transferred to Atlas over the estimated 13.2 months of the study, which was set to run between October 2020 and November 2021.

In September 2020, the Company made the decision not to initiate the Phase 2 study and intended to negotiate the payment of the trial delay fee of $2.5 million and terminate this obligation in the contract. Because of this decision, the allocated transaction price for that performance obligation will not be recognized as revenue. Likewise, the allocated transaction price for the Patent sale will not be recognized as revenue, as its recognition was dependent on initiating the Phase 2 study on or before January 15, 2021.

The Company derecognized $1.5 million in deferred revenue and the excess of the trial delay fee was recognized in "General and Administrative Expenses" in the consolidated statements of operations. The payment was deemed not in exchange for a distinct good or service.

The Company evaluated the nature of the consideration payable to the customer and the rights and obligations in the related contract and concluded that the excess payment or loss should be presented as part of the "General and Administrative Expenses" due to the following factors:

- No revenue has been recognized from the transaction as performance obligations were not satisfied.
- The Company settled the trial delay fee in full in October 2020, which constitutes termination of the customer relationship considering that Atlas cannot compel the Company or has no recourse to force the Company to initiate the Phase 2 Study. The Company does not anticipate future revenue contract with Atlas.
- The trial delay fee is a penalty in its economic term, subject to accounting for contingencies and provisions under relevant authoritative guidance.

In October 2020, the Company entered into a fee settlement agreement with Atlas pursuant to which the Company agreed to issue 2,000,000 shares of common stock and pre-funded warrants to purchase 6,218,954 shares of common stock as complete settlement and satisfaction of the trial delay fee of $2.5 million that the Company incurred pursuant to its license agreement with Atlas dated April 15, 2020. The pre-funded warrants were exercisable immediately and could be exercised at any time until all of the pre-funded warrants were exercised in full. The nominal exercise price of each pre-funded warrant was $0.0001. The settlement resulted in a loss of $1.0 million. As of December 31, 2020, the shares of common stock have all been issued and the pre-funded warrants have all been exercised.

Collaboration Revenue

Revenue recognition for collaboration agreements requires significant judgment. The Company's assessments and estimates are based on contractual terms, historical experience and general industry practice. Revisions in these values or estimations have the effect of increasing or decreasing collaboration revenue in the period of revision.

On September 24, 2018, the Company entered into a Distribution, License and Supply Agreement ("License Agreement") with Knight Therapeutics ("Knight"). The License Agreement has a term of 15 years (with automatic renewals) and provides Knight with an exclusive right to commercialize current and future Jaguar human health products (including crofelemer, Lechlemer, and any product containing a proanthocyanidin or with an anti-secretory mechanism) in Canada and Israel. Knight forfeited its right of first negotiation for expansion to Latin America. Under the License Agreement, Knight is responsible for applying for and obtaining necessary regulatory approvals in the territory of Canada and Israel, as well as marketing, sales and distribution of the licensed products. Knight will pay a transfer price for all licensed products, and upon achievement of certain regulatory and sales milestones, the Company may receive payments from Knight in an aggregate amount of up to approximately $18 million payable throughout the initial 15-year term of the agreement. The Company did not have any license revenues for the years ended December 31, 2020 and 2019.

Modifications to Liability-classified Instruments

For the years ended December 31, 2020 and 2019, the Company modified certain debt instruments and Series D Perpetual Preferred Stock which is a liability-classified preferred stock (see Note 7). In accounting for debt modifications and exchange transactions, it is the Company's policy to first determine whether it qualifies as a Troubled Debt Restructuring pursuant to the guidance provided in ASC 470-60. A debt modification or exchange transaction that is not within the scope of the ASC 470-60 is accounted for under ASC 470-50 to determine if the transation is a mere modification or an extinguishment.

Modifications to Equity-classified Instruments

For the years ended December 31, 2020 and 2019, the Company modified certain equity-classified warrants (see Note 8). It is the Company's policy to determine the impact of modifications to equity-classified warrants by analogy to the share-based compensation guidance of ASC 718, Compensation - Stock Compensation ("ASC 718"). The model for a modified share-based payment award that is classified as equity and remains classified in equity after the modification is addressed in ASC 718-20-35-3. Pursuant to that guidance, the incremental fair value from the modification is recognized as an expense in the statements of operations to the extent the modified instrument has a higher fair value; however, in certain circumstances, such as when an entire class of warrants are modified, the measured increase in fair value may be more appropriately recorded as a deemed dividend, depending upon the nature of the warrant modification.

For the years ended December 31, 2020 and 2019, the Company modified the terms of its Series B Convertible Preferred Stock and Series 1, 2 and Bridge Note Warrants in one transaction (see Note 8) and Series C Perpetual Preferred Stock (see Note 9). For amendments to preferred stock, it is the Company's policy to measure the impact by analogy to ASC 470-50 in determining if such an amendment is an extinguishment or a modification. If the amendment results in an extinguishment, the Company follows the SEC staff guidance in ASC 260-10-S99-2 and ASC 470-20.

Stock-Based Compensation

The Company's Stock Incentive Plan (see Note 11) provides for the grant of stock options, restricted stock and restricted stock unit awards.

The Company measures stock awards granted to employees, non-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. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. 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 determine the grant date fair value of options granted to employees, non-employees and directors.

Income Taxes

The Company uses the asset and liability method of accounting for income taxes. Under this method, deferred tax assets and liabilities are determined based on the differences between the financial reporting and the tax bases of assets and liabilities and are measured using the enacted tax rates and laws that will be in effect when the differences are expected to reverse. A valuation allowance is provided when it is more likely than not that some portion or all of a deferred tax asset will not be realized.

Comprehensive Loss

For all periods presented, the comprehensive loss was equal to the net loss; therefore, a separate statement of comprehensive loss is not included in the accompanying consolidated financial statements.

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 year by the weighted-average number of common shares outstanding during the year. Diluted net loss per share is computed by dividing the net loss attributable to common stockholders for the year by the weighted-average number of common shares, including potential dilutive shares of common stock assuming the dilutive effect of potential dilutive securities. For years 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, 2020 and 2019.

Recent Accounting Pronouncements

In June 2016, the FASB issued ASU 2016-13, Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments. The main objective of the standard is to provide financial statement users with more decision-useful information about the expected credit losses on financial instruments and other commitments to extend credit held by a reporting entity at each reporting date. To achieve this objective, the amendments in this standard replace the incurred loss impairment methodology in current GAAP with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. The update is effective for the Company beginning January 1, 2023 with early adoption permitted. The Company is still evaluating the impact of the adoption of this standard.

In August 2018, the FASB issued ASU 2018-13, Fair Value Measurement (Topic 820): Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement. The primary focus of the standard is to improve the effectiveness of the disclosure requirements for fair value measurements. The changes affect all companies that are required to include fair value measurement disclosures. The standard requires the use of the prospective method of transition for disclosures related to changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop fair value measurements categorized within Level 3 of the fair value hierarchy, and narrative description of measurement uncertainty. All other amendments in the standard are required to be adopted retrospectively. We adopted the standard on January 1, 2020. The adoption of this standard did not have a material effect on the Company’s consolidated financial statements and related disclosures.

In November 2018, the FASB issued ASU 2018-18, Collaborative Arrangements (Topic 808): Clarifying the Interaction Between Topic 808 and Topic 606. ASU 2018-18 provides guidance on how to assess whether certain transactions between collaborative arrangement participants should be accounted for within the revenue recognition standard. The standard also provides more comparability in the presentation of revenue for certain transactions between collaborative arrangement participants. The standard is to be applied retrospectively to the date of the initial application of Topic 606 which also requires recognition of the cumulative effect of applying the amendments as an adjustment to the opening balance of retained earnings of the later or the earliest annual period presented and the annual period inclusive of the initial application of Topic 606. We adopted the standard on January 1, 2020. The adoption of this standard did not have a material effect on the Company's consolidated financial statements and related disclosures.

In December 2019, the FASB issued ASU 2019-12, Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes, which is intended to simplify various aspects related to accounting for income taxes. The standard also removes certain exceptions to the general principles in Topic 740 and clarifies and amends existing guidance to improve consistent application. The pronouncement was effective for the Company beginning January 1, 2021 with early adoption permitted. The adoption of this standard will not have a material effect on the Company's consolidated financial statements and related disclosures.

In August 2020, the FASB issued ASU 2020-06, Debt – Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging – Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity, which simplifies the accounting for certain financial instruments with characteristics of liabilities and equity, including convertible instruments and contracts on an entity's own equity. The standard is effective for the Company beginning January 1, 2022 with early adoption permitted. The Company is still evaluating the impact of the adoption of this standard.

Reclassification of Prior Year Presentation

Certain prior year amounts in the Consolidated Statements of Changes in Convertible Preferred Stock and Stockholders' Equity have been reclassified to be consistent with the current year presentation.

3. Fair Value Measurements

ASC 820 "Fair Value Measurements," defines fair value, establishes a framework for measuring fair value under U.S. GAAP 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 – Observable inputs such as quoted prices (unadjusted) for identical instruments in active markets.
- Level 2 – Observable inputs such as quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, or model-derived valuations whose significant inputs are observable.
- Level 3 – Unobservable inputs that reflect the reporting entity's own assumptions.

The following tables set forth the fair value of the Company's consolidated financial instrument that was measured at fair value on a recurring basis as of December 31, 2020 and 2019:

	December 31, 2020			
(in thousands)	Level 1	Level 2	Level 3	Total
Warrant liability	$ —	$ —	$ 179	$ 179
Total fair value	$ —	$ —	$ 179	$ 179

	December 31, 2019			
(in thousands)	Level 1	Level 2	Level 3	Total
Warrant liability	$ —	$ —	$ 3	$ 3
Total fair value	$ —	$ —	$ 3	$ 3

The change in the estimated fair value of the Level 3 liability is summarized below:

(in thousands)	Year Ended December 31, 2020 Warrant Liability
Beginning fair value of Level 3 liability	$ 3
Additions	3,696
Exercises	(6,056)
Change in fair value	2,536
Ending fair value of Level 3 liability	$ 179

Warrant Liability

The warrants associated with the Level 3 warrant liability were the November 2016 Series A Warrants, the October 2018 Underwriter Warrants and the May 2020 Series 3 Warrants, which, at December 31, 2020, were valued at zero, $4,000 and $175,000 respectively, in the Company's consolidated balance sheet. The warrants associated with the Level 3 warrant liability activity for the year ended December 31, 2019 were the November 2016 Series A Warrants, the October 2018 Underwriter Warrants, the March 2019 LOC Warrants and the Bridge Warrants, which at December 31, 2019 were valued at zero, $3,000, zero and zero, respectively in the Company's consolidated balance sheet.

The November 2016 Series A Warrants

The Series A warrant valuation of zero at December 31, 2020 was computed using the Black-Scholes-Merton pricing model using a stock price of $0.82, a strike price of $787.50 per share, an expected term of 1.41 years, volatility of 148% and a risk-free discount rate of 0.13%. The Series A warrant valuation of zero at December 31, 2019 was computed using the Black-Scholes-Merton pricing model using a stock price of $0.65, a strike price of $787.50 per share, an expected term of 2.41 years, volatility of 143.41% and a risk-free discount rate of 1.62%. The net change in the fair value of the warrants is zero for the year ended December 31, 2020.

The October 2018 Underwriter Warrants

The October 2018 Underwriter Warrants valuation of $4,000 at December 31, 2020 was computed using the Black-Scholes-Merton pricing model using a stock price of $0.82, a strike price of $52.50 per share, an expected term of 2.76 years, volatility of 156% and a risk-free discount rate of 0.17%. The October 2018 Underwriter Warrants valuation of $3,000 at December 31, 2019 was computed using the Black-Scholes-Merton pricing model using a stock price of $0.65, a strike price of $52.50 per share, an expected term of 3.76 years, volatility of 143% and a risk-free discount rate of 1.69%. The net increase in the fair value of the warrants of $1,000 for the year ended December 31, 2020, was recorded as a loss in the change in fair value of financial instruments in the consolidated statement of operations.

The May 2020 Series 3 Warrants

The May 2020 Series 3 Warrants valuation of $175,000 at December 31, 2020 was computed using the Black-Scholes-Merton pricing model using a stock price of $0.82, a strike price of $0.00 per share, an expected term of 4.89 years, volatility of 142% and a risk-free discount rate of 0.36%. The May 2020 Series 3 Warrants valuation of $3.7 million at issuance on May 22, 2020 was computed using the Black-Scholes-Merton pricing model using a stock price of $0.44, a strike price of $0.05 per share, an expected term of 5.50 years, volatility of 142% and a risk-free discount rate of 0.34%. As of December 31, 2020, certain holders of the Series 3 Warrants agreed to exercise 8,456,352 shares for a 1-for-1 exchange of common shares in an Alternate Cashless Exercise. The net increase in the fair value of the warrants of $2.5 million for the year ended December 31, 2020 was recorded as a loss in the change in fair value of financial instruments in the consolidated statement of operations.

4. Related Party Transactions

Management Services Agreement

In March 2018, concurrent with the issuance of the Company's Series A Convertible Preferred Stock to Sagard Capital Partners, L.P. ("Sagard Capital"), the Company entered into a Management Services Agreement with Sagard Capital. Under the agreement, Sagard Capital was to provide consulting and management advisory service to the Company from March 2018 through March 2021. These services include assistance with strategic planning regarding the Company's commercial strategy, research and due diligence regarding human resource activities, and strategic advice in financial matters. In consideration for such services, the Company paid Sagard Capital an annual fee of $450,000, with total fees over the term of the agreement not to exceed $1.4 million. On September 1, 2020, in concurrence with other transactions by and between the Company, Chicago Venture Partners, L.P. ("CVP" or "Chicago Venture Partners") and its affiliates, and Sagard Capital, the Company and Iliad Research and Trading, L.P. ("Iliad"), a Utah limited partnership affiliated with CVP, agreed to issue 2,289,474 shares of the Company's Common Stock to Sagard Capital pursuant to the Stock Plan Agreement for termination of the Management Services Agreement in lieu of payment of $1.1 million in accrued consulting and management fees. For the years ended December 31, 2020 and 2019, total fees incurred were $338,000 and $439,000, respectively. As of
December 31, 2020 and 2019, the Company had a balance of zero and $788,000 due to Sagard Capital, respectively.

Consent and Waiver Fee

In May 2019, the Company paid Sagard Capital a consent and waiver fee of $250,000 to receive permission grant security interest in substantially all of the Company's assets for the Company's obligations under the restructured Napo December 2016 and Napo July 2017 Notes (see Note 7).

Letter of Credit

In August 2018, to satisfy a letter of credit requirement in the Company's office lease agreement (see Note 5), Pacific Capital Management, LLC, one of the Company's existing shareholders, caused its financial institution to issue a letter of credit in the amount of $475,000 on behalf of the Company. In consideration of the letter of credit, in August 2018, the Company issued to Pacific Capital Management, LLC a warrant to purchase 9,580 shares of the Company's common stock. As additional consideration, a payment of $45,000 was made to Pacific Capital Management, LLC in November 2019.

On March 24, 2020, the Company entered into a letter of credit agreement with Dr. Charles Conte, the brother of Lisa Conte, the Company's President, CEO and member of the Company's board of directors, pursuant to which the Company will, subject to CA-Mission Street Partnership's consent, replace the existing letter of credit in the amount of $475,000 entered into on August 28, 2018 by the Company with CA-Mission Street Partnership to satisfy the letter of credit requirement in the Company's office lease agreement with a new letter of credit in the amount of $475,000. In consideration of the new letter of credit, the Company would pay Dr. Conte an amount equal to $10,000 per month and reimburse up to $7,500 for reasonable out-of-pocket expenses incurred. For the year ended December

31, 2020, total fees incurred were $65,000. In October 2020, CA-Mission Street Partnership released the letter of credit agreement with Dr. Conte pursuant to the expiration and termination of the office lease agreement between the Company and CA-Mission Street Partnership on September 30, 2020. In October 2020, the Company paid Dr. Conte a prorated amount due through the effective date of the release of the letter of credit of $7,000. As of December 31, 2020, the Company had zero balance due to Dr. Conte.

2019 Bridge Notes

Between March 18, 2019 and June 26, 2019, three members of the Board of Directors of the Company entered into short-term Promissory Note Purchase Agreements with the Company: (i) Lisa Conte, the Company's CEO & President, purchased a short-term Promissory Note of $100,000 which the Company settled in July 2019. In consideration for the short-term financing, the Company issued Ms. Conte a warrant that became exercisable into 37,500 shares of the Company's common stock; (ii) James Bochnowski, purchased a short-term Promissory Note of $350,000 which the Company settled in July 2019. In consideration for the short-term financing, the Company issued Mr. Bochnowski a warrant that became exercisable into 218,750 shares of the Company's common stock at an exercise price of $0.49 per share; and (iii) Jonathan Siegel DBA JBS Healthcare Ventures, purchased a short-term Promissory Note of $75,000 which the Company settled in July 2019. In consideration for the short-term financing, the Company issued Mr. Siegel a warrant that became exercisable into 34,375 shares of the Company's common stock at an exercise price of $0.49 per share.

In addition, Sagard Capital purchased a short-term Promissory Note of $500,000, which the Company settled in July 2019. In consideration for the short-term financing, the Company issued Sagard Capital a warrant that became exercisable into 187,500 shares of the Company's common stock at an exercise price of $0.49 per share; and Jonathan Glaser, an existing shareholder, purchased short-term Promissory Notes of $500,000 which the Company settled in July 2019. In consideration for the short-term financing, the Company issued Mr. Glaser warrants that became exercisable into 250,000 shares of the Company's common stock at an exercise price of $0.49 per share.

5. Commitments and Contingencies

Commitments

Leases

On August 28, 2018, the Company entered into an office lease extension agreement for approximately 6,311 square feet of office space in San Francisco, CA. The term of the lease began on September 1, 2018 and expired on September 30, 2020. The monthly base rent under the lease was as follows: $38,000 for the first twelve months, $40,000 for the subsequent twelve months, and $41,000 for the final month. The Company also paid an additional monthly amount for the Company's proportionate share of the building's operating charges. An existing shareholder provided a standby letter of credit in the amount of $475,000 to the lessor as collateral for the full performance by the Company of all of its obligations under the lease. In consideration of the Letter of Credit, the Company issued the shareholder a five-year warrant (see Note 8) to purchase 9,580 shares of the Company's voting common stock. The $494,000 fair value of the Warrant was classified in stockholders' equity with an offset to deferred rent. With the Company's adoption of ASC 842 on January 1, 2019, the offset to the deferred balance was classified as a right-of-use asset.

In December 2018, the Company did not meet a covenant per the terms of the $475,000 Letter of Credit, the result of which required the Company to issue a Letter of Credit of $122,000 to the shareholder who issued the original $475,000 letter of credit. In March 2019, the Company canceled the $122,000 letter of credit in lieu of issuing the shareholder a promissory note for that amount in April 2019, as well as issuing the shareholder a warrant (see Note 8).

On August 31, 2020, the Company entered into an office sublease of approximately 5,263 square feet of office space in San Francisco. The term of the sublease will expire on May 31, 2021. The rent sublease is $15,000 per month beginning on October 1, 2020, which includes operating expenses and taxes.

The Company recognizes rent expense on a straight-line basis over the non-cancelable lease period. Rent expense was $633,000 and $745,000 for the years ended December 31, 2020 and 2019, respectively. Rent expense is included in general and administrative expenses in the consolidated statements of operations.

Purchase Commitment

On September 3, 2020, the Company entered into a manufacturing and supply agreement (the "Agreement") with Glenmark Life Sciences Limited ("Glenmark"), pursuant to which Glenmark will continue to serve as the Company's manufacturer of crofelemer for use in Mytesi, the Company's human prescription drug product approved by the U.S. Food and Drug Administration, and for other crofelemer-based products manufactured by the Company or its affiliates for human or animal use. The term of the Agreement is approximately 2.5 years (i.e., until March 31, 2023) and may be extended for successive two-year renewal terms upon mutual agreement between the parties thereto. Pursuant to the terms of the Agreement, Glenmark will supply crofelemer to the Company. The Agreement contains provisions regarding the rights and responsibilities of the parties with respect to manufacturing specifications, forecasting and ordering, delivery arrangements, payment terms, confidentiality and indemnification, as well as other customary provisions. The Agreement includes a commitment for the purchase from Glenmark of a minimum quantity of 300 kilograms of crofelemer per year, pro-rated for partial years, where the Company may be obligated to pay any shortfall. Either party may terminate the Agreement for any reason with 12 months prior written notice to the other party. In addition, either party may terminate the Agreement upon written notice as a result of a material breach of the Agreement that remains uncured for a period of 90 days. If the Company terminates the Agreement as a result of a material breach caused by Glenmark, the Company will not be obligated to pay for any minimum quantity shortfall.

Master Services Agreement ("MSA")

On June 24, 2019, the Company entered into an MSA for clinical research organization services (the "2019 MSA") and a service order under such 2019 MSA with Integrium, LLC ("Integrium"). The service order supports the Company's study to evaluate the effect of Mytesi on gastrointestinal microbiome in people living with HIV. The 2019 MSA will terminate upon the satisfactory performance of all services to be provided thereunder unless earlier terminated by the parties.

On October 5, 2020, the Company entered into another MSA for clinical research organization services (the "2020 MSA") and a service order under such 2020 MSA with Integrium. The service order covers the Company's planned upcoming pivotal Phase 3 clinical trial for cancer-therapy related diarrhea. As consideration for its services, the Company will pay Integrium a total amount of up to approximately $12.4 million that will be paid over the term of the engagement and based on the achievement of certain milestones. The 2020 MSA will terminate upon the satisfactory performance of all services to be provided thereunder unless earlier terminated by the parties.

Angel Pond Agreement

In October 2019, the Company engaged Angel Pond Capital LLC to explore potential licensing agreements and collaborations for Mytesi in China. In consideration of these services, the Company compensated Angel Pond Capital LLC with $140,000, paid via the issuance of 166,667 shares of the Company's common stock, for the initial four-month term of the agreement. The Company had the option to extend the agreement term for two months for $30,000 payable in shares of the Company's common stock. As of December 31, 2020, no qualifying amounts were raised in China and no amounts are owed to Angel Pond as compensation. The Company did not extend the agreement with Angel Pond Capital LLC and it has expired.

Asset Transfer and Transition Commitment Update

On September 25, 2017, Napo entered into the Termination, Asset Transfer and Transition Agreement dated September 22, 2017 with Glenmark. As a result of the agreement, Napo now controls commercial rights for Mytesi for all indications, territories and patient populations globally, and also holds commercial rights to the existing regulatory approvals for crofelemer in Brazil, Ecuador, Zimbabwe and Botswana. In exchange, Napo agrees to pay Glenmark 25% of any payment it receives from a third party to whom Napo grants a license or sublicense or with whom Napo partners in respect of, or sells or otherwise transfers any of the transferred assets, subject to certain exclusions, until Glenmark has received a total of $7.0 million. No payments have been made to date.

Revenue Sharing Commitment Update

On December 14, 2017, the Company announced its entry into a collaboration agreement with Seed Mena Businessmen Services LLC ("SEED") for Equilevia™, the Company's non-prescription, personalized, premium product for total gut health in equine athletes. According to the terms of the Agreement, the Company will pay SEED 15% of total revenue generated from any clients or partners introduced to the Company by SEED in the form of fees, commissions, payments or revenue received by the Company or its business associates or partners, and the agreed-upon revenue percentage increases to 20% after the first million dollars of revenue. In return, SEED will provide the Company access to its existing United Arab Emirates ("UAE") network and contacts and assist the Company with any legal or financial requirements. The agreement became effective on December 13, 2017 and will continue indefinitely until terminated by either party pursuant to the terms of the Agreement. No payments have been made to date.

Legal Proceedings

On July 20, 2017, a putative class action complaint was filed in the United States District Court, Northern District of California, Civil Action No. 3:17-cv-04102, by Tony Plant (the "Plaintiff") on behalf of shareholders of the Company who held shares on April 12, 2017 and were entitled to vote at the 2017 Special Shareholders Meeting, against the Company and certain individuals who were directors as of the date of the vote (collectively, the

"Defendants"), in a matter captioned Tony Plant v. Jaguar Animal Health, Inc., et al. (Jaguar Health, Inc. was formerly known as Jaguar Animal Health, Inc.), making claims arising under Section 14(a) and Section 20(a) of the Exchange Act and Rule 14a-9, 17 C.F.R. § 240.14a-9, promulgated thereunder by the SEC. The claims alleged false and misleading information provided to investors in the Joint Proxy Statement/Prospectus on Form S-4 (File No. 333-217364) declared effective by the Commission on July 6, 2017 related to the solicitation of votes from shareholders to approve the merger and certain transactions related thereto. The Company accepted service of the complaint and summons on behalf of itself and the United States-based director Defendants on November 1, 2017. The Company has not accepted service on behalf of, and Plaintiff has not yet served, the non-U.S.-based director Defendants.

By order dated September 20, 2018, the court dismissed the lawsuit for failure to state a claim. Plaintiff was entitled to amend that complaint within 20 days from the date of dismissal. On October 10, 2018, Plaintiff filed a second amended complaint to focus on the Company's commercial strategy in support of Equilevia and the related disclosure statements in the Form S-4 described above. On November 6, 2018, the Defendants moved to dismiss the second amended complaint. The court denied the Defendants' motion to dismiss on June 28, 2019. The Company answered the second amended complaint on August 2, 2019; the answer denied the material allegations of the second amended complaint. Following the completion of document discovery, the parties engaged in a mediation that resulted in an agreement in principle to settle the litigation on a class-wide basis for $2.6 million, subject to court approval. Plaintiff filed a motion for preliminary approval of the proposed settlement on December 30, 2020. The court preliminarily approved the proposed settlement, and authorized Plaintiff to provide settlement class members with notice of the proposed settlement, in an order dated February 2, 2021. The final settlement approval hearing is currently scheduled for May 27, 2021.

Assuming that the court gives final approval to the proposed settlement following the final settlement approval hearing, the entire settlement consideration will be provided by the Company's director and officer liability insurance carrier. Under the loss recovery model in ASC 450 and in reference to ASC 410, the ultimate net income effect of the recognized loss and the insurance proceeds directly related to the recognized loss is zero. As of
December 31, 2020, the Company concluded not to record any loss contingency and insurance recovery.

Settlement of Underwriter Fee

In August 2018, the Company entered into an agreement with an underwriter pursuant to which the underwriter would aid the Company in identifying certain financing transactions, in exchange for a percentage fee of any such financing and warrants. In the first quarter of 2020, the Company and the underwriter agreed on a final settlement for the underwriter services comprised of a cash payment, warrants and common stock. The cash payment amount totaled $387,000, of which $202,000 had been paid in 2019, and $185,000 was paid in 2020. The total warrant issuance payment consisted of the Company issuing 1,096 equity-classified warrants to the underwriter in 2018 and, in 2020, issuing an additional 100,780 equity-classified warrants (see Note 8) to the underwriter to purchase shares of common stock at an exercise price of $2.50 per share. The common stock issuance payment consisted of the Company issuing 100,000 shares of the Company's common stock to the underwriter with a value of $45,000 in 2020. The Company classified the cash payments, warrant and commons stock issuance payments as issuance costs in the consolidated statements of stockholders' equity.

Severance Agreements

In June 2020, the Company entered into certain agreements relating to the payment of severance and other benefits to executive officers of the Company, the severance agreements provide for compensation and benefits if the executive officer is subject to (a) a termination of employment by the Company without cause or (b) a good reason termination, within three months following a change in control.

Contingencies

From time to time, the Company may be involved in legal proceedings (other than those noted above) 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.

6. Balance Sheet Components

Inventory

Inventory at December 31, 2020 and 2019 consisted of the following:

	December 31,	
(in thousands)	2020	2019
Raw Material	$ 1,321	$ 457
Work in Process	1,026	1,211
Finished Goods	435	461
Inventory	$ 2,782	$ 2,129

Property and Equipment, net

Property and equipment at December 31, 2020 and 2019 consisted of the following:

	December 31,	
(in thousands)	2020	2019
Land	$ 396	$ 396
Lab equipment	418	411
Clinical equipment	65	65
Software	63	63
Total property and equipment at cost	942	935
Accumulated depreciation	(265)	(225)
Property and equipment, net	$ 677	$ 710

Depreciation and amortization expense was $40,000 and $50,000 for the years ended December 31, 2020 and 2019, respectively.

Intangible assets, net

Intangible assets, net of amortization, at December 31, 2020 and 2019 consisted of the following:

(in thousands)	December 31, 2020	2019
Developed technology	$ 25,000	$ 25,000
Accumulated developed technology amortization	(5,694)	(4,028)
Developed technology, net	19,306	20,972
In-process research and development	4,800	8,800
Impairment	—	(4,000)
In process research and development, net	4,800	4,800
Trademarks	300	300
Accumulated trademark amortization	(69)	(48)
Trademarks, net	231	252
Total intangible assets, net	$ 24,337	$ 26,024

In June 2019, the Company determined that in-process research and development was impaired and recorded an impairment loss of $4.0 million in the consolidated statement of operations for the year ended December 31, 2019. Amortization expense of finite-lived intangibles was $1.7 million for the years ended December 31, 2020 and 2019.

The following table summarizes the Company's estimated future amortization expense of intangible assets with finite lives as of December 31, 2020:

(in thousands)	Amounts
2021	$ 1,687
2022	1,687
2023	1,687
2024	1,687
2025	1,687
Thereafter	11,102
	$ 19,537

Accrued Liabilities

Accrued liabilities at December 31, 2020 and 2019 consisted of the following:

(in thousands)	December 31, 2020	2019
Accrued vacation	$ 277	$ 273
Accrued payroll and commission	43	111
Accrued payroll tax	57	52
Accrued interest	696	357
Accrued consulting	31	257
Accrued distributor services fees	1,314	227
Accrued legal costs	291	292
Accrued audit and tax services	70	189
Accrued chargebacks and discounts	736	337
Accrued other	978	827
Total	$ 4,493	$ 2,922

7. Debt

Convertible Debt

June 2017 Convertible Debt

On June 29, 2017, the Company issued a secured convertible promissory note to CVP, in the aggregate principal amount of $2.2 million less an original issue discount of $425,000 and less $30,000 to cover the lender's legal fees for net cash proceeds of $1.7 million (the “June 2017 Note”). Interest on the outstanding balance will be paid 8% per annum from the purchase price date until the balance is paid in full.

On August 2, 2018, the Company and CVP agreed to an amendment extending the maturity date to August 26, 2019, and limiting the aggregate amount that CVP is permitted to redeem on a monthly basis to $500,000, which is the maximum aggregate redemption amount for all notes outstanding with CVP. This amendment resulted in the Company accounting for the transaction as a TDR. Between October 2018 and December 2018, the Company and CVP renegotiated the terms of the June 2017 Note agreement such that CVP agreed not to make any redemptions of the June 2017 Note until March 2019. The restructurings in whole represented four separate restructurings of the June 2017 Note agreement, resulting in two TDRs accounted for under ASC 470-60 and two modifications accounted for under ASC 470-50.

In May 2019, the Company and CVP amended the June 2017 Note agreement such that the Company made three separate exchanges of principal and related accrued interest for shares of the Company’s common stock. The first two exchanges of principal and accrued interest for common stock were not considered a substantial change to the June 2017 Note and therefore resulted in modification accounting and the determination of a new effective interest rate; the third exchange on May 29, 2019 resulted in the extinguishment of the entire June 2017 Note with a corresponding extinguishment loss of $8,000. At December 31, 2019, the June 2017 Note had been fully extinguished.

Napo Convertible Notes

December 2016 Convertible Debt

In December 2016, Napo entered into a note purchase agreement which provided for the sale of up to $12.5 million face amount of notes and issued convertible promissory notes (the “Napo December 2016 Notes”) in the aggregate face amount of $2.5 million to three lenders and received proceeds of $2.0 million which resulted in $500,000 of original issue discount. In July 2017, Napo issued convertible promissory notes (the “Napo July 2017 Notes”) in the aggregate face amount of $7.5 million to four lenders and received proceeds of $6.0 million which resulted in $1.5 million of original issue discount. The Napo December 2016 Notes and the Napo July 2017 Notes mature on December 30, 2019 and bear interest at 10% with interest due each six-month period after December 30, 2016. On June 30, 2017, the accrued interest of $125,000 was added to principal of the Napo December Notes, and the new principal balance became $2.6 million. Interest may be paid in cash or in the stock of Jaguar per terms of the note purchase agreement. In each one year period beginning December 30, 2016, up to one-third of the principal and accrued interest on the notes may be converted into the common stock of the merged entity at a conversion price of $64.75 per share. The Company assumed these convertible notes at fair value of $11.2 million as part of the Napo Merger. The $1.0 million difference between the fair value of the notes and the principal balance was being amortized over the twenty-nine (29) month period from July 31, 2017 to December 31, 2019. Interest expense is paid every nine months through the issuance of common stock. On March 16, 2018, $535,000 of interest accrued through January 31, 2018 and $170,000 of certain legal expenses were paid through the issuance of 4,081 shares of the Company's common stock. In August 2018, the Company paid $480,000 of accrued interest through July 31, 2018 with the issuance of 4,582 shares of the Company’s common stock. In January 2019, $447,000 of accrued interest was paid through the issuance of 19,751 shares of the Company's common stock.

Extinguishment and Exchange of the Napo Convertible Notes

In May 2019, in a restructuring of the Notes, CVP acquired the Napo December 2016 and Napo July 2017 Notes, as well as all rights thereof, and immediately extinguished the two Notes; in their place, the Company issued to CVP a new note ("Exchange Note 1"). At December 31, 2019, the balances of the Napo December 2016 and Napo July 2017 Notes were zero.

Concurrent with the restructuring, CVP also entered into security agreements with Jaguar (the "Jaguar Security Agreement") and Napo (the "Napo Security Agreement", and together with the Jaguar Security Agreement, the "Security Agreements"), pursuant to which CVP will receive (i) a security interest in substantially all of the Company's assets as security for the Company's obligations under Exchange Note 2 and (ii) a security interest in substantially all of Napo's assets as security for Napo's obligations under Exchange Note 1 and Exchange Note 2. Notwithstanding the foregoing, (a) the amount owing under Exchange Note 2 will not be considered part of the obligations secured by the Napo Security Agreement and (b) the security interest granted under the Jaguar Security Agreement will be automatically terminated and released upon Jaguar's receipt of a waiver from such third party.

Notes Payable

Notes Payable at December 31, 2020 and December 31, 2019 consisted of the following:

(in thousands)	December 31, 2020	2019
Exchange Note 1	$ —	$ 4,381
Exchange Note 2	1,525	2,297
Insurance Premium Financing	95	—
Tempesta Note Payable	450	550
Royalty Interest	30,000	—
Oasis Secured Borrowing	1,822	—
	33,892	7,228
Less: unamortized discount and debt issuance costs	(17,682)	—
Note payable, net of discount	$ 16,210	$ 7,228
Notes payable - non-current, net	$ 12,421	$ 450
Notes payable - current, net	$ 3,789	$ 6,778

Future maturities of the notes payable as of December 31, 2020 are as follows:

(in thousands)	Total
Years ended December 31,	
2021	$ 4,010
2022	5,211
2023	13,795
2024	10,826
2025	50
	33,892
Less: debt discount	(17,682)
Total	$ 16,210

Future maturities are based on contractual minimum payments. Timing of maturities may fluctuate based on

future revenue.

December 2017 Note

On December 8, 2017, the Company entered into a securities purchase agreement with CVP pursuant to which the Company issued a promissory note (the "December 2017 Note") in the aggregate principal amount of $1.6 million for an aggregate purchase price of $1.1 million. The December 2017 Note carried an original issue discount of $463,000, and the initial principal balance also included $25,000 to cover CVP's transaction expenses. The Company used the proceeds for general corporate purposes. The December 2017 Note bore interest at the rate of 8% per annum and had an original maturity date of September 8, 2018.

On August 2, 2018, the Company and CVP amended the December 2017 Note agreement, extending the maturity date from September 8, 2018 to August 26, 2019, and limiting the aggregate amount that CVP is permitted to redeem on a monthly basis to $500,000, which amount was the maximum aggregate amount for the Notes collectively. This amendment resulted in the Company accounting for the transaction as a TDR.

Between October 2018 and December 2018, the Company and CVP renegotiated the terms of the December 2017 Note agreement such that CVP agreed not to make any redemptions of the December 2017 Note until March 2019. The modifications in whole represented four separate restructurings of the December 2017 Note agreement, resulting in two TDR accounted for under ASC 470-60 and two modifications accounted for under ASC 470-50.

In March 2019, the Company and CVP amended the December 2017 Note agreement such that the Company prepaid principal and accrued interest of $811,000 and $179,000, respectively, in shares of the Company's common stock. The exchange of debt for common stock was considered a substantial change to the December 2017 Note and therefore, the exchange resulted in extinguishment accounting and a corresponding extinguishment loss of $243,000.

For the year ended December 31, 2019, the Company recorded a loss on extinguishment of $363,061 for the December 2017 Note.

In April 2019, the Company and CVP amended the December 2017 Note agreement such that the Company made two separate exchanges of principal and related accrued interest for shares of the Company's common stock. The first exchange resulted in changes to cash flows that were considered substantial, resulting in extinguishment accounting with an extinguishment loss of $100,000; the second exchange on April 17, 2019 resulted in the extinguishment of the entire December 2017 Note with a corresponding extinguishment loss of $19,000. At
December 31, 2019, the December 2017 Note had been fully extinguished.

February 2018 Note

On February 26, 2018, the Company entered into a securities purchase agreement with CVP, pursuant to which the Company issued to CVP a promissory note (the "February 2018 Note") in the aggregate principal amount of $2.2 million for an aggregate purchase price of $1.6 million. The February 2018 Note carried an original issue discount of $656,000, and the initial principal balance also included $25,000 to cover CVP's transaction expenses. The Company used the proceeds for general corporate purposes and working capital. The February 2018 Note bore interest at the rate of 8% per annum and had an original maturity date of August 26, 2019.

Between October 2018 and December 2018, the Company and CVP renegotiated the terms of the February 2018 Note agreement such that CVP agreed not to make any redemptions of the February 2018 Note until March 2019. The modifications in whole represented four separate restructurings of the February 2018 Note agreement, resulting in a debt extinguishment accounted for under ASC 470-50, two TDR accounted for under ASC 470-60 and a debt modification accounted for under ASC 470-50.

In March 2019, the Company and CVP amended the February 2018 Note agreement such that the Company prepaid principal and accrued interest of $2.0 million and $204,000, respectively, in shares of the Company's common stock. The exchange of debt for common stock was considered a substantial change to the February 2018 Note and therefore, the exchange resulted in extinguishment accounting and a corresponding extinguishment loss of $488,000.

In April 2019, the Company and CVP amended the February 2018 Note agreement such that the Company made a single exchange of principal and related accrued interest for shares of the Company's common stock. The first exchange on April 16, 2019 resulted in the extinguishment of the entire February 2018 Note with a corresponding extinguishment loss of $38,000. At December 31, 2019, the February 2018 Note had been fully extinguished.

March 2018 Note

On March 21, 2018, the Company entered into a securities purchase agreement with CVP, pursuant to which the Company issued to CVP a promissory note (the "March 2018 Note") in the aggregate principal amount of $1.1 million for an aggregate purchase price of $750,000. The March 2018 Note carried an original issue discount of $315,000, and the initial principal balance also included $25,000 to cover CVP's transaction expenses. The Company used the proceeds to fully repay certain prior secured and unsecured indebtedness. The March 2018 Note bore interest at the rate of 8% per annum and had an original maturity date of September 21, 2019.

Between October 2018 and December 2018, the Company and CVP renegotiated the terms of the March 2018 Note agreement such that CVP agreed not to make any redemptions of the March 2018 Note until March 2019. The modifications in whole represented four separate restructurings of the March 2018 Note agreement, resulting in a debt extinguishment accounted for under ASC 470-50, two TDR accounted for under ASC 470-60, and a debt modification accounted for under ASC 470-50.

Between January 2019 and March 2019, the Company and CVP amended the March 2018 Note agreement such that the Company prepaid principal and accrued interest of $1.1 million and $86,000, respectively, in shares of the Company's common stock. These exchanges in whole represented four separate prepayments of principal and accrued interest, resulting in three debt extinguishments and one debt modification. For the debt extinguishments, the Company recorded an aggregate extinguishment loss of $1.2 million. For the modification, a new effective rate was determined at the date of modification that equated the revised cash flows to the carrying amount of the March 2018 Note. At December 31, 2019, the March 2018 Note had been fully extinguished.

2019 Bridge Notes

Between March 18, 2019 and June 26, 2019, the Company entered into Promissory Note Purchase Agreements with certain accredited investors under which the Company issued (i) fourteen promissory notes with a principal balance of $3.6 million and warrant coverage at 125% of principal, and (ii) seven promissory notes with a principal balance of $1.5 million and warrant coverage at 75% of principal. Collectively, cash proceeds from the twenty-one promissory notes (collectively, the "2019 Bridge Notes") was $5.0 million. The 2019 Bridge Notes were not convertible and bore interest at 12% with a maturity date of July 18, 2019, at which date all principal and accrued interest were due. The exercise price of the warrants was either (i) the price the Company issued common shares in its next public offering subject to a registration statement or (ii) if no such offering was consummated by the four-month maturity date of the 2019 Bridge Notes, then the exercise price would be equal to the closing price of the Company's common stock on the 2019 Bridge Notes' four-month maturity date. The warrants were valued using the Black-Scholes-Merton option pricing model as follows: range of stock prices between $4.84 and $32.90, a range of strike prices between $4.84 and $32.90 per share, an expected term of 5.0 years, a range of volatilities between 145.60% and 145.72%, and a range of risk-free discount rates between 1.76% and 2.23%. The warrants for all twenty-one Bridge Notes had an issuance date fair value of $5.0 million which was recorded as a discount to the 2019 Bridge Notes and amortized to interest expense.

Between May and early July 2019, the Company and the 2019 Bridge Note investors extended the maturity date of the 2019 Bridge Notes from July 18, 2019 to July 31, 2019, or an addition of thirteen days; this amendment to

the terms of the Promissory Note Purchase Agreements was accounted for as modification resulting to a new effective interest rate.

On July 23, 2019, the Company paid-off all twenty-one 2019 Bridge Notes prior to maturity. The Company paid cash of $5.2 million, or $5.0 million of principal and $143,000 of accrued interest. The extinguishment of the 2019 Bridge Notes resulted in an extinguishment loss of $336,000.

Exchange Notes

In May 2019, the Company and CVP entered into an Exchange Agreement whereby CVP purchased the two outstanding Napo convertible notes and all rights thereof from the current debt holders. Subject to the terms of the Exchange Agreement, CVP and the Company agreed to exchange the two Napo convertible notes for Exchange Note 1. At the exchange date, the principal balance of the two Napo convertible notes was $10.1 million, or $10.5 million inclusive of accrued but unpaid interest of $411,000. The beginning principal balance of Exchange Note 1 was $10.5 million, or equal to the principal balance of the two Napo convertible notes and accrued interest thereon. The maturity date of Exchange Note 1 was December 31, 2020, with an interest rate of 10%. Per the terms of the Exchange Agreement, CVP agreed to extend the maturity date of Exchange Note 1 from December 31, 2019 (the same maturity date carried over from the two Napo convertible notes) to December 31, 2020; in consideration of this extension, the Company issued Exchange Note 2 with a principal balance of $2.3 million. The maturity date of Exchange Note 2 is December 31, 2020, with an interest rate of 10%. The exchange of the two outstanding Napo convertible notes for Exchange Note 1 and Exchange Note 2 resulted in a loss on extinguishment of $2.0 million.

Between May 2019 and July 2019, the Company and CVP entered into note exchange agreements pursuant to which the Company made prepayments of principal and related accrued interest of $6.2 million and $90,000, respectively, in lieu of making cash payments to CVP on Exchange Note 1, by issuing 1,119,440 shares of the Company's common stock to CVP. For the year ended December 31, 2019, the Company recorded a loss on the extinguishment of $429,000 for Exchange Note 1.

Between September 2020 and November 2020, the Company and CVP entered into a series of note exchange agreements pursuant to which the Company made prepayments of principal and related accrued interest of an aggregate amount of $5.0 million, in lieu of making cash payments to CVP on Exchange Note 1, by issuing a total of 20,221,724 shares of the Company's common stock to CVP. The series of exchanges was accounted for as an extinguishment which resulted in a loss of $560,000. As of December 31, 2020 and 2019, the carrying value of Exchange Note 1 is $0 and $4.4 million, respectively.

In September 2020, the Company and CVP also entered into a global amendment agreement, pursuant to which the maturity date of Exchange Note 2 is extended to December 31, 2021. In consideration of CVP's grant of extension, together with the related fees and other accommodation set forth, principal debt was increased by 5% of the outstanding balance of Exchange Note 2, which was $2.6 million as of the global amendment date. The global amendment requires redemption of Series D Perpetual Preferred Stock prior to payment of principal of Exchange Note 2. The Company determined the incremental value of cash flows amounting to $228,000 with the assistance of an independent valuation service provider, based on weighted probability assumptions of various settlement conditions and penalties stipulated in the contract therein. The global amendment agreement was accounted for as a modification; hence a new effective rate was determined at the date of modification that equated the revised cash flows to the carrying amount of the note.

Pursuant to the global amendment agreement, the Company issued 842,500 shares of Series D Perpetual Preferred Stock. The Series D Perpetual Preferred shares are redeemable upon the option or discretion of the Company. The Series D Perpetual Preferred stockholders are entitled to receive 8% cumulative stock dividends, to be payable in arrears on a monthly basis for 24 consecutive months. Dividends payable on the Series D perpetual preferred shares shall be payable through the Company's issuance of Series D Perpetual Preferred share by delivering to each record holder the calculated number of payment-in-kind ("PIK") dividend shares. The Series D Perpetual Preferred shares were classified as liability and were measured at fair value using the income approach, which considered the weighted probability of discounted cash flows at various scenarios of redemption and perpetual holding

of the shares. The Company determined the fair value of $6.4 million at contract inception date with the assistance of an independent valuation service provider to be based on discounted cash flows representing the settlement value of the shares and cumulative dividends issued using an effective borrowing rate of 12% to 15% adjusted for counterparty and a maturity date of September 30, 2021. In consideration of the global amendment agreement, no principal payment shall be made to the Exchange Note 2 until the redemption of Series D Perpetual Preferred shares. Due to the restrictive nature of the timing of cash outflows in response to the settlement of the Exchange Note 2, Series D Perpetual Preferred shares are implicitly deemed to be mandatorily redeemable upon the ultimate settlement of the outstanding balance of Exchange Note 2. The shares are redeemable at $8.00 per share on or before December 31, 2024, the date in which contractual cash outflows of the Exchange Note 2 require the entire settlement or redemption of the Series D Perpetual Preferred shares. In December 2020, the Company entered into a series of exchange agreements with a stockholder pursuant to which the Company agreed to issue a total of 15,889,871 shares of common stock in exchange for redeeming 859,348 shares of Series D Perpetual Preferred Stock. The series of exchanges was accounted for as an extinguishment which resulted to a loss amounting to $1.3 million. This is included in loss on extinguishment of debt and conversion of Series D Perpetual Preferred Stock on the statement of operations as of December 31, 2020. As of December 31, 2020, there were no Series D Perpetual Preferred shares outstanding.

In December 2020, the Company and CVP entered into a note exchange agreement to which the Company made a prepayment of principal amounting to $1.0 million, in lieu of making cash payments to CVP on Exchange Note 2, by issuing 1,250,000 shares of the Company’s common stock to CVP on December 31, 2020. The exchange agreement was accounted for as a modification.

As of December 31, 2020 and 2019, the carrying value of Exchange Note 2, net of discount, was $1.4 million and $2.3 million, respectively.

Insurance Premium Financing

In May 2020, the Company entered into a financing agreement for $873,000 for a portion of the Company’s annual insurance premiums. The balance is due in monthly installments over 9 months with an annual interest rate of 4.15%. The financing balance was $95,000 as of December 31, 2020.

2019 Tempesta Note

In October 2019, the Company entered into a License Termination and Settlement Agreement with Dr. Michael Tempesta, pursuant to which certain royalty payment disputes between Napo and Tempesta were settled. Per the terms of the Agreement, Tempesta received $50,000 in cash, an unsecured promissory note issued by the Company in the aggregate principal amount of $550,000 and 40,000 shares of the Company’s common stock in exchange for the cessation of all royalty payments by Napo to Dr. Tempesta under the License Agreements. The $550,000 promissory note bears interest at the rate of 2.5% per annum and matures on March 1, 2025. The promissory note provides for the Company to make semiannual payments equal to $50,000 plus accrued interest beginning on March 1, 2020 until the Note is paid in full. At December 31, 2020 and 2019, the net carrying value of the Tempesta note was $450,000 and $550,000 respectively.

Sale of Future Royalty Interest

March 2020 Purchase Agreement

In March 2020, the Company entered into a royalty interest purchase agreement (the “March 2020 Purchase Agreement”) with Iliad, pursuant to which the Company sold to Iliad a royalty interest entitling Iliad to receive $500,000 of future royalties on sales of Mytesi and certain up-front license fees and milestone payments from licensees and/or distributors (the “Royalty Repayment Amount”) for an aggregate purchase price of $350,000.

Until such time as the Royalty Repayment Amount has been paid in full, the Company will pay Iliad ten percent (10%) of the Company's Net Sales on Included Products and ten percent (10%) of worldwide revenues related to upfront licensing fees and milestone payments from licensees and/or distributors, but specifically excluding licensing fees and/or milestone payments that are reimbursements of clinical trial expenses (the "Royalty Payments"). Beginning on the six-month anniversary of the Purchase Price Date and continuing until the 12-month anniversary of the Purchase Price Date, the monthly Royalty Payment shall be the greater of (a) $25,000, and (b) the actual Royalty Payment amount Iliad is entitled to for such month. Beginning on the 12-month anniversary of the Purchase Price Date and continuing until the Revenue Repayment Amount has been paid in full, the monthly Royalty Payment shall be the greater of (a) $44,000 and (b) the actual Royalty Payment amount Iliad is entitled to for such month.

The Royalty Interest amount of $500,000 is classified as debt, net of a $150,000 discount. Under ASC 470-10-35-3, royalty payments to Iliad will be amortized under the interest method per ASC 835-30. Because there is no set interest rate, and because the royalty payments are variable, the discount rate is variable. After each royalty payment, the Company will use a prospective method to determine a new discount rate based on the revised estimate of remaining cash flows. The new rate is the discount rate that equates the present value of the revised estimate of remaining cash flows with the carrying amount of the debt, and it will be used to recognize interest expense for the remaining periods. At issuance, based on projected cash outflows from future revenue streams, the discount rate was 105%.

On July 10, 2020, the Company and Iliad entered into an amendment to the March 2020 Purchase Agreement to which the parties agreed that no royalty payments or other payment will be due prior to December 10, 2020. The Royalty Payments shall resume as of December 10, 2020, which Royalty Payment will cover Net Sales on Included Products and licensing fees and milestone payments for the month of November. In consideration of the amendment, the balance of the Royalty Repayment Amount as of July 10, 2020 was increased by 10%. All other terms remain unchanged. This amendment resulted in the Company accounting for the transaction as a TDR, under which the carrying amount of the debt remained unchanged but interest expense is computed using a new effective rate that equates the present value of future cash payments specified by the new terms with the carrying amount of the debt. Subsequent to March 2020, the Company had paid $283,000 of the $500,000 Royalty Interest Amount.

In November 2020, the Company and Iliad entered into an exchange agreement pursuant to which the Company issued 1,314,974 shares of common stock in exchange for the outstanding balance of the debt as of November 16, 2020. The exchange agreement was accounted for as a TDR.

As of December 31, 2020, the carrying amount of the debt is zero.

October 2020 Purchase Agreement

On October 8, 2020, the Company entered into another royalty interest purchase agreement (the "October 2020 Purchase Agreement") with Iliad, pursuant to which the Company sold to Iliad a royalty interest entitling Iliad to receive $12.0 million of future royalties on sales of Mytesi and certain up-front license fees and milestone payments from licensees and/or distributors (the "Royalty Repayment Amount") for an aggregate purchase price of $6.0 million.

Until such time as the Royalty Repayment Amount has been paid in full, the Company will pay Iliad 10% of the Company's net sales on included products and 10% of worldwide revenues related to upfront licensing fees and milestone payments from licensees and/or distributors, but specifically excluding licensing fees and/or milestone payments that are reimbursements of clinical trial expenses (the "Royalty Payments"). Beginning on the six-month anniversary of the delivery of the October 2020 Purchase Agreement to the Company (the "Purchase Price Date") and continuing until the 12-month anniversary of the Purchase Price Date, the monthly Royalty Payment shall be the greater of (a) $250,000, and (b) the actual Royalty Payment amount Iliad is entitled to for such month. Beginning on the 12-month anniversary of the Purchase Price Date and continuing until 18-month anniversary of the Purchase Price Date, the monthly Royalty Payment shall be the greater of (a) $400,000 and (b) the actual Royalty Payment amount Iliad is entitled to for such month. Beginning on the 18-month anniversary of the Purchase Price Date and continuing until 24-month anniversary of the Purchase Price Date, the monthly Royalty Payment shall be the greater of (a) $600,000 and (b) the actual Royalty Payment amount Iliad is entitled to for such month. Beginning on the 24-month

anniversary of the Purchase Price Date and continuing until the Royalty Repayment Amount has been paid in full, the monthly Royalty Payment shall be the greater of (a) $750,000, and (b) the actual Royalty Payment amount Iliad is entitled to for such month.

The Royalty Interest amount of $12.0 million is classified as debt, net of a $6.0 million discount. Under ASC 470-10-35-3, royalty payments to Iliad will be amortized under the interest method per ASC 835-30. Because there is no set interest rate, and because the royalty payments are variable, the discount rate is variable. After each royalty payment, the Company will use a prospective method to determine a new discount rate based on the revised estimate of remaining cash flows. The new rate is the discount rate that equates the present value of the revised estimate of remaining cash flows with the carrying amount of the debt, and it will be used to recognize interest expense for the remaining periods. At issuance, based on projected cash outflows from future revenue streams, the discount rate was 34.51%.

Pursuant to the October 2020 Purchase Agreement, if the weekly volume weighted average price ("VWAP") of the Company's common stock is not equal or greater than the minimum VWAP of $0.3035 at least twice during each calendar month during the six-month period beginning on November 1, 2020, then the Royalty Repayment Amount will be automatically be increased by $6.0 million at the end of such six-month period. During the observation period starting November 1, 2020, the Company's weekly VWAP failed to reach the minimum VWAP of $0.3035 and on November 13, 2020, the Company concluded that the contingent clause has been met, warranting an additional $6.0 million Royalty Repayment Amount, to be added to the outstanding balance commencing on May 10, 2021 for the purpose of cash interest calculation. The change in the Royalty Repayment Amount was accounted for as a debt modification and resulted in a new discount rate of 45.42%. As of December 31, 2020, royalty payments did not start yet, hence the discount rate remained at 45.42%.

As of December 31, 2020, the carrying value of the debt is $6.3 million.

December 2020 Purchase Agreement

On December 22, 2020, the Company entered into a royalty interest purchase agreement (the "December 2020 Purchase Agreement") with Irving Park Capital, LLC ("Irving"), pursuant to which the Company sold to Irving a royalty interest entitling Irving to receive $12.0 million of future royalties on sales of Mytesi and certain up-front license fees and milestone payments from licensees and/or distributors (the "Royalty Repayment Amount") for an aggregate purchase price of $6.0 million.

Until such time as the Royalty Repayment Amount has been paid in full, the Company will pay Irving 10% of the Company's Net Sales on Included Products and 10% of worldwide revenues related to upfront licensing fees and milestone payments from licensees and/or distributors, but specifically excluding licensing fees and/or milestone payments that are reimbursements of clinical trial expenses (the "Royalty Payments"). Beginning on the payment start date and continuing until the 12-month anniversary of the Purchase Price Date, the monthly Royalty Payment shall be the greater of (a) $750,000, and (b) the actual Royalty Payment amount Irving is entitled to for such month.

The Royalty Interest amount of $12.0 million is classified as debt, net of a $6.0 million discount. Under ASC 470-10-35-3, royalty payments to Irving will be amortized under the interest method per ASC 835-30. Because there is no set interest rate, and because the royalty payments are variable, the discount rate is variable. After each royalty payment, the Company will use a prospective method to determine a new discount rate based on the revised estimate of remaining cash flows. The new rate is the discount rate that equates the present value of the revised estimate of remaining cash flows with the carrying amount of the debt, and it will be used to recognize interest expense for the remaining periods. At issuance, based on projected cash outflows from future revenue streams, the discount rate was 23.70%. As of December 31, 2020, royalty payments did not start yet, hence the discount rate remained at 23.70%.

As of December 31, 2020, the carrying value of the debt is $6.0 million.

Oasis Secured Borrowing

The Purchase Agreement

In May 2020, the Company, entered into a one-year Accounts Receivable Purchase Agreement (the "Purchase Agreement") with Oasis Capital ("Oasis"), pursuant to which Oasis may from time to time at its discretion purchase accounts receivable of the Company on a recourse basis, at a purchase price equal to 37.5% of the face amount of the first purchase, and at a purchase price equal to 42.5% for subsequent purchased accounts ("Purchase Price"). With respect to purchased accounts, in the event that Oasis receives more than an amount equal to the sum of (i) the face amount of such purchased account multiplied by 0.0545 and (ii) the Purchase Price (such amount, the "Threshold Price") from collection on such purchased accounts, then Oasis will return any such excess overage amount (the "Overage") to the Company, as applicable, within five days after Oasis's receipt thereof.

In the event Oasis does not receive at least the Threshold Price for a purchased account on or before such account becomes due and payable, the Company will, at Oasis's election, be obligated to either (i) pay the difference between the Threshold Price and the amount received by Oasis for such account (the "Shortfall") within 30 days thereof, or (ii) assign or transfer to Oasis additional accounts receivable with a Purchase Price equal to (A) the Shortfall plus (B) an amount equal to 25% of the Shortfall (the "Additional Amount").

The initial term of the Purchase Agreement is one year, which will automatically renew for successive one-year periods unless notice of non-renewal is provided by the Company at least 30 days prior to the expiration of a term. Notwithstanding the foregoing, either Oasis or the Company may terminate the Purchase Agreement on 60 days prior written notice. Under the Purchase Agreement, Oasis is entitled to a transaction fee of $25,000 and may be entitled to additional transaction fees to the extent Oasis acquires additional accounts receivable under the Purchase Agreement, which fees will not exceed $5,000 per transaction.

Per the Purchase Agreement, the Company will service and administer the purchased accounts receivable for Oasis. Oasis appointed the Company to be its agent and servicer for monitoring and collecting the accounts receivable subject to the terms of the Purchase Agreement. The Company will perform its duties in a commercially reasonable manner and agrees that Company will not commence any legal action with respect to such servicing and collection efforts and shall not terminate, discharge, discount or write off any accounts receivable without Oasis's prior written consent.

The Company, having determined that it did not meet the criteria per ASC 860-10-40-5 to account for the transactions under the Purchase Agreement as sales, accounts for such transactions as secured borrowings in accordance with ASC 860-30, "Transfers – Secured Borrowings and Collateral."

May 2020 Oasis Secured Note - Tranche #1

In May 2020, for the first sale under the terms of the Purchase Agreement, the Company received cash proceeds of $1.0 million from Oasis less a $25,000 transaction fee (the "Tranche #1 Secured Note"). Oasis purchased accounts receivable with a carrying value of $1.7 million, or gross accounts receivable of $2.8 million net of chargebacks and discounts of $1.1 million. The purchase was effectuated pursuant to an Assignment Agreement, dated May 12, 2020, between the Company and Oasis. The Maturity Date, by which date Oasis must collect the $1.2 million Threshold Price, is on or before July 10, 2020.

The Company recorded the sale as a short-term secured borrowing with a principal amount of $1.0 million, or $1.2 million net of a $175,000 discount. Though there was no stated interest rate, the effective interest rate was 147.9%. The Tranche #1 Secured Note had a maturity date of July 10, 2020, or earlier if the Threshold amount was received by Oasis prior to that date (payment of the Threshold amount was the maturity date). Accordingly, during the term of the Tranche #1 Secured Note, the effective interest rate was variable, dependent on the amount of any principal payment and payment dates.

On June 30, 2020, the Company made its final required payment to Oasis under the Tranche #1 Secured Note, with total payments equaling the $1.2 million Threshold amount, and the Tranche #1 Secured Note was extinguished.

June 2020 Oasis Secured Note - Tranche #2

In June 2020, for its second sale under the terms of the Purchase Agreement, the Company received cash proceeds of $1.2 million from Oasis (the "Tranche #2 Secured Note"). Oasis purchased accounts receivable with a carrying value of $1.7 million, or gross accounts receivable of $2.8 million net of chargebacks and discounts of $1.1 million. The purchase was effectuated pursuant to an amended Assignment Agreement, effective June 26, 2020, between the Company and Oasis. The Maturity Date, by which date Oasis must collect the $1.4 million Threshold Price plus the transaction fee of $10,000, was September 2, 2020.

The Company recorded the sale to Oasis as a short-term secured borrowing with a principal amount of $1.2 million, or $1.4 million net of a $156,000 discount. Though there was no stated interest rate, the effective interest rate at issuance was 77.7%. The Tranche #2 Secured Note had a maturity date of September 2, 2020, or earlier if the Threshold amount was received by Oasis prior to that date (payment of the Threshold amount is the maturity date). Accordingly, during the term of the Tranche #2 Secured Note, the effective interest rate is variable, dependent on the amount of any principal payment and payment dates.

In September 2020, the Company made its final required payment to Oasis under the Tranche #2 Secured Note, with total payments equaling the $1.4 million Threshold amount plus the transaction fee, and the Tranche #2 Secured Note was extinguished.

August 2020 Oasis Secured Note - Tranche #3

In August 2020, for its third sale under the terms of the Purchase Agreement, the Company received cash proceeds of $1.3 million from Oasis (the "Tranche #3 Secured Note"). Oasis purchased accounts receivable with a carrying value of $1.9 million, or gross accounts receivable of $3.1 million net of chargebacks and discounts of $1.2 million. The purchase was effectuated pursuant to an amended Assignment Agreement, effective August 13, 2020, between the Company and Oasis. The Maturity Date, by which date Oasis must collect the $1.5 million Threshold Price, was October 13, 2020.

The Company recorded the sale to Oasis as a short-term secured borrowing with a principal amount of $1.3 million, or $1.5 million net of a $177,000 discount. Though there was no stated interest rate, the effective interest rate at issuance was 125.6%. The Tranche #3 Secured Note had a maturity date of October 13, 2020, or earlier if the Threshold amount was received by Oasis prior to that date (payment of the Threshold amount is the maturity date). Accordingly, during the term of the Tranche #3 Secured Note, the effective interest rate is variable, dependent on the amount of any principal payment and payment dates.

In October 2020, the Company made its final required payment to Oasis under the Tranche #3 Secured Note, with total payments equaling the $1.5 million Threshold amount plus the transaction fee, and the Tranche #3 Secured Note was extinguished.

September 2020 Oasis Secured Note - Tranche #4

In September 2020, for its fourth sale under the terms of the Purchase Agreement, the Company received cash proceeds of $985,000 from Oasis (the "Tranche #4 Secured Note"). Oasis purchased accounts receivable with a carrying value of $1.4 million, or gross accounts receivable of $2.3 million net of chargebacks and discounts of $920,000. The purchase was effectuated pursuant to an amended Assignment Agreement, effective September 9, 2020, between the Company and Oasis. The Maturity Date, by which date Oasis must collect the $1.1 million Threshold Price, was November 12, 2020.

The Company recorded the sale to Oasis as a short-term secured borrowing with a principal amount of $985,000, or $1.1 million net of a $132,000 discount. Though there was no stated interest rate, the effective interest rate at issuance was 98.4%. The Tranche #4 Secured Note had a maturity date of November 12, 2020, or earlier if the Threshold amount was received by Oasis prior to that date (payment of the Threshold amount is the maturity date). Accordingly, during the term of the Tranche #4 Secured Note, the effective interest rate is variable, dependent on the amount of any principal payment and payment dates.

In November 2020, the Company made its final required payment to Oasis under the Tranche #4 Secured Note, with total payments equaling the $1.1 million Threshold amount plus the transaction fee, and the Tranche #4 Secured Note was extinguished.

October 2020 Oasis Secured Note – Tranche #5

In October 2020, for its fifth sale under the terms of the Purchase Agreement, the Company received cash proceeds of $895,000 from Oasis (the "Tranche #5 Secured Note"). Oasis purchased accounts receivable with a carrying value of $1.2 million, or gross accounts receivable of $2.1 million net of chargebacks and discounts of $955,000. The purchase was effectuated pursuant to an amended Assignment Agreement, effective October 9, 2020, between the Company and Oasis. The Maturity Date, by which date Oasis must collect the $1.0 million Threshold Price, was December 16, 2020.

The Company recorded the sale to Oasis as a short-term secured borrowing with a principal amount of $895,000, or $1.0 million net of a $120,000 discount. Though there was no stated interest rate, the effective interest rate at issuance was 90.2%. The Tranche #5 Secured Note had a maturity date of December 16, 2020, or earlier if the Threshold amount was received by Oasis prior to that date (payment of the Threshold amount is the maturity date). Accordingly, during the term of the Tranche #5 Secured Note, the effective interest rate is variable, dependent on the amount of any principal payment and payment dates.

In December 2020, the Company made its final required payment to Oasis under the Tranche #5 Secured Note, with total payments equaling the $1.0 million Threshold amount plus the transaction fee, and the Tranche #5 Secured Note was extinguished.

December 2020 Oasis Secured Note – Tranche #6

In December 2020, for its sixth sale under the terms of the Purchase Agreement, the Company received cash proceeds of $1.6 million from Oasis (the "Tranche #6 Secured Note"). Oasis purchased accounts receivable with a carrying value of $2.2 million, or gross accounts receivable of $3.8 million net of chargebacks and discounts of $1.6 million. The purchase was effectuated pursuant to an amended Assignment Agreement, effective December 3, 2020, between the Company and Oasis. The Maturity Date, by which date Oasis must collect the $1.8 million Threshold Price, was February 10, 2021.

The Company recorded the sale to Oasis as a short-term secured borrowing with a principal amount of $1.6 million, or $1.8 million net of a $213,000 discount. Though there was no stated interest rate, the effective interest rate at issuance was 128.4%. The Tranche #6 Secured Note had a maturity date of February 10, 2021, or earlier if the Threshold amount was received by Oasis prior to that date (payment of the Threshold amount is the maturity date).

Accordingly, during the term of the Tranche #6 Secured Note, the effective interest rate is variable, dependent on the amount of any principal payment and payment dates.

The secured borrowing gross balance remaining to be paid is $1.8 million as of December 31, 2020.

8. Warrants

The following table summarizes information about warrants outstanding and exercisable into shares of the Company's common stock for the years ended December 31, 2020 and 2019:

	December 31,	
	2020	2019
Warrants outstanding, beginning balance	19,421,892	34,682
Issuances	22,048,278	20,637,761
Exercises	(34,264,393)	(1,250,000)
Expirations and cancelations	(323)	(551)
Warrants outstanding, ending balance	7,205,454	19,421,892

May 2020 Series 3 Warrants

In May 2020, concurrent with the May 2020 modification of the exercise price of the Series 1, Series 2 and Bridge Warrants and inducement offer, the Company issued unregistered Series 3 Warrants to purchase 8,670,852 shares of common stock. The Series 3 Warrants have an exercise price of $0.53 per share and are exercisable beginning the earlier of (i) six months from their May 22, 2020 issuance date and (ii) receipt of the requisite Stockholder Approval (defined below), and expire five years thereafter. In addition to the fixed settlement method at $0.53 per warrant share, the Series 3 Warrants have two contingent settlement methods: (i) if at the time of exercise there is no effective registration statement, then the holders of the 8,670,852 warrants may exercise the warrants in a "cashless exercise," under which the holders will receive the aggregate warrants less the number of warrants equal to the exercise price; or (ii) a cashless exercise feature wherein, regardless if there is an effective registration agreement, following the requisite Stockholder Approval, each such Series 3 Warrant will be exercisable into one share of common stock for no consideration (the "Alternate Cashless Exercise").

The Series 3 Warrants were initially valued at $3.7 million using the Black-Scholes-Merton option pricing model as follows: probability-weighted exercise price of $0.05 per share, stock price of $0.44 per share, expected life of 5.50 years, volatility of 141%, and a risk-free rate of 0.34%. The Series 3 Warrants were classified as liabilities on the Company's consolidated balance sheets.

A Special Meeting of Stockholders was held on July 21, 2020, whereupon a proposal to approve the "Alternate Cashless Exercise" settlement method for the Series 3 Warrants was approved.

In 2020, certain holders of the Series 3 Warrants agreed to exercise a total of 8,456,352 shares for a 1-for-1 exchange of common shares in an Alternate Cashless Exercise. The aggregate fair value of the common stock issued upon the exercise of the Series 3 Warrants as of the exercise date was $6.1 million.

October 2018 Underwriter Warrants

In October 2018, in consideration of services provided leading up to the Company's October 2018 public offering, the Company issued warrants to various service providers to purchase an aggregate of 17,142 shares

of common stock at an exercise price of $52.50 per common share. The warrants were classified as liabilities pursuant to ASC 815-40 as there was potential cash settlement.

The April 2020 Underwriter Warrants

In April 2020, in consideration of the settlement of a dispute regarding underwriting fees (see Note 5), the Company issued warrants to purchase 100,780 shares of common stock at an exercise price of $2.50 per common share. The warrants were valued at $32,000 using the Black-Scholes-Merton option pricing model as follows: exercise price of $2.50 per share, stock price of $0.45 per share, expected life of 4.25 years, volatility of 141%, and a risk-free rate of 0.29%. The warrants were equity classified in the consolidated statements of stockholders' equity.

March 2019 Ladenburg Warrants

In March 2019, in consideration of services provided in the Company's March 2019 public offering of 19,019 common shares, the Company issued to Ladenburg Thalmann & Co. warrants to purchase an aggregate of 761 shares of common stock at an exercise price of $17.50 per common share. The warrants were valued at $13,000 using the Black-Scholes-Merton option pricing model as follows: exercise price of $17.50 per share, stock price of $18.90 per share, expected life of 5 years, volatility of 146%, and a risk-free rate of 2.21%. The warrants were equity classified in the consolidated statements of stockholders' equity.

March 2019 LOC Warrant

In March 2019, in consideration of a letter of credit cancellation related to the Company's office lease, the Company issued a warrant to purchase warrant shares equal to a fixed principal amount divided by a variable exercise price. The warrants were initially classified as liabilities pursuant to ASC 480-10 due to their debt-like nature. On
July 23, 2019, upon the exercise price of the warrants becoming fixed, the warrants became exercisable into 45,750 shares of the Company's common stock and were reclassified to additional paid-in-capital with a fair value of $71,000.

2019 Bridge Note Warrants

Between March 18, 2019 and June 26, 2019, concurrent to the Company entering into Promissory Notes of $5.1 million, the Company issued twenty-one warrants to purchase warrant shares equal to a fixed principal amount divided by a variable exercise price. The warrants for all twenty-one Bridge Notes were initially liability classified pursuant to ASC 480-10 due to their debt-like nature. On July 23, 2019, upon the exercise price of the warrants becoming fixed, the warrants became exercisable into 2,781,250 shares of the Company's common stock and were reclassified to additional paid-in-capital with a fair value of $4.3 million, calculated using the Black-Scholes-Merton pricing model using a stock price of $1.73, a strike price of $2.00 per share, an average expected term of 4.80 years, volatility of 145.84% and a risk-free discount rate of 1.76%.

February 2020 Modification of Certain 2019 Bridge Note Warrants

In February 2020, the Company entered into a warrant exercise agreement with a holder of its Bridge warrants, pursuant to which the holder agreed to exercise 250,000 Bridge warrants in consideration of the Company lowering the exercise price of the 250,000 warrants from $2.00 to $0.692. Upon exercise of the warrants, the Company received cash proceeds of $173,000 and, in turn, issued 250,000 common shares. It is the Company's policy to determine the impact of modifications to equity-classified warrants by analogy to the share-based compensation guidance per ASC 718, Compensation – Stock Compensation. Pursuant to that guidance, and due to the modification being applicable only to a single holder of the Bridge warrants, the incremental increase of $9,000 in fair value of the modified warrants was recorded as an expense in the consolidated statement of operations for the year ended December 31, 2020.

May 2020 Modification of the 2019 Bridge Note Warrants and Inducement Offer

In May 2020, the Company reduced the exercise price of all outstanding 2019 Bridge Note Warrants from $2.00 per share to $0.49 per share. The Company determined the impact of this modification to be an increase in the fair value of the warrants of $166,000. Because the modification applied to the entire class of Bridge Note Warrant holders, the increase in fair value represented a deemed dividend to the entire class of Bridge Note Warrant holders. The modification did not result in the reclassification of the equity-classified Bridge Note Warrants from additional paid-in-capital to liability classification.

In May 2020, concurrent with the reduction of the exercise price of the Bridge Note Warrants, the Company entered into a warrant exercise inducement offer with certain holders of the Bridge Note Warrants, pursuant to which such holders agreed to exercise for cash Bridge Note Warrants to purchase 93,750 shares of common stock, in exchange for the Company's issuing to the exercising holders new unregistered Series 3 Warrants to purchase 93,750 shares of common stock.

As of December 31, 2020, a total of 1,903,125 of 2019 Bridge Note Warrants are outstanding.

July 2019 Series 1 Warrants

In July 2019, the Company entered into an underwriting agreement, relating to a public offering, which was comprised of (1) 2,886,500 Class A Units, priced at $2.00 per unit, with each unit consisting of (i) one share of the Company's common stock, (ii) one Series 1 warrant to purchase one share of Common Stock, and (iii) one Series 2 warrant to purchase one share of Common Stock, and (2) 10,787 Class B Units, priced at a price of $1,000 per unit, with each unit consisting of (i) one share of Series B Convertible Preferred Stock, convertible into 500 shares of Common Stock, (ii) 500 Series 1 Warrants and (iii) 500 Series 2 Warrants.

The Series 1 Warrants had an exercise price of $2.00 and expire on the earlier of (a) 5 years from the date of issuance and (b) 30 calendar days following the public announcement of Positive Interim Results related to the diarrhea results from the HALT-D investigator initiated trial, if and only if certain trading benchmarks are achieved during such 30 calendar day period.

In the offering, the Company sold (i) 2,886,500 Class A Units, which included Series 1 warrants to purchase 2,886,500 shares of the Company's common stock and (ii) 10,787 Class B Units, which included Series 1 warrants to purchase 5,393,500 shares of the Company's common stock. In total, 8,280,000 Series 1 warrants were issued, with an initial valuation of $5.0 million computed using the Black-Scholes-Merton pricing model using a stock price of $1.73, a strike price of $2.00, an expected term of 5.0 years, volatility of 109.25% and a risk-free discount rate of 1.83%. Upon issuance, the Series 1 warrants were classified in additional paid-in-capital.

September 2019 Modification of the July 2019 Series 1 Warrants

In September 2019, the Company reduced the exercise price of all 8,280,000 Series 1 Warrants from $2.00 to $1.40. The Company determined the impact of this modification to be an increase in the fair value of the warrants of $522,000. Because the modification applied to the entire class of Series 1 Warrant holders, the increase in fair value represented a deemed dividend to the entire class of Series 1 Warrant holders. The modification did not result in the reclassification of the equity-classified Series 1 warrants from additional paid-in-capital to liability classification.

February 2020 Modification of the July 2019 Series 1 Warrants

In February 2020, the Company entered into a warrant exercise agreement with a holder of its Series 1 Warrants, pursuant to which the holder agreed to exercise 208,022 Series 1 Warrants in consideration of the Company lowering the exercise price of the 208,022 warrants from $2.00 to $0.6920. Upon exercise of the warrants, the Company received cash proceeds of $144,000 and, in turn, issued 208,022 common shares. It is the Company's policy to determine the impact of modifications to equity-classified warrants by analogy to share-based compensation guidance per ASC 718, Compensation – Stock Compensation. Pursuant to that guidance, and due to the modification being applicable only to a single holder of the Series 1 Warrants, the incremental increase of $6,000 in fair value of

the modified warrants was recorded as an expense in the consolidated statement of operations for the year ended December 31, 2020.

May 2020 Modification of the July 2019 Series 1 Warrants and Inducement Offer

In May 2020, the Company reduced the exercise price of all outstanding Series 1 Warrants from $1.40 per share to $0.49 per share. The Company determined the impact of this modification to be an increase in the fair value of the warrants of $284,000. Because the modification applied to the entire class of Series 1 Warrant holders, the increase in fair value represented a deemed dividend to the entire class of Series 1 Warrant holders. The modification did not result in the reclassification of the equity-classified Series 1 Warrants from additional paid-in-capital to liability classification.

In May 2020, concurrent with the reduction of the exercise price of the Series 1 Warrants, the Company entered into a warrant exercise inducement offer with certain holders of the Series 1 Warrants, pursuant to which such holders agreed to exercise for cash Series 1 Warrants to purchase 4,572,040 shares of common stock, in exchange for the Company's issuing to the exercising holders new unregistered Series 3 Warrants to purchase 4,572,040 shares of common stock.

As of December 31, 2020, a total of 1,078,365 Series 1 Warrants were outstanding.

July 2019 Series 2 Warrants

The Series 2 Warrants had an exercise price of $2.00 and expire on the first date on the earlier of (a) 5 years from the date of issuance and (b) 30 calendar days following the public announcement by the Company that a pivotal phase 3 clinical trial using crofelemer (Mytesi, or the same or similar product with a different name) for the treatment of cancer therapy-related diarrhea in humans has met its primary endpoint in accordance with the protocol, if and only if certain trading benchmarks are achieved during such 30 calendar day period. In addition, each Series 2 Warrant has an embedded call option that allows the Company to redeem any unexercised warrants if certain contingencies are met.

In the July 2019 offering, the Company sold (i) 2,886,500 Class A Units, which included Series 2 warrants to purchase 2,886,500 shares of the Company's common stock and (ii) 10,787 Class B Units, which included Series 2 warrants to purchase 5,393,500 shares (10,787 Class B Units multiplied by 500 warrants per Class B Unit equals 5,393,500) of the Company's common stock. In total, 8,280,000 Series 2 warrants were issued, with an initial valuation of $5.0 million computed using the Black-Scholes-Merton pricing model using a stock price of $1.73, a strike price of $2.00, an expected term of 5.0 years, volatility of 109.25% and a risk-free discount rate of 1.83%. Upon issuance, the Series 2 Warrants were classified in additional paid-in-capital.

March 5, 2020 Modification of the July 2019 Series 2 Warrants

On March 5, 2020, the Company entered into a warrant exercise agreement with a holder of its Series 2 Warrants, pursuant to which the holder agreed to exercise 90,940 Series 2 Warrants in consideration of the Company lowering the exercise price of the 90,940 warrants from $2.00 to $0.6050. Upon exercise of the warrants, the Company received cash proceeds of $55,000 and, in turn, issued 90,940 common shares. It is the Company's policy to determine the impact of modifications to equity-classified warrants by analogy to share-based compensation guidance per ASC 718, Compensation – Stock Compensation. Pursuant to that guidance, and due to the modification being applicable only to a single holder of the Series 2 Warrants, the incremental increase of $6,000 in fair value of the modified warrants was recorded as an expense in the consolidated statement of operations for the year ended December 31, 2020.

March 23, 2020 Modification of the July 2019 Series 2 Warrants

On March 23, 2020, the Company entered into a Warrant Exercise and Preferred Stock Amendment Agreement (see Note 9) with Ionic Ventures of its Series 2 Warrants, pursuant to which the holder agreed to exercise in cash its Series 2 Warrants to purchase an aggregate of 1,250,000 shares of common stock, in consideration of the Company reducing the Series 2 Warrant exercise price from $2.00 to $0.5227 per share, for gross proceeds to the Company of approximately $653,000, or $628,000 net of $25,000 of issuance costs. The Company determined the impact of this modification to be an increase in the fair value of the warrants of $65,000. Because the modification applied to a sole holder of Series 2 Warrants, the $65,000 increase in fair value was recorded as an expense in the consolidated statement of operations for the year ended December 31, 2020. The modification did not result in the reclassification of the equity-classified Series 2 Warrants.

May 2020 Modification of the July 2019 Series 2 Warrants and Inducement Offer

In May 2020, the Company reduced the exercise price of all outstanding Series 2 Warrants from $2.00 per share to $0.49 per share. The Company determined the impact of this modification to be an increase in the fair value of the warrants of $406,000. Because the modification applied to the entire class of Series 2 Warrant holders, the increase in fair value represented a deemed dividend to the entire class of Series 2 Warrant holders. The modification did not result in the reclassification of the equity-classified Series 2 Warrants from additional paid-in-capital to liability classification.

In May 2020, concurrent with the reduction of the exercise price of the Series 2 Warrants, the Company entered into a warrant exercise inducement offer with certain holders of the Series 2 Warrants, pursuant to which such holders agreed to exercise for cash Series 2 Warrants to purchase 4,033,562 shares of common stock, in exchange for the Company's issuing to the exercising holders new unregistered Series 3 Warrants to purchase 4,005,062 shares of common stock.

As of December 31, 2020, a total of 878,365 Series 2 Warrants were outstanding.

December 2019 PIPE Financing Warrants

In December 2019, the Company entered into a securities purchase agreement with certain investors pursuant to which the Company, in a Private Placement, sold (i) an aggregate of 2,500,000 unregistered shares of the Company's common stock, and (ii) Warrants to purchase up to an aggregate of 1,250,000 shares of common stock, for an aggregate purchase price of $1.5 million (see Note 10). The warrants have an exercise price of $0.78 per share and become exercisable on June 24, 2020 (6 months after their issuance date) and have a five-year term.

The warrants were valued at $686,000 using the Black-Scholes-Merton option pricing model as follows: exercise price of $0.78 per share, stock price of $0.62 per share, expected life of five years, volatility of 143%, and a risk-free rate of 2.42%. As the common stock and warrants were issued in a unit structure, the aggregate proceeds of $1.5 million were allocated to the two securities using the relative fair value method, resulting with the common stock and warrants being allocated $1.0 million and $465,000, respectively. The warrants were classified in stockholders' equity.

9. Preferred Stock

At December 31, 2020, preferred stock consisted of the following:

(in thousands, except share and per share data) Series	Shares Authorized	Issued and Outstanding	Carrying Value	Liquidation Preference per Share
B-2	10,165	—	$ —	$ —
C	1,011,000	—	—	8.00
Total	1,021,165	—	$ —	

At December 31, 2019, preferred stock consisted of the following:

(in thousands, except share and per share data) Series	Shares Authorized	Issued and Outstanding	Carrying Value	Liquidation Preference per Share
A	5,524,926	5,524,926	$ 9,895	$ 1.665
B	11,000	1,971	476	—
B-1	63	—	—	—
B-2	10,165	10,165	1,236	—
Total	5,546,154	5,537,062	$ 11,607	

Series A Convertible Preferred Stock

In March 2018, the Company entered into a stock purchase agreement with Sagard Capital pursuant to which the Company, in a private placement, agreed to issue and sell to Sagard Capital 5,524,926 shares of the Company's Series A Convertible Preferred Stock, $0.0001 par value per share, for gross proceeds of $9.2 million, or $9.0 million net of issuance costs. The preferred stock was convertible into approximately 473,565 shares of common stock at the option of the holder at an effective conversion price of $194.25 per share. Subject to certain limited exceptions, the shares of preferred stock could not be offered, pledged or sold by Sagard Capital for one year from the date of issuance. The conversion price was subject to certain adjustments in the event of any stock dividend, stock split, reverse stock split, combination or other similar recapitalization.

Holders of the Series A Convertible Preferred shares were entitled to participate equally and ratably with the holders of shares of common stock in all dividends paid and distributions made to the holders of the common stock as if, immediately prior to each record date of the common stock, the shares of Series A Convertible Preferred Stock then outstanding were converted into shares of common stock.

In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company or deemed liquidation event, the holders of Series A Convertible Preferred shares then outstanding were entitled to be paid in cash out of the assets of the Company before any payment shall be made to the holders of common stock or shares of any series or class of preferred or other capital stock then outstanding that by its terms is junior to the Series A Convertible Preferred Stock in respect of the preferences as to distributions and payments upon such liquidation event by reason of their ownership, an amount per share of Series A Convertible Preferred Stock equal to one times the Series A Convertible Preferred Stock original issue price.

The Series A Convertible Preferred shares were redeemable by Sagard Capital upon a Redemption Event that is not solely within the control of the Company. Were a Redemption Event to occur as of the Measurement Date (the later of April 30, 2021 and the date on which the Company files its Form 10-Q for the three months ending March 31, 2021, but in no event later than September 30, 2021), the holders of at least a majority of the shares of Series A Convertible Preferred Stock then outstanding may require the Company to redeem all Series A shares for cash at a per share purchase price equal to $2.3057. Any one of the following conditions can result in a Redemption Event: (i) revenue attributable to the Mytesi product for the six-month period ended March 31, 2021 is less than $22.0 million; (ii) the daily VWAP of the Company's common stock on Nasdaq for the 30 days prior to a Measurement Date is less than $105.00; (iii) the Company fails to file with the Securities and Exchange Commission (“SEC”) on or before June 30, 2021, its Form 10-Q for the three months ending March 31, 2021.

In March 2019, the Company and Sagard Capital amended certain terms of the agreement, such that the effective conversion price was adjusted to $19.425 per share.

The preferred stock was classified outside of stockholders' equity in accordance with authoritative guidance for the classification and measurement of potentially redeemable securities.

In 2019, the Company determined that a Redemption Event was probable as of July 1, 2019. The Company accreted the carrying value to the redemption amount of $12.7 million which was accounted for as a deemed dividend. The deemed dividend was a non-cash transaction and is reflected below net loss available to common stockholders on the Company's consolidated statement of operation for the year ended December 31, 2019.

In September 2020, the Company and Sagard Capital entered into an exchange agreement, by which the remaining Series A Convertible Preferred shares were exchanged for (i) 842,500 shares of the Company's Series C Perpetual Preferred shares, and (ii) 842,500 shares of the Company's Series D Perpetual Preferred shares, all issued to Iliad.

The exchange agreement was entered into to effect a share-for-share exchange transaction. The Series A Convertible Preferred shares were canceled upon surrender, and the Company issued Iliad the Series C and Series D Perpetual Preferred shares. The exchange agreement was treated as an extinguishment of the Series A Convertible Preferred shares. As of the exchange date, the related extinguishment required recording derecognition of the Series A accreted value and recording Series C and Series D at fair value. The related excess of the carrying value over the fair value of the new instruments of $150,000 was recorded to additional paid-in-capital and increased earnings available to common stockholders.

In September 2020, the Company filed a certificate with the Secretary of State of Delaware effecting the retirement and cancellation of the Series A Convertible Preferred Stock. As of December 31, 2020, there were no Series A Convertible Preferred shares authorized or outstanding.

Series B Convertible Preferred Stock

In July 2019, the Company entered into an underwriting agreement relating to the public offering comprised of (1) 2,886,500 Class A Units, priced at a public offering price of $2.00 per unit, with each unit consisting of (i) one share of the Company's voting common stock, (ii) one Series 1 warrant to purchase one share of Common Stock and (2) 10,787 Class B Units, priced at a public offering price of $1,000 per unit, with each Class B unit consisting of (i) one share of Series B Convertible Preferred Stock with a stated value of $1,000 and convertible into 500 shares of Common Stock, (ii) 500 Series 1 Warrants and (iii) 500 Series 2 Warrants, at a public offering price of $1,000 per Class B Unit.

The Company sold 10,787 Class B Units, comprised of 10,787 shares of Series B Convertible Preferred Stock, Series 1 warrants to purchase 5,393,500 shares of common stock and Series 2 warrants to purchase 5,393,500 shares of common stock. The total gross proceeds to the Company from the offering of the Class B Units were $10.8 million of which $4.2 million was allocated to the Series B Convertible Preferred Stock, $3.3 million to the Series 1 Warrants and $3.3 million to the Series 2 Warrants. Issuance costs of $1.6 million were allocated to the Class B Units.

Holders of the Series B shares are entitled to participate equally and ratably with the holders of shares of common stock in all dividends paid and distributions made to the holders of the common stock as if, immediately prior to each record date of the common stock, the shares of Series B then outstanding were converted into shares of common stock. With certain exceptions, the shares of Series B Convertible Preferred Stock have no voting rights. However, as long as any shares of Series B Convertible Preferred Stock remain outstanding, the Company shall not, without the affirmative vote of holders of a majority of the then outstanding shares of Series B Convertible Preferred Stock, (a) alter or change adversely the powers, preferences or rights given to the Series B Convertible Preferred Stock or alter or amend the Series B Certificate of Designation or (b) enter into any agreement with respect to any of the foregoing. Each share of Series B Convertible Preferred Stock is convertible at any time at the holder's option into 500 shares of Common Stock, which conversion ratio will be subject to adjustment for stock splits, stock dividends, distributions, subdivisions and combinations and other similar transactions.

On the July 23, 2019 issuance date, the effective conversion price per share was less than the fair value of the underlying common stock. As a result, the Company determined that there was a Beneficial Conversion Feature of $4.2 million. Because the Company's Series B Convertible Preferred Stock does not have a stated conversion date and

was immediately convertible at the issuance date, the Company recorded a deemed dividend charge of $4.2 million for the accretion of the discount on the Series B Convertible Preferred Stock. The deemed dividend was a non-cash transaction and is reflected below net loss to arrive at net loss available to common stockholders on the Company's consolidated statement of operations for the year ended December 31, 2019.

During 2019, certain investors converted 8,816 Series B Convertible Preferred shares into 4,408,000 shares of the Company’s common shares at the stated conversion ratio.

The preferred stock has been classified in stockholders' equity in accordance with authoritative guidance.

In March 2020, the Company entered into a Warrant Exercise and Preferred Stock Amendment Agreement (“Amendment Agreement”) with a Ionic Ventures of its Series 2 Warrants, pursuant to which the holder agreed to exercise in cash its Series 2 Warrants to purchase an aggregate of 1,250,000 shares of common stock, in consideration of the Company reducing the warrant exercise price from $2.00 to $0.5227 per share, for gross proceeds to the Company of approximately $653,000 (see Note 8). As a further inducement to enter into the Amendment Agreement, the Company agreed to reduce the conversion price of the Company’s Series B Convertible Preferred Stock from $2.00 to $0.4456, resulting in the application of accounting for modification of preferred stock instruments under ASC 260-10-S99-2 where the difference between the fair value of the consideration transferred and the net carrying amount of the convertible preferred stock is treated as a dividend and must be deducted from net income in arriving at income available to common stockholders. Because the reduction to the conversion price was an inducement, the Company applied the guidance in ASC 470-20, resulting in the recording of an inducement charge of $1.6 million in the consolidated statement of operations for the year ended December 31, 2020.

In September 2020, the Company filed a certificate with the Secretary of State of Delaware effecting the retirement and cancellation of the Series B Convertible Preferred Stock. As of December 31, 2020, there were no Series B Convertible Preferred shares authorized or outstanding.

Series B-1 Convertible Preferred Stock

In October 2019, the Company entered into a Warrant Exercise Agreement with the sole remaining holder of the Series B Convertible Preferred Stock (the Exercising Holder), who owned Series 1 warrants exercisable for 1,250,000 shares of common stock. Pursuant to the terms of the Warrant Exercise Agreement, the Company had the right (a purchased put option) to require the Exercising Holder to exercise all or a portion of its Series 1 warrants in accordance with the existing terms of the Series 1 warrants, in exchange for the Company’s agreement to issue to the Exercising Holder a number of shares of the Company’s Series B-1 Convertible Preferred Stock, with a stated value of $12,201, in an amount equal to one Series B-1 Preferred Share for every 19,841 Series 1 Warrant Shares issued by the Company to the Exercising Holder. The purpose of the Company entering into the agreement was to enable the Company to monetize the remaining Series 1 warrants. To the extent that all Series 1 warrants held by the Exercising Holder were exercised at their $1.40 exercise price, the Company would receive aggregate gross proceeds of approximately $1.8 million and, in turn, have issued 63 shares of Series B-1 Preferred Stock to the Exercising Holder.

In October 2019, in two separate transactions, the Company exercised its purchased put option to require the Exercising Holder to exercise all of its 1,250,000 Series 1 warrants (see Note 8), upon which the Company issued 1,250,000 common shares to the Exercising Holder in return for aggregate gross proceeds of $1,750,001. In consideration (the strike price) of the exercising the warrants, the Company issued 63 shares of Series B-1 Convertible Preferred Stock to the Exercising Holder.

Holders of the Series B-1 Convertible Preferred Stock were entitled to receive dividends on shares of Series B-1 Preferred Stock equal (on an as-if-converted-to-Common-Stock basis) to and in the same form as dividends actually paid on shares of the Common Stock when, as and if such dividends are paid on shares of the common stock. No other dividends shall be paid on shares of the Series B-1 Preferred Stock.

The shares of Series B-1 Convertible Preferred Stock had no voting rights. However, as long as any shares of Series B-1 Preferred Stock remain outstanding, the Company shall not, without the affirmative vote of holders of a majority of the then outstanding shares of Series B-1 Convertible Preferred Stock, (a) alter or change adversely the powers, preferences or rights given to the Series B-1 Convertible Preferred Stock or alter or amend the Series B-1 Certificate of Designation or (b) enter into any agreement with respect to any of the foregoing.

Upon any liquidation, dissolution or winding-up of the Company, whether voluntary or involuntary, the Holders of the Series B-1 Convertible Preferred Stock were entitled to receive out of the assets, whether capital or surplus, of the Company the same amount that a holder of common stock would receive if the Series B-1 Preferred Stock were fully converted to Common Stock which amounts shall be paid *pari passu* with all holders of common stock.

Each share of Series B-1 Convertible Preferred Stock was convertible at any time at the holder's option into 10,001 shares of Common Stock, as determined by dividing the $12,201 stated value of each Series B-1 Convertible Preferred Share by the $1.22 conversion price ($12,201 divided by 1.22 = 10,001 conversion ratio), and which conversion ratio is subject to adjustment for stock splits, stock dividends, distributions, subdivisions and combinations and other similar transactions as specified in the Series B-1 Certificate of Designation.

On the October 3, 2019 issuance date, the effective conversion price was less than the fair value of the underlying common stock. As a result, the Company determined that there was a Beneficial Conversion Feature of $145,000. Because the Company's Series B-1 Convertible Preferred Stock does not have a stated conversion date and was immediately convertible at the issuance date, the Company recorded a deemed dividend charge of $145,000 for the accretion of the discount on the Series B-1 Convertible Preferred Stock. The deemed dividend was a non-cash transaction and is reflected below net loss to arrive at net loss available to common stockholders on the Company's consolidated statement of operations for the fiscal year ended December 31, 2019.

On the October 9, 2019 issuance date, the effective conversion price was less than the fair value of the underlying common stock. As a result, the Company determined that there was a Beneficial Conversion Feature of $385,000. Because the Company's Series B-1 Convertible Preferred Stock does not have a stated conversion date and was immediately convertible at the issuance date, the Company recorded a deemed dividend charge of $385,000 for the accretion of the discount on the Series B-1 Convertible Preferred Stock. The deemed dividend was a non-cash transaction and is reflected below net loss to arrive at net loss available to common stockholders on the Company's consolidated statements of operations for the fiscal year ended December 31, 2019.

The Series B-1 Convertible Preferred Stock was classified in stockholders' equity in accordance with authoritative guidance.

In December 2019, the sole investor in the Series B-1 Convertible Preferred Stock converted its entire holding of 63 shares of the Series B-1 Preferred Stock into 630,063 shares of the Company's common shares at the stated conversion ratio. As of December 31, 2019, there were no shares of the Series B-1 Convertible Preferred Stock outstanding.

In September 2020, the Company filed a certificate with the Secretary of State of Delaware effecting the retirement and cancellation of the Series B-1 Convertible Preferred Stock.

Series B-2 Convertible Preferred Stock

In December 2019, the Company entered into an exchange agreement with Oasis Capital, pursuant to which Oasis Capital gave up (i) its remaining unexercised Prepaid Forward contracts (see Note 10) exercisable for 1,236,223 shares of the Company's common stock and (ii) 695,127 common shares held as an investment by Oasis Capital, in exchange for 10,165 shares of the Company's newly authorized Series B-2 Convertible Preferred Stock.

Holders of the Series B-2 Convertible Preferred Stock are entitled to receive dividends on shares of Series B-2 Convertible Preferred Stock equal (on an as-if-converted-to-Common-Stock basis) to and in the same form as dividends actually paid on shares of the Common Stock when, as and if such dividends are paid on shares of the Common Stock. No other dividends shall be paid on shares of the Series B-2 Convertible Preferred Stock.

The shares of Series B-2 Convertible Preferred Stock have no voting rights. However, as long as any shares of Series B-2 Convertible Preferred Stock remain outstanding, the Company shall not, without the affirmative vote of holders of a majority of the then outstanding shares of Series B-2 Convertible Preferred Stock, (a) alter or change adversely the powers, preferences or rights given to the Series B-2 Convertible Preferred Stock or alter or amend the Series B-2 Certificate of Designation or (b) enter into any agreement with respect to any of the foregoing.

Upon any liquidation, dissolution or winding-up of the Company, whether voluntary or involuntary, the Holders of the Series B-2 Convertible Preferred Stock are entitled to receive out of the assets, whether capital or surplus, of the Company the same amount that a holder of common stock would receive if the Series B-2 Convertible Preferred Stock were fully converted to Common Stock which amounts shall be paid *pari passu* with all holders of Common Stock.

Each share of Series B-2 Convertible Preferred Stock is convertible at any time at the holder’s option into 190 shares of Common Stock, as determined by dividing the $153.90 stated value of each Series B-2 Convertible Preferred Share by the $0.81 conversion price ($153.90 divided by 0.81 = 190 conversion ratio), and which conversion ratio is subject to adjustment for stock splits, stock dividends, distributions, subdivisions and combinations and other similar transactions as specified in the Series B-2 Certificate of Designation. The Series B-2 Convertible Preferred Stock was classified in stockholders' equity in accordance with authoritative guidance.

In January 2020, a holder of the Series B-2 Convertible Preferred Stock converted 2,631 preferred shares into 499,890 shares of common stock.

In October 2020, the Company entered into an exchange agreement with Oasis Capital pursuant to which the Company agreed to issue 500,186 shares of common stock in exchange for 975 shares of the Series B-2 Convertible Preferred Stock. The exchange agreement was accounted for as a modification.

In December 2020, an investor converted the remaining 6,559 Series B-2 Convertible Preferred Stock into a total of 1,246,210 shares of the Company’s common stock. As of December 31, 2020, there were no Series B-2 Convertible Preferred shares outstanding.

Series C Perpetual Preferred Stock

In September 2020, the Company entered into an exchange agreement with Iliad to issue 842,500 shares of the Company's Series C Perpetual Preferred Stock at $0.0001 par value per share, for a non-cash exchange of equity instruments. The exchange agreement was contemporaneously entered with the issuance of Series D Perpetual Preferred shares, in exchange of remaining Series A Convertible Preferred shares totaling 5,524,926 shares, and accreted value of $11.2 million as of the exchange date. An amendment agreement of the Exchange Note 2 was also entered into, with issuance value of $2.3 million and carrying value of $2.6 million as of the exchange date, to extend maturity from December 31, 2020 to December 31, 2021, in consideration of 5% increase in the outstanding balance.

Holders of the Series C Perpetual Preferred Stock were not entitled to voting rights. However, as long as any Series C Perpetual Preferred share is outstanding, the Company is restricted to alter, change, or enter into an agreement to alter or change adversely the powers, preferences, or rights given to the shareholders.

In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company or deemed liquidation event, the holders of Series C Perpetual Preferred shares then outstanding would be entitled to be paid in cash out of the assets of the Company before any payment shall be made to the holders of common stock or shares of any series or class of preferred or other capital stock then outstanding that by its terms is junior to the Series C Perpetual Preferred shares in respect of the preferences as to distributions and payments upon such liquidation event

by reason of their ownership, an amount per share of Series C equal to one times the Series C original issue price.

The Series C Perpetual Preferred shares were redeemable upon the option or discretion of the Company.

The Series C Perpetual Preferred shares were entitled to receive 10% cumulative stock dividends, to be payable in arrears on a monthly basis for 24 consecutive months. Dividends payable on the Series C Perpetual Preferred shares shall be payable through the Company's issuance of Series C Perpetual Preferred share by delivering to each record holder the calculated number of PIK dividend shares.

The Series C Perpetual Preferred shares were initially measured at fair value using the income approach, which considered the weighted probability of discounted cash flows at various scenarios of redemption by the Company or liquidation event and perpetual holding of the shares. As of the date of exchange, total fair value of the Series C Perpetual Preferred shares amounted to $4.7 million. Subsequently, the carrying amount of Series C Perpetual Preferred shares increased as the PIK dividend shares were recognized.

The preferred stock has been classified as permanent stockholders' equity in accordance with authoritative guidance for the classification and measurement of perpetual shares without mandatory redemption period because the redemption option was ultimately in the control of the Company.

In October 2020, the Company entered into an exchange agreement with Iliad pursuant to which the Company agreed to issue a total of 250,000 shares of common stock and pre-funded warrants to purchase 7,057,692 shares of common stock in exchange for 285,000 shares of Series C Perpetual Preferred Stock. The pre-funded warrants were exercisable immediately and could be exercised at any time until all of the pre-funded warrants were exercised in full. The nominal exercise price of each pre-funded warrant was $0.0001. In December 2020, the Company also entered into a series of exchange agreements with Iliad pursuant to which the Company agreed to issue a total of 8,203,880 shares of common stock in exchange for 573,810 shares of Series C Perpetual Preferred Stock. The series of exchanges were viewed as singular transaction, hence combined for purposes of accounting for the subsequent amendments. The series of exchanges was accounted for as an extinguishment which resulted in a $2.5 million deemed dividend, recorded against additional paid-in capital, for the difference between the fair value of the shares of common stock and pre-funded warrants transferred and the carrying amount of the Series C Perpetual Preferred Stock. As of December 31, 2020, Iliad had exercised all pre-funded warrants for $1,000.

As of December 31, 2020, there were no Series C Perpetual Preferred shares outstanding.

10. Stockholders' Equity

As of December 31, 2020 and 2019, the Company had reserved shares of common stock, on an as-if converted basis, for issuance as follows:

	December 31,	
	2020	2019
Options issued and outstanding	4,456,748	3,902,675
Inducement options issued and outstanding	114,892	74
Options available for grant under stock option plans	596,597	479,829
Restricted stock unit awards issued and outstanding	5,613	5,613
Warrants issued and outstanding	7,205,454	19,421,892
Series A convertible preferred stock	—	473,565
Series B convertible preferred stock	—	985,500
Series B-2 convertible preferred stock	—	1,931,350
Total	12,379,304	27,200,498

Common Stock

The holders of common stock are entitled to one vote for each share of common stock held. The common stockholders are also entitled to receive dividends whenever funds and assets are legally available and when declared by the Board of directors.

The holders of non-voting common stock are not entitled to vote, except on an as converted basis with respect to any change of control of the Company that is submitted to the stockholders of the Company for approval. Shares of the Company's non-voting common stock have the same rights to dividends and other distributions and are convertible into shares of the Company's common stock on a one-for-one basis upon transfers to non-affiliates of Nantucket ("former creditor of Napo"), upon the release from escrow of certain non-voting shares held by the former creditors of Napo to the legacy stockholders of Napo under specified conditions and at any time on or after
April 1, 2018 at the option of the respective holders thereof.

The Company is authorized to issue a total number of 204,475,074 shares, of which 150,000,000 shares are common stock, 50,000,000 are non-voting common stock and 4,475,074 are preferred stock.

Reverse stock-splits

On June 3, 2019, the Company filed the Certificate of Fifth Amendment to its Third Amended and Restated Certificate of Incorporation with the Secretary of State of the State of Delaware to effect a 1-for-70 reverse stock split of the Company’s issued and outstanding shares of voting common stock, effective June 7, 2019. The reverse split has been retroactively reflected in all voting common stock, warrants, and common stock option shares disclosed in the consolidated financial statements. The non-voting common stock and the convertible preferred stock were
excluded from the reverse split.

On December 22, 2020, the Company obtained approval through a special shareholders meeting held on December 9, 2020 to effect a reverse split of the Company’s issued and outstanding voting common stock at a ratio not less than 1-for-2 and not greater than 1-for-20. As of December 31, 2020, the reverse stock split has not yet been effectuated.

Transactions with Oasis Capital

January 2019 SPA

On January 7, 2019, the Company entered into a common stock purchase agreement with Oasis Capital, relating to an offering of an aggregate of up to 76,190 shares of common stock via an equity line of credit. Under the terms of the purchase agreement, the Company has the right to "put," or sell, up to 76,190 shares of common stock to Oasis Capital for an amount equal to the product of (i) the number of shares set forth on the applicable put notice (minus the deposit and clearing fees associated with such purchase) and (ii) a fixed price of $52.50 per share or such other price agreed upon between the Company and Oasis Capital. The Company had the option to increase the equity line of credit by an additional 114,286 shares of common stock by notifying Oasis Capital at any time after the effective date of the purchase agreement. In March 2019, the Company exercised this option. As of
December 31, 2019, the Company had sold all of the 76,190 shares of common stock of the equity line and all 114,286 shares of common stock from the option to Oasis Capital, or a total of 190,476 shares.

March 2019 SPA

In March 2019, the Company entered into a securities purchase agreement with Oasis Capital pursuant to which the Company agreed to issue and sell, in a registered public offering by the Company directly to Oasis, an aggregate of 19,019 shares of common stock at an offering price of $14.00 for gross proceeds of approximately $266,000.

November 2019 SPA

In November 2019, the Company entered into a securities purchase agreement with Oasis Capital, pursuant to which the Company, in a registered public offering, sold directly to Oasis pre-funded warrants to purchase 2,222,223 shares of the Company's common stock. The Pre-Funded Warrants were exercisable immediately and could be exercised at any time until all of the pre-funded warrants were exercised in full. The purchase price paid by Oasis was nonrefundable in the event that the pre-funded warrants were never exercised. The purchase price of each pre-funded warrant was $0.81, or the $0.80 price per share in the offering, plus an additional $0.01 exercise price upon subsequent exercise. Gross proceeds to the Company from the offer and sale was $1.8 million, or $1.7 million net of issuance costs. In November 2019, subsequent to the initial sale, Oasis Capital exercised 986,000 of the 2,222,223 pre-funded warrants, with the Company receiving gross proceeds of $10,000. The pre-funded warrants represented prepaid equity forward contracts that were equity classified, as they were not subject to ASC 480-10 and did not meet the definition of a derivative pursuant to ASC 815-10 due to their requiring a substantial upfront payment.

March 2020 ELOC (Equity Line of Credit)

In March 2020, the Company entered into an equity purchase agreement (the "March 2020 ELOC") with Oasis Capital, which provides that Oasis Capital is committed to purchase up to an aggregate of $2.0 million shares of the Company's common stock over the 36-month term of the March 2020 ELOC.

Pursuant to the terms and conditions of the March 2020 ELOC, on any trading day selected by the Company (such date the "Put Date"), after the SEC has declared effective the registration statement registering the sale of the shares of common stock that may be issued to Oasis Capital under the March 2020 ELOC, the Company has the right, in its sole discretion, to present to Oasis Capital with a purchase notice (each a "Put Notice"), directing Oasis Capital to purchase up to the lesser of (i) 200,000 shares of common stock or (ii) 20% of the average trading volume of common stock in the 10 trading days immediately preceding the date of such Put Notice, at a per share price equal to $0.436 (each an "Option 1 Put"), provided that the aggregate of all Option 1 Puts and Option 2 Puts (described below) does not exceed $2.0 million.

In addition, on any date on which Oasis Capital receives shares of common stock in connection with a Put Notice (the "Clearing Date"), the Company also has the right, in its sole discretion, to present to Oasis Capital with a Put Notice (each an "Option 2 Put") directing Oasis Capital to purchase an amount of common stock equal to the lesser of (i) such amount that equals 10% of the daily trading volume of the common stock on the date of such Put Notice and (ii) $200,000, provided that the aggregate amount of the Option 1 Put and Option 2 Put on any Put Date or Clearing Date does not exceed $500,000 and the aggregate amount of all Option 1 Puts and Option 2 Puts does not exceed $2.0 million. The purchase price per share pursuant to such Option 2 Put is equal to $0.436. The Threshold Price (defined later) and the Purchase Price will be adjusted for any reorganization, recapitalization, non-cash dividend, stock split, reverse stock split or other similar transaction occurring during the period used to compute the Threshold Price or the Purchase Price.

On April 15, 2020, the SEC declared effective the registration statement registering the sale of the shares of common stock issued to Oasis Capital under the March 2020 ELOC. The Company will control the timing and amount of sales of common stock to Oasis Capital. Oasis Capital has no right to require any sales by the Company but is obligated to make purchases from the Company as directed by the Company in accordance with the March 2020 ELOC.

In connection with the equity line, the Company agreed to pay Oasis Capital a commitment fee and in April 2020, in settlement of the commitment fee, the Company issued to Oasis Capital 68,807 shares of common stock. At issuance, the 68,807 shares of common stock had a fair value of $33,000, and were expensed as an issuance cost in the Company's consolidated statements of operations.

Per the terms of the equity purchase agreement, the Option Put 1 and Option Put 2 may be exercised only at a price that is always above the trading price of the underlying common stock at the exercise date, thereby rendering any exercise by the Company being out-of-the-money. At inception of the equity line on March 24, 2020, the Put

Options were classified as derivative assets with a fair value of zero, and upon an effective registration statement on April 15, 2020, were reclassified to stockholders' equity with a fair value of zero.

In April 2020, the Company exercised a single Put Option Put 1 under which the Company sold 52,000 common shares to Oasis for gross proceeds of $22,627. As of December 31, 2020, the Company had not exercised any further put options to require Oasis Capital to purchase common stock under the equity purchase agreement.

March 2020 PIPE Financing

In March 2020, Company entered into a securities purchase agreement (the "PIPE Purchase Agreement") with certain investors, pursuant to which the Company agreed to issue and sell to the Investors in a private placement an aggregate of 1,714,283 shares of the Company's common stock, for an aggregate purchase price of approximately $720,000, or $668,000 net of $52,000 of issuance costs.

At The Market Offering ("ATM")

On October 5, 2020, the Company entered into an ATM Agreement with Ladenburg, pursuant to which the Company may offer and sell, from time to time through Ladenburg, shares of common stock, subject to the terms and conditions of the ATM Agreement. The ATM Agreement will terminate upon the earlier of (i) October 5, 2022 and (ii) termination of the ATM Agreement as permitted therein. As of December 31, 2020, the Company sold 3,814,925 shares of common stock under the ATM Agreement resulting in net proceeds of approximately $1.3 million after commissions and expenses of approximately $40,000.

PoC Capital Registered Direct Offering

On October 6, 2020, the Company entered into a Stock Plan Agreement for payment of contracted research fees (the "SPA") with PoC Capital, LLC ("PoC"), pursuant to which the Company issued to PoC an aggregate of 1,333,333 shares of the Company's common stock, par value $0.0001 per share, as consideration for PoC's assumption of $400,000 in payment obligations of Napo under the service order with Integrium for Napo's planned upcoming pivotal Phase 3 clinical trial for cancer-therapy related diarrhea, for an effective offering price of $0.30 per share.

October 2019 Angel Pond Agreement

In October 2019, the Company engaged Angel Pond Capital LLC to explore potential licensing agreements and collaborations for Mytesi in China. In consideration of these services, the Company issued 166,667 shares of the Company's common stock.

December 2019 PIPE Financing

In 2019, the Company entered into a securities purchase agreement with certain investors pursuant to which the Company, in a Private Placement, sold (i) an aggregate of 2,500,000 unregistered shares of the Company's common stock, and (ii) warrants to purchase 1,250,000 shares of common stock, for an aggregate purchase price of $1.5 million . As the common stock and warrants were issued in a unit structure, the aggregate proceeds of $1.5 million were allocated to the two securities using the relative fair value method, resulting in the common stock and warrants being allocated $1.0 million and $500,000, respectively.

11. Stock-Based Compensation

2013 Equity Incentive Plan

In November 2013, the Company's board of directors and sole stockholder adopted the Jaguar 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. 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. 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. There were 384 and 395 option shares outstanding at
December 31, 2020 and 2019, respectively.

2014 Stock Incentive Plan

Effective May 12, 2015, the Company adopted the Jaguar 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 term of an incentive stock option may not exceed 10 years, except that with respect to any participant who owns more than 10% of the voting power of all classes or our outstanding stock, the term must not exceed 5 years. The 2014 Plan 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 replaced the 2013 Plan except that all outstanding options under the 2013 Plan remain outstanding until exercised, canceled or expired.

As of December 31, 2020, there were 4,456,364 options outstanding and 211,415 options available for grant. As of December 31, 2019, there were 3,902,276 options outstanding and 479,829 options available for grant.

2020 New Employee Inducement Award Plan

Effective June 16, 2020, the Company adopted the Jaguar Health, Inc. New Employee Inducement Award Plan (“2020 Inducement Award Plan”) and, subject to the adjustment provisions of the Inducement Award Plan, reserved 500,000 shares of the Company’s common stock for issuance pursuant to equity awards granted under the Inducement Award Plan. The term of an incentive stock option may not exceed 10 years, except that with respect to any participant who owns more than 10% of the voting power of all classes or our outstanding stock, the term must not exceed 5 years. The 2020 Inducement Award Plan provides for the grant of nonstatutory stock options, restricted stock units, restricted stock, and performance shares. The 2020 Inducement Award Plan was adopted without stockholder approval pursuant to Rule 5635(c)(4) of the Nasdaq Listing Rules. The terms and conditions of the 2020 Inducement Award Plan are substantially similar to the Company’s 2014 Stock Incentive Plan, but with such other terms and conditions intended to comply with the Nasdaq inducement award rules. In accordance with Rule 5635(c)(4) of the Nasdaq Listing Rules, the only persons eligible to receive grants of equity awards under the Inducement Award Plan are individuals who were not previously an employee or director of the Company, or following a bona fide period of non-employment, as an inducement material to such persons entering into employment with the Company.

As of December 31, 2020, there were 114,818 options outstanding and 385,182 options available for grant.

Stock Options and Restricted Stock Units ("RSUs")

The following table summarized the incentive plan activity for the year ended December 31, 2020:

(in thousands, except share and per share data)	Shares Available for Grant	Stock Options Outstanding	RSUs Outstanding	Weighted Average Stock Option Exercise Price	Weighted Average Remaining Contractual Life (Years)	Aggregate Intrinsic Value*
Outstanding at December 31, 2019	479,829	3,902,675	5,613	$ 5.20	9.56	$ —
Additional shares authorized	786,229	—	—	—		—
Options granted	(1,034,818)	1,034,818	—	0.43		—
Options exercised	—	(555)	—	0.45		—
Options canceled	365,357	(365,357)	—	3.81		—
Options canceled not rolled back into the 2013 Plan	—	(15)	—	2,661.75		—
Outstanding at December 31, 2020	596,597	4,571,566	5,613	$ 4.23	8.71	$ 364
Exercisable at December 31, 2020		2,254,832		$ 7.12	8.57	$ 83
Vested and expected to vest at December 31, 2020		4,285,311		$ 4.43	8.70	$ 320

*Fair market value of Jaguar stock on December 31, 2020 was $0.815 per share.

The intrinsic value is calculated as the difference between the exercise price of the underlying options and the fair market value of the Company's common stock for options that were in-the-money.

555 options were exercised for the year ended December 31, 2020. No options were exercised in 2019.

The weighted average grant date fair value of stock options granted was $0.40 and $1.54 per share during the years ended December 31, 2020 and 2019, respectively.

The number of options that vested in the years ended December 31, 2020 and 2019 was 1,449,214 and 944,821, respectively. The grant date weighted average fair value of options that vested in the years ended December 31, 2020 and 2019 was $2.00 and $3.12, respectively.

Stock-Based Compensation

The following table summarizes stock-based compensation expense related to stock options, inducement stock options and RSUs for the years ended December 31, 2020 and 2019, and are included in the consolidated statements of operations as follows:

	Year Ended December 31,	
(in thousands)	2020	2019
Research and development expense	$ 749	$ 869
Sales and marketing expense	220	161
General and administrative expense	1,855	1,959
Total	$ 2,824	$ 2,989

As of December 31, 2020, the Company had $2.6 million of unrecognized stock-based compensation expense for options and RSU's, which is expected to be recognized over a weighted-average period of 1.23 years.

The fair value of options granted during the years ended December 31, 2020 and 2019, respectively, were calculated using the range of assumptions set forth below:

	Year Ended December 31,	
	2020	2019
Volatility	150.1 - 167.9 %	143.1 - 145.9 %
Expected term (years)	5.0 - 5.0	5.0 - 5.8
Risk-free interest rate	0.3 - 0.5 %	1.5 - 1.9 %
Expected dividend yield	—	—

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, 2020.

12. 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, 2020 and 2019:

(In thousands, except share and per share data)	Years Ended December 31, 2020	2019
Net loss attributable to common shareholders (basic and diluted)	(38,648)	$ (44,726)
Shares used to compute net loss per common share, basic and diluted	38,642,650	4,965,337
Net loss per share attributable to common shareholders, basic and diluted	$ (1.00)	$ (9.01)

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, RSUs 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, 2020 and 2019 because their inclusion would be anti-dilutive:

	December 31,	
	2020	2019
Options issued and outstanding	4,456,748	3,902,675
Inducement options issued and outstanding	114,892	74
Restricted stock units issued and outstanding	5,613	5,613
Warrants issued and outstanding	7,205,454	19,421,892
Series A convertible preferred stock	—	473,565
Series B convertible preferred stock	—	985,500
Series B-2 convertible preferred stock	—	1,931,350
Total	11,782,707	26,720,669

As of March 31, 2021 there were 13,884,190 shares of common stock issued after the balance sheet date. Including these shares will have a material effect on the diluted net loss per common share in future periods.

13. Income Taxes

The Company's loss before provision for income taxes during the years ended December 31, 2020 and 2019, was a domestic loss of $33.8 million and $38.5 million, respectively.

The effective tax rate for 2020 and 2019 was 0%. As a result of the Company's history of net operating losses (“NOL”) and a full valuation allowance against its deferred tax assets, there was minimal current income tax and no deferred income tax provision for the years ended December 31, 2020 and 2019.

The components of the provision for income taxes during the years ended December 31, 2020 and 2019 is as follows:

	December 31,	
(In thousands)	2020	2019
Current:		
Federal	$ —	$ 10
State	—	—
Foreign	—	—
Total current	—	10
Deferred:		
Federal	—	—
State	—	—
Foreign	—	—
Total deferred	—	—
Total provision for income taxes	$ —	$ 10

The Company’s effective tax during the years ended December 31, 2020 and 2019, differed from the federal statutory rate as follows:

	December 31,	
	2020	2019
Statutory rate	(21.0)%	(21.0)%
State taxes	— %	(0.1)%
Book loss on debt extinguishment	4.2 %	5.4 %
Other	3.4 %	0.5 %
Valuation allowance	13.4 %	15.2 %
Effective tax rate	— %	— %

Net deferred tax assets as of December 31, 2020 and 2019 consist of the following:

(In thousands)	December 31, 2020	2019
Non-current deferred tax assets:		
Net operating losses	$ 19,863	$ 15,966
Tax credits	241	241
Stock compensation	1,711	1,364
Other	156	—
	21,971	17,571
Valuation allowance	(18,437)	(13,884)
Net non-current deferred tax assets	3,534	3,687
Non-current deferred tax liabilities:		
Other	—	(21)
Property and equipment	(3,534)	(3,666)
Net non-current deferred tax liability	(3,534)	(3,687)
Net non-current deferred tax asset (liability)	$ —	$ —

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, 2020 and 2019, due to the uncertainty of realizing future tax benefits from its NOL carryforwards and other deferred tax assets.

The valuation allowance increased by $4.6 million during the year ended December 31, 2020.

As of December 31, 2020, the Company had federal and California NOL carryovers of approximately $86.7 million and $23.6 million, respectively. Of the federal NOL, $20.7 million will begin to expire in 2034 and $65.9 million will carryforward indefinitely. The California NOL will begin to expire in 2033.

As of December 31, 2020, the Company had California research credit carryovers of approximately $382,000. The California research credits carry forward indefinitely. The Company had no Federal research credit carryovers.

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. The Company also reduced its federal and California R&D credit carryforwards by $1.4 million and $697,000, respectively.

Enacted on March 27, 2020, the Coronavirus Aid, Relief, and Economic Security Act (“the CARES Act”) authorizes more than $2 trillion to battle COVID-19 and its economic effects, including immediate cash relief for individual citizens, loan programs for small business, support for hospitals and other medical providers, and various types of economic relief for impacted businesses and industries. The CARES Act does not have a material impact on the Company’s financial results for the year ended December 31, 2020.

The Consolidated Appropriations Act, 2021 (the "Act") was enacted in the United States on December 27, 2020. The Act enhances and expands certain provisions of the CARES Act. The Act does not have a material impact on the Company’s financial results for the year ended December 31, 2020.

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 determines whether it is more-likely-than-not that a tax position 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.

As of December 31, 2020, all unrecognized tax benefits are offset against deferred tax assets which are subject to a full valuation allowance, and if recognized, will not affect the Company's tax rate.

The Company does not anticipate that the total amounts of unrecognized tax benefits will significantly increase or decrease in the next 12 months.

The Company's policy is to include interest and penalties related to unrecognized tax benefits within its provision for income taxes. Due to the Company's net operating loss position, the Company has not recorded an accrual for interest or penalties related to uncertain tax positions for the years ended December 31, 2020 or 2019.

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

	December 31,	
(In thousands)	2020	2019
Gross Unrecognized Tax Benefit--Beginning Balance	$ 77	$ 101
Increases Related to Tax Positions from Prior Years	—	(24)
Increases Related to Tax Positions Taken During the Current Year	—	—
Gross Unrecognized Tax Benefit--Ending Balance	$ 77	$ 77

14. Segment Data

The Company has two reportable segments-human health and animal health. The animal health segment is focused on developing and commercializing prescription and non-prescription products for companion and production animals. The human health segment is focused on developing and commercializing of human products and the ongoing commercialization of Mytesi, which is approved by the U.S. FDA for the symptomatic relief of non-infectious diarrhea in adults with HIV/AIDS on antiretroviral therapy.

The Company’s reportable segments sales and net income consisted of:

	Year Ended	
(in thousands)	2020	2019
Revenue from external customers		
Human Health	$ 9,309	$ 5,673
Animal Health	76	102
Consolidated Totals	$ 9,385	$ 5,775
Segment net loss		
Human Health	$ (9,779)	$ (19,263)
Animal Health	(24,030)	(19,276)
Consolidated Totals	$ (33,809)	$ (38,539)

The Company's reportable segments assets consisted of the following:

(in thousands)	December 31, 2020	December 31, 2019
Segment assets		
Human Health	$ 34,201	$ 32,432
Animal Health	79,760	68,169
Total	$ 113,961	$ 100,601

The reconciliation of segments assets to the consolidated assets is as follows:

(in thousands)	December 31, 2020	December 31, 2019
Total assets for reportable segments	$ 113,961	$ 100,601
Less: Investment in subsidiary	(29,241)	(29,241)
Less: Intercompany loan	(41,877)	(34,950)
Consolidated Totals	$ 42,843	$ 36,410

15. Subsequent Events

December 2019 PIPE Financing Warrants

During January 2021, an aggregate of 1,250,000 shares of common stock were issued upon the exercise of the December 2019 PIPE Financing Warrants for total proceeds of $975,000.

Exchange Note 2 3(a)(9) Exchange

On January 4, 2021, the Company issued 1,413,606 shares of common stock to CVP in exchange for a $1.8 million reduction in the outstanding balance of the secured promissory note, Exchange Note 2, held by CVP.

January 2021 Series 1 and Series Common Stock Purchase Warrants

During January 2021, an aggregate of 2,475,044 shares of common stock were issued upon the exercise of Series 1 and Series 2 Warrants for total proceeds of $1.2 million.

Series 3 Common Stock Purchase Warrant

On January 8, 2021, in accordance with the May 2020 Modification of the 2019 Bridge Note Warrants and Inducement Offer, an investor received 406,250 Series 3 Warrants for the exercise of 406,250 2019 Bridge Note Warrants on the same date (see Note 8). On January 27, 2021, 406,250 Series 3 Warrants were exercised into 406,250 shares of common stock.

Securities Purchase Agreement

On January 13, 2021, the Company entered into a securities purchase agreement, pursuant to which the Company agreed to issue and sell, in a registered public offering an aggregate of 4,437,870 shares of common stock, par value $0.0001 per share, at an offering price of $3.38 per share for gross proceeds of approximately $15.0 million before deducting $1.4 million placement agent fee and related offering expenses. The offering closed on
January 15, 2021.

Note Purchase and Security Agreements

On January 19, 2021, the Company entered into a note purchase agreement with Streeterville Capital, LLC

("Streeterville"), pursuant to which the Company issued a secured promissory note in the aggregate principal amount of $6.2 million for an aggregate purchase price of $6.0 million. The initial principal balance of the note includes $196,000 representing prepaid interest for the first twelve months and $25,000 to cover Investor's transaction expenses. The Company will use the proceeds to fund development of the Company's NP-300 (lechlemer) drug product candidate for the indication of the symptomatic relief of diarrhea from cholera and general corporate purposes, including the Company's product pipeline activities. The note bears interest at 3.25% per annum and matures on January 20, 2025. Interest will be prepaid each 12 months at the beginning of the period.

The Company also entered in a security agreement with Streeterville, pursuant to which Streeterville will receive a first priority security interest in all existing and future lechlemer technology, and the Company will agree, with certain exceptions, not to grant any lien on any of the collateral securing the note and not to grant any license under any of the intellectual property relating to such collateral. The grant of security interest under the security agreement will not be effective until such time the Company receives a required consent from a third party.

In the event the Company sells a Tropical Disease Priority Review Voucher ("TDPRV") Streeterville will be entitled to a maximum of 18% and a minimum of 1% of the gross proceeds received by the Company from the sale of the TDPRV.

At any time following the occurrence of a Trial Failure, Streeterville, at its option, elect to increase the outstanding balance by multiplying the outstanding balance as of the date of the Trial Failure by 25% via written notice to the Company without accelerating the outstanding balance, in which event the outstanding balance shall be increased as of the date of the occurrence of the Trial Failure, but the outstanding balance shall not be immediately due and payable unless so declared by Streerville. "Trial Failure" means (a) the Company abandons the clinical trial with Lechlemer for an indication for the symptomatic relief of infectious diarrhea for cholera; (b) the Company fails to start the Phase 1 clinical trial of Lechlemer for the symptomatic relief of infectious diarrhea for cholera by July 1, 2022; or (c) the Company fails to meet all primary endpoints in the pivotal trials of Lechlemer for the symptomatic relief of infectious diarrhea for cholera with statistical significance.

Pursuant to the Settlement, Termination, Asset Transfer and Transition Agreement, dated March 4, 2016, and amended May 10, 2016 (the "Settlement Agreement"), between the Company and Salix Pharmaceuticals, Inc. ("Salix"), the Company is required to enter into an intercreditor agreement with Salix for purposes of protecting the relative priority of Salix's rights to payment and collection of amounts payable to Salix under the Settlement Agreement prior to the Company incurring any secured indebtedness (the "Intercreditor Obligation"). In connection with the Company's issuance of a secured promissory note to a third party lender in January 2021, the Company requested that Salix waive its rights with respect to the Intercreditor Obligation.

ATM Agreement

During January and February 2021, the Company issued an aggregate of 2,009,554 shares under the ATM Agreement for total net proceeds of $5.5 million. As of February 18, 2021, all shares under the ATM Agreement have been issued.

Royalty Purchase Agreement

On March 8, 2021, the Company entered into a Purchase Agreement with Streeterville, pursuant to which the Company sold a royalty interest entitling Streeterville to $10.0 million and any interest, fees, and charges as royalty repayment amount for an aggregate purchase price of $5.0 million. Interest will accrue on the royalty repayment amount at a rate of 5% per annum, compounding quarterly, and will increase to 10% per annum, compounding quarterly on the 12-month anniversary of the closing date. The Company will be obligated to make minimum royalty payments on a monthly basis beginning at the earlier of (a) 36 months following the closing date or (b) 30 days following the satisfaction of all existing royalties to Streeterville, and its affiliates, but not earlier than 18 months

following the closing date in an amount equal to the greater of (i) $250,000 beginning on the royalty payment start date and continuing until either the royalty repayment amount has been paid in full or the 6-month anniversary of the royalty payment start date, $400,000 beginning on the 6-month anniversary of the royalty payment start date and continuing until either the royalty repayment amount has been paid in full or the 12-month anniversary of the royalty payment start date, $600,000 beginning on the 12-month anniversary of the royalty payment start date and continuing until either the royalty repayment amount has been paid in full or the 18-month anniversary of the royalty payment start date, $750,000 beginning on the 18-month anniversary of the royalty payment start date and continuing until the royalty repayment amount has been paid in full, and (ii) 10% of the Company's net sales on included products and 10% of worldwide revenues related to upfront licensing fees and milestone payments from licensees and/or distributors.

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

None.

ITEM 9A. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

Our management, Chief Executive Officer and Principal Financial and Accounting Officer, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2020. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms.

Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is accumulated and communicated to our management, including our Chief Executive Officer and Principal Financial and Accounting Officer, as appropriate, to allow timely decisions regarding required disclosure. Based on this evaluation, our Chief Executive Officer and Principal Financial and Accounting Officer concluded that our disclosure controls and procedures were not effective at the reasonable assurance level as of December 31, 2020. This conclusion was based on the material weakness in our internal control over financial reporting as further described below.

Material Weaknesses

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim consolidated financial statements will not be prevented or detected and corrected on a timely basis. As previously reported in our annual report on Form 10-K for the year ended December 31, 2019, management concluded that, as of such date, our disclosure controls and procedures were not effective due to the existence of a material weakness in the design and operating effectiveness of internal controls related to staff turnover in our accounting department and inadequate internal technical staffing levels.

In connection with our preparation of our annual financial statements for the year ended December 31, 2019, we identified a material weakness in our internal control over financial reporting related to staff turnover in our accounting department. We did not maintain a sufficient complement of internal personnel with appropriate knowledge, experience and/or training commensurate with our financial reporting requirements. We relied on outside consulting technical experts and did not maintain adequate internal qualified personnel to properly supervise and review the information provided by the outside consulting technical experts to ensure certain significant complex transactions and technical matters were properly accounted for. In addition, we identified inadequate internal technical staffing levels and expertise to properly supervise and review the information of the outside consulting technical experts to properly apply ASC 815-40 for liability classification of certain warrants and ASC 470-50 and ASC 470-60 to properly reflect the accounting impact to multiple modifications of the Company’s debt instruments. We did not have adequate policies and procedures in place to ensure the timely, effective review of assumptions used in measuring the fair value of certain financial instruments. We did not have adequate policies and procedures in place to ensure the timely, effective review of compliance with contractual covenants in certain financial instruments. These material weaknesses have not been remediated as of December 31, 2020.

In connection with our preparation of our annual financial statements for the year ended December 31, 2020, we identified material weaknesses in our internal control over financial reporting related to our financial statement close process and policies. The primary factors contributing to the material weaknesses were as follows:

- We did not have adequate policies and procedures in place to ensure the timely, effective review of assumptions used in measuring the fair value of certain financial instruments.

- We did not have sufficient resources with appropriate knowledge, experience and/or training commensurate with our financial reporting requirements to assist us in our timely and efficient preparation and review over our financial reporting.

Remediation Efforts to Address Material Weaknesses

To remediate the material weaknesses described above, management will add controls to further enhance and revise the design of the existing controls including:

- Establishing policies and procedures to ensure timely review, by qualified personnel, of assumptions used in measuring fair value of certain financial instruments.

- Reassessing the design and operation of internal controls over financial reporting and review procedures over the preparation of our financial statements.

- Hiring permanent accounting personnel and used consultants to provide support during our quarterly and annual preparation, review, and reporting of our financial statements.

- Maintaining adequate internal qualified personnel to properly supervise and review the information provided by the outside consulting technical experts to ensure certain significant complex transactions and technical matters were properly accounted for.

We cannot assure you that the planned measures in response to these material weaknesses will be sufficient to remediate such material weaknesses or to avoid potential future material weaknesses.

Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rule 13a-15(f) and 15d-15(c) under the Exchange Act. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of the effectiveness of internal control to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with policies or procedures may deteriorate. Under the supervision and with the participation of our management, including our Chief Executive Officer and Principal Financial and Accounting Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2020 using the criteria established in Internal Control-Integrated Framework (“2013 Framework”) issued by the Committee of Sponsoring Organization of the Treadway Commission (“COSO”). Based on our evaluation using those criteria, our management has concluded that, as of December 31, 2020, our internal control over financial reporting was not effective to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles for the reasons discussed above.

This Annual Report on Form 10-K does not include an attestation report of our registered public accounting firm on our internal control over financial reporting because we are an SRC and are not subject to auditor attestation requirements under applicable SEC rules.

Changes in Internal Control over Financial Reporting

Other than the changes disclosed above regarding the remediation efforts to address the material weaknesses, 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 2020.

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 2021 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2020.

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 2021 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2020.

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 2021 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2020.

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 2021 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2020.

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 2021 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2020.

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

Exhibit No.	Description
2.1	Agreement and Plan of Merger, dated as of March 31, 2017, by and among Jaguar Health, Inc. (f/k/a Jaguar Animal Health, Inc.), Napo Acquisition Corporation, Napo Pharmaceuticals, Inc. and Gregory Stock (incorporated by reference to Exhibit 2.1 to the Current Report on Form 8-K of Jaguar Health, Inc. filed March 31, 2017, File No. 001-36714).
3.1	Third 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 August 1, 2017).
3.2	Certificate of Amendment of the Third Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.2 to the Annual Report on Form 10-K filed with the Securities and Exchange Commission on April 9, 2018).
3.3	Certificate of Second Amendment of the Third Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on June 1, 2018).
3.4	Certificate of Third Amendment of the Third Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.2 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on June 1, 2018).
3.5	Certificate of Designation of Series A Convertible Participating Preferred Stock (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K (filed with the Securities and Exchange Commission on March 27, 2018).
3.6	Certificate of Amendment to the Certificate of Designation of Series A Convertible Participating Preferred Stock (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on March 15, 2019).
3.7	Certificate of Fifth Amendment of the Third Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on June 6, 2019).
3.8	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).
3.9	Certificate of Designation of Preferences, Rights, and Limitations of Series B Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K (No. 001-036714) filed with the Securities and Exchange Commission on July 23, 2019).
3.10	Certificate of Designation of Preferences, Rights, and Limitations of Series B-1 Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K (No. 001-036714) filed with the Securities and Exchange Commission on October 3, 2019).
3.11	Certificate of Designation of Preferences, Rights, and Limitations of Series B-2 Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K (No. 001-036714) filed with the Securities and Exchange Commission on December 26, 2019).
3.12	Certificate of Amendment to the Certificate of Designation of Series B Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K (No. 001-036714) filed with the Securities and Exchange Commission on March 26, 2020).
3.13	Certificate of Designation of Series C Perpetual Preferred Stock (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K (No. 001-036714) filed with the Securities and Exchange Commission on September 2, 2020).
3.14	Certificate of Designation of Series D Perpetual Preferred Stock (incorporated by reference to Exhibit 3.2 to the Current Report on Form 8-K (No. 001-036714) filed with the Securities and Exchange Commission on September 2, 2020).
3.15	Certificate of Retirement of Series A Convertible Participating Preferred Stock, Series B Convertible Preferred Stock and Series B-1 Convertible Preferred Stock of Jaguar Health, Inc. (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K (No. 001-036714) filed with the Securities and Exchange Commission on September 9, 2020)

Exhibit No.	Description
4.1	Specimen Non-Voting Common Stock Certificate of Jaguar Health, Inc. (incorporated by reference to Exhibit 4.1 to the Form 8-K of Jaguar Health, Inc. filed August 1, 2017, File No. 001-36714).
4.2	Common Stock Warrant, dated August 28, 2018, by and between Jaguar Health, Inc. and the holder named therein (incorporated by reference to Ex. 4.1 to the Current Report on Form 8-K filed on September 4, 2018).
4.3	Common Stock Warrant, dated September 11, 2018, by and between Jaguar Health, Inc. and L2 Capital, LLC (incorporated by reference to Ex. 4.3 to the Current Report on Form 8-K filed on September 12, 2018).
4.4	Common Stock Warrant, dated September 11, 2018, by and between Jaguar Health, Inc. and Charles Conte (incorporated by reference to Ex. 4.4 to the Current Report on Form 8-K filed on September 12, 2018).
4.5	Form of Pre-Funded Warrant (incorporated by reference to Exhibit 4.6 to the Registration Statement on Form S-1 (No. 333-227292) filed with the Securities and Exchange Commission on October 1, 2018).
4.6	Form of Common Stock Warrant (incorporated by reference to Exhibit 4.3 to the Form 8-K of Jaguar Health, Inc. filed March 22, 2019).
4.7	Form of Placement Agent Warrant (incorporated by reference to Exhibit 4.1 to the Form 8-K/A of Jaguar Health, Inc. filed March 26, 2019).
4.8	Form of LOC Common Stock Warrant (incorporated by reference to Exhibit 4.1 to the Form 8-K of Jaguar Health, Inc. filed April 4, 2019, File No. 001-36714).
4.9	Specimen Common Stock Certificate of Jaguar Health, Inc. (incorporated by reference to Exhibit 4.1 to the Form 8-K of Jaguar Health, Inc. filed June 1, 2018, File No. 001-36714).
4.10	Form of Series 1 Warrant (incorporated by reference to Exhibit 4.1 to the Form 8-K of Jaguar Health, Inc. filed July 23, 2019, File No. 001-36714).
4.11	Form of Series 2 Warrant (incorporated by reference to Exhibit 4.1 to the Form 8-K of Jaguar Health, Inc. filed July 23, 2019, File No. 001-36714).
4.12	Promissory Note, dated October 1, 2019, between Napo Pharmaceuticals, Inc. and Michael Tempesta (incorporated by reference to Exhibit 4.1 to the Form 8-K of Jaguar Health, Inc. filed October 7, 2019, File No. 001-36714).
4.13	Form of Pre-Funded Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 to the Form 8-K of Jaguar Health, Inc. filed November 14, 2019, File No. 001-36714).
4.14	Form of Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 to the Form 8-K of Jaguar Health, Inc. filed December 26, 2019, File No. 001-36714).
4.15	Royalty Interest, dated March 4, 2020, by and between the Company and Iliad Research and Trading L.P. (incorporated by reference to Exhibit 4.1 to the Form 8-K of Jaguar Health, Inc. filed March 6, 2020, File No. 001-36714).
4.16	Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1945, as amended (incorporated herein by reference to Exhibit 4.26 to the Annual Report on Form 10-K filed on April 3, 2020).
4.17	Form of Series 3 Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 to the Form 8-K of Jaguar health, Inc. filed May 22, 2020).
4.18	Global Amendment, dated September 1, 2020, by and among Jaguar Health, Inc., Napo Pharmaceuticals, Inc. and Chicago Ventures, L.P. (incorporated by reference to Exhibit 4.1 to the Form 8-K of Jaguar health, Inc. filed September 2, 2020).
4.19	Royalty Interest, dated October 8, 2020, by and between Jaguar Health, Inc. and Iliad Research and Trading, L.P. (incorporated by reference to Exhibit 4.1 to the Form 8-K of Jaguar Health, Inc. filed October 9, 2020).
4.20	Form of Pre-Funded Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 to the Form 8-K of Jaguar health, Inc. filed October 9, 2020).

Exhibit No.	Description
4.21	Royalty Interest, dated December 22, 2020, by and between Jaguar Health, Inc. and Irving Park Capital, LLC (incorporated by reference to Exhibit 4.1 to the Form 8-K filed December 29, 2020, File No. 001-36714).
4.22	Secured Promissory Note, dated January 19, 2021, by and among Jaguar Health, Inc., Napo Pharmaceuticals, Inc. and Streeterville Capital, LLC (incorporated by reference to Exhibit 4.1 to the Form 8-K filed January 22, 2021, File No. 001-36714).
10.1‡	Form of Indemnification Agreement by and between Jaguar 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 Health, Inc. 2014 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on June 20, 2016).
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).
10.6‡	Offer Letter by and between Jaguar 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 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†	Formulation Development and Manufacturing Agreement between Jaguar 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).
10.9	Common Stock Warrant issued pursuant to the Letter Agreement, dated November 8, 2016, between Jaguar 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).
10.10	Distribution Agreement, dated December 9, 2016, by and between Jaguar Health, Inc. and Henry Schein, Inc (incorporated herein by reference to Exhibit 10.41 to the Annual Report on Form 10-K filed on February 15, 2017).
10.11	Investor Rights Agreement, dated March 31, 2017, by and between Jaguar Health, Inc. and Nantucket Investments Limited (incorporated by reference herein to Exhibit 10.1 to the Current Report on Form 8-K filed on March 31, 2017).
10.12†	Alliance Agreement, dated May 23, 2005, by and among AsiaPharm Investment Limited and its Affiliates, including Shandong Luye Pharmaceuticals Co. Ltd., and Napo Pharmaceuticals, Inc. (incorporated herein by reference to Exhibit 10.61 to the Registration Statement on Form S-4/A filed May 26, 2017 (No. 333-217364)).
10.13†	Finder's Agreement, dated April 9, 2010, by and among Luye Pharma Group Limited and its Affiliates, including Shandong Luye Pharmaceuticals Co. Ltd., and Napo Pharmaceuticals, Inc. (incorporated herein by reference to Exhibit 10.62 to the Registration Statement on Form S-4/A filed May 26, 2017 (No. 333-217364)).

Exhibit No.	Description
10.14†	License Agreement, dated February 28, 2007, by and between Insmed Incorporated and Napo Pharmaceuticals, Inc. (incorporated herein by reference to Exhibit 10.77 to the Registration Statement on Form S-4/A filed May 26, 2017 (No. 333-217364)).
10.15†	Amendment, Waiver & Consent, dated June 27, 2017, by and among Jaguar Health, Inc., Nantucket Investments Limited, and Napo Pharmaceuticals, Inc. (incorporated by reference to Ex. 10.83 of the Company's Registration Statement on Form S-4 (Registration No. 333-217364) filed on July 5, 2017).
10.16	Termination, Asset Transfer and Transition Agreement, dated September 22, 2017, by and between Napo Pharmaceuticals, Inc. and Glenmark Pharmaceuticals, Ltd. (incorporated by reference to Ex. 10.8 to the Quarterly Report on Form 10-Q filed on November 20, 2017)
10.17	Registration Rights Agreement, dated March 23, 2018, by and between Jaguar Health, Inc. and Sagard Capital Partners, L.P. (incorporated by reference to Ex. 10.2 to the Current Report on Form 8-K filed on March 27, 2018).
10.18	Registration Rights Agreement, dated September 11, 2018, by and between Jaguar Health, Inc. and L2 Capital, LLC (incorporated by reference to Ex. 10.3 to the Current Report on Form 8-K filed on September 12, 2018).
10.19	Registration Rights Agreement, dated September 11, 2018, by and between Jaguar Health, Inc. and Charles Conte (incorporated by reference to Ex. 10.4 to the Current Report on Form 8-K filed on September 12, 2018).
10.20	Form of Registration Rights Agreement (incorporated by reference to Exhibit 10.2 to the Form 8-K of Jaguar Health, Inc. filed March 22, 2019).
10.21	Letter of Credit Cancellation & Warrant Issuance Agreement, dated March 29, 2019, by and between Jaguar Health, Inc. and the letter of credit beneficiary named therein (incorporated by reference to Exhibit 10.1 to the Form 8-K of Jaguar Health, Inc. filed April 4, 2019).
10.22	Amendment No. 1 to Registration Rights Agreement, dated May 30, 2019, by and between Jaguar Health, Inc. and Sagard Capital Partners, L.P. (incorporated by reference to Exhibit 10.120 to the Registration Statement on Form S-1 (No. 333-233989) filed with the Securities and Exchange Commission on September 27, 2019).
10.23	Form of Amendment Agreement (incorporated by reference to Exhibit 10.1 to the Form 8-K of Jaguar Health, Inc. filed July 5, 2019, File No. 001-36714).
10.24*#	Master Services Agreement, dated June 24, 2019, by and among Napo Pharmaceuticals, Inc., Integrium, LLC, and POC Capital, LLC.
10.25	Form of Exchange Agreement, between Jaguar Health, Inc. and Chicago Venture Partners, L.P. (incorporated by reference to Exhibit 10.6 to the Form 10-Q of Jaguar Health, Inc. filed on August 14, 2019, File No. 001-36714).
10.26	Form of Warrant Agency Agreement between Jaguar Health, Inc. and American Stock Transfer & Trust Company, LLC (incorporated by reference to Exhibit 10.117 to the Form S-1/A of Jaguar Health, Inc. filed on July 15, 2019, File No. 333-231399).
10.27	Warrant Exercise Agreement, dated October 2, 2019, between Jaguar Health, Inc. and the purchaser named therein (incorporated by reference to Exhibit 10.1 to the Form 8-K of Jaguar Health, Inc. filed October 3, 2019, File No. 001-36714).
10.28	License Termination and Settlement Termination Agreement, dated October 1, 2019, by and among Jaguar Health, Inc., Napo Pharmaceuticals, Inc. and Michael Tempesta (incorporated by reference to Exhibit 10.1 to the Form 8-K of Jaguar Health, Inc. filed October 7, 2019, File No. 001-36714).
10.29#	Securities Purchase Agreement, dated November 13, 2019, by and between Jaguar Health, Inc. and the purchasers named therein (incorporated by reference to Exhibit 10.1 to the Form 8-K of Jaguar Health, Inc. filed November 14, 2019, File No. 001-36714).
10.30	Securities Purchase Agreement, dated December 20, 2019, by and between Jaguar Health, Inc. and the investors named therein (incorporated by reference to Exhibit 10.1 to the Form 8-K of Jaguar Health, Inc. filed December 26, 2019, File No. 001-36714).

Exhibit No.	Description
10.31	Exchange Agreement, dated December 23, 2019, by and between Jaguar Health, Inc. and Oasis Capital, LLC (incorporated by reference to Exhibit 10.2 to the Form 8-K of Jaguar Health, Inc. filed December 26, 2019, File No. 001-36714).
10.32	First Amendment to the Exchange Agreement, dated January 22, 2020, by and between Jaguar Health, Inc. and Oasis Capital, LLC (incorporated by reference to Exhibit 10.1 to the Form 8-K/A filed January 27, 2020, File No. 001-36714).
10.33	Form of Warrant Exercise Agreement by and between Jaguar Health, Inc. and the Holder named therein (incorporated by reference to Exhibit 10.1 to the Form 8-K filed February 28, 2020, File No. 001-36714).
10.34	Securities Purchase Agreement, dated March 23, 2020, by and between Jaguar Health, Inc. and the investors named therein (incorporated by reference to Exhibit 10.1 to the Form 8-K filed March 26, 2020, File No. 001-36714).
10.35	Warrant Exercise and Preferred Stock Amendment Agreement, dated March 24, 2020, by and between Jaguar Health, Inc. and the Holder named therein (incorporated by reference to Exhibit 10.2 to the Form 8-K filed March 26, 2020, File No. 001-36714).
10.36	Leak-Out Agreement, dated March 24, 2020, by and between Jaguar Health, Inc. and the Holder named therein (incorporated by reference to Exhibit 10.3 to the Form 8-K filed March 26, 2020, File No. 001-36714).
10.37	Equity Purchase Agreement, dated March 24, 2020, by and between Jaguar Health, Inc. and Oasis Capital, LLC (incorporated by reference to Exhibit 10.4 to the Form 8-K filed March 26, 2020, File No. 001-36714).
10.38	Registration Rights Agreement, dated March 24, 2020, by and between Jaguar Health, Inc. and Oasis Capital, LLC (incorporated by reference to Exhibit 10.5 to the Form 8-K filed March 26, 2020, File No. 001-36714).
10.39	Jaguar Health, Inc. 2014 Stock Incentive Plan as Amended and Restated Effective October 1, 2019 (incorporated by reference to Exhibit 10.101 to the Form 10-K of Jaguar Health, Inc. filed April 3, 2020, File No. 001 36714).
10.40	Purchase Agreement, dated April 15, 2020, by and between Napo Pharmaceuticals, Inc. and Atlas Sciences, LLC (incorporated by reference to Exhibit 10.1 to the Form 8-K filed April 16, 2020, File No. 001-36714).
10.41	License Agreement, dated April 15, 2020, by and between Jaguar Health, Inc. and Atlas Sciences, LLC (incorporated by reference to Exhibit 10.1 to the Form 8-K filed April 16, 2020, File No. 001-36714).
10.42	Purchase Agreement, dated May 12, 2020, by and among Jaguar Health, Inc., Napo Pharmaceuticals, Inc. and Oasis Capital, LLC (incorporated by reference to Exhibit 10,1 to the Form 8-K filed May 21, 2020, File No. 001-36714).
10.43	Assignment Agreement, dated May 12, 2020, by and between Napo Pharmaceuticals, Inc. and Oasis Capital, LLC (incorporated by reference to Exhibit 10.2 to the Form 8-K filed May 21, 2020, File No. 001-36714).
10.44	Form of Inducement Letter for Original Warrants (incorporated by reference to Exhibit 10.1 to the Form 8-K filed May 22, 2020, File No. 001-36714).
10.45	Form of Inducement Letter for Bridge Warrants (incorporated by reference to Exhibit 10.2 to the Form 8-K filed May 22, 2020, File No. 001-36714).
10.46	Jaguar Health, Inc. New Employee Inducement Award Plan (incorporated by reference to Exhibit 10.1 to the Form 8-K filed June 19, 2020, File No. 001-36714).
10.47	Form of Notice of Grant of Stock Option and Stock Option Agreement under Jaguar Health, Inc. New Employee Inducement Award Plan (incorporated by reference to Exhibit 10.2 to the Form 8-K filed June 19, 2020, File No. 001-36714).

Exhibit No.	Description
10.48	Form of Notice of Grant of Restricted Stock Units and Restricted Stock Unit Agreement under the Jaguar Health, Inc. New Employee Inducement Award Plan (incorporated by reference to Exhibit 10.3 to the Form 8-K filed June 19, 2020, File No. 001-36714).
10.49	Securities Purchase Agreement, dated March 4, 2020, by and between Jaguar Health, Inc. and Iliad Research and Trading, L.P. (incorporated by reference to Exhibit 10.1 to the Form 8-K filed March 6, 2020, File No. 001-36714).
10.50	First Amendment to Royalty Interest Purchase Agreement and Related Documents, dated July 10, 2020, between Jaguar Health, Inc. and Iliad Research and Trading, L.P. (incorporated by reference to Exhibit 10.1 to the Form 8-K filed July 14, 2020, File No. 001-36714).
10.51‡	Form of Severance and Change of Control Agreement (incorporated by reference to Exhibit 10.11 to the Form 10-Q filed August 13, 2020 File No. 001-36714).
10.52	First Amendment to Purchase Agreement, dated June 26, 2020, by and among Jaguar Health, Inc., Napo Pharmaceuticals, Inc. and Oasis Capital, LLC (incorporated by reference to Exhibit 10.12 to the Form 10-Q filed August 13, 2020 File No. 001-36714).
10.53	First Amendment to Assignment Agreement, dated June 26, 2020, by and between Napo Pharmaceuticals, Inc. and Oasis Capital, LLC (incorporated by reference to Exhibit 10.13 to the Form 10-Q filed August 13, 2020 File No. 001-36714).
10.54	Exchange Agreement, dated September 1, 2020, by and between Jaguar Health, Inc. and Iliad Research and Trading, L.P. (incorporated by reference to Exhibit 10.1 to the Form 8-K filed September 2, 2020, File No. 001-36714).
10.55	Stock Plan Agreement for Payment of Consulting Services, dated September 1, 2020, by and among Jaguar Health, Inc., Sagard Capital Partners Management Corp. and Sagard Capital Partners, L.P. (incorporated by reference to Exhibit 10.2 to the Form 8-K filed September 2, 2020, File No. 001-36714).
10.56	At the Market Offering Agreement, dated October 5, 2020, by and between Jaguar Health, Inc. and Ladenburg Thalmann & Co. Inc. (incorporated by reference to Exhibit 10.1 to the Form 8-K filed October 5, 2020, File No. 001-36714).
10.57	Stock Plan Agreement, dated October 6, 2020, by and between Jaguar Health, Inc. and PoC Capital, LLC (incorporated by reference to Exhibit 10.1 to the Form 8-K filed October 7, 2020, File No. 001-36714).
10.58	Fee Settlement Agreement dated October 7, 2020, by and between Jaguar Health, Inc. and Atlas Sciences, LLC (incorporated by reference to Exhibit 10.1 to the Form 8-K filed October 9, 2020, File No. 001-36714).
10.59	Royalty Interest Purchase Agreement, dated October 8, 2020, by and between Jaguar Health, Inc. and Iliad Research and Trading, L.P. (incorporated by reference to Exhibit 10.1 to the Form 8-K filed October 9, 2020, File No. 001-36714).
10.60	Exchange Agreement, dated October 8, 2020, by and between Jaguar Health, Inc. and Iliad Research and Trading, L.P. (incorporated by reference to Exhibit 10.2 to the Form 8-K filed October 9, 2020, File No. 001-36714).
10.61#	Office Sublease Agreement, dated August 31, 2020, by and between Jaguar Health, Inc. and Peacock Construction, Inc. (incorporated by reference to Exhibit 10.4 to the Form 10-Q filed November 16, 2020, File No. 001-36714).
10.62	Consent to Sublease Agreement, dated August 31, 2020, by and among M&E, LLC, Jaguar Health, Inc. and Peacock Construction, Inc. (incorporated by reference to Exhibit 10.5 to the Form 10-Q filed November 16, 2020, File No. 001-36714).
10.63#	Manufacturing and Supply Agreement, dated September 3, 2020, by and between Glenmark Life Sciences Limited and Napo Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.6 to the Form 10-Q filed November 16, 2020, File No. 001-36714).

Exhibit No.	Description
10.64	Securities Purchase Agreement, dated December 22, 2020, by and between Jaguar Health, Inc. and Irving Park Capital, LLC (incorporated by reference to Exhibit 10.1 to the Form 8-K filed December 29, 2020, File No. 001-36714).
10.65	Note Purchase Agreement, dated January 19, 2021, by and among Jaguar Health, Inc., Napo Pharmaceuticals, Inc. and Streeterville Capital, LLC (incorporated by reference to Exhibit 10.1 to the Form 8-K filed January 22, 2021, File No. 001-36714).
10.66	Security Agreement, dated January 19, 2021, by and between Napo Pharmaceuticals, Inc. and Streeterville Capital, LLC (incorporated by reference to Exhibit 10.2 to the Form 8-K filed January 22, 2021, File No. 001-36714).
10.67*#	Master Services Agreement, dated October 5, 2020, by and between Napo Pharmaceuticals, Inc. and Integrium, LLC.
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.

‡ Management contract or compensatory plan or arrangement.

Portions of this exhibit have been omitted pursuant to Item 601 of Regulation S-K promulgated under the Securities Act because the information (i) is not material and (ii) would be competitively harmful if publicly disclosed.

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 HEALTH, INC.

By: /s/ LISA A. CONTE
Lisa A. Conte
Chief Executive Officer and President

Date: March 31, 2021

Certain information marked as [****] has been excluded from this exhibit because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

MASTER SERVICES AGREEMENT

By and Among

Napo Pharmaceuticals, Inc.

and

INTEGRIUM, LLC.

and

POC Capital, LLC

for

Clinical Research Organization (CRO) Services

Effective Date: June 24, 2019

CRO AGREEMENT

EFFECTIVE DATE: June 24, 2019

Name and Address of the Contact for Integrium, LLC

Name: Jessica Coutu

Title: Senior Vice President of Clinical Operations

Address: **[****]**

Telephone: **[****]**

Mobile Phone: **[****]**

e-mail: **[****]**

Name and Address of the Contact for Napo Pharmaceuticals, Inc.

Name: **[****]**, RN, BSN

Title: VP Clinical Operations

Address: 201 Mission Street, Suite 2375
San Francisco, CA 94105

Telephone: **[****]**

Facsimile: (415) 371-8311

e-mail: **[****]**

Name and Address of the Contact for POC CAPITAL, LLC

Name: **[****]**

Title: Daron Evans, Managing Director

Address: **[****]**

Telephone: **[****]**

e-mail: **[****]**

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This Agreement (the "Agreement") is made as of the June 24, 2019 (the "Effective Date"), by and among:

Napo Pharmaceuticals, Inc. ("NAPO"), a Delaware corporation, located at 201 Mission Street, Suite 2375, San Francisco, CA 94105, a wholly owned subsidiary of Jaguar Health, Inc., and

Integrium, LLC ("INTEGRIUM"), a California limited liability company, located at **[****]** and

(each of which is individually sometimes referred to hereinafter as "**Party,**" and collectively hereinafter referred to as "**Parties**");

and in the presence of

POC Capital, LLC, a California limited liability company, having its registered office at **[****]** ("**POC CAPITAL**"), solely with respect to Sections 4.1 and 6.7 and Articles 8, 9, 10 (other than Section 10.1), 14 and 16.

WHEREAS, NAPO desires to retain the services of INTEGRIUM from time to time to perform clinical development services in connection with certain clinical research programs that NAPO is conducting (individually a "**Study**") with respect to the Study Drug (defined below), in which case the terms and conditions for each such Study shall be set forth in a services order to be executed by the Parties and by POC CAPITAL, as applicable, and incorporated herein by reference (individually, a "**Services Order**" and collectively, the "**Services Orders**"); and

NOW, THEREFORE, for good and valuable consideration, the exchange, receipt and sufficiency of which are acknowledged, the Parties and POC CAPITAL, as applicable, hereby agree as follows:

1. <u>Term</u>

1.1 The term of this Agreement shall be for the period beginning as of the Effective Date and ending upon the satisfactory performance of all the SERVICES (as hereinafter defined) unless terminated sooner as provided for herein ("**Term**").

2. <u>Scope of Work</u>

2.1 INTEGRIUM shall perform various services for NAPO. Any and all services, equipment and/or supplies which NAPO deems necessary for INTEGRIUM to provide as well as NAPO's responsibilities for each study for which such services, equipment and/or supplies are being provided shall be stated in separate Service Orders (all of which are incorporated herein pursuant to this reference). (The services and items INTEGRIUM is to provide shall be referred to collectively as "**Services**,"

unless otherwise designated and listed in a Service Order.) Each Service Order shall be named by the protocol number to which it corresponds and shall also include the compensation to be paid for the Services listed and the anticipated time period in which the Services are to be provided together with any other special terms and conditions. Each Service Order shall be signed and dated by each Party and shall be made fully a part of this Agreement upon the latter of the dates appearing on the signature page of the Service Order and shall remain in effect until all items listed in the Service Order have been completed or this Agreement has been otherwise terminated as provided herein. INTEGRIUM will commence work on a project upon receipt of the signed Agreement and a properly executed Service Order. NAPO will designate one or more individuals to represent NAPO with authority to make decisions with respect to this Agreement and each Service Order or Change Order (such individual, the "NAPO Liaison"). Each Service Order and Change Order must be signed by NAPO's authorized representative and INTEGRIUM prior to going into effect. To the extent any terms set forth in a Service Order or Change Order conflict with the terms set forth in this Agreement, the terms of this Agreement shall control unless otherwise specifically set forth in the Service Order.

2.2 The Parties enter into each Service Order for the express purpose of transferring from NAPO to INTEGRIUM the responsibilities and obligations of NAPO to conduct, coordinate, manage, and/or develop the Study in accordance with United States Food and Drug Administration ("**FDA**") regulations set forth in 21 CFR Section 312, Subpart D, as such may be amended from time to time. Accordingly, if NAPO transfers the responsibility for various regulatory responsibilities under the U.S. laws and regulations to INTEGRIUM, a Transfer of Regulatory Obligations ("**TRO FORM**") will be completed for each Service Order. INTEGRIUM agrees to perform the responsibilities and obligations so transferred as Services under this Agreement.

2.3 INTEGRIUM shall provide to NAPO prompt notice of all communications to or from the FDA regarding any Services or Study with respect to any Service Order, whether oral or written, and consult with NAPO sufficiently prior to initiating or responding thereto to enable NAPO to meaningfully participate therein, including where relevant the provision to NAPO for review, comment and decision a draft of all documents prior to submission to the FDA. INTEGRIUM shall not meet with the FDA for any purpose related to the Services or Study without first providing notice to NAPO.

2.4 If the FDA or any other government authority conducts or gives notice of intent to conduct any inspection regarding the Study or Services at any time at any investigation site ("**Investigator Site**"), or at INTEGRIUM offices, or at a third party's office, or to take any other action with respect to the Study or Services (collectively "**Action**"), INTEGRIUM will immediately give NAPO written notice thereof, and supply all information pertinent thereto. As appropriate, the Parties will promptly meet or discuss and agree on an appropriate course of action to prepare for or otherwise respond thereto, including each Party's responsibility for any tasks. To the extent not precluded by applicable law, NAPO shall have the right to be present at any Action.

Prior to responding to written requests for information, findings or other actions regarding any Action, INTEGRIUM shall review and discuss such with NAPO, and to the extent not prohibited by applicable laws shall (i) permit NAPO to be present at an oral response or reply to an Action, if such response is involved, and (ii) permit NAPO (including any representative thereof) to review and comment on any written response to an Action, and to reasonably consider such comments. During any such Action, the Parties agree to be bound by the confidentiality provisions of this Agreement and to make reasonable efforts to disclose only that information required to be disclosed. INTEGRIUM agrees to take any reasonable steps requested by NAPO as a result of an Action to cure any deficiencies in the Services conduct and/or documentation.

2.5 INTEGRIUM shall advise and update NAPO on a regular basis to keep NAPO current on significant developments, problems, progress, decisions and issues that arise with respect to the Services, but in no event less frequently than meeting telephonically in accordance with applicable Service Orders or in person at an INTEGRIUM facility, at the reasonable request of NAPO. Further, INTEGRIUM agrees to establish recurring meetings (telephonically or other) to discuss progress and plans. The meetings should be no less frequent then twice a month during enrollment and monthly thereafter.

2.6 In accordance with the applicable Service Order, NAPO may supply Study sites with Mytesi® (crofelemer) (the "**Study Drug**") for the performance of the Study. The Study Drug is provided without any warranty, express or implied. All right, title, and interest in and to the Study Drug and any patent and intellectual property rights related thereto shall remain solely and exclusively with NAPO. Upon the expiration or termination of this Agreement or any Service Order, INTEGRIUM shall ensure that all unused supply of the Study Drug is promptly returned to NAPO.

3. Conditions of Work

3.1 Any regulatory responsibilities not specifically stated as transferred to INTEGRIUM in the TRO Form shall remain the regulatory responsibility of NAPO. NAPO shall file the TRO Form with the FDA or as otherwise required by law or regulation. If an amendment to any Service Order affects the scope of regulatory obligations that have been transferred to INTEGRIUM, INTEGRIUM and NAPO shall execute a corresponding amendment to the TRO Form. Such TRO Form amendment shall be filed by NAPO with the appropriate government bodies.

3.2 NAPO and/or its representatives may, during the Term, visit INTEGRIUM's and/or INTEGRIUM's agents' facilities and laboratories at reasonable times and with reasonable frequency during normal business hours to (i) observe the progress of a Study, (ii) monitor the accuracy and completeness of the Services, including, but not limited to, quality control and assurance, and/or (iii) review the responsibilities and/or performance obligations of INTEGRIUM's agents. INTEGRIUM will assist NAPO

in scheduling such visits and will make records and any other relevant information available to NAPO and/or its representatives.

3.3 In order for INTEGRIUM to perform the Services properly and timely, unless otherwise agreed in writing, NAPO must provide INTEGRIUM with the Study Drug and take those actions as described in the Study Specifications, Exhibit 2 of each Service Order. In addition, NAPO shall cause all NAPO contracted designees to (i) reasonably cooperate with INTEGRIUM in connection with INTEGRIUM's performance of the Services, and (ii) perform such actions and supply to INTEGRIUM the Study Drug and deliverables, in each case as required by a Service Order, in a timely manner. Any failure under this Section 3.3 shall not constitute a breach of this Agreement by NAPO but may require changes in the timelines for the Services in accordance with Section 4.5.

3.4 NAPO represents and warrants that there is no litigation, regulatory investigation or proceeding, administrative hearing or any other similar proceeding pending or to the best of its knowledge threatened against NAPO which would reasonably be expected to materially, adversely affect INTEGRIUM's ability to perform the services.

4. <u>Compensation</u>.

4.1 POC CAPITAL will purchase a **[****]**Promissory Note from NAPO on the Effective Date of this Agreement. NAPO will pay INTEGRIUM **[****]**for the Services outlined in the Service Order within five (5) business days of the Effective Date, i.e., on or before July 1, 2019.

4.2 In consideration of INTEGRIUM's performance of the Services specified in a Service Order in accordance with this Agreement, NAPO shall pay INTEGRIUM the fee set forth in Section 4.1. The Study is priced at a firm fixed price of **[****]**, in no event will NAPO be obligated to pay to INTEGRIUM amounts in excess of the firm fixed price in the applicable Service Order.

4.3 INTEGRIUM shall provide NAPO with a Work in Progress ("**WiP**") report for review and approval on a monthly basis.

4.4 [INTENTIONALLY LEFT BLANK]

4.5 Any material change in the Services or assumptions stated in a Service Order (including, but not limited to, changes in an agreed starting date or suspension of a Study by NAPO) may require changes in the timelines and shall require a written amendment to the respective Service Order, to be executed by INTEGRIUM and NAPO (the "Change Order"). Each amendment shall detail the changes to the Services, conditions, timeline or other matter. INTEGRIUM shall not implement any change in the scope of a Service Order without NAPO's prior written approval. INTEGRIUM reserves the right to postpone effecting material changes in the scope

of a Service Order until such time as the Parties agree to and execute the corresponding written amendment to the Service Order.

5. Representations of CRO

5.1 INTEGRIUM represents that it has the requisite facilities, equipment, and personnel with the requisite expertise, experience and skill, to render the desired Services, and it shall render the Services, in a timely, competent and efficient manner. INTEGRIUM further represents that the Services to be provided pursuant to this Agreement will represent INTEGRIUM's best professional standards and quality. INTEGRIUM further represents that it shall abide by the laws, rules and regulations delineated in the Good Clinical Practice (GCP) Guidelines issued by the Food and Drug Administration and laws governing privacy and confidentiality of health information of Study participants, as delineated in the federal Health Insurance Portability and Accountability Act of 1996. In performing the Services, INTEGRIUM shall strictly comply with this Agreement, all legal and ethical written instructions of NAPO, standard operating procedures provided by or approved by NAPO, and the applicable protocol for the Study.

5.2 INTEGRIUM represents and certifies that neither INTEGRIUM nor any person employed by INTEGRIUM (i) is presently debarred pursuant to the Generic Drug Enforcement Act of 1992, as amended (21 U.S.C. §301 et seq.), INTEGRIUM understands that NAPO shall have the right to terminate this Agreement immediately upon receipt of notice that any person employed by INTEGRIUM has been debarred pursuant to the Generic Drug Enforcement Act of 1992, as amended (21 U.S.C. §301 et seq.) INTEGRIUM will immediately notify NAPO in writing if and when it learns that any person in its employ has become debarred or is under threat of being debarred.

5.3 INTEGRIUM shall maintain accurate and complete records specifically relating to the Services provided hereunder and in each Service Order and Change Order in accordance with applicable laws, rules, regulations and generally accepted accounting principles and practices, consistently applied. To the extent that such records may be relevant in NAPO's reasonable opinion in determining whether INTEGRIUM is complying with its obligations pursuant to this Agreement and any Service Order and Change Order which is a part hereof, NAPO, or NAPO's authorized representative, may audit such records during INTEGRIUM's normal working hours and at NAPO's expense, upon providing three (3) days' written notice to INTEGRIUM. INTEGRIUM shall retain such records for a period of five (5) years from the date of final payment by NAPO pursuant to the respective Service Order or Change Order, or any longer period required by law.

5.4 If INTEGRIUM audits an Investigator (as defined in Section 10) for a Study as part of an internal audit program, INTEGRIUM will notify NAPO prior to the commencement of the audit and provide NAPO (promptly with a summary of all findings and proposed corrective actions, if any, following completion of each such

audit. In cases of suspected misconduct of an Investigator or other third party, INTEGRIUM must inform NAPO immediately after it establishes reasonable concerns of such suspected misconduct. In the event of suspected misconduct, INTEGRIUM and NAPO shall work together promptly and in good faith to establish a reasonable plan for investigation of such misconduct. The Parties will reasonably support each other in the investigation of such cases, and with any actions arising from said investigations. INTEGRIUM agrees to take any reasonable steps requested by NAPO as a result of such audit or investigation to cure any deficiencies in the Study or Services conduct or documentation, unless said requests are prohibited or otherwise restricted by applicable laws, regulations, or standard operating procedures.

5.5 INTEGRIUM hereby represents and warrants that it will use best efforts to ensure that third Party Vendor's (i) adhere to the Study's protocol, (ii) adhere to the Study's project specifications and timeline, and (iii) do not breach their contract with INTEGRIUM. INTEGRIUM is not liable for (i) the negligence or willful misconduct of third-Party Vendor, and (ii) the infringement, misappropriation or violation of any rights of another third party. INTEGRIUM shall make NAPO a third-party beneficiary to all third-party Vendor agreements entered pursuant to any Service Order.

6. <u>Confidentiality</u>

6.1 It is understood by the parties hereto that during the performance of the Services hereunder and as set forth in the Service Orders and the Change Orders INTEGRIUM may receive from NAPO, or otherwise acquire, certain Confidential, Proprietary, and/or Trade Secret Information which is the property of NAPO (collectively, "Confidential Information"), Confidential Information shall include without limitation the Investigator's brochure, the study protocol, the data recorded during the study and data, formulae and information on the Study Drug. For purposes of this Agreement, Confidential Information shall be understood to include all verbal, written or electronically transferred information received from NAPO by INTEGRIUM, and unless expressly described in this section 6.1 such written material shall be marked "Confidential" unless a reasonable person would recognize the confidential or proprietary nature of such material, in which case such marking will not be required. Information which is disclosed orally shall be deemed confidential if it is confirmed to be confidential by a writing provided to INTEGRIUM by NAPO within a reasonable amount of time following oral disclosure unless a reasonable person would recognize the confidential or proprietary nature of such information, in which case such a confirmation will not be required. INTEGRIUM hereby warrants and affirms that it shall neither use nor disclose Confidential Information for any purpose other than as is specifically allowed by this Agreement.

6.2 INTEGRIUM shall disclose Confidential Information only to such of its employees or its affiliated corporations as may reasonably be required to assist INTEGRIUM in

the performance of this Agreement and who have agreed to be bound by terms and conditions similar to those in this Agreement. In the event of such disclosure, INTEGRIUM shall advise its and its affiliated corporations' employees, of the confidential nature of the information and shall instruct them to take all necessary and reasonable precautions to prevent the unauthorized use or disclosure thereof at least consistent with those precautions undertaken by INTEGRIUM hereunder.

6.3 Upon the expiration or termination of this Agreement, INTEGRIUM shall either destroy or return to NAPO all tangible and electronic forms of Confidential Information, including any and all copies and/or derivatives of Confidential Information made by INTEGRIUM (or INTEGRIUM's employees), as well as any writings, drawings, specifications, manuals or other printed material made by INTEGRIUM (or INTEGRIUM's employees) and based on, or derived from, Confidential Information, provided that INTEGRIUM shall retain all information it is required by law to retain, and that INTEGRIUM may retain one copy of written information for regulatory record purposes, subject to protection and nondisclosure in accordance with the terms of this Agreement and using the same amount of care and diligence to protect NAPO's information as it uses to protect its own confidential information but in any case not less than reasonable care and diligence.

6.4 The foregoing obligations shall not apply to Confidential Information to the extent that it: (a) is or becomes generally available to the public other than as a result of a disclosure by the receiving party; (b) becomes available to the receiving party on a non-confidential basis from a source which is not prohibited from disclosing such information; (c) was developed independently of any disclosure by the disclosing party or was known to the receiving party prior to its receipt from the disclosing party, as shown by contemporaneous written evidence; or (d) is required by law or regulation to be disclosed.

6.5 All of INTEGRIUM's obligations set forth in this Article 6, including the obligations of confidentiality and non-use, shall be continuing and shall survive for five (5) years following the expiration or termination of either this Agreement or the respective Service Order and any Change Orders for which the Confidential Information has been disclosed, whichever is later.

6.6 INTEGRIUM shall not disclose, or otherwise make public, the terms of this Agreement, except as may be necessary to secure enforcement of the terms of this Agreement or in response to a lawful subpoena or to comply with applicable regulations.

6.7 It is understood by the Parties that POC CAPITAL will NOT request, and NAPO and INTEGRIUM will NOT disclose or provide, any material, non-public information, including the Confidential Information relating to the Service Order, Change Orders or Services provided hereunder. INTEGRIUM will not engage in communication, written or verbal, with POC Capital on any clinical operational aspects of the Study. NAPO shall provide information and reasonably cooperate with POC CAPITAL in

connection with any reasonable due diligence request. POC CAPITAL will NOT make any due diligence requests of INTEGRIUM or its officers and employees. NAPO and INTEGRIUM confirm that neither they, nor any Persons acting on their behalf, shall provide POC CAPITAL or its agents or counsel with any information that constitutes or might constitute material, non-public information, unless a simultaneous public announcement thereof is made by NAPO in the manner contemplated by Regulation Fair Disclosure (FD). POC CAPITAL shall not have any liability to NAPO, any of its subsidiaries and affiliates, or any of their respective directors, officers, employees, stockholders or agents, for any such disclosure.

7. Independent Contractor

7.1 The parties hereto agree that INTEGRIUM is being retained and shall perform as an independent contractor. Neither INTEGRIUM nor any of its employees performing Services, shall be employees of NAPO or POC CAPITAL, it being understood and agreed that INTEGRIUM is an independent contractor for all purposes and at all times. All matters of compensation and benefits and terms of employment for INTEGRIUM's employees shall be solely a matter between INTEGRIUM and its employees. Nothing contained herein shall be deemed or construed to create between the parties hereto a partnership or joint venture or employment relationship. No party shall have the authority to act on behalf of any other party, or to commit any other party in any manner or cause whatsoever or to use any other party's name in any way not expressly authorized by this Agreement. No party shall be liable for any act, omission, representation, obligation or debt of any other party, even if informed of such act, omission, representation, obligation or debt.

7.2 It is further understood and agreed that the means, methods and manner in which Services are rendered by INTEGRIUM in accordance with this agreement shall be within INTEGRIUM's sole control and discretion, only subject to Article 2 and 3, applicable Service Orders and Change Orders, and any applicable laws and regulations.

7.3 INTEGRIUM acknowledges and agrees that its employees are not eligible to participate in any benefits programs offered by NAPO or POC CAPITAL to their employees, or any other employee benefit or perquisite plans offered from time to time by NAPO or POC CAPITAL to their employees.

7.4 Nothing contained in this Agreement shall be construed as making the parties joint venturers or as granting to either party the authority to bind or contract any obligations in the name of or on the account of the other party or to make any representations, guarantees or warranties on behalf of the other party except to the extent such authority is expressly provided in writing and agreed by the parties.

8. Tax Reporting and Payment

8.1 INTEGRIUM acknowledges and agrees that it shall be solely responsible for paying the appropriate amount of all federal, state and local taxes with respect to all compensation paid to INTEGRIUM pursuant to this Agreement, and that NAPO and POC CAPITAL shall have no responsibility whatsoever for withholding or paying any such taxes for or on behalf of INTEGRIUM.

8.2 INTEGRIUM further agrees to indemnify and hold NAPO and POC CAPITAL harmless from and against any and all damages, losses, expenses, or penalties arising from or in connection with any claim brought by any federal, state or local taxing authority with regard to INTEGRIUM's failure to pay required taxes or failure to file required forms with regard to compensation paid to INTEGRIUM by NAPO or POC CAPITAL pursuant to this Agreement.

9. Ownership, Disclosure and Transfer of Developments and Study Data.

9.1 INTEGRIUM understands and agrees that the underlying rights to the Study Drug and intellectual property developed that are the subject of each Service Order and Change Order and the associated Services are owned solely by NAPO. Neither POC CAPITAL, INTEGRIUM nor their respective directors, officers, employees, agents, consultants, permitted subcontractors or representatives shall acquire any rights of any kind whatsoever with respect to such Materials, or any intellectual property rights therein, as a result of conducting Services under this Agreement, the Service Orders and the Change Orders.

9.2 NAPO acknowledges that INTEGRIUM possesses certain computer technical expertise, software and methodologies for administration of clinical trials, data collection, data management and statistical analyses methods which have been independently developed by INTEGRIUM without the benefit of any information provided by NAPO ("**Integrium Properties**"). NAPO and INTEGRIUM agree that any Integrium Properties used by INTEGRIUM in the administration and the conduct of clinical trials used by INTEGRIUM under or during the term of this Agreement remain the sole property of INTEGRIUM and NAPO agrees that such Integrium Properties are commercially valuable to INTEGRIUM and NAPO agrees not to disclose such Integrium Properties to any other party without INTEGRIUM's prior written consent.

10. Relationship with Investigators and 3rd Party Vendors

10.1 If under any Service Order or Change Order, INTEGRIUM is required to contract with investigators or investigative sites (collectively, "Investigators") then any such contract shall be in a form mutually acceptable to INTEGRIUM and NAPO. Such agreements with investigative sites shall hereafter be referred to as the Clinical Site Agreement Template ("**CSA Template**"). Such agreements with Investigators ("**Investigator Agreements**") shall be made between INTEGRIUM, NAPO and

the applicable Investigator. If an Investigator requests any material changes to such CSA Template effecting NAPO's rights, INTEGRIUM shall submit the proposed change to NAPO, and NAPO shall promptly review and comment on such proposed changes(s). NAPO retains the right to approve the final form of any contract entered into with any Investigator. If NAPO approves an Investigator Agreement or any changes to the CSA Template in writing, that differ from the terms of this Agreement (including, but not limited to, allowing an Investigator to publish results or data that INTEGRIUM is prohibited from revealing), then INTEGRIUM shall have no liability for any such approved provisions or changes. The parties acknowledge and agree that Investigators shall not be considered the employees, agents, or subcontractors of INTEGRIUM or NAPO, and that Investigators shall exercise their own independent medical judgment. INTEGRIUM's responsibilities with respect to Investigators shall be limited to those responsibilities specifically set forth in this Agreement and any applicable Service Order or Change Order.

10.2 If INTEGRIUM will be paying Investigators and/or any 3rd party vendors (IRBs, labs, meeting planners, etc.) on behalf of NAPO, the parties will agree in the applicable Service Order, Change Order or Study Budget as to a schedule of amounts to be paid to the 3rd party vendors. INTEGRIUM shall pay Investigators and 3rd party vendors in accordance with the agreed schedule INTEGRIUM warrants that all up-front and advance payment or any monies made by NAPO to INTEGRIUM will be allocated only to the NAPO study specified on the invoice and will not be used for any other purposes.

10.3 INTEGRIUM will assume responsibility for disbursing fees and/or expenses to Investigators, and 3rd party vendors. INTEGRIUM will provide on the first day of each consecutive month the forecasted enrollment for the following month.

10.4 [INTENTIONALLY LEFT BLANK]

10.5 [INTENTIONALLY LEFT BLANK]

10.6 If under any Service Order or Change Order, INTEGRIUM is required to perform monitoring services or visit an investigative site on NAPO's behalf (collectively, "**Investigative Site Visit**") any site imposed Vendor Credentialing System ("**VCS**") fees will be paid by INTEGRIUM, NAPO shall have no liability for any such fees.

11. <u>Indemnification</u>

11.1 NAPO hereby agrees to indemnify, defend, and hold INTEGRIUM, and its respective agents, servants, employees, officers, and directors ("**INTEGRIUM Indemnities**") safe and harmless from and against any and all losses, costs, damages, expenses, claims, actions, liability, and/or suits (including court costs and reasonable attorney fees) ("**Liabilities**") arising from any third-party claims, actions, proceedings, investigations or litigation (including personal bodily injury or

wrongful death): relating to or arising from or in connection with (a) any bodily injury to or death of a Study subject actually caused by or attributed to any procedure required by the applicable Protocol or the administration of the Study Drug or any other substance required to be dispensed or administered to a study subject by, and in accordance with, the applicable protocol; (b) the development, manufacture, use, handling, storage, sale or other disposition of NAPO's products following completion of the applicable services; (c) the disclosure and/or use of the results by NAPO; (d) NAPO's gross negligence, willful or intentional misconduct; or (e) NAPO's material breach of this Agreement; except, in each case to the extent resulting from any Integrium Indemnities' breach of this Agreement, failure to comply with applicable law or regulation, or negligence or willful misconduct. Except as set forth in Section 5.5, INTEGRIUM will not be liable for any third party vendor's (i) adherence to the Study's protocol, (ii) adherence to project specifications or timeline, (iii) breach of contract, (iv) the negligence or willful misconduct of third Party Vendor, or (v) any infringement, misappropriation or violation by third Party Vendor of any right of another third Party.

11.2 INTEGRIUM hereby agrees to indemnify, defend, and hold NAPO and its respective affiliates, employees, directors, agents, approved subcontractors and consultants ("**NAPO Indemnitees**") from and against any and all losses, damages, liabilities, reasonable attorney fees, court costs, and expenses resulting or arising from any third-party claims, actions, proceedings, investigations or litigation (including personal injury or wrongful death): relating to or arising from or in connection with (a) the negligence or willful or intentional misconduct by INTEGRIUM in the performance of any services described in this Agreement, any Service Order and any Change Order; (b) INTEGRIUM's failure to comply with applicable law or regulation in the performance of any services described in this Agreement, any Service Order and any Change Order, except to the extent resulting from any NAPO Indemnitees' material breach of this Agreement, failure to comply with applicable law or regulation, or gross negligence or willful misconduct.

11.3 A Party's agreement to indemnify, defend and hold the other party (the "Indemnified Party") and its related entities harmless is conditioned upon the Indemnified Party: (a) providing written notice to the other Party (the "Indemnifying Party") of any such third-party claims, actions, proceedings investigations or litigation ("Claim") arising out of the indemnified activities within 10 days after the Indemnified Party has knowledge thereof (however a delayed notification shall not release the Indemnifying Party to the extent such delay does not materially affect the Indemnifying Party's position in respect of the Claim); (b) permitting the Indemnifying Party to assume full responsibility and authority to investigate, prepare for and defend against any Claim; (c) assisting the Indemnifying Party, at the Indemnifying Party's reasonable expense, in the investigation of, preparation for and defense of any such Claim; and (d) not compromising or settling such Claim without the Indemnifying Party's written consent.

11.4 [INTENTIONALLY LEFT BLANK]

12. Limitation of Liability

12.1 Neither Party, nor its affiliates, nor any of its or their respective directors, officers, employees or agents shall have any liability of any type (including, but not limited, to contract, negligence, and tort liability), for any special, incidental, indirect or consequential damages, including, but not limited to the loss of opportunity, loss of use, or loss of revenue or profit, in connection with or arising out of this Agreement, or any Service Order or Change Order, even if such damages may have been foreseeable to INTEGRIUM. In addition, in no event shall the collective, aggregate liability (including, but not limited to, contract, negligence and tort liability) of either Party and its affiliates and its and their respective directors, officers, employees and agents under this Agreement or any Service Order or Change Order hereunder exceed the amount of service fees actually payable by NAPO to INTEGRIUM hereunder.

13. Insurance

13.1 Each party will maintain, for the duration of this Agreement, insurance in an amount reasonably adequate to cover its obligations under this Agreement and any and all Service Orders then in effect, and, upon request, each party will provide to the other party a certificate of insurance showing that such insurance is in place.

13.2 NAPO will supply INTEGRIUM with the Clinical Trial Insurance Certificate for each Study covered under a Service Order prior to commencement of subject screening for each Service Order. INTEGRIUM will not be responsible for enrollment delays due to NAPO's delay in providing said Certificate.

14. Termination

14.1 In the event that either Party, or POC CAPITAL shall commit a material breach of this Agreement, the non-breaching party shall have the right to terminate this Agreement immediately unless the breaching Party, or POC CAPITAL, can cure its breach and provide full performance within thirty (30) days of having received written notice that a material breach has been declared. Upon termination of this Agreement, the non-breaching party shall have no further obligation to the breaching partyother than for NAPO to pay for Services that were duly performed by INTEGRIUM in accordance with the respective Service Order for this Agreement up to the date of such termination and any rights and duties which the parties expressly stated herein as surviving termination.

14.2 NAPO may terminate individual Service Orders at any time without cause by giving INTEGRIUM thirty (30) days written notice of such termination. If NAPO should terminate pursuant to this Section 14.2, NAPO will pay for all services that were performed up to the point of termination in accordance with the respective Service Order, Change Order and this Agreement up to the date of such termination in accordance with the Service Order's budget, as well as costs reasonably incurred for

the Services and which INTEGRIUM is unable to cancel (For the avoidance of doubt, NAPO or shall be responsible for any and all 3rd party vendor cancellation fees due upon the Study's cancellation due to termination without cause), and all reasonable and documented administrative costs incurred in the conduct of the Service Order up to the point of termination, and for those services which are necessary to be performed for patient safety, government requirement compliance and/or expressly requested by NAPO. INTEGRIUM shall use its best efforts to minimize the costs incurred following its receipt of notice of such notice of termination. Either Party may terminate this Agreement upon receipt of written notice to the other Party and regard the other Party as in breach of this Agreement, if the other Party becomes insolvent, makes a general assignment for the benefit of creditors, files a voluntary petition of bankruptcy, suffers or permits the appointment of a voluntary petition of bankruptcy, suffers or permits the appointment of a receiver for its business or assets, or becomes subject to any proceeding under any bankruptcy or insolvency law, whether domestic or foreign, or has wound up or liquidated, voluntary or otherwise. In the event that any of the above events occur, that Party shall immediately notify the other, in writing, of its occurrence.

14.3 Upon receipt of notice of termination of this Agreement or a Service Order by either Party: (i) INTEGRIUM will, as soon as reasonably practicable discontinue providing the applicable Services, except to the extent reasonably required to safely close out a Study or to transfer (at NAPO's request) the remaining Services to another service provider selected by NAPO, and (ii) INTEGRIUM will terminate or, if requested by NAPO, assign existing 3rd party obligations to the extent cancelable or assignable, as applicable. Any amounts paid by NAPO which exceed the amounts owed to INTEGRIUM as of expiration or termination of this Agreement shall be refunded to NAPO within thirty (30) days after expiration or termination. Any amounts owed by NAPO, including 3rd Party Vendor cancellation fees, shall be paid to INTEGRIUM within thirty (30) days after expiration or termination.

15. <u>Personnel Recruitment</u>

15.1 Neither Party, during the term of this Agreement and for twelve (12) months thereafter, will, without the prior written consent of the other Party, directly or indirectly solicit for employment or contract, attempt to employ or contract with or assist any other entity in employing, contracting with or soliciting for employment or contract any employee, or executive who is at that time employed/contracted by the other Party and who had been employed/contracted by the other Party in connection with the Services provided hereunder. The foregoing provision will not prevent either Party from conducting solicitation via a general advertisement for employment that is not specifically directed to any such employee or from employing any such person who responds to such solicitation.

16. Miscellaneous Provision

16.1 Assignment. This Agreement may not be assigned by either Party without the prior written consent of the other Party, except that either of the Parties may assign this Agreement to a successor in connection with the merger, consolidation or sale of all or substantially all of its assets to which this Agreement relates. No assignment whether consensual or permissive shall relieve either party of its responsibility for performance of its obligations under this Agreement or any Service Order or Change Order.

16.2 Complete Agreement. This Agreement, together with its exhibits, Service Orders and Change Orders then in effect, supersedes all prior Agreements and understandings made jointly by and amongst NAPO, INTEGRIUM and POC CAPITAL related to the subject matter of this Agreement, excluding any separate and independent agreements or writings executed solely by and between NAPO and POC CAPITAL

16.3 Waiver. No waiver by either Party with respect to any breach or default or of any right or remedy, and no course of dealing by NAPO shall be deemed to constitute a continuing waiver of any other breach or default or of any other right or remedy, unless such waiver be expressed in writing, signed by NAPO. No payment made by NAPO shall be considered as acceptance of satisfactory performance of the Services, or as in any way relieving INTEGRIUM from its full responsibility pursuant to this Agreement.

16.4 Amendment. This Agreement may not be altered, changed or amended except in writing signed by each of the Parties hereto.

16.5 Survival. The provisions of this Agreement dealing with Study Drug (Section 2.6), allocation of payment obligations (Section 4.3), confidentiality (Article 6), independent contractor (Article 7), taxes (Article 8), Developments and Study Data (Article 9), reconciliation (Section 10.4), indemnification (Article 11), limitation of liability (Article 12), termination (Article 14), non-solicitation (Article 15) and this Article 16 shall survive the expiration and/or termination of this Agreement

16.6 Severability. In the event that any provision of this Agreement is held illegal or invalid for any reason, such provision shall not affect the remaining parts of this Agreement, but this Agreement shall be construed and enforced as if that illegal and invalid provision had never been inserted herein.

16.7 Extraordinary Relief. In the event of the actual or threatened breach by INTEGRIUM of any of the terms of the Articles 6, 7, and 10 hereof, NAPO shall have the right to specific performance and injunctive relief. The remedies in this paragraph are in addition to all other remedies and rights available at law or in equity.

16.8 Force Majeure. Performance of this Agreement by each Party shall be pursued with due diligence in all requirements hereof; however, neither Party shall be liable for any loss or damage for delay or nonperformance due to causes not reasonably within its control. In the event of any delay resulting from such causes, the time for performance and payment hereunder shall be extended for a period of time necessary to overcome the effect of such delays. In the event of any delay or nonperformance caused by such uncontrollable forces, the Party affected shall promptly notify the other in writing of the nature, cause, date of commencement thereof, and the anticipated extent of such delay, and shall indicate whether it is anticipated that the completion date of the Agreement would be affected thereby. If the non-performing Party is unable to resume performance within thirty (30) days after the force majeure event occurs, the other party may terminate this Agreement. If reasonable efforts will not enable resumption or completion, the non-performing party may terminate this Agreement.

16.9 Captions and Headings. The captions, numbering and headings in this Agreement are for convenience and reference only, and they shall in no way be held to explain, modify, or construe the meaning of the terms of this Agreement.

16.10 Counterpart Originals. This Agreement may be executed in any number of counterparts, each of which, when executed, shall be deemed to be an original and all of which together shall constitute one and the same document.

16.11 Notices. Except as otherwise provided, all communications and notices concerning payments required under this Agreement shall be to:

If to INTEGRIUM for contractual matters:
INTEGRIUM, LLC
[****]
Attn: Jessica Coutu, Sr. V.P. of Clinical Operations

If to INTEGRIUM for financial matters:
INTEGRIUM, LLC
100 E. Hanover Avenue
[****]
Attn: Jessica Coutu, Sr. V.P. of Clinical Operations
Attn: **[****]**, Sr. V.P. of Finance & Accounting

If to NAPO:
Napo Pharmaceuticals, Inc..
201 Mission Street, Suite 2375
San Francisco, CA 94105
Attention: **[****]**, VP Clinical Operations

With a copy to:
Jaguar Health, Inc.
201 Mission Street, Suite 2375
San Francisco, CA 94105
Attention: Jonathan Wolin
Chief Compliance Officer and Corporate Counsel

If to POC CAPITAL:
POC Capital, LLC
[****]
Attention: Daron Evans, Managing Director

16.12 Governing Law. It is understood and agreed that this Agreement shall be governed by the laws of the State of Delaware in all respects of validity, construction and performance without regard to its conflict of laws rules.

16.13 Publicity. INTEGRIUM shall not make any public announcements concerning this Agreement or the subject matter hereof without the prior written consent of NAPO. INTEGRIUM agrees that it will not make any publication, including any abstracts, posters or articles relating to the Study or the services performed pursuant to this Agreement without the prior written consent of NAPO.

IN WITNESS WHEREOF, the parties hereto have executed, or have caused their duly authorized representatives to execute, this Agreement as of its initial effective date.

For and on behalf of
INTEGRIUM, LLC

/s/ Jessica Coutu
By: Jessica Coutu
Title: Sr. VP, Clinical Operations
Date:_____

For and on behalf of
JAGUAR HEALTH, INC.

/s/ Lisa Conte
By: Lisa Conte
Title: President and CEO
Date:_____

POC Capital, LLC (solely with respect to Sections 4.1 and 6.7and Articles 8, 9, 10 (other than Section 10.1), 14 and 16):

/s/ Daron Evans
By: Daron Evans
Title: Managing Director
Date:_____

Certain information marked as [****] has been excluded from this exhibit because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

MASTER SERVICES AGREEMENT

By and Among

Napo Pharmaceuticals, Inc.

and

INTEGRIUM, LLC.

for

Clinical Research Organization (CRO) Services

Effective Date: October 5, 2020

CRO AGREEMENT

EFFECTIVE DATE: October 5, 2020

Name and Address of the Contact for Integrium, LLC

Name:	Jessica Coutu
Title:	Senior Vice President of Clinical Operations
Address:	**[****]**
Telephone:	**[****]**
Mobile Phone:	**[****]**
e-mail:	**[****]**

Name and Address of the Contact for Napo Pharmaceuticals, Inc.

Name:	**[****]**, RN, BSN
Title:	VP Clinical Operations
Address:	200 Pine Street, Suite 400 San Francisco, CA 94104
Telephone:	**[****]**
Facsimile:	(415) 371-8311
e-mail:	**[****]**

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This Agreement (the "Agreement") is made as of the October 5, 2020 (the "Effective Date"), by and among:

Napo Pharmaceuticals, Inc. ("NAPO"), a Delaware corporation, located at 200 Pine Street, Suite 400, San Francisco, CA 94104, a wholly owned subsidiary of Jaguar Health, Inc., and

Integrium, LLC ("INTEGRIUM"), a California limited liability company, located at **[****]** and

(each of which is individually sometimes referred to hereinafter as "**Party,**" and collectively hereinafter referred to as "**Parties**");

WHEREAS, NAPO desires to retain the services of INTEGRIUM from time to time to perform clinical development services in connection with certain clinical research programs that NAPO is conducting (individually a "**Study**") with respect to the Study Drug (defined below), in which case the terms and conditions for each such Study shall be set forth in a service order to be executed by the Parties and incorporated herein by reference (individually, a "**Service Order**" and collectively, the "**Service Orders**"); and

NOW, THEREFORE, for good and valuable consideration, the exchange, receipt and sufficiency of which are acknowledged, the Parties hereby agree as follows:

1. Term

1.1 The term of this Agreement shall be for the period beginning as of the Effective Date and ending upon the satisfactory performance of all the Services (as hereinafter defined) unless terminated sooner as provided for herein ("**Term**").

2. Scope of Work

2.1 INTEGRIUM shall perform various services for NAPO. Any and all services, equipment and/or supplies which NAPO deems necessary for INTEGRIUM to provide as well as NAPO's responsibilities for each study for which such services, equipment and/or supplies are being provided shall be stated in separate Service Orders (all of which are incorporated herein pursuant to this reference). (The services and items that INTEGRIUM is to provide shall be referred to collectively as "**Services**," unless otherwise designated and listed in a Service Order.) Each Service Order shall be named by the protocol number to which it corresponds and shall also include the compensation to be paid for the Services listed therein and the anticipated time period in which such Services are to be provided together with any other special terms and conditions. Each Service Order shall be signed and dated by each Party and shall be made fully a part of this Agreement upon the latter of the dates appearing

on the signature page of the Service Order and shall remain in effect until all items listed in the Service Order have been completed or this Agreement has been otherwise terminated as provided herein. INTEGRIUM will commence work on a project upon receipt of the signed Agreement and a properly executed Service Order. NAPO will designate one or more individuals to represent NAPO with authority to make decisions with respect to this Agreement and each Service Order or Change Order (such individual, the "NAPO Liaison"). Each Service Order and Change Order must be signed by NAPO's authorized representative and INTEGRIUM prior to going into effect. To the extent any terms set forth in a Service Order or Change Order conflict with the terms set forth in this Agreement, the terms of this Agreement shall control unless otherwise specifically set forth in the Service Order.

2.2 The Parties enter into each Service Order for the express purpose of transferring from NAPO to INTEGRIUM the responsibilities and obligations of NAPO to conduct, coordinate, manage, and/or develop the Study in accordance with United States Food and Drug Administration ("**FDA**") regulations set forth in 21 CFR Section 312, Subpart D, as such may be amended from time to time. Accordingly, if NAPO transfers the responsibility for various regulatory responsibilities under the U.S. laws and regulations to INTEGRIUM, a Transfer of Regulatory Obligations ("**TRO FORM**") will be completed for each Service Order. INTEGRIUM agrees to perform the responsibilities and obligations so transferred as Services under this Agreement.

2.3 INTEGRIUM shall provide to NAPO prompt notice of all communications to or from the FDA regarding any Services or Study with respect to any Service Order, whether oral or written, and consult with NAPO sufficiently prior to initiating or responding thereto to enable NAPO to meaningfully participate therein, including where relevant the provision to NAPO for review, comment and decision a draft of all documents prior to submission to the FDA. INTEGRIUM shall not meet with the FDA for any purpose related to the Services or Study without first providing notice to NAPO.

2.4 If the FDA or any other government authority conducts or gives notice of intent to conduct any inspection regarding the Study or Services at any time at any investigation site ("**Investigator Site**"), or at INTEGRIUM offices, or at a third party's office, or to take any other action with respect to the Study or Services (collectively "**Action**"), INTEGRIUM will immediately give NAPO written notice thereof, and supply all information pertinent thereto. As appropriate, the Parties will promptly meet or discuss and agree on an appropriate course of action to prepare for or otherwise respond thereto, including each Party's responsibility for any tasks. To the extent not precluded by applicable law, NAPO shall have the right to be present at any Action. Prior to responding to written requests for information, findings or other actions regarding any Action, INTEGRIUM shall review and discuss such with NAPO, and to the extent not prohibited by applicable laws shall (i) permit NAPO to be present at an oral response or reply to an Action, if such response is involved, and (ii) permit NAPO (including any representative thereof) to review and comment on any written response to an Action, and to reasonably consider such comments.

During any such Action, the Parties agree to be bound by the confidentiality provisions of this Agreement and to make reasonable efforts to disclose only that information required to be disclosed. INTEGRIUM agrees to take any reasonable steps requested by NAPO as a result of an Action to cure any deficiencies in the Services conduct and/or documentation.

2.5 INTEGRIUM shall advise and update NAPO on a regular basis to keep NAPO current on significant developments, problems, progress, decisions and issues that arise with respect to the Services, but in no event less frequently than meeting telephonically in accordance with applicable Service Orders or in person at an INTEGRIUM facility, at the reasonable request of NAPO. Further, INTEGRIUM agrees to establish recurring meetings (telephonically or other) to discuss progress and plans. The meetings should be no less frequent then twice a month during enrollment and monthly thereafter.

2.6 In accordance with the applicable Service Order, NAPO may supply Study sites with crofelemer (the "**Study Drug**") for the performance of the Study. The Study Drug is provided without any warranty, express or implied. All right, title, and interest in and to the Study Drug and any patent and intellectual property rights related thereto shall remain solely and exclusively with NAPO. Upon the expiration or termination of this Agreement or any Service Order, INTEGRIUM shall ensure that all unused supply of the Study Drug is promptly returned to NAPO.

2.7 Included in the Services are those services provided to NAPO pursuant to that certain Start-Up Agreement between NAPO and INTEGRIUM dated as of June 17, 2020 (the "Start-up Agreement"). The Start-up Agreement is attached hereto as Exhibit 2.7 and incorporated herein by this reference.

3. Conditions of Work

3.1 Any regulatory responsibilities not specifically stated as transferred to INTEGRIUM in the TRO Form shall remain the regulatory responsibility of NAPO. NAPO shall file the TRO Form with the FDA or as otherwise required by law or regulation. If an amendment to any Service Order affects the scope of regulatory obligations that have been transferred to INTEGRIUM, INTEGRIUM and NAPO shall execute a corresponding amendment to the TRO Form. Such TRO Form amendment shall be filed by NAPO with the appropriate government bodies.

3.2 NAPO and/or its representatives may, during the Term, visit INTEGRIUM's and/or INTEGRIUM's agents' facilities and laboratories at reasonable times and with reasonable frequency during normal business hours to (i) observe the progress of a Study, (ii) monitor the accuracy and completeness of the Services, including, but not limited to, quality control and assurance, and/or (iii) review the responsibilities and/or performance obligations of INTEGRIUM's agents. INTEGRIUM will assist NAPO in scheduling such visits and will make records and any other relevant information available to NAPO and/or its representatives.

3.3 In order for INTEGRIUM to perform the Services properly and timely, unless otherwise agreed in writing, NAPO must provide INTEGRIUM with the Study Drug and take those actions as described in the Study Specifications, Exhibit 2 of each Service Order. In addition, NAPO shall cause all NAPO contracted designees to (i) reasonably cooperate with INTEGRIUM in connection with INTEGRIUM's performance of the Services, and (ii) perform such actions and supply to INTEGRIUM the Study Drug and deliverables, in each case as required by a Service Order, in a timely manner. Any failure under this Section 3.3 shall not constitute a breach of this Agreement by NAPO but may require changes in the timelines for the Services in accordance with Section 4.5.

3.4 NAPO represents and warrants that there is no litigation, regulatory investigation or proceeding, administrative hearing or any other similar proceeding pending or to the best of its knowledge threatened against NAPO which would reasonably be expected to materially, adversely affect INTEGRIUM's ability to perform the services.

4. <u>Compensation</u>.

4.1 In consideration of INTEGRIUM's performance of the Services specified in a Service Order in accordance with this Agreement, NAPO shall pay INTEGRIUM a fee in the amount and according to the payment schedule specified in the relevant Service Order. SPONSOR shall pay each invoice within thirty (30) days of receipt. If any invoice is not paid within thirty (30) days SPONSOR will be considered in material breach. If the breach is not cured within ten (15) business days INTEGRIUM will suspend all activity until the breach is cured. If any breach extends beyond thirty (30) days INTEGRIUM will suspend this Agreement and any relevant Service Order. Any 3rd Party Vendor late fee charges resulting from SPONSOR delays in providing payment to INTEGRIUM will be passed on to SPONSOR.

4.2 Any statement or invoice for Services or expenses shall be stated with sufficient specificity for SPONSOR to be able to determine the Services performed, the work done, the related charges, and the details of any pass-through expenses.

4.3 INTEGRIUM shall provide NAPO with a Work in Progress ("**WiP**") report for review and approval on a monthly basis.

4.4 Any material change in the Services or assumptions stated in a Service Order (including, but not limited to, changes in an agreed starting date or suspension of a Study by NAPO) may require changes in the budget/compensation and/or timelines and shall require a written amendment to the respective Service Order, to be executed by INTEGRIUM and NAPO (the "Change Order"). Each amendment shall detail the changes to the Services, conditions, compensation, timeline or other matter. SPONSOR agrees that it will not unreasonably withhold approval of an amendment even if it involves a fixed price Service Order if the proposed changes in compensation or timelines result from, among other appropriate reasons, changes in

the assumptions upon which compensation or timelines in the respective Service Order were based. INTEGRIUM shall not implement any change in the scope of a Service Order without NAPO's prior written approval. INTEGRIUM reserves the right to postpone effecting material changes in the scope of a Service Order until such time as the Parties agree to and execute the corresponding written amendment to the Service Order. The foregoing notwithstanding, in the event that SPONSOR shall expressly direct INTEGRIUM to perform certain services and/or incur certain costs in connection with a Service Order or Change Order which is then in the process of being finalized and agreed upon, but which is not yet duly executed and delivered by both Parties; then upon written confirmation issued by SPONSOR, INTEGRIUM shall be entitled to perform such services and incur such costs and receive compensation/reimbursement therefor, it being understood and acknowledged that the Parties shall in all events thereafter proceed to finalize, execute and deliver the pending Service Order or Change Order (as the case may be) as soon as practicable.

5. Representations of CRO

5.1 INTEGRIUM represents that it has the requisite facilities, equipment, and personnel with the requisite expertise, experience and skill, to render the desired Services, and it shall render the Services, in a timely, competent and efficient manner. INTEGRIUM further represents that the Services to be provided pursuant to this Agreement will represent INTEGRIUM's best professional standards and quality. INTEGRIUM further represents that it shall abide by the laws, rules and regulations delineated in the Good Clinical Practice (GCP) Guidelines issued by the Food and Drug Administration and laws governing privacy and confidentiality of health information of Study participants, as delineated in the federal Health Insurance Portability and Accountability Act of 1996. In performing the Services, INTEGRIUM shall strictly comply with this Agreement, all legal and ethical written instructions of NAPO, standard operating procedures provided by or approved by NAPO, and the applicable protocol for the Study.

5.2 INTEGRIUM represents and certifies that neither INTEGRIUM nor any person employed by INTEGRIUM (i) is presently debarred pursuant to the Generic Drug Enforcement Act of 1992, as amended (21 U.S.C. §301 et seq.), INTEGRIUM understands that NAPO shall have the right to terminate this Agreement immediately upon receipt of notice that any person employed by INTEGRIUM has been debarred pursuant to the Generic Drug Enforcement Act of 1992, as amended (21 U.S.C. §301 et seq.) INTEGRIUM will immediately notify NAPO in writing if and when it learns that any person in its employ has become debarred or is under threat of being debarred.

5.3 INTEGRIUM shall maintain accurate and complete records specifically relating to the Services provided hereunder and in each Service Order and Change Order in accordance with applicable laws, rules, regulations and generally accepted accounting principles and practices, consistently applied. To the extent that such records may be relevant in NAPO's reasonable opinion in determining whether

INTEGRIUM is complying with its obligations pursuant to this Agreement and any Service Order and Change Order which is a part hereof, NAPO, or NAPO's authorized representative, may audit such records during INTEGRIUM's normal working hours and at NAPO's expense, upon providing three (3) days' written notice to INTEGRIUM. INTEGRIUM shall retain such records for a period of five (5) years from the date of final payment by NAPO pursuant to the respective Service Order or Change Order, or any longer period required by law.

5.4 If INTEGRIUM audits an Investigator (as defined in Section 10) for a Study as part of an internal audit program, INTEGRIUM will notify NAPO prior to the commencement of the audit and provide NAPO promptly with a summary of all findings and proposed corrective actions, if any, following completion of each such audit. In cases of suspected misconduct of an Investigator or other third party, INTEGRIUM must inform NAPO immediately after it establishes reasonable concerns of such suspected misconduct. In the event of suspected misconduct, INTEGRIUM and NAPO shall work together promptly and in good faith to establish a reasonable plan for investigation of such misconduct. The Parties will reasonably support each other in the investigation of such cases, and with any actions arising from said investigations. INTEGRIUM agrees to take any reasonable steps requested by NAPO as a result of such audit or investigation to cure any deficiencies in the Study or Services conduct or documentation, unless said requests are prohibited or otherwise restricted by applicable laws, regulations, or standard operating procedures.

5.5 INTEGRIUM hereby represents and warrants that it will use best efforts to ensure that third Party Vendor's (i) adhere to the Study's protocol, (ii) adhere to the Study's project specifications and timeline, and (iii) do not breach their contract with INTEGRIUM. INTEGRIUM is not liable for (i) the negligence or willful misconduct of third-Party Vendor, and (ii) the infringement, misappropriation or violation of any rights of another third party. INTEGRIUM shall make NAPO a third-party beneficiary to all third-party Vendor agreements entered pursuant to any Service Order.

6. Confidentiality

6.1 It is understood by the parties hereto that during the performance of the Services hereunder and as set forth in the Service Orders and the Change Orders INTEGRIUM may receive from NAPO, or otherwise acquire, certain Confidential, Proprietary, and/or Trade Secret Information which is the property of NAPO (collectively, "Confidential Information"), Confidential Information shall include without limitation the Investigator's brochure, the study protocol, the data recorded during the study and data, formulae and information on the Study Drug. For purposes of this Agreement, Confidential Information shall be understood to include all verbal, written or electronically transferred information received from NAPO by INTEGRIUM, and unless expressly described in this section 6.1 such written material shall be marked "Confidential" unless a reasonable person would recognize

the confidential or proprietary nature of such material, in which case such marking will not be required. Information which is disclosed orally shall be deemed confidential if it is confirmed to be confidential by a writing provided to INTEGRIUM by NAPO within a reasonable amount of time following oral disclosure unless a reasonable person would recognize the confidential or proprietary nature of such information, in which case such a confirmation will not be required. INTEGRIUM hereby warrants and affirms that it shall neither use nor disclose Confidential Information for any purpose other than as is specifically allowed by this Agreement. INTEGRIUM further warrants that it will use the same amount of care and diligence to protect the Confidential Information as it uses to protect its own confidential information but in any case not less than reasonable care and diligence.

6.2 INTEGRIUM shall disclose Confidential Information only to such of its employees, contractors, consultants, or affiliates as may reasonably be required to assist INTEGRIUM in the performance of this Agreement and who have agreed to be bound by terms and conditions similar to those in this Agreement. In the event of such disclosure, INTEGRIUM shall advise its employees, contractors, consultants, affiliates and their respective employees, contractors and consultants of the confidential nature of the information and shall instruct them to take all necessary and reasonable precautions to prevent the unauthorized use or disclosure thereof at least consistent with those precautions undertaken by INTEGRIUM hereunder.

6.3 Upon the expiration or termination of this Agreement, INTEGRIUM shall either destroy or return to NAPO all tangible and electronic forms of Confidential Information, including any and all copies and/or derivatives of Confidential Information made by INTEGRIUM (or INTEGRIUM's employees, contractors, consultants and affiliates (and their respective employees, contractors and consultants)), as well as any writings, drawings, specifications, manuals or other printed material made by INTEGRIUM (or INTEGRIUM's employees, contractors and consultants) and based on, or derived from, Confidential Information, provided that INTEGRIUM shall retain all information it is required by law to retain, and that INTEGRIUM may retain one copy of written information for regulatory record purposes, subject to protection and nondisclosure in accordance with the terms of this Agreement and using the same amount of care and diligence to protect NAPO’s information as it uses to protect its own confidential information but in any case not less than reasonable care and diligence.

6.4 The foregoing obligations shall not apply to Confidential Information to the extent that it: (a) is or becomes generally available to the public other than as a result of a disclosure by the receiving party; (b) becomes available to the receiving party on a non-confidential basis from a source which is not prohibited from disclosing such information; (c) was developed independently of any disclosure by the disclosing party or was known to the receiving party prior to its receipt from the disclosing party, as shown by contemporaneous written evidence; or (d) as is required by law or regulation to be disclosed (after providing NAPO with a reasonable notice and ability to legally protect such Confidential Information).

6.5 All of INTEGRIUM's obligations set forth in this Article 6, including the obligations of confidentiality and non-use, shall be continuing and shall survive for five (5) years following the expiration or termination of either this Agreement or the respective Service Order and any Change Orders for which the Confidential Information has been disclosed, whichever is later.

6.6 INTEGRIUM shall not disclose, or otherwise make public, the terms of this Agreement, except as may be necessary to secure enforcement of the terms of this Agreement or in response to a lawful subpoena or to comply with applicable regulations.

7. Independent Contractor

7.1 The parties hereto agree that INTEGRIUM is being retained and shall perform as an independent contractor. Neither INTEGRIUM nor any of its employees performing Services, shall be employees of NAPO, it being understood and agreed that INTEGRIUM is an independent contractor for all purposes and at all times. All matters of compensation and benefits and terms of employment for INTEGRIUM's employees shall be solely a matter between INTEGRIUM and its employees. Nothing contained herein shall be deemed or construed to create between the parties hereto a partnership or joint venture or employment relationship. No party shall have the authority to act on behalf of any other party, or to commit any other party in any manner or cause whatsoever or to use any other party's name in any way not expressly authorized by this Agreement. No party shall be liable for any act, omission, representation, obligation or debt of any other party, even if informed of such act, omission, representation, obligation or debt.

7.2 It is further understood and agreed that the means, methods and manner in which Services are rendered by INTEGRIUM in accordance with this agreement shall be within INTEGRIUM's sole control and discretion, only subject to Article 2 and 3, applicable Service Orders and Change Orders, and any applicable laws and regulations.

7.3 INTEGRIUM acknowledges and agrees that its employees are not eligible to participate in any benefits programs offered by NAPO to their employees, or any other employee benefit or perquisite plans offered from time to time by NAPO to their employees.

7.4 Nothing contained in this Agreement shall be construed as making the parties joint venturers or as granting to either party the authority to bind or contract any obligations in the name of or on the account of the other party or to make any representations, guarantees or warranties on behalf of the other party except to the extent such authority is expressly provided in writing and agreed by the parties.

8. Tax Reporting and Payment

8.1 INTEGRIUM acknowledges and agrees that it shall be solely responsible for paying the appropriate amount of all federal, state and local taxes with respect to all compensation paid to INTEGRIUM pursuant to this Agreement, and that NAPO shall have no responsibility whatsoever for withholding or paying any such taxes for or on behalf of INTEGRIUM.

8.2 INTEGRIUM further agrees to indemnify and hold NAPO harmless from and against any and all damages, losses, expenses, or penalties arising from or in connection with any claim brought by any federal, state or local taxing authority with regard to INTEGRIUM's failure to pay required taxes or failure to file required forms with regard to compensation paid to INTEGRIUM by NAPO pursuant to this Agreement.

9. Ownership, Disclosure and Transfer of Developments and Study Data.

9.1 INTEGRIUM understands and agrees that the underlying rights to the Study Drug and intellectual property developed that are the subject of each Service Order and Change Order and the associated Services are owned solely by NAPO. INTEGRIUM, nor any of its respective directors, officers, employees, agents, consultants, permitted subcontractors or representatives shall acquire any rights of any kind whatsoever with respect to such Study Drug, or any intellectual property rights therein, as a result of conducting Services under this Agreement, the Service Orders and the Change Orders.

9.2 NAPO acknowledges that INTEGRIUM possesses certain computer technical expertise, software and methodologies for administration of clinical trials, data collection, data management and statistical analyses methods which have been independently developed by INTEGRIUM without the benefit of any information provided by NAPO ("**Integrium Properties**"). NAPO and INTEGRIUM agree that any Integrium Properties used by INTEGRIUM in the administration and the conduct of clinical trials used by INTEGRIUM under or during the term of this Agreement remain the sole property of INTEGRIUM and NAPO agrees that such Integrium Properties are commercially valuable to INTEGRIUM and NAPO agrees not to disclose such Integrium Properties to any other party without INTEGRIUM's prior written consent.

10. Relationship with Investigators and 3rd Party Vendors

10.1 If under any Service Order or Change Order, INTEGRIUM is required to contract with investigators or investigative sites (collectively, "Investigators") then any such contract shall be in a form mutually acceptable to INTEGRIUM and NAPO. Such agreements with investigative sites shall hereafter be referred to as the Clinical Site Agreement Template ("**CSA Template**"). Such agreements with Investigators ("**Investigator Agreements**") shall be made between INTEGRIUM, NAPO and the applicable Investigator. If an Investigator requests any material changes to such

CSA Template effecting NAPO's rights, INTEGRIUM shall submit the proposed change to NAPO, and NAPO shall promptly review and comment on such proposed changes(s). NAPO retains the right to approve the final form of any contract entered into with any Investigator. If NAPO approves an Investigator Agreement or any changes to the CSA Template in writing, that differ from the terms of this Agreement (including, but not limited to, allowing an Investigator to publish results or data that INTEGRIUM is prohibited from revealing), then INTEGRIUM shall have no liability for any such approved provisions or changes. The parties acknowledge and agree that Investigators shall not be considered the employees, agents, or subcontractors of INTEGRIUM or NAPO, and that Investigators shall exercise their own independent medical judgment. INTEGRIUM's responsibilities with respect to Investigators shall be limited to those responsibilities specifically set forth in this Agreement and any applicable Service Order or Change Order.

10.2 If INTEGRIUM will be paying Investigators and/or any 3rd party vendors (IRBs, labs, meeting planners, etc.) on behalf of NAPO, the parties will agree in the applicable Service Order, Change Order or Study Budget as to a schedule of amounts to be paid to the 3rd party vendors. INTEGRIUM shall pay Investigators and 3rd party vendors in accordance with the agreed schedule. NAPO acknowledges and agrees INTEGRIUM will only pay Investigators and vendors from either advances, pre-payments, or payments on specific invoices from monies received from NAPO for Investigators' services, and that INTEGRIUM will not make payments to Investigators or vendors prior to receipt of sufficient funds from NAPO. NAPO acknowledges that INTEGRIUM shall not be responsible for any Study timeline delays, including but not limited to site enrollment delays, due to lack of payment or late payment from NAPO. . INTEGRIUM warrants that all up-front and advance payments or any monies paid by NAPO to INTEGRIUM will be allocated only to the NAPO study specified on the invoice and will not be used for any other purposes. INTEGRIUM will provide NAPO with a monthly pass-through reconciliation report indicating the status of these funds. Notwithstanding anything contained herein to the contrary, NAPO agrees to indemnify and hold INTEGRIUM harmless for any and all claims from any sites and 3rd Party Vendors for unpaid invoices submitted to NAPO.

10.3 NAPO agrees that, although INTEGRIUM will assume responsibility for disbursing fees and/or expenses to Investigators, and third party vendors, INTEGRIUM is not liable for payment to Investigators and third party vendors until NAPO has pre-paid INTEGRIUM in advance for these fees and expenses. Upon contract execution of each Service Order, NAPO agrees to provide the start-up and vendor advance requirements specified in each Service Order. INTEGRIUM will provide on the first day of each consecutive month the forecasted enrollment for the following month and will invoice the total grant liability based on that forecast, adjusted for actuals from the previous month. Once enrollment is complete, remaining grant payments will be disbursed from the grant residuals on account at Integrium. For clarity sake, NAPO understands that the full grant amount for the entire study will be invoiced and paid by the end of the enrollment period.10.4.

Remaining Investigator Grant funds designated for each Service Order, and any interest accrued thereon, will be returned to NAPO after termination or completion the respective Service Order, as soon as all contracted obligations to the Investigators have been satisfied. A final Investigator Grant reconciliation report will be provided to NAPO. In the event funds so advanced by NAPO are insufficient to cover the payments to the Investigators, NAPO will promptly advance to INTEGRIUM the amounts required subject to the limits in the Study Budget and Payment Schedule in each Service Order. INTEGRIUM is not liable for payment of any excess advance funds remaining at any third party vendor after final study reconciliation.

10.5 NAPO acknowledges and agrees that INTEGRIUM will not be responsible for delays in a Study or Project to the extent that such delays are caused by NAPO's failure to make adequate pre-payment for Investigators' services. NAPO further acknowledges and agrees that payments for Investigator's/vendors' services are pass-through payments at actual costs to third parties and are separate from payments for INTEGRIUM's Services. NAPO agrees that it will not withhold Investigator payments except to the extent that it has reasonable questions about the services performed by a particular Investigator.

10.6 If under any Service Order or Change Order, INTEGRIUM is required to perform monitoring services or visit an investigative site on NAPO's behalf (collectively, "**Investigative Site Visit**") any site imposed Vendor Credentialing System ("**VCS**") fees will be paid by INTEGRIUM, NAPO shall have no liability for any such fees. NAPO agrees that such fees shall be clearly delineated in the negotiated Clinic Site Agreement. In addition, NAPO agrees that INTEGRIUM is not liable for study delays caused by the site-imposed VCS.

11. Indemnification

11.1 NAPO hereby agrees to indemnify, defend, and hold INTEGRIUM, and its respective agents, servants, employees, officers, and directors ("**INTEGRIUM Indemnities**") safe and harmless from and against any and all losses, costs, damages, expenses, claims, actions, liability, and/or suits (including court costs and reasonable attorney fees) ("**Liabilities**") arising from any third-party claims, actions, proceedings, investigations or litigation (including personal bodily injury or wrongful death): relating to or arising from or in connection with (a) any bodily injury to or death of a Study subject actually caused by or attributed to any procedure required by the applicable Protocol or the administration of the Study Drug or any other substance required to be dispensed or administered to a study subject by, and in accordance with, the applicable protocol; (b) the development, manufacture, use, handling, storage, sale or other disposition of NAPO's products following completion of the applicable services; (c) the disclosure and/or use of the results by NAPO; (d) NAPO's gross negligence, willful or intentional misconduct; or (e) NAPO's material breach of this Agreement; except, in each case to the extent resulting from any Integrium Indemnities' breach of this Agreement, failure to comply with applicable law or regulation, or negligence or willful misconduct.

Except as set forth in Section 5.5, INTEGRIUM will not be liable for any third party vendor's (i) adherence to the Study's protocol, (ii) adherence to project specifications or timeline, (iii) breach of contract, (iv) the negligence or willful misconduct of third Party Vendor, or (v) any infringement, misappropriation or violation by third Party Vendor of any right of another third Party.

11.2 INTEGRIUM hereby agrees to indemnify, defend, and hold NAPO and its respective affiliates, employees, directors, agents, approved subcontractors and consultants ("**NAPO Indemnitees**") from and against any and all losses, damages, liabilities, reasonable attorney fees, court costs, and expenses resulting or arising from any third-party claims, actions, proceedings, investigations or litigation (including personal injury or wrongful death): relating to or arising from or in connection with (a) the negligence or willful or intentional misconduct by INTEGRIUM in the performance of any services described in this Agreement, any Service Order and any Change Order; (b) INTEGRIUM's failure to comply with applicable law or regulation in the performance of any services described in this Agreement, any Service Order and any Change Order, except to the extent resulting from any NAPO Indemnitees' material breach of this Agreement, failure to comply with applicable law or regulation, or gross negligence or willful misconduct.

11.3 A Party's agreement to indemnify, defend and hold the other party (the "Indemnified Party") and its related entities harmless is conditioned upon the Indemnified Party: (a) providing written notice to the other Party (the "Indemnifying Party") of any such third-party claims, actions, proceedings investigations or litigation ("Claim") arising out of the indemnified activities within 10 days after the Indemnified Party has knowledge thereof (however a delayed notification shall not release the Indemnifying Party to the extent such delay does not materially affect the Indemnifying Party's position in respect of the Claim); (b) permitting the Indemnifying Party to assume full responsibility and authority to investigate, prepare for and defend against any Claim; (c) assisting the Indemnifying Party, at the Indemnifying Party's reasonable expense, in the investigation of, preparation for and defense of any such Claim; and (d) not compromising or settling such Claim without the Indemnifying Party's written consent.

11.4 [INTENTIONALLY LEFT BLANK]

12. Limitation of Liability

12.1 Neither Party, nor its affiliates, nor any of its or their respective directors, officers, employees or agents shall have any liability of any type (including, but not limited, to contract, negligence, and tort liability), for any special, incidental, indirect or consequential damages, including, but not limited to the loss of opportunity, loss of use, or loss of revenue or profit, in connection with or arising out of this Agreement, or any Service Order or Change Order. In addition, in no event shall the collective, aggregate liability (including, but not limited to, contract, negligence and tort liability) of either Party and its affiliates and its and their respective directors, officers,

employees and agents under this Agreement or any Service Order or Change Order hereunder exceed the amount of service fees actually payable by NAPO to INTEGRIUM hereunder.

13. Insurance

13.1 Each party will maintain, for the duration of this Agreement, insurance in an amount reasonably adequate to cover its obligations under this Agreement and any and all Service Orders then in effect, and, upon request, each party will provide to the other party a certificate of insurance showing that such insurance is in place.

13.2 NAPO will supply INTEGRIUM with the Clinical Trial Insurance Certificate for each Study covered under a Service Order prior to commencement of subject screening for each Service Order. INTEGRIUM will not be responsible for enrollment delays due to NAPO's delay in providing said Certificate.

14. Termination

14.1 In the event that either Party commits a material breach of this Agreement, the non-breaching party shall have the right to terminate this Agreement immediately unless the breaching Party can cure its breach and provide full performance within thirty (30) days of having received written notice that a material breach has been declared. Upon termination of this Agreement, the non-breaching party shall have no further obligation to the breaching party other than for NAPO to pay for Services that were duly performed by INTEGRIUM in accordance with the respective Service Order for this Agreement up to the date of such termination for services provided prior to or that are unaffected by INTEGRIUM's breach and any rights and duties which the parties expressly stated herein as surviving termination.

14.2 NAPO may terminate individual Service Orders at any time without cause by giving INTEGRIUM thirty (30) days written notice of such termination. If NAPO should terminate pursuant to this Section 14.2, NAPO will pay for all services that were performed up to the point of termination in accordance with the respective Service Order, Change Order and this Agreement up to the date of such termination in accordance with the Service Order's budget, as well as costs reasonably incurred for the Services and which INTEGRIUM is unable to cancel (For the avoidance of doubt, NAPO or shall be responsible for any and all third party vendor cancellation fees due upon the Study's cancellation due to termination without cause), and all reasonable and documented administrative costs incurred in the conduct of the Service Order up to the point of termination, and for those services which are necessary to be performed for patient safety, government requirement compliance and/or expressly requested by NAPO. INTEGRIUM shall use its best efforts to minimize the costs incurred following its receipt of notice of such notice of termination.

14.3 Either Party may terminate this Agreement or an individual Service Order upon the giving of written notice to the other Party if the other Party is in breach of this

Agreement and the breaching Party cannot resolve such breach within 30 days of receipt of the written notice.

14.4 Either Party may terminate this Agreement and all active Service Orders upon the giving of written notice to the other Party if the other Party becomes insolvent, makes a general assignment for the benefit of creditors, files a voluntary petition of bankruptcy, suffers or permits the appointment of a voluntary petition of bankruptcy, suffers or permits the appointment of a receiver for its business or assets, or becomes subject to any proceeding under any bankruptcy or insolvency law, whether domestic or foreign, or has wound up or liquidated, voluntary or otherwise. In the event that any of the above events occur, that Party shall immediately notify the other, in writing, of its occurrence.

14.5 Upon receipt of written notice of termination of this Agreement and/or a Service Order by either Party: (i) INTEGRIUM will, as soon as reasonably practicable discontinue providing the applicable Services, except to the extent reasonably required to safely close out a Study or to transfer (at NAPO's request) the remaining Services to another service provider selected by NAPO, and (ii) INTEGRIUM will terminate or, if requested by NAPO, assign existing third party obligations to the extent cancelable or assignable, as applicable. Any amounts paid by NAPO which exceed the amounts owed to INTEGRIUM as of expiration or termination of this Agreement shall be refunded to NAPO within thirty (30) days after expiration or termination. Any amounts owed by NAPO, including third party vendor cancellation fees, shall be paid to INTEGRIUM within thirty (30) days after expiration or termination.

15. Personnel Recruitment

15.1 Neither Party, during the term of this Agreement and for twelve (12) months thereafter, will, without the prior written consent of the other Party, directly or indirectly solicit for employment or contract, attempt to employ or contract with or assist any other entity in employing, contracting with or soliciting for employment or contract any employee, or executive who is at that time employed/contracted by the other Party and who had been employed/contracted by the other Party in connection with the Services provided hereunder. The foregoing provision will not prevent either Party from conducting solicitation via a general advertisement for employment that is not specifically directed to any such employee or from employing any such person who responds to such solicitation.

16. Miscellaneous Provision

16.1 Assignment. This Agreement may not be assigned by either Party without the prior written consent of the other Party, except that either of the Parties may assign this Agreement to a successor in connection with the merger, consolidation or sale of all or substantially all of its assets to which this Agreement relates. No assignment whether consensual or permissive shall relieve either party of its responsibility for

performance of its obligations under this Agreement or any Service Order or Change Order.

16.2 Complete Agreement. This Agreement, together with its exhibits, Service Orders and Change Orders then in effect, supersedes all prior Agreements and understandings made jointly by NAPO and INTEGRIUM related to the subject matter of this Agreement.

16.3 Waiver. No waiver by either Party with respect to any breach or default or of any right or remedy, and no course of dealing by NAPO shall be deemed to constitute a continuing waiver of any other breach or default or of any other right or remedy, unless such waiver be expressed in writing, signed by NAPO. No payment made by NAPO shall be considered as acceptance of satisfactory performance of the Services, or as in any way relieving INTEGRIUM from its full responsibility pursuant to this Agreement.

16.4 Amendment. This Agreement may not be altered, changed or amended except in writing signed by each of the Parties hereto.

16.5 Survival. The provisions of this Agreement dealing with Study Drug (Section 2.6), allocation of payment obligations (Section 4.3), confidentiality (Article 6), independent contractor (Article 7), taxes (Article 8), Developments and Study Data (Article 9), reconciliation (Section 10.4), indemnification (Article 11), limitation of liability (Article 12), termination (Article 14), non-solicitation (Article 15) and this Article 16 shall survive the expiration and/or termination of this Agreement

16.6 Severability. In the event that any provision of this Agreement is held illegal or invalid for any reason, such provision shall not affect the remaining parts of this Agreement, but this Agreement shall be construed and enforced as if that illegal and invalid provision had never been inserted herein.

16.7 Extraordinary Relief. In the event of the actual or threatened breach by INTEGRIUM of any of the terms of the Articles 6, 7, and 10 hereof, NAPO shall have the right to specific performance and injunctive relief. The remedies in this paragraph are in addition to all other remedies and rights available at law or in equity.

16.8 Force Majeure. Performance of this Agreement by each Party shall be pursued with due diligence in all requirements hereof; however, neither Party shall be liable for any loss or damage for delay or nonperformance due to causes not reasonably within its control. In the event of any delay resulting from such causes, the time for performance and payment hereunder shall be extended for a period of time necessary to overcome the effect of such delays. In the event of any delay or nonperformance caused by such uncontrollable forces, the Party affected shall promptly notify the other in writing of the nature, cause, date of commencement thereof, and the anticipated extent of such delay, and shall indicate whether it is anticipated that the completion date of the Agreement would be affected thereby. If the non-performing

Party is unable to resume performance within thirty (30) days after the force majeure event occurs, the other party may terminate this Agreement. If reasonable efforts will not enable resumption or completion, the non-performing party may terminate this Agreement.

16.9 Captions and Headings. The captions, numbering and headings in this Agreement are for convenience and reference only, and they shall in no way be held to explain, modify, or construe the meaning of the terms of this Agreement.

16.10 Counterpart Originals. This Agreement may be executed in any number of counterparts, each of which, when executed, shall be deemed to be an original and all of which together shall constitute one and the same document.

16.11 Notices. Except as otherwise provided, all communications and notices concerning payments required under this Agreement shall be to:

If to INTEGRIUM for contractual matters:
INTEGRIUM, LLC
[****]
Jessica Coutu, Sr. V.P. of Clinical Operations

If to INTEGRIUM for financial matters:
INTEGRIUM, LLC
[****]
Jessica Coutu, Sr. V.P. of Clinical Operations
Attn: **[****]**, Financial Controller

If to NAPO:
Napo Pharmaceuticals, Inc.
200 Pine Street, Suite 400
San Francisco, CA 94104
Attention: **[****]**, VP Clinical Operations

With a copy to:
Jaguar Health, Inc.
200 Pine Street, Suite 400
San Francisco, CA 94104
Attention: Jonathan Wolin
Chief Compliance Officer and Corporate Counsel

16.12 Governing Law. It is understood and agreed that this Agreement shall be governed by the laws of the State of Delaware in all respects of validity, construction and performance without regard to its conflict of laws rules.

16.13 Publicity. INTEGRIUM shall not make any public announcements concerning this Agreement or the subject matter hereof without the prior written consent of NAPO. INTEGRIUM agrees that it will not make any publication, including any abstracts, posters or articles relating to the Study or the services performed pursuant to this Agreement without the prior written consent of NAPO.

IN WITNESS WHEREOF, the parties hereto have executed, or have caused their duly authorized representatives to execute, this Agreement as of its initial effective date.

For and on behalf of **INTEGRIUM, LLC**	For and on behalf of **NAPO PHARMACEUTICALS, INC.**
/s/ Jessica Coutu	/s/ Lisa Conte
By: Jessica Coutu	By: Lisa Conte
Title: Sr. VP, Clinical Operations	Title: President and CEO
Date:	Date:

Exhibit 2.7

Protocol #: NP303-102

Start-up Agreement effective June 17, 2020
Between Napo Pharmaceuticals, Inc. and Integrium, LLC

This Start-up Agreement ("Start-up Agreement') for the above-referenced Project sets forth the agreement between Integrium, LLC having a principal address at **[****]**, USA ("Integrium") and Napo Pharmaceuticals, Inc, having a principal place of business located at 201 Mission Street, Suite 2375, San Francisco, CA 94015 ("Napo") for Integrium to begin providing certain services described in Exhibit A (the "Services") with respect start-up activities for the Napo Protocol # NP303102 entitled "**ON TARGET: A Phase 3 multicenter, randomized, double-blind placebo-controlled trial evaluating crofelemer for the prophylaxis of diarrhea in adult patients with solid tumor cancer receiving targeted-cancer therapies with or without standard chemotherapy regimens** (the "Project").

At the present time, Integrium and Napo are engaged in detailed discussions and negotiations regarding estimated timelines, scope of services, and compensation for the entire Project, all of which is dependent upon the finalization of the study objective(s), design, methodology, statistical considerations, and organization of the clinical trial, as defined in the Protocol ("the Protocol"), and upon which a definitive, final agreement ("Final Agreement") will be negotiated between the parties with respect to the Project. Integrium and Napo recognize that this Start-up Agreement is necessary to meet the Napo's desired time frame for this Project. Accordingly, Napo hereby authorizes Integrium under the terms and conditions set forth in this Start-up Agreement, to commence performance of the Services.

1. Napo hereby authorizes Integrium to provide the Services. Both parties will work in good faith to finalize a final agreement for the Project prior to the expiration of this Start-up Agreement.

2. Each party hereby agrees to indemnify, defend, and hold the other party and its respective affiliates, employees, directors, agents, approved subcontractors and consultants ("Indemnitees") safe and harmless from and against any and all losses, costs, damages, expenses, claims, actions, liability, and/or suits brought by a third party (including court costs and reasonable attorney fees) ("Liabilities") suffered or incurred by the Indemnitees to the extent arising out of or in connection with the indemnifying party's performance under this Start-up Agreement, but only to the extent that such Liabilities do not arise out of or in connection with the Indemnitee's error, omission, gross negligence or willful misconduct, or breach of any covenant or warranty, or the inaccuracy of any representation made by the Indemnitee under this Start-up Agreement, or the Indemnitee's failure to comply with any of the terms under this Start-up Agreement.

3. All invoices shall be paid within thirty (30) days of invoice date. Integrium shall not be responsible for any Study timeline delays, including but not limited to site enrollment delays, due to lack of payment or late payment from Napo.

4. Integrium shall be paid on a **[****]** according to the payment schedule as described in Exhibit B.

5. Payments shall be made payable to:
   Integrium, LLC
   [****]
   Tax ID#: **[****]**

   Wiring Information:
   [****]

   Routing/ABA **[****]**
   Bank Account **[****]**
   Bank Account Name **[****]**

6. The Services provided under this Start-up Agreement shall be credited to any amounts due Integrium from Napo for the Project under the Final Agreement. Should a Final Agreement not be reached, upon Napo's request the remaining balance of the Start-up Agreement not actually dispersed, or irrevocably committed, as of date of such request, will be refunded to Napo.

7. All rights to the study drug and all data, results, materials and samples generated by Integrium in the performance of the Services and all ideas, inventions and discoveries, whether patentable or not, conceived or reduced to practice by Integrium as a result of the performance of the Services under this Agreement ("Work Product") shall be the sole property of Napo and shall be Napo's Confidential Information. Integrium shall execute any documents and perform such other acts as may be reasonably requested by Napo in order to secure, perfect, confirm, exercise or enforce Napo's foregoing rights.

8. Unless sooner terminated as set forth herein, this Start-up Agreement will remain in effect until August 31, 2020. Napo may terminate this Start-up Agreement upon thirty (30) days prior written notice to Integrium. Upon termination of this Start-up Agreement Napo will pay any monies due and owing Integrium, up to the effective date of termination, for the Services actually performed and pass through expenses incurred, including any non-cancelable expenses. If Integrium has received payment from Napo in excess of the amount of the Services it has performed and pass-through expenses it has incurred at the time of termination by Napo, Integrium will then promptly refund to Napo all such overpayment of funds. Napo's ownership of Work Product, and the parties' confidentiality and indemnity obligations set forth in Sections 10 and 3, respectively, will survive the expiration or earlier termination of this Start-up Agreement. Upon expiration or termination of this Start-up Agreement neither Napo nor Integrium shall have any further obligation to continue the Project and Integrium will return or destroy all of Napo's Confidential Information as directed by Napo. If a Final

Agreement is not executed by the parties by August 31, 2020, a new or revised Start-up Agreement signed by authorized representatives of the parties defining the revised terms will be necessary for Integrium to continue work on the Project.

9. Integrium shall conduct the Services in conformance with the applicable protocol, published guidelines, and other generally accepted standards of Good Clinical Practice, and all applicable federal, state and local laws, rules and regulations relating to the conduct of the Project, particularly the laws, rules and regulations promulgated by the U.S. Food and Drug Administration pertaining to clinical investigations and the use of investigational drugs in humans.

10. All information and materials of Napo whether of a technical or business nature, such as research processes, documentation, trade secrets, product candidates, developments, proprietary rights or business affairs, shall be Confidential Information of Napo as such is and shall be subject to the terms of the Mutual Non-disclosure Agreement executed on January 16, 2020.

11. The parties hereto agree that Integrium is being retained and shall perform as an independent contractor. Neither Integrium nor any of its employees performing the Services, shall be employees of NAPO, it being understood and agreed that Integrium is an independent contractor for all purposes and at all times. All matters of compensation and benefits and terms of employment for Integrium's employees shall be solely a matter between Integrium and its employees. Nothing contained herein shall be deemed or construed to create between the parties hereto a partnership or joint venture or employment relationship. No party shall have the authority to act on behalf of any other party, or to commit any other party in any manner or cause whatsoever or to use any other party's name in any way not expressly authorized by this Start-up Agreement. No party shall be liable for any act, omission, representation, obligation or debt of any other party, even if informed of such act, omission, representation, obligation or debt. Integrium acknowledges and agrees that its employees are not eligible to participate in any benefits programs offered by NAPO to their employees, or any other employee benefit or perquisite plans offered from time to time by NAPO to their employees. Nothing contained in this Start-up Agreement shall be construed as making the parties joint venturers or as granting to either party the authority to bind or contract any obligations in the name of or on the account of the other party or to make any representations, guarantees or warranties on behalf of the other party except to the extent such authority is expressly provided in writing and agreed by the parties.

12. Integrium acknowledges and agrees that it shall be solely responsible for paying the appropriate amount of all federal, state and local taxes with respect to all compensation paid to Integrium pursuant to this Agreement, and that NAPO shall have no responsibility whatsoever for withholding or paying any such taxes for or on behalf of Integrium. Integrium further agrees to indemnify and hold NAPO harmless from and against any and all damages, losses, expenses, or penalties arising from or in connection with any claim brought by any federal, state or local taxing authority with regard to Integrium failure to pay required taxes or failure to file required forms with regard to compensation paid to Integrium by NAPO pursuant to this Start-up Agreement.

13. Each party will maintain, for the duration of this Start-up Agreement, insurance in an amount reasonably adequate to cover its obligations under this Start-up Agreement and, upon request, each party will provide to the other party a certificate of insurance showing that such insurance is in place.

14. The miscellaneous provisions of this Start-up Agreement are set forth in Exhibit C.

15. This Start-up Agreement shall be governed and construed in accordance with the laws of the State of California, without application of conflicts of law principles.

16. Notifications:

In the Case of Napo:

[****]
VP of Clinical Operations
201 Mission Street, Suite 2375
San Francisco, CA 94105

In the Case of Integrium:

For contractual matters:

[****]

financial matters:

[****]

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed in multiple counterparts by their duly authorized representatives.

INTEGRIUM, LLC	**NAPO THERAPEUTICS, INC.**
By: Jessica Coutu	By: Lisa Conte
Title: Sr. VP, Clinical Operations	Title: President and CEO
Date: _____, 2020	Date: _____, 2020

EXHIBIT A:

STUDY START-UP SERVICES

	[****]	[****]	[****]	[****]	[****]
1	[****]	[****]	[****]	[****]	[****]
2	[****]	[****]	[****]	[****]	[****]
3	[****]	[****]	[****]	[****]	[****]
4	[****]	[****]	[****]	[****]	[****]
5	[****]	[****]	[****]	[****]	[****]
6	[****]	[****]	[****]	[****]	[****]
7	[****]	[****]	[****]	[****]	[****]
8	[****]	[****]	[****]	[****]	[****]
9	[****]	[****]	[****]	[****]	[****]
10	[****]	[****]	[****]	[****]	[****]
11	[****]	[****]	[****]	[****]	[****]
12	[****]	[****]	[****]	[****]	[****]
13	[****]	[****]	[****]	[****]	[****]
14	[****]	[****]	[****]	[****]	[****]
15	[****]	[****]	[****]	[****]	[****]
	[****]	[****]	[****]	[****]	[****]
	[****]	[****]	[****]	[****]	[****]
1	[****]	[****]	[****]	[****]	[****]
2	[****]	[****]	[****]	[****]	[****]
3	[****]	[****]	[****]	[****]	[****]
4	[****]	[****]	[****]	[****]	[****]
	[****]	[****]	[****]	[****]	[****]
	[****]	[****]	[****]	[****]	[****]

EXHIBIT B:

STUDY START-UP PAYMENT SCHEDULE

Payment Schedule			
[****]	[****]	[****]	[****]
[****]	[****]	[****]	[****]
[****]	[****]	[****]	[****]
[****]	[****]	[****]	[****]
	[****]	[****]	

[****]		[****]	[****]
[****]	[****]	[****]	[****]
[****]	[****]	[****]	[****]
[****]	[****]	[****]	[****]
	[****]	[****]	

	[****]	[****]

EXHIBIT C:

MISCELLANEOUS PROVISIONS

A. Assignment. This Start-up Agreement may not be assigned by either party without the prior written consent of the other party, except that either of the parties may assign this Start-up Agreement to a successor in connection with the merger, consolidation or sale of all or substantially all of its assets to which this Agreement relates. No assignment whether consensual or permissive shall relieve either party of its responsibility for performance of its obligations under this Start-up Agreement.

B. Complete Agreement. This Start-up Agreement, together with its exhibits, supersedes all prior Agreements and understandings made jointly by and amongst Napo and Integrium related to the subject matter of this Start-up Agreement.

C. Waiver. No waiver by either party with respect to any breach or default or of any right or remedy, and no course of dealing by Napo shall be deemed to constitute a continuing waiver of any other breach or default or of any other right or remedy, unless such waiver be expressed in writing, signed by Napo. No payment made by Napo shall be considered as acceptance of satisfactory performance of the Services, or as in any way relieving Integrium from its full responsibility pursuant to this Start-up Agreement.

D. Amendment. This Start-up Agreement may not be altered, changed or amended except in writing signed by each of the parties hereto.

E. Survival. The following provisions of this Start-up Agreement shall survive the expiration and/or termination of this Agreement: 2, 3, 4, 6, 7, 8, 10, 12, 13, 14 and 15.

F. Severability. In the event that any provision of this Start-up Agreement is held illegal or invalid for any reason, such provision shall not affect the remaining parts of this Start-up Agreement, but this Start-up Agreement shall be construed and enforced as if that illegal and invalid provision had never been inserted herein.

G. Force Majeure. Performance of this Start-up Agreement by each party shall be pursued with due diligence in all requirements hereof; however, neither party shall be liable for any loss or damage for delay or nonperformance due to causes not reasonably within its control. In the event of any delay resulting from such causes, the time for performance and payment hereunder shall be extended for a period of time necessary to overcome the effect of such delays. In the event of any delay or nonperformance caused by such uncontrollable forces, the party affected shall promptly notify the other in writing of the nature, cause, date of commencement thereof, and the anticipated extent of such delay, and shall indicate whether it is anticipated that the completion date of the Start-up Agreement would be affected thereby. If the non-performing party is unable to resume performance within thirty (30) days after the force majeure event occurs, the other party may terminate this Start-up Agreement. If reasonable efforts will not enable resumption or completion, the non-performing party may terminate this Start-up Agreement.

H. Counterpart Originals. This Start-up Agreement may be executed in any number of counterparts, each of which, when executed, shall be deemed to be an original and all of which together shall constitute one and the same document

I. Neither party, during the term of this Start-up Agreement and for twelve (12) months thereafter, will, without the prior written consent of the other party, directly or indirectly solicit for employment or contract, attempt to employ or contract with or assist any other entity in employing, contracting with or soliciting for employment or contract any employee, or executive who is at that time employed/contracted by the other party and who had been employed/contracted by the other party in connection with the Services provided hereunder. The foregoing provision will not prevent either party from conducting solicitation via a general advertisement for employment that is not specifically directed to any such employee or from employing any such person who responds to such solicitation.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the following Registration Statements:

(1) Registration Statements (Form S-1 Nos. 333-236016, 333-232082, 333-231399, 333-232078, 333- 232715, 333-233989 and No. 333-237587) of **Jaguar Health, Inc**.; and

(2) Registration Statement (Form S-3 No. 333-238992, 333-248763, and 333-220236) of **Jaguar Health, Inc.**; and

(3) Registration Statements (Form S-8 Nos. 333-237816, 333-204280, 333-215303, 333-219939 and 333-225057) of **Jaguar Health, Inc.**;

of our report dated March 31, 2021, with respect to the consolidated financial statements of **Jaguar Health, Inc.** included in this Annual Report (Form 10-K) of Jaguar Health, Inc. for the years ended December 31, 2020 and 2019.

/s/ Mayer Hoffman McCann P.C.

San Diego, California
March 31, 2021

Exhibit 31.1

PRINCIPAL EXECUTIVE 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 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)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(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: March 31, 2021

/s/ LISA A. CONTE
Lisa A. Conte
Chief Executive Officer and President
(Principal Executive Officer)

Exhibit 31.2

PRINCIPAL FINANCIAL OFFICER'S CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Carol Lizak, certify that:

1. I have reviewed this annual report on Form 10-K of Jaguar 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)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(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: March 31, 2021

/s/ CAROL LIZAK
Carol Lizak
Principal Financial and Accounting Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the annual report of Jaguar Health, Inc. (the "Company") on Form 10-K for the year ended December 31, 2020, 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: March 31, 2021

/s/ LISA A. CONTE
Lisa A. Conte
Chief Executive Officer and President
(Principal Executive Officer)

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 Health, Inc. (the "Company") on Form 10-K for the year ended December 31, 2020, 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: March 31, 2021

/s/ CAROL LIZAK
Carol. Lizak
Principal Financial and Accounting Officer