

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

FORM 10-K

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

For the fiscal year ended December 31, 2019

OR

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

For the transition period from _____ to _____

Commission file number: 001-37941

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

Delaware
(State or other jurisdiction of
incorporation or organization)

20-2079805
(I.R.S. Employer
Identification Number)

23460 N 19th Ave., Suite 110, Phoenix, AZ 85027
(928) 779-4143

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

| Title of each class | Trading symbol | Name of each exchange on which registered |
|---------------------------------|----------------|-----------------------------------------------------|
| Common Stock, \$0.001 par value | SNES | The NASDAQ Stock Market LLC (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 Securities Exchange 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 (§ 232.405 of this chapter) 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 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 is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

The aggregate market value of the registrant's common stock held by non-affiliates on June 28, 2019 (the last business day of the registrant's most recently completed second fiscal quarter) as reported by The NASDAQ Capital Market on such date was approximately \$42,516,643. There were 1,261,638* shares of the registrant's common stock outstanding on June 28, 2019.

The number of shares of common stock outstanding as of March 16, 2020: 1,819,981*

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive proxy statement to be filed with the Commission within 120 days of the end of the fiscal year and delivered to stockholders in connection with the 2020 Annual Meeting of Stockholders are incorporated by reference into Part III of this Annual Report on Form 10-K.

* Reflects a 1-for-20 reverse stock split of our outstanding common stock on February 4, 2020.

SENESTECH, INC.
FORM 10-K
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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains “forward-looking statements” within the meaning of the safe-harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. Forward-looking statements can often be identified by words such as: “expect,” “believe,” “estimate,” “plan,” “strategy,” “future,” “potential,” “continue,” “may,” “should,” “will,” and similar references to future periods. Examples include, among others, statements about:

- Our commercialization and promotion strategy and plans, including key elements to our business strategy, how we commercialize, our sales approach, our areas and markets of focus, our pricing strategy, our strategic relationships and which geographic markets we target;
- The potential market opportunities for commercializing our product candidates and the role we expect ContraPest to hold within the market;
- Our seeking, obtaining or maintaining regulatory approvals for our product candidates;
- The anticipated results and effects of our products, including those indicated in studies;
- Our expectations regarding the potential market size for our products and how the market may develop;
- Our estimates or expectations related to our revenue, cash flow, expenses, capital requirements and need for additional financing;
- Our ability to improve our cost structure and gross margins, and limit our cash burn;
- Our plans for our business, including for research and development;
- Our ability to enter into strategic arrangements and to achieve the expected results from such arrangements;
- The initiation, timing, progress and results of field studies and other studies and trials and our research and development programs;
- Our ability to develop and manufacture our products candidates to meet demand and in a commercially efficient manner;
- The scope of protection we are able to obtain and maintain for our intellectual property rights covering our product candidates;
- Our financial performance, including our ability to fund operations;
- Developments and projections relating to our projects, competitors and our industry;
- Our expectation regarding our ability to sell our products at commercially reasonable values;
- Our beliefs and expectations related to pending litigation; and
- Other risks and uncertainties, including those described or incorporated by reference under the caption “Risk Factors” in this Annual Report on Form 10-K.

Forward-looking statements are neither historical facts nor assurances about future performance. Instead, they are only predictions, based on current beliefs, expectations and assumptions about the future of our business and other future conditions. Forward-looking statements are subject to known and unknown risks, uncertainties and changes in circumstances that are difficult to predict and many of which are outside of our control. Actual events and results may differ materially. Therefore, you should not rely on any of these forward-looking statements.

Any forward-looking statement made by us in this report is based only on information available to us on the date of this report. Except as may be required by law, we undertake no obligation to publicly update any forward-looking statement, whether as a result of new information, future developments or otherwise.

Our forward-looking statements can be affected by inaccurate assumptions we might make or by known or unknown risks, uncertainties and other factors. We discuss many of these risks, uncertainties and other factors in this Annual Report on Form 10-K in greater detail under the Item 1A— “Risk Factors.” We caution readers that our business and financial performance are subject to substantial risks and uncertainties.

ContraPest is a registered trademark of SenesTech Inc. This Annual Report on Form 10-K may also include trademarks and trade names owned by other parties, and all other such trademarks and trade names mentioned in this Annual Report on Form 10-K are the property of their respective owners.

PART I

Item 1. *Business.*

Overview

SenesTech, Inc. (“SenesTech,” “we,” “our,” “us” and the “Company”) has developed and is seeking to commercialize a global, proprietary technology for managing animal pest populations, initially rat populations, through fertility control. Although there are myriad tools available to control rat populations, most rely on some form of lethal method to achieve effectiveness. Each of these solutions is inherently limited by rat species’ resilience and survival mechanisms as well as their extraordinary rate of reproduction.

ContraPest[®], our initial product, is unique in the pest control industry in attacking the reproductive systems of both male and female rats, resulting in a sustained reduction of the rat population.

Rats have plagued humanity throughout history. They pose significant threats to the health and food security of many communities. In addition, rodents cause significant product loss and damage through consumption and contamination. Rats also cause significant damage to critical infrastructure by burrowing beneath foundations and gnawing on electrical wiring, insulation, fire proofing systems, electronics and computer equipment.

The most prevalent solution to rat infestations is the use of increasingly powerful rodenticides. Although these solutions provide short term results, there are growing concerns about secondary exposure and bioaccumulation of rodenticides in the environment, as well as concerns about rodenticides that have no antidotes. The pest management industry and Pest Management Professionals (PMPs) are being asked for new solutions that are both effective and less toxic. Our goal is to provide customers with not only a solution to combat their most difficult rat problems, but also offer a non-lethal option to serve customers that are looking to decrease or remove the amount of rodenticide used in their pest control programs.

ContraPest is a liquid bait containing the active ingredients 4-vinylcyclohexene diepoxide (VCD) and triptolide. ContraPest limits reproduction of male and female rats beginning with the first breeding cycle following consumption. ContraPest is being marketed for use in controlling Norway and roof rat populations.

SenesTech began the registration process with the United States Environmental Protection Agency (EPA) for ContraPest on August 23, 2015. On August 2, 2016, the EPA granted an unconditional registration for ContraPest as a Restricted Use Product (RUP), due to the need for applicator expertise for deployment. On October 18, 2018, the EPA approved the removal of the RUP designation. We believe ContraPest is the first and only non-lethal, fertility control product approved by the EPA for the management of rat populations.

In addition to the EPA registration, ContraPest must obtain registration from the various state regulatory agencies prior to selling in each state. We have received registration for ContraPest in all 50 states and the District of Columbia, 47 of which have approved the removal of the RUP designation.

We expect to continue to pursue regulatory approvals and amendments to the existing U.S. registration for ContraPest, and if ContraPest begins to generate sufficient revenue, regulatory approvals for additional jurisdictions beyond the United States. The Company also continues to research and develop enhancements to ContraPest that align with our target verticals and other potential fertility control options for additional species.

We were formed in July 2004 and incorporated in the state of Nevada. The Company subsequently reincorporated in the state of Delaware in November 2015.

Current Challenges in Pest Control Methodologies

Lethal rodenticides are often at the forefront of pest management programs; however, they do not provide consistent, sustained results. One reason is because rats reproduce at an extremely rapid rate. A single pair of rats in the wild can, under ideal breeding conditions, contribute over 15,000 progenies in their average lifespan of 12 months. This rapid rate of reproduction can be seen in the population rebound that typically follows the initial decline in rodent populations that are exposed to lethal rodenticides. After the initial decline in the infestation, surviving rodents have plentiful food and harborage creating conditions in which rats can quickly reproduce. This means that PMPs typically need to visit a site often to combat not only the initial infestation, but also subsequent population spikes.

Rat behavior also has a profound effect on pest control. Studies have shown that successful bait uptake is influenced by rodent behavior and how they interact with their environment. Some of these behaviors are thought to be inherited as rats have evolved with humans and control campaigns, while others are conditioned through adverse effects learned in their environment. Neophobia, bait shyness and bait aversion are all behavioral traits that affect bait uptake. When rats avoid new objects in their environment, this is due to neophobia. Newly placed bait stations often result in neophobia. Rats sample all food, whether it is newly found or has been there for their lifetime. This sampling behavior enables rats to associate good and bad reactions from food. If the food they sample causes them to fall ill, they will then avoid this food forever. This is known as bait aversion. In addition, rats that survive the initial exposure to a rodenticide may be genetically resistant to the pesticide’s effects. Their offspring will carry this resistant trait to future generations diminishing the long-term efficacy of the rodenticide. Because of this, conventional rodenticide producers are continually challenged to develop new, more lethal chemicals to control future rat populations.

Rodenticides have significant drawbacks, in that they persist in the environment for long periods of time and are indiscriminate in their effects. Consequently, there is growing concern about the adverse effects that rodenticides may have on children and pets, as well as on species that prey on rats, including birds of prey and large cats. As a result, PMPs will need to include a wide variety of alternative solutions that minimize these concerns.

Integrated Pest Management and Fertility Control

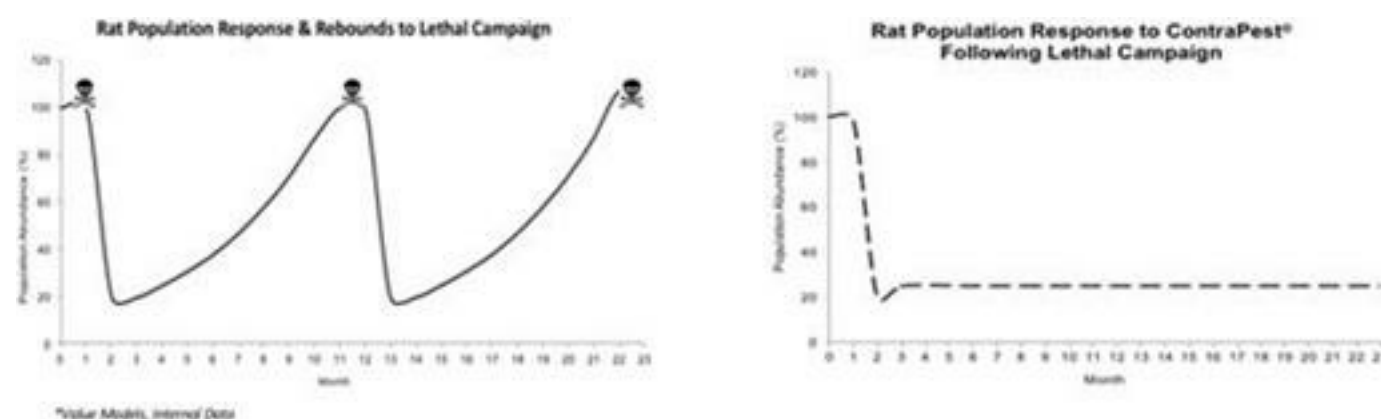


The most effective, long-term way to manage rats is by using a combination of tools that work together to magnify the efficacy of the pest management protocol; integrated pest management (IPM) is based upon this concept. An effective IPM program needs to reduce the existing rat population but also prevent that population from rebounding either through reproduction or through invasion by rodents in adjacent areas. In addition, an IPM program should focus on reducing the factors that make a particular location attractive to rats, such as abundant food and shelter. Regulatory agencies and industry experts recognize that fertility control is or can be an essential component of a safe and sustainable IPM program.

ContraPest is an innovative fertility control technology that targets the reproductive capabilities of both sexes in rat populations, inducing egg loss in female rats and impairing sperm development in males. Targeting both males and females with fertility control allows us to drive populations down and to sustain that population reduction. Its effectiveness has been demonstrated in numerous internal and third-party studies.

Using a proprietary bait delivery method, ContraPest is dispensed in a highly palatable liquid formulation that promotes sustained consumption by rat communities, helping to both reduce and keep populations down. Rats require 10% of their body weight in water per day, making ContraPest an attractive bait to add to pest management programs. The high fat content and sweet taste leads to repeated consumption even when other sought-after food sources are present. In both field and laboratory settings, ContraPest was chosen by rats even in the presence of abundant water sources and plentiful food choices including animal feed, trash and other options. Consumption of ContraPest does not cause illness in rats, and therefore, it does not change behavior or result in bait aversion.

We believe ContraPest can establish a new paradigm in rodent control. Adding ContraPest to an IPM program allows PMPs to bring the rodent population down initially and keep it at a manageable level by minimizing reproduction and thereby limiting population rebounds. Continued maintenance baiting of ContraPest at lower population levels dramatically reduces the risk of future population spikes, allowing PMPs to be more focused on eliminating the causes of future invasions through exclusion and sanitation initiatives. ContraPest’s delivery system is designed to minimize handler exposure and is dispensed inside tamper-resistant bait stations, minimizing risks to non-target species. The following graph shows the difference in population response between uses of conventional rodenticides and ContraPest.



ContraPest can also be used as a standalone, non-lethal solution which allows for a decreased reliance on lethal rodenticides, where requested by the customer.

Other Applications

While our proprietary technology is effective on rodent species, there is a scientific basis to believe that our technology can be applied to other mammalian species. We have developed preliminary data with feral dogs, feral pigs, wallabies, mice and brushtail possums. While this data indicates potential for the continued development of fertility control technology in general, we are not pursuing these opportunities at this time. We believe that the size of the rat control market is sufficient for our near-term focus. We remain open to the potential to license our technology to other strategic partners to explore its applicability to other mammalian species.

Business Strategy

Our goal is to be a leader in the pest management industry; utilizing fertility control technologies to limit the adverse effects caused by rodent infestations, educate PMP's and the general public on alternatives or enhancements to lethal rodenticides and to develop additional product lines to address the needs of our customers. Key elements of our strategy are:

- Work to maximize market acceptance for, and generate sales of, our products;
- Explore strategic partnerships to enable us to penetrate additional target markets and geographical locations;
- Manage the infrastructure for sales, marketing and distribution of ContraPest and any other product candidates for which we may receive regulatory approval;
- Seek additional regulatory approvals for ContraPest and, if we believe there is commercial viability, for our other product candidates;
- Further develop our manufacturing processes to contain costs while being able to scale to meet future demand of ContraPest and any other product candidates for which we receive regulatory approval;
- Continue product development of ContraPest and advance our research and development activities and, as our operating budget permits, advance the research and development programs for other product candidates;
- Maintain and protect our intellectual property portfolio; and
- Add operational, financial and management information systems and personnel, including personnel to support our product development and commercialization efforts and operations as a public company.

Marketing and Sales Approach

The pest control industry is highly competitive with a number of large competitors developing and marketing pest control products, particularly rodenticides, and services. Because fertility control in general and ContraPest specifically may be considered a disruptive technology, we expect that initial adoption will be slow as we build a robust set of case studies to demonstrate efficacy and cost efficiency, identify lead users and expand within market segments. In order to enhance the likelihood of success, we have currently targeted a few key market segments with the highest likelihood to add ContraPest into their IPM programs. These include agribusiness (grain and protein production and food storage facilities), animal care facilities (zoos and sanctuaries), national retailers and municipalities and government agencies.

In the United States, ContraPest is most commonly deployed and serviced by a licensed PMP, although some customers have in house pest management service personnel. In some circumstances, customers of pest management services will direct these PMPs to use certain products in the provision of their service. Initially, our marketing strategy involved sales to and through large distributors of pest control products. In 2019, we substantially modified this strategy to create two different sources of pull-through-demand: sales to PMPs and marketing and sales directly to end-user customers. We believe that by making end users aware of the existence and benefits of ContraPest, we are more likely to create demand through PMPs that would otherwise simply continue to use their existing rodenticide-based IPM models. We currently market ContraPest both to pest management companies and directly to target segments, using a direct to PMP sales channel; indirectly through distributor sales; and through our own direct sales force. In addition, in the fourth quarter of 2019, we added a new e-Commerce tool to enable customers in each of our target segments to buy directly from us. Finally, we have been pursuing strategic relationships with large pest management companies and key end-user organizations in our target segments for the distribution and sale of ContraPest.

In each of our target segments we have identified potential lead customers with whom we are working on large scale projects to demonstrate the efficacy of ContraPest in real world situations. We provide significant product support to these customers to make sure that we are not only achieving desired results, but also obtaining the data to support sales in the related market vertical. We believe that successful field trials with these influential end users will help drive significant subsequent sales to other participants in the relevant market.

Pricing and Value

Our pricing strategy takes into account the cost of goods sold, the cost of competitive products and the value of our product to the end user. We believe ContraPest will be perceived as a significant value as a complement to existing pest control products or as a non-lethal stand-alone solution for managing rat infestations and, as such, should command a premium price. Our experience is that potential customers understand the advantages of ContraPest and become enthusiastic about its use. We plan to continue to use promotional efforts to support the value message and to justify our product's premium price, built around the following proposed advantages:

- ContraPest as a proven technology with a targeted delivery for maximum efficacy.
- Our proprietary gravity feeding system optimizes consumption.
- ContraPest can be used as an anchor for an IPM program, or as a stand-alone solution to decrease reliance on lethal control options.
- ContraPest is designed, formulated and dispensed in a manner that minimizes the exposure hazard for handlers and non-targeted species such as wildlife, livestock and pets.
- Over time, as the pest population decreases, the quantity deployed and consequently cost of ContraPest will decrease, bringing the long-term cost of ContraPest in line with other elements of integrated pest management.

We also focus on specific advantages for the individual customer and expect to position our product as having the following additional general advantages:

- Savings by reducing loss or contamination of food and product inventories;
- Savings by reducing damage to infrastructure and major production equipment;
- Creation of a more predictable cost model based on prevention versus treatment of spikes in population seen with rebound effect;
- Reduction in disease vectors; and
- Public relations and risk reduction advantages when reducing usage of lethal rodenticides and traps.

Raw Materials and Manufacturing Process

ContraPest contains two active ingredients, VCD, an industrial chemical, and triptolide, a plant derived chemical. ContraPest also contains several other inactive, Generally Recognized as Safe (GRAS), ingredients. Currently, we source VCD from standard industrial chemical supply providers. Triptolide is derived from the Thunder God Vine, *Tripterygium wilfordii*, which is commonly cultivated and harvested wild in southeastern China and other Asian countries. Triptolide is available from a variety of sources, but the process to purify triptolide for use in ContraPest is expensive. Thus, we are investigating other, less costly sources of triptolide.

Our manufacturing process involves the incorporation of our two active ingredients, in low concentrations, into several inactive ingredients. Once incorporated, the entire product goes through a micro-encapsulation process in order to stabilize the final formulation. This process allows ContraPest to be delivered to rats in a palatable, non-lethal and effective manner.

Currently, we have production scale capability in our facilities in Arizona to manufacture ContraPest. Our internal production capabilities allow us to meet our current and anticipated demand during 2020 for ContraPest.

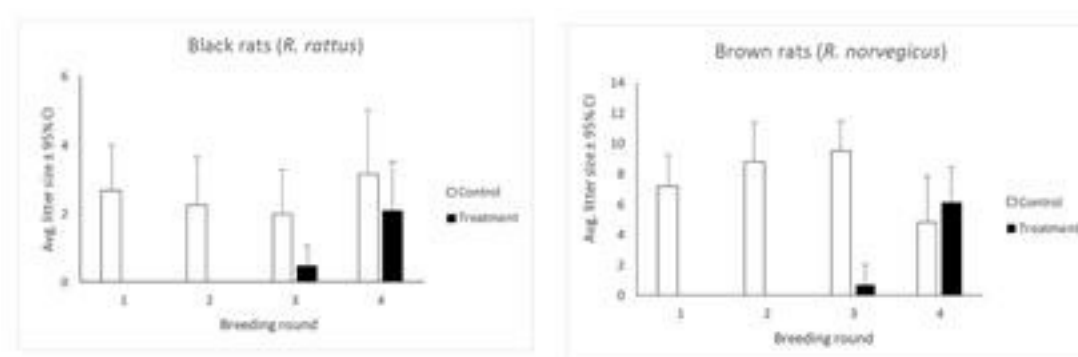
Scientific Background Regarding our Product

ContraPest is a liquid bait containing the active ingredients VCD and triptolide. When consumed, ContraPest targets reproduction, limiting fertility in male and female rats beginning with the first breeding cycle following consumption.

The female rat is born with a finite number of eggs, or oocytes. She remains fertile and will reproduce until the day she dies. Within the ovary, eggs develop within structures called follicles. The non-regenerating and least mature follicles are called primordial. The primordial follicles mature through primary, secondary and antral stages and ultimately ovulate. Once the primordial follicles have become depleted, ovarian failure occurs, which terminates reproductive capability.

VCD causes specific loss of small ovarian follicles (both primordial and primary). Because oocytes do not regenerate, repeated dosing causes loss of these follicles and leads to ovarian failure. Triptolide causes specific loss of growing follicles (secondary and antral). Female rats treated with triptolide ovulate fewer eggs because the follicles stop growing. In males, triptolide exerts a significant suppression of male fertility by preventing sperm maturation and impairing the movement of sperm.

The safety and efficacy of VCD and triptolide in fertility control are supported by considerable evidence. Because they induce follicle loss, both VCD and triptolide are considered ovotoxic, but they do not affect hormonal function and so are not endocrine disruptors. Studies show that VCD and triptolide do not persist within the bodies of rats and therefore do not bioaccumulate within the environment. VCD is so rapidly metabolized by ovarian tissue that the plasma half-life of VCD is 14.2 minutes. Triptolide has a plasma half-life of 21.7 minutes and is inactivated by liver enzymes. Less than 1% of VCD remains within rat tissues because metabolites of VCD, primarily tetrol and glutathione, are eliminated in urine and have no ovotoxic effects. There is no measurable accumulation of triptolide within rat internal organs. The speed with which VCD is metabolized makes it “an ideal fertility control agent (Sobinoff et al. 2008),” and makes its tendency to bioaccumulate negligible.



Other Potential Products

We have developed a pipeline of potential additional fertility control and animal health products, with diverse applications, as outlined in the following chart below. As we currently focus on the commercialization of ContraPest, and only minimal progress is expected on new product development during the coming year.

In addition, we have begun work on new formulations of ContraPest – particularly solid and semi-solid variants. Although solid bait is not essential to our near-term plans, the non-liquid formulations may expand the potential uses of ContraPest as well as pave the way for future sales through retail stores. Our plan is to attempt to accelerate the reformulation process through partnerships with others in the industry that will be able to give us access to proven technologies, thus reducing potential development time as well as shorten the EPA approval process.

| Product Candidate/Area | Development Status | Segment | Primary Target |
|---------------------------------|------------------------------------|----------------------------|-------------------------|
| Feral animal fertility control | Pilot study | Population management | Feral dogs and hogs |
| Non-surgical spay and neutering | Pilot study | Companion animal health | Companion dogs and cats |
| Boar taint | Laboratory and initial pilot study | Food production and safety | Boars |
| Animal cancer treatment | Concept | Companion animal health | Companion dogs |

Competition

Currently, we are unaware of any other non-lethal fertility control products that target rats. However, there are other tools in IPM that may be used to control rat populations. These include:

- Sanitation -- a beginning component in the IPM program that addresses conditions that attract rodents in the first place (e.g., designated trash location with routine pickup or decluttering areas of attraction);
- Exclusion -- a preventative strategy of sealing up areas of a building where pests are likely to enter, in turn, denying pests access to the facility;
- Mechanical measures -- used initially through devices to trap and monitor rodents, which is low risk and least harmful to the environment;
- Biological controls -- the introduction of predators to manage rodents; and
- Chemical measures -- the deployment of agents that poison or repel rodents.

Our principal competitors are traditional PMPs that do not use our products in their IPM.

Government Regulation and Product Approval

Federal, state and local government authorities in the United States regulate, among other things, the testing, manufacturing, quality control, approval, labeling, packaging, storage, record-keeping, distribution and marketing of the products we develop. Our rat fertility control product must be approved by the EPA Office of Pesticide Programs before they can be legally marketed and sold in the United States. The process for obtaining regulatory approval and compliance with appropriate federal, state and local regulations is rigorous and requires the expenditure of substantial time and financial resources.

United States Review and Approval Processes

In the United States, the EPA regulates the sale, distribution and use of any pesticide under the Federal Insecticide, Fungicide and Rodenticide Act, or FIFRA. The EPA’s definition of a pesticide includes “any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest.” FIFRA defines a pest as “any insect, rodent, nematode, fungus, or weed.” To register a new product with the EPA, all active ingredients within the product must be registered with the EPA.

The EPA granted registration for ContraPest effective August 2, 2016. This initial EPA approval labeled ContraPest as a restricted-use product, due to the need for applicator expertise for deployment. On October 18, 2018, the EPA removed the Restricted Use designation, meaning that we can sell ContraPest to consumers who do not have applicator expertise. ContraPest is currently limited by EPA requirements to indoor use and to use within one foot of manmade structures. We intend to diligently pursue additional related regulatory approvals from the EPA to support our product evolution, including seeking approval for full outdoor use, alternative formulations and for additional rodent species. This may entail the need to complete and submit to EPA additional studies, principally related to the effects on other animals and fish if ingested or if the product enters the water supply.

In addition to the EPA registration of ContraPest in the United States, we must obtain registration from the various state regulatory agencies prior to selling in each state. To date, we have received registration for ContraPest in all 50 states and the District of Columbia, 47 of which have approved the removal of the Restricted Use designation.

In addition to product registration, the EPA also approves all labeling (the container label, instructional inserts, and the Safety Data Sheet (SDS)) of ContraPest. Generally, states accept the EPA approved label as is. ContraPest's labeling was submitted to states at initial registration and is resubmitted during state scheduled reregistration or for any significant labeling change requiring EPA approval.

In certain cases, our EPA and state registrations require completion of testing and certifications even after we have received approval for the product or its labelling. We continue to seek to comply with these requirements.

International Review and Approval Processes

We are researching potential international markets and will evaluate the regulatory landscapes of each prospective market. Country-specific regulatory laws have provisions that include requirements for certain labeling, safety, efficacy and manufacturers' quality control procedures to assure the consistency of the product, as well as company records and reports. Some specific in-country studies will be required for particular countries, but others will generally accept an EPA or EU compliant dossier.

Personnel

As of December 31, 2019, we had 34 full-time and four part-time employees. Within our workforce, 9 employees are engaged in research and development and 29 in sales, business development, finance, regulatory, human resources, facilities, information technology and general management and administration.

None of our employees are represented by labor unions or covered by collective bargaining agreements.

Intellectual Property and Other Proprietary Rights

Maintaining a strong position in the rodenticide market requires constant innovation along with a healthy research program to evolve product lines to remain competitive and relevant to the needs of the changing global marketplace. We seek to protect our proprietary data and trade secrets with attention to data exchanges among employees, consultants, collaborators and research and trade partners.

Patent Filings

Our intellectual property portfolio supporting ContraPest consists of nine international patent filings (in the United States, Europe, Canada, Brazil, Russia, Japan, Mexico, South Korea, and Australia) addressing the ContraPest compound. Claims directed toward the compound include composition-of-matter involving a diterpenoid epoxide or salts thereof in combination with an organic diepoxide, use claims for inducing follicle depletion and for reducing the reproductive capability of a mammalian animal or non-human mammalian population. Issued claims will have a patent term extending to 2033 or longer based on patent term determinations in each of the filing countries. The novelty of ContraPest extends to its method of field distribution and has required innovation to perfect the dosing of our product to rodents. We have filed U.S. and international patent applications covering our novel bait station device to effectively and efficiently deliver our rodent bait at individual bait sites that would, if issued, offer patent term protection through at least 2036.

License Agreements

We have an exclusive patent license with the University of Arizona for background intellectual property that we plan to employ for future product development in the domestic animal fertility control market. The patent claims in the United States, Australia and New Zealand cover the use of 4-vinylcyclohexene diepoxide to deplete ovarian follicles in individual mammals and mammal populations. The license agreement, signed in 2005, will terminate with the last-to-expire patent claims, which have a term extending to 2026.

Trade Secrets and Trademarks

Beyond our patent right holdings, we broaden our intellectual property position with trademark, trade secret, know-how and continuous scientific discovery to accompany our product development efforts. We protect these proprietary assets with a combination of confidentiality terms in all commercial agreements or stand-alone confidentiality agreements along with rights-ownership agreements and structured information transfer understandings prior to beginning any collaborative projects. We own and maintain the ContraPest trademark and intend to register new trademarks for products from our evolving rodenticide product line and for products for mammalian species beyond rodentia.

Data Sets

We have exclusive use status with the EPA for the data sets we have developed and submitted to the EPA as part of our application for ContraPest. The exclusive use status applies to new active ingredients and the final formulation of the ContraPest product for a period of 10 years. For five years after the 10-year period of exclusivity, if another applicant or the EPA Administrator chooses to rely on one or more data sets that we submitted in support of an application submitted by another applicant, the new applicant must make a binding offer to compensate us and certify to the EPA that it has done so. If we and the offeror cannot reach agreement on the terms of the compensation for the use of such data sets, FIFRA requires resolution by binding arbitration. The EPA rules do not describe how the compensation should be determined, and there is publicly available information about some, but not all, binding arbitration decisions.

Where You Can Find Additional Information

We electronically file with the Securities and Exchange Commission (“SEC”) our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934. We make available on our website at www.senestech.com, free of charge, copies of these reports, as soon as reasonably practicable after electronically filing such reports with, or furnishing them to, the Securities and Exchange Commission. The information contained in, or that can be accessed through, our website is not part of, and is not incorporated into, this Annual Report on Form 10-K.

Item 1A. Risk Factors

As discussed immediately prior to Item 1 of Part I, “Business” under “Cautionary Note Regarding Forward-Looking Statements,” our actual results could differ materially from those expressed in our forward-looking statements. Factors that might cause or contribute to such differences include, but are not limited to, those discussed below. Additional risks and uncertainties not presently known to us, or that we currently deem immaterial, may also impair our business operations. If any of the following risks occur, our business, financial condition, operating results, cash flows and the trading price of our common stock could be materially adversely affected.

Risks Relating to our Business

Our success is dependent on the successful commercialization of ContraPest.

The EPA granted registration approval for ContraPest effective August 2, 2016, and as of July 12, 2018, we have received registration for ContraPest in all 50 states and the District of Columbia. However, we have not yet had meaningful sales of ContraPest, which is our only product to date that is available for commercialization and the generation of revenue.

ContraPest and our other product candidates, if approved, may not achieve adequate market acceptance necessary for commercial success.

Even following receipt of regulatory approval for ContraPest or future regulatory approval of our other product candidates, such products may not gain market acceptance. Market acceptance of any of our product candidates for which we receive approval depends on a number of factors, including:

- The potential and perceived advantages of product candidates over alternative or complementary products;
- The effectiveness of our sales and marketing efforts and those of our collaborators;
- The efficacy and safety of such product candidates as demonstrated in trials;
- The uses, indications or limitations for which the product candidate is approved;
- Product labeling or product insert requirements of the EPA or other regulatory authorities;
- The timing of market introduction of our products as well as future competitive or alternative products;
- Relative convenience and ease of use; and
- Unfavorable publicity relating to the product.

If we cannot successfully commercialize our products, especially ContraPest, we will not become profitable.

If any of our approved product candidates fail to achieve sufficient market acceptance, we will not be able to generate significant revenues or become profitable. The commercial success of ContraPest will depend on a number of factors, including the following:

- The development of a viable commercial strategy and the successful establishment of a commercial organization;
- Our success in educating end users about the benefits, administration and use of ContraPest;
- The effectiveness of our own or our potential strategic partners' marketing, sales and distribution strategy and operations;
- Establishment of commercially viable pricing;
- Our ability to manufacture quantities of ContraPest using commercially acceptable processes and at a scale sufficient to meet anticipated demand and enable us to reduce our cost of manufacturing; and
- A continued acceptable safety profile of ContraPest.

Many of these factors are beyond our control. If we are unable to successfully commercialize ContraPest, we may not be able to earn sufficient revenues or profits to continue our business.

We will require additional capital to fund our operations. Failure to obtain this necessary capital if needed may force us to delay, limit, or terminate our product development efforts or other operations.

Commercialization of ContraPest and developing further product candidates, including conducting experiments and field studies, obtaining and maintaining regulatory approval and commercializing any products approved for sale, is a time-consuming, expensive and uncertain process that takes years to complete. We expect our expenses to continue and to increase in connection with our ongoing activities, particularly as we advance our commercialization activities. We may expand our operations, and as a result of many factors, some of which may be currently unknown to us, our expenses may be higher than expected. Securing additional financing may divert our management from their day-to-day activities, which may adversely affect our ability to develop and commercialize our product candidates, including ContraPest. In addition, we cannot guarantee that future financing will be available in sufficient amounts or on terms acceptable to us, if at all. If we are unable to raise additional capital when required or on acceptable terms, we may be required to:

- Significantly delay, scale back or discontinue the development or commercialization of our product candidates, including ContraPest;
- Seek strategic partners for the manufacturing, sales and distribution of ContraPest or any of our other product candidates at an earlier stage than otherwise would be desirable or on terms that are less favorable than might otherwise be available; and
- Relinquish, or license on unfavorable terms, our rights to technologies or product candidates that we otherwise would seek to develop or commercialize ourselves.

The occurrence of any of the events described above would have a material adverse effect on our business, operating results and prospects and on our ability to develop our product candidates.

ContraPest is the first product we have marketed, and if we are unable to establish and maintain an effective sales force and marketing and distribution infrastructures, or enter into and rely upon acceptable third party relationships, we may be unable to generate any revenue.

We are continuing to develop a functional infrastructure for the sales, marketing, and distribution of our products and the cost of establishing and maintaining such an infrastructure may exceed the cost-effectiveness of doing so. In order to market ContraPest and any other products that may be approved by the EPA and comparable foreign regulatory authorities, we must continue to build our sales, marketing, managerial and other non-technical capabilities or make arrangements with third parties to perform these services for which we would incur substantial costs. If we are unable to establish and maintain adequate sales, marketing, and distribution capabilities, whether independently or with third parties, we may not be able to generate product revenue and become profitable. Without an effective internal commercial organization or the support of a third party to perform sales and marketing functions, we may be unable to compete successfully.

Our future success is also dependent regulatory approval and commercialization of our other product candidates.

We cannot commercialize our product candidates in the United States without first obtaining regulatory approval for each product and each use pattern from the EPA or, if applicable, the Food and Drug Administration, or FDA, and from any related applicable state authorities. Before obtaining regulatory approvals for the commercial sale of any product candidate for a target indication, the law requires that applicants demonstrate through laboratory and field studies and related data showing that the product candidate will perform its intended function without causing unreasonable adverse effects on the environment. The EPA or a comparable foreign regulatory authority may require more information, including additional data to support approval that may delay or prevent approval.

Regulatory approval processes of the EPA and comparable foreign regulatory authorities are lengthy, time-consuming and unpredictable, and if we are ultimately unable to obtain regulatory approval for our product candidates, our business may fail.

Although we obtained EPA approval for ContraPest in less than one year, the EPA review process for a product with one or more new active ingredients typically takes approximately two years to complete and approval is never guaranteed. Our other product candidates could fail to receive marketing approval from the EPA or, with respect to ContraPest or our other product candidates, from a comparable foreign regulatory authority for many reasons, including:

- Disagreement over the design or implementation of our trials;
- Failure to demonstrate a product candidate is safe or works according to our claims;
- Failure to demonstrate a product candidate's benefits outweigh its risks;
- Disagreement over our interpretation of data;
- Disagreement over whether to accept efficacy results from trials;
- The insufficiency of data collected from trials to obtain regulatory approval;
- Irreparable or critical compliance issues relating to our manufacturing process; or
- Changes in the approval policies or regulations that render our data insufficient for approval.

Any of these factors, some of which are beyond our control, could jeopardize our ability to obtain regulatory approval for and successfully market any of our product candidates. Any such setback in our pursuit of regulatory approval could have a material adverse effect on our business and prospects.

Even following receipt of any regulatory approval for ContraPest and our other product candidates, we will continue to face extensive regulatory requirements and our products may face future development and regulatory difficulties.

Even following receipt of any regulatory approval for ContraPest or our product candidates, our products will be subject to ongoing requirements by the EPA and comparable state and foreign regulatory authorities governing the manufacture, quality control, further development, labeling, packaging, storage, distribution, safety surveillance, import, export, advertising, promotion, recordkeeping and reporting of safety and other post-market information.

The safety profile of any product will continue to be closely monitored by the EPA and comparable foreign regulatory authorities after approval. In addition, we may be required, from time to time, to provide further testing results and certifications to the EPA and state regulatory agencies for ContraPest. If the EPA or comparable foreign regulatory authorities become aware of new safety information after approval of ContraPest or any other product candidate, or we are unable to adequately complete testing and certification requirements, a number of potentially significant negative consequences could result, including:

- We may be forced to suspend marketing of such product;
- Regulatory authorities may withdraw their approvals of such product after certain procedural requirements have been met;
- Regulatory authorities may require additional warnings on the label that could diminish the usage or otherwise limit the commercial success of such product;
- The EPA or other regulatory bodies may issue safety alerts, press releases or other communications containing warnings about such product;
- The EPA may require the establishment or modification of restricted use or a comparable foreign regulatory authority may require the establishment or modification of a similar strategy that may, for instance, restrict distribution of our product and impose burdensome implementation requirements on us;
- We may be required to change the way the product is administered or conduct additional trials;
- We could be sued and held liable for harm caused;
- We may be subject to litigation or product liability claims; and
- Our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of the particular product candidate, if approved, and could significantly harm our business, results of operations and prospects.

Moreover, existing government regulations may change, and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of ContraPest or any other product candidates. 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/or be subject to fines or enhanced government oversight and reporting obligations, which would adversely affect our business, prospects, and ability to achieve or sustain profitability.

Even following receipt of any regulatory approval for ContraPest and our other product candidates, we will continue to be subject to regulation of our manufacturing processes and advertising practices.

As a manufacturer of pest control products, we are subject to continual government oversight and periodic inspections by the EPA and other regulatory authorities. If we or a regulatory agency discover problems with a facility where our products are manufactured, a regulatory agency may impose restrictions on the manufacturing facility, including requiring recall or withdrawal of the product from the market or suspension of manufacturing until certain procedural requirements have been met. The occurrence of any such event or penalty could limit our ability to market ContraPest or any other product candidates and generate revenue.

In addition, the EPA strictly regulates the advertising and promotion of pest control products, and these pest control products may only be marketed or promoted for their EPA approved uses, consistent with the product's approved labeling. Advertising and promotion of any product candidate that obtains approval in the U.S. will be heavily scrutinized by the EPA, other applicable state regulatory agencies and the public. Violations, including promotion of our products for unapproved or off-label uses, are subject to enforcement actions, inquiries and investigations, and civil, criminal and/or administrative sanctions imposed by the EPA.

Failure to obtain regulatory approval in foreign jurisdictions would prevent ContraPest or any other product candidates from being marketed in those jurisdictions.

To market and sell our products globally, we must obtain separate marketing approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ substantially from that required to obtain EPA approval. Obtaining foreign regulatory approvals and maintaining compliance with foreign regulatory requirements could result in significant delays, difficulties, and cost for us and could delay or prevent the introduction of our products in certain countries. Approval by the EPA does not ensure approval by regulatory authorities in other countries or jurisdictions, but EPA approval may influence decisions by the foreign regulatory authority. If we are unable to obtain approval of ContraPest or for any of our other product candidates by regulatory authorities in the world market, the commercial prospects of that product candidate may be significantly diminished and our business prospects could decline.

We depend on key personnel to operate our business. If we are unable to retain, attract and integrate qualified personnel, our ability to develop and successfully grow our business could be harmed.

We believe that our future success is highly dependent on the contributions of our employees, as well as our ability to attract and retain highly skilled and experienced sales, research and development, and other personnel in the U.S. and internationally. All of our employees are free to terminate their employment relationship with us at any time and their knowledge of our business and industry would be difficult to replace. If one or more of our executive officers or employees terminates his or her employment or becomes disabled or experiences long-term illness, we may not be able to replace their expertise, fully integrate new personnel or replicate the prior working relationships, and the loss of their services might significantly delay or prevent the achievement of our research, development and business objectives. Qualified individuals with the breadth of skills and experience in our industry that we require are in high demand, and we may incur significant costs to attract them. Many of the other companies that we compete against for qualified personnel have greater financial and other resources, different risk profiles and a more established history in the industry. They also may provide more diverse opportunities and better chances for career advancement. Additionally, our facilities are located in Arizona, which may make attracting and retaining qualified scientific and technical personnel from outside of Arizona difficult. Our failure to attract or retain key personnel could impede the achievement of our research, development and commercialization objectives.

We have internal manufacturing capabilities to meet our current demand for ContraPest, however, we must develop additional manufacturing capability or rely upon third parties to manufacture our products to meet future demand.

Our existing internal manufacturing platform is adequate for meeting our current demand for ContraPest. We may be required to spend significant time and resources to expand these manufacturing facilities to fully meet future demand. If we are unable to develop full-scale manufacturing capabilities, we may not be able to meet demand of our products without relying on third party manufacturers, which could adversely affect our operations or financial condition.

We will need to expand our operations and grow the size of our organization, and we may experience difficulties in managing this growth.

As of December 31, 2019, we had 34 full-time and four part-time employees. As our development and commercialization plans and strategies develop, we will need additional managerial, operational, sales, marketing, scientific, financial headcount and other resources. Our management, personnel, and systems currently in place may not be adequate to support this future growth. Future growth would impose significant added responsibilities on members of management, including:

- Identifying, recruiting, maintaining, motivating and integrating additional employees with the expertise and experience we will require;
- Managing our internal development efforts effectively while complying with our contractual obligations to licensors, licensees, contractors and other third parties;
- Managing additional relationships with various strategic partners, suppliers and other third parties;

- Managing our trials effectively, which we anticipate being conducted at numerous field study sites;
- Improving our managerial, development, operational, marketing, production and finance reporting systems and procedures; and
- Expanding our facilities.

Our failure to accomplish any of these tasks could prevent us from successfully growing our business.

Business or supply chain disruptions could seriously harm our future revenues and financial condition and increase our costs and expenses, particularly because we have limited suppliers and a critical ingredient is sourced from China.

Our operations could be subject to a variety of potential business disruptions, including power shortages, telecommunications failures, water shortages, floods, fires, earthquakes, extreme weather conditions, medical epidemics and other natural or manmade disasters or other interruptions, for which we are predominantly self-insured. We do not carry insurance for all categories of risk that our business may encounter. The occurrence of any of these business disruptions could seriously harm our operations and financial condition and increase our costs and expenses. Moreover, we rely on third parties to supply various ingredients and other items which are critical for producing our product candidates.

We currently use one supplier for each of our two active ingredients, triptolide and VCD. Our ability to produce our product candidates would be disrupted if the operations of these suppliers are affected by a manmade or natural disaster or other business interruption. Because triptolide is sourced from China and other Asian countries, we have a greater risk of supply interruption, including as a result of tariff and trade disputes, or disruptive events like the outbreak of the Coronavirus. The ultimate impact on our operations from any business interruption impacting us or any of our significant suppliers is unknown, but our operations and financial condition would likely suffer adverse consequences. Further, any significant uninsured liability may require us to pay substantial amounts, which would adversely affect our business, results of operations, financial condition and cash flows from future prospects.

We are dependent on triptolide, a key ingredient for ContraPest, which has limited sources and must be in a very refined condition.

If we are unable to develop additional sources of or alternatives to triptolide, a key ingredient for ContraPest, our long term ability to produce ContraPest at a cost effective price could be in jeopardy. If market demand for triptolide causes the price to increase beyond our ability to market at a competitive price or causes the quality of the refined ingredient to be less than needed for our production, our ability to commercialize ContraPest could be limited or delayed, which would adversely affect our business, results of operations and financial condition

We may be subject to legal proceedings in the ordinary course of our business that could result in significant harm to our business, financial condition and operating results.

We could be subject to legal proceedings and claims from time to time in the ordinary course of our business, including actions arising from tort, contract or other claims. See “Legal Proceedings” elsewhere in this filing for more information. Litigation is expensive, time consuming, and could divert management’s attention away from running our business. The outcome of litigation or other proceedings is subject to significant uncertainty, and it is possible that an adverse resolution of one or more such proceedings could result in reputational harm and/or significant monetary damages, injunctive relief or settlement costs that could adversely affect our results of operations or financial condition as well as our ability to conduct our business as it is presently being conducted. Insurance might not cover such claims, might not provide sufficient payments to cover all the costs to resolve one or more such claims and might not be available on terms acceptable to us. In addition, regardless of merit or outcome, claims brought against us that are uninsured or underinsured could result in unanticipated costs, which could harm our business, financial condition and operating results and reduce the trading price of our stock.

Product liability lawsuits against us could cause us to incur substantial liabilities and to limit commercialization of any products that we may develop.

We face an inherent risk of product liability exposure related to the use of ContraPest and any of our other products. If we cannot successfully defend ourselves against claims from our product users, we could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- Decreased demand for any product that we may develop;
- Termination of field studies or other research and development efforts;
- Injury to our reputation and significant negative media attention;
- Significant costs to defend the related litigation;
- Substantial monetary awards to plaintiffs;
- Loss of revenue;
- Diversion of management and scientific resources from our business operations; and
- The inability to commercialize our product candidates.

We may be unable to obtain commercially reasonable product liability insurance for any products approved for marketing. Large judgments have been awarded in class action lawsuits based on products that had unanticipated side effects, including, without limitation, any potential adverse effects of our products on humans or other species. A successful product liability claim or series of claims brought against us, particularly if judgments exceed our insurance coverage, could decrease our cash and adversely affect our business.

A variety of risks associated with marketing our product candidates internationally could materially adversely affect our business.

We may seek regulatory approval of our product candidates outside of the U.S. and, in that case, we expect that we will be subject to additional risks related to operating in foreign countries if we obtain the necessary approvals, including:

- Differing regulatory requirements in foreign countries;
- Unexpected changes in tariffs, trade barriers, price and exchange controls and other regulatory requirements;
- Economic weakness, including inflation or political instability in particular foreign economies and markets;
- Compliance with tax, employment, immigration and labor laws for employees living or traveling internationally;
- Foreign taxes, including withholding of payroll taxes;
- Foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations incident to doing business in another country;
- Difficulties staffing and managing foreign operations;
- Workforce uncertainty in countries where labor unrest is more common than in the United States;
- Potential liability under the U.S. Foreign Corrupt Practices Act of 1977, as amended, or the FCPA, or comparable foreign regulations;
- Challenges enforcing our contractual and intellectual property rights, especially in those foreign countries that do not respect and protect intellectual property rights to the same extent as the United States;
- Production shortages resulting from any events affecting raw material supply or manufacturing capabilities internationally; and
- Business interruptions resulting from geopolitical actions, including war and terrorism.

These and other risks associated with our international operations may materially adversely affect our ability to attain or maintain profitable operations.

If we fail to obtain or protect intellectual property rights, our competitive position could be harmed.

We depend on our ability to protect our proprietary technology. We rely on trade secret, patent, copyright and trademark laws, and confidentiality, licensing, and other agreements with employees and third parties, all of which offer only limited protection. Our commercial success will depend in part on our ability to obtain and maintain intellectual property protection in the United States and other countries with respect to our proprietary technology and products. Where we deem appropriate, we seek to protect our proprietary position by filing patent applications in the United States and internationally related to our novel technologies and products that are important to our business. However, our financial resources constrain us from seeking protection in every instance, so we may rationalize and selectively pursue expensive patent protection. Patent positions can be highly uncertain, involve complex legal and factual questions and be the subject of litigation. As a result, the issuance, scope, validity, enforceability and commercial value of our patents, including those patent rights licensed to us by third parties, are highly uncertain.

The steps we have taken to protect our proprietary rights may not be adequate to preclude misappropriation of our proprietary information or infringement of our intellectual property rights, both inside and outside the United States. The rights already granted under any of our currently issued patents and those that may be granted under future issued patents may not provide us with the proprietary protection or competitive advantages we are seeking. If we are unable to obtain and maintain protection for our technology and products, or if the scope of the protection obtained is not sufficient, our competitors could develop and commercialize technology and products similar or superior to ours, and our ability to successfully commercialize our technology and products may be adversely affected.

With respect to patent rights, we do not know whether any of our pending patent applications for any of our technologies or products will result in the issuance of patents that protect such technologies or products, or if our licensed patent will effectively prevent others from commercializing competitive technologies and products. Our pending patent applications cannot be enforced against third parties practicing the technology claimed in such applications unless and until a patent issues from such applications. Further, the examination process may require us to narrow the claims for our pending patent applications, which may limit the scope of patent protection that may be obtained if these applications issue. Because the issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, issued patents that we own or have licensed from third parties may be challenged in the courts or patent offices in the U.S. and internationally. Such challenges may result in the loss of patent protection, the narrowing of claims in such patents, or the invalidity or unenforceability of such patents, which could limit our ability to stop others from using or commercializing similar or identical technology and products or limit the duration of the patent protection for our technology and products. Protecting against the unauthorized use of our patented technology, trademarks and other intellectual property rights, is expensive, difficult, and in some cases, may not be possible. In some cases, it may be difficult or impossible to detect third party infringement or misappropriation of our intellectual property rights, even in relation to issued patent claims, and proving any such infringement may be even more difficult.

Intellectual property rights do not necessarily address all potential threats to any competitive advantage we may have.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect our business, or permit us to maintain our competitive advantage. The following examples are illustrative:

- Others may be able to make compounds that are the same as or similar to our future products but that are not covered by the claims of the patents that we own or have exclusively licensed;
- We might not have been the first to file patent applications covering certain of our inventions;
- Others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing on our intellectual property rights;
- Issued patents that we own or have exclusively licensed may not provide us with any competitive advantages, or may be held invalid or unenforceable, as a result of legal challenges by our competitors;
- Our competitors might conduct research and development activities in the U.S. and other countries that provide a safe harbor from patent infringement claims for certain research and development activities, as well as in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- We may not develop additional proprietary technologies that are patentable; and
- The patents of others may have an adverse effect on our business.

Our technology may be found to infringe third party intellectual property rights.

Third parties may in the future assert claims or initiate litigation related to their patent, copyright, trademark and other intellectual property rights in technology that is important to us. The asserted claims and/or litigation could include claims against us, our licensors, or our suppliers alleging infringement of intellectual property rights with respect to our product candidates or components of those products. Regardless of the merit of the claims, they could be time consuming, resulting in costly litigation and diversion of technical and management personnel, or require us to develop non-infringing technology or enter into license agreements. We cannot assure you that licenses will be available on acceptable terms, if at all. Furthermore, because of the potential for significant damage awards, which are not necessarily predictable, it is not unusual to find even arguably unmeritorious claims resulting in large settlements. If any infringement or other intellectual property claim made against us by any third party is successful, or if we fail to develop non-infringing technology or license the proprietary rights on commercially reasonable terms and conditions, our business, operating results and financial condition could be materially adversely affected.

If our product candidates, methods, processes and other technologies infringe the proprietary rights of other parties, we could incur substantial costs and we may have to:

- Obtain licenses, which may not be available on commercially reasonable terms, if at all;
- Redesign our product candidates or processes to avoid infringement;
- Stop using the subject matter claimed in the patents held by others;
- Pay damages; or
- Defend litigation or administrative proceedings which may be costly whether we win or lose, and which could result in a substantial diversion of our financial and management resources.

We may need to license intellectual property from third parties, and such licenses may not be available or may not be available on commercially reasonable terms.

A third party may hold intellectual property, including patent rights that are important or necessary to the development of our product candidates. It may be necessary for us to use the patented or proprietary technology of a third party to manufacture or otherwise commercialize our own technology or products, in which case we would be required to obtain a license from such third party. Licensing such intellectual property may not be available or may not be available on commercially reasonable terms, which could have a material adverse effect on our business and financial condition.

We have not fully assessed our internal control over financial reporting. If we experience material weaknesses in the future or otherwise fail to maintain an effective system of internal controls, we may not be able to accurately or timely 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.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our financial statements will not be prevented or detected on a timely basis.

This Annual Report on Form 10-K for the year ended December 31, 2019 does not include an attestation report of the company's registered public accounting firm due to a transition period established by rules of the SEC for smaller reporting companies and emerging growth companies. As a result, we have not yet fully assessed our internal control over financial reporting and are unable to assure that the measures we have taken to date, together with any measures we may take in the future, will be sufficient to remediate the control deficiencies that led to our material weaknesses in our internal control over financial reporting, or to avoid potential future material weaknesses.

If we are unable to develop and maintain an effective system of internal control over financial reporting, successfully remediate any existing or future material weaknesses in our internal control over financial reporting, or identify any additional material weaknesses, the accuracy and timing of our financial reporting may be adversely affected, we may be unable to maintain compliance with securities law requirements regarding timely filing of periodic reports and Nasdaq listing requirements, investors may lose confidence in our financial reporting, and our stock price may decline as a result.

Privacy breaches and other cyber security risks related to our business could negatively affect our reputation, credibility and business.

We expect to begin making direct-to-consumer sales through our new e-Commerce tool, which depends on information technology systems and networks. We are also responsible for storing data relating to our customers and employees and rely on third party vendors for the storage, processing and transmission of personal and Company information. Consumers, lawmakers and consumer advocates alike are increasingly concerned over the security of personal information transmitted over the Internet, consumer identity theft and privacy. We do not control our third-party service providers and cannot guarantee that they have implemented reasonable security measures to protect our employees' and customers' identity and privacy, or that no electronic or physical computer break-ins or security breaches will occur in the future. Our systems and technology are vulnerable from time-to-time to damage, disruption or interruption from, among other things, physical damage, natural disasters, inadequate system capacity, system issues, security breaches, "hackers," email blocking lists, computer viruses, power outages and other failures or disruptions outside of our control. A significant breach of customer, employee or Company data could damage our reputation and our relationship with customers, and could result in lost sales, sizable fines, significant breach-notification costs and lawsuits, as well as adversely affect our results of operations. We may also incur additional costs in the future related to the implementation of additional security measures to protect against new or enhanced data security and privacy threats, or to comply with state, federal and international laws that may be enacted to address those threats.

Risks Related to our Capital Stock

We have incurred significant operating losses every quarter since our inception and anticipate that we will continue to incur significant operating losses in the future.

Investment in product development is highly speculative because it entails substantial upfront capital expenditures and significant risk that any potential product candidate will fail to become commercially viable or gain regulatory approval. To date, we have financed our operations primarily through the sale of equity securities and debt financings as well as research grants. Until August 2, 2016, we did not have any products approved by a regulatory authority for marketing or commercial sale, and we have generated minimal revenue from product sales to date. We continue to incur significant sales, marketing, research, development, and other expenses related to our ongoing operations. As a result, we are not profitable and have incurred losses in every reporting period since our inception. For the years ended December 31, 2019 and 2018, we reported net losses of \$10.0 million and \$12.2 million, respectively. As of December 31, 2019, we had an accumulated deficit since inception of \$95.9 million.

Since inception, we have dedicated a majority of our resources to the discovery and development and marketing of our proprietary product candidates. We expect to continue to incur significant expenses and operating losses for the foreseeable future. The size of our losses will depend, in part, on the rate of future expenditures and our ability to generate revenues. In particular, we expect to incur substantial and increased expenses as we:

- Attempt to achieve market acceptance for our products;
- Continue to establish an infrastructure for the sales, marketing and distribution of ContraPest and any other product candidates for which we may receive regulatory approval;
- Scale up manufacturing processes and quantities to prepare for the commercialization of ContraPest and any other product candidates for which we receive regulatory approval;
- Continue the research and development of ContraPest and our other product candidates, including engaging in any necessary field studies;
- Seek regulatory approvals for ContraPest in various jurisdictions and for our other product candidates;
- Expand our research and development activities and advance the discovery and development programs for other product candidates;
- Maintain, expand and protect our intellectual property portfolio; and
- Add operational, financial and management information systems and personnel, including personnel to support our clinical development and commercialization efforts and operations as a public company.

We may encounter unforeseen expenses, difficulties, complications, delays, and other unknown factors that may adversely affect our financial condition. Our prior losses and expected future losses have had, and will continue to have, an adverse effect on our financial condition. If ContraPest or any other product candidate does not gain or maintain sufficient regulatory approval, or if approved, fails to achieve market acceptance, we may never become profitable. Even if we achieve profitability in the future, we may not be able to sustain profitability in subsequent periods. Our failure to become and remain profitable would decrease the value of our company and could impair our ability to raise capital, expand our business, diversify our product offerings or continue our operations. A decline in the value of our company could cause you to lose all or part of your investment.

If we are unable to continue as a going concern, our securities will have little or no value.

We have incurred operating losses since our inception, and we expect to continue to incur significant expenses and operating losses for the foreseeable future. Our financial statements as of December 31, 2019 and 2018 have been prepared under the assumption that we will continue as a going concern. Our independent registered public accounting firm included in its opinion for the years ended December 31, 2019 and 2018 an explanatory paragraph referring to our net loss from operations and net capital deficiency and expressing substantial doubt in our ability to continue as a going concern without additional capital becoming available. If we encounter continued issues or delays in the commercialization of ContraPest, our prior losses and expected future losses could have an adverse effect on our financial condition and negatively impact our ability to fund continued operations, obtain additional financing in the future and continue as a going concern. There are no assurances that such financing, if necessary, will be available to us at all or will be available in sufficient amounts or on reasonable terms. Our financial statements do not include any adjustments that may result from the outcome of this uncertainty. If we are unable to generate additional funds in the future through financings, sales of our products, licensing fees, royalty payments or from other sources or transactions, we will exhaust our resources and will be unable to continue operations. If we cannot continue as a going concern, our stockholders would likely lose most or all of their investment in us.

Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our technologies or product candidates.

Until such time, if ever, as we can generate sufficient product revenues, we expect to finance our cash needs primarily through the sale of equity securities and debt financings, and possibly through credit facilities and government and foundation grants. We may also seek to raise capital through third party collaborations, strategic alliances and similar arrangements. We currently do not have any committed external source of funds. Raising funds in the future may present additional challenges and future financing may not be available in sufficient amounts or on terms acceptable to us, if at all. The terms of any financing arrangements we enter into may adversely affect the holdings or the rights of our stockholders and the issuance of additional securities by us, or the possibility of such issuance, may cause the market price of our shares to decline.

Certain of our outstanding warrants contain provisions that impose limitations on our ability to participate in certain variable rate transactions, including at-the-market transactions, which may limit our opportunities to obtain financing in sufficient amounts or on acceptable terms. The sale of additional equity or convertible debt securities would dilute all of our stockholders, and if such sales occur at a deemed issuance price that is lower than the current exercise price of our outstanding warrants sold to investors in November 2017, the exercise price for those warrants would adjust downward to the deemed issuance price pursuant to price adjustment protection contained within those warrants.

The incurrence of indebtedness through credit facilities would result in increased fixed payment obligations and, potentially, the imposition of restrictive covenants. Those covenants may include limitations on our ability to incur additional debt, making capital expenditures or declaring dividends, and may impose limitations on our ability to acquire, sell, or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business.

If we raise additional funds through collaborations, strategic alliances, or licensing arrangements or other marketing or distribution arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or grant licenses on terms that may not be favorable to us. If we are unable to expand our operations or otherwise capitalize on our business opportunities, our business, financial condition and results of operations could be materially adversely affected.

If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or commercialization efforts, or grant others rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Our share price may be volatile, which could subject us to securities class action litigation and your investment in our securities could decline in value.

Our stock could be subject to wide fluctuation in response to many risk factors listed in this section, and others beyond our control, including:

- Market acceptance and commercialization of our products;
- Our being able to timely demonstrate achievement of milestones, including those related to revenue generation, cost control, cost effective source supply, and regulatory approvals;
- Our ability to remain listed on The Nasdaq Capital Market;
- Results and timing of our submissions with the regulatory authorities;
- Failure or discontinuation of any of our development programs;
- Regulatory developments or enforcements in the United States and non-U.S. countries with respect to our products or our competitors' products;
- Failure to achieve pricing acceptable to the market;
- Regulatory actions with respect to our products or our competitors' products;
- Actual or anticipated fluctuations in our financial condition and operating results or our continuing to sustain operating losses;
- Competition from existing products or new products that may emerge;
- Announcements by us or our competitors of significant acquisitions, strategic arrangements, joint ventures, collaborations or capital commitments;
- Issuance of new or updated research or reports by securities analysts;
- Announcement or expectation of additional financing efforts, particularly if our cash available for operations significantly decreases or if the financing efforts result in a price adjustment to certain outstanding warrants;
- Fluctuations in the valuation of companies perceived by investors to be comparable to us;
- Share price and volume fluctuations attributable to inconsistent trading volume levels of our shares;
- Disputes or other developments related to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies;
- Entry by us into any material litigation or other proceedings;
- Sales of our Common Stock by us, our insiders, or our other stockholders;
- Exercise of outstanding warrants;
- Market conditions for equity securities; and
- General economic and market conditions unrelated to our performance.

Furthermore, the capital markets can experience extreme price and volume fluctuations that may affect the market prices of equity securities of many companies. These broad market and industry fluctuations, as well as general economic, political, and market conditions such as recessions, interest rate changes, or international currency fluctuations, may negatively impact the market price of shares of our Common Stock. In addition, such fluctuations could subject us to securities class action litigation, which could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business. You may not realize any return on your investment in us and may lose some or all of your investment.

Future sales, or the possibility of future sales, of a substantial number of our common shares could adversely affect the price of the shares and dilute stockholders.

Future sales of a substantial number of shares of our Common Stock, or the perception that such sales will occur, could cause a decline in the market price of our Common Stock. This is particularly true if we sell our stock at a discount. As of February 5, 2020, we had 143,501 shares of our Common Stock subject to outstanding warrants that contain anti-dilution adjustments that provide for an adjustment to the exercise price for certain dilutive issuances of securities. If we offer or issue additional securities at a deemed price lower than the current exercise price of these outstanding warrants, these warrants will adjust pursuant to the price adjustment protection contained within these warrants. For example, our January 2020 registered direct offering resulted in an additional downward adjustment of the exercise price of these warrants from \$19.00 per share to \$7.126 per share. Any future issuance of Common Stock or securities convertible or exercisable into our Common Stock could cause a further downward adjustment of the exercise price of these warrants to the deemed issuance price if the issuance price is less than the exercise price of the warrants at the time of the new issuance.

Also, in the future, we may issue additional shares of our Common Stock or other equity or debt securities convertible into Common Stock in connection with a financing, acquisition, litigation settlement, employee arrangements, or otherwise. Any such issuance could result in substantial dilution to our existing stockholders and could cause our common share price to decline.

As of December 31, 2019, our directors and officers collectively beneficially hold 77,826 shares of Common Stock. If these stockholders sell substantial amounts of common shares in the public market, or if the market perceives that such sales may occur, the market price of our common shares and our ability to raise capital through an issue of equity securities in the future could be adversely affected.

An active market in the shares may not continue to develop in which investors can resell our Common Stock.

We cannot predict the extent to which an active market for our Common Stock will continue to develop or be sustained, or how the development of such a market might affect the market price for our Common Stock. Market conditions in effect at the time you acquire our stock may not be indicative of the price at which our Common Stock will trade in the future. Investors may not be able to sell their Common Stock at or above the price they acquired it.

If securities or industry analysts, or other sources of information, do not publish research, or publish inaccurate or unfavorable research or other information about our business, our stock price and trading volume could decline.

The trading market for our Common Stock may depend on the research, reports and other information that securities or industry analysts, or other third-party sources of information, publish about us or our business. We do not have any control over these analysts or other third-party sources of information. From time to time inaccurate or unfavorable research or other information about our business, financial condition, results of operations and stock ownership may be published. We cannot assure that analysts will cover us or provide favorable coverage. If one or more of the analysts who cover us downgrade our stock or change their opinion of our stock, our share price could decline. If one or more of these analysts cease coverage of us or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our stock price or trading volume to decline. If incorrect or misleading information is disseminated publicly by third parties about us, our stock price could decline.

We may not be able to comply with all applicable listing requirements or standards of The Nasdaq Capital Market and Nasdaq could delist our Common Stock.

Our Common Stock is listed on The Nasdaq Capital Market. In order to maintain that listing, we must satisfy minimum financial and other continued listing requirements and standards. On November 12, 2019, we received an initial deficiency letter from the listing qualifications staff of The Nasdaq Stock Market (“Nasdaq”) providing notification that the bid price for our Common Stock had closed below \$1.00 per share for the previous 30 consecutive business days and that as a result our Common Stock no longer met the minimum bid price requirement for listing on The Nasdaq Capital Market. We were provided with an initial compliance period of 180 calendar days, or until May 11, 2020, to regain compliance with the minimum bid price requirement. We implemented a 1-for-20 reverse stock split on February 4, 2020. On February 20, 2020 we received notification from Nasdaq that we had regained compliance with the minimum bid price requirement. However, we can provide no assurance that we will be able to maintain compliance with the minimum bid price requirement.

In the event that we are unable to maintain compliance with the applicable Nasdaq listing requirements or standards of The Nasdaq Capital Market, our Common Stock could be delisted from The Nasdaq Capital Market, which could have a material adverse effect on our financial condition and which could cause the value of our Common Stock to decline. If our Common Stock is not eligible for listing or quotation on another market or exchange, trading of our Common Stock could be conducted in the over-the-counter market or on an electronic bulletin board established for unlisted securities such as the Pink Sheets or the OTC Bulletin Board. In such event, it could become more difficult to dispose of, or obtain accurate price quotations for, our Common Stock, and there would likely be a reduction in our coverage by security analysts and the news media, which could cause the price of our Common Stock to decline further. In addition, it may be difficult for us to raise additional capital if we are not listed on a national securities exchange.

Our reverse stock split may not result in a proportional increase in the per share price of our Common Stock.

We effected a 1-for-20 reverse stock split of our Common Stock on February 4, 2020, with the primary intent of increasing the price of our Common Stock in order to regain compliance with the Nasdaq bid price requirement. The effect of the reverse stock split on the market price for our Common Stock cannot be accurately predicted. In particular, we cannot assure you that the proportionate increase in the prices of our Common Stock immediately after the reverse stock split will be maintained for a substantial period of time. It is not uncommon for the market price of a company's common stock to decline in the period following a reverse stock split. If the market price of our Common Stock declines following the reverse stock split, the percentage decline may be greater than would occur in the absence of a reverse stock split. The market price of our Common Stock may also be affected by other factors which may be unrelated to the reverse stock split or the number of shares outstanding.

The reverse stock split may decrease the liquidity of the shares of our Common Stock.

The liquidity of the shares of our Common Stock may be affected adversely by the reverse stock split given the reduced number of shares that are outstanding following the reverse stock split. In addition, the reverse stock split increased the number of stockholders who own odd lots (less than 100 shares) of our Common Stock, creating the potential for such stockholders to experience an increase in the cost of selling their shares and greater difficulty effecting such sales.

Our corporate documents, Delaware law and certain warrants contain provisions that could discourage, delay or prevent a change in control of our company.

Provisions in our amended and restated certificate of incorporation and our amended and restated bylaws may discourage, delay or prevent a merger or acquisition involving us that our stockholders may consider favorable. For example, our amended and restated certificate of incorporation currently provides for a staggered board of directors, whereby directors serve for three-year terms, with approximately one-third of the directors coming up for reelection each year. Having a staggered board will make it more difficult for a third party to obtain control of our board of directors through a proxy contest, which may be a necessary step in an acquisition of us that is not favored by our board of directors. Additionally, most of our warrants provide a Black Scholes value-based payment to the warrant holders in connection with certain transactions that may discourage, delay or prevent a merger or acquisition.

We are also subject to the anti-takeover provisions of Section 203 of the Delaware General Corporation Law. Under these provisions, if anyone becomes an "interested stockholder," we may not enter into a "business combination" with that person for three years without special approval, which could discourage a third party from making a takeover offer and could delay or prevent a change of control. For purposes of Section 203, "interested stockholder" means, generally, someone owning 15% or more of our outstanding voting stock or an affiliate of ours that owned 15% or more of our outstanding voting stock during the past three years, subject to certain exceptions as described in Section 203.

We are subject to anti-corruption and anti-money laundering laws with respect to our operations and noncompliance with such laws can subject us to criminal and/or civil liability and harm our business.

We are subject to the FCPA, which is the U.S. domestic bribery statute contained in 18 U.S.C. §201, the U.S. Travel Act, the USA PATRIOT Act and other anti-bribery and anti-money laundering laws in countries in which we conduct our business. Anti-corruption laws are interpreted broadly and prohibit companies and their employees and third-party intermediaries from authorizing, offering or providing, directly or indirectly, improper payments or benefits to recipients in the public or private sector. As we commercialize our product candidates and commence international sales and business, we may engage with collaborators and third-party intermediaries to sell our products internationally and to obtain necessary permits, licenses and other regulatory approvals. We or our third-party intermediaries may have direct or indirect interactions with officials and employees of government agencies or state-owned or affiliated entities. We may be found liable for the corrupt or other illegal activities of these third-party intermediaries, our employees, representatives, contractors, partners and agents, even if we do not explicitly authorize such activities.

Noncompliance with anti-corruption and anti-money laundering laws could subject us to whistleblower complaints, investigations, sanctions, settlements, prosecution, other enforcement actions, disgorgement of profits, significant fines, damages, other civil and criminal penalties or injunctions, suspension and/or debarment from contracting with certain persons, the loss of export privileges, reputational harm, adverse media coverage and other collateral consequences. Responding to any action will likely result in a materially significant diversion of management's attention and resources and significant defense costs and other professional fees.

We are an “emerging growth company” as that term is used in the JOBS Act, and we intend to take advantage of reduced disclosure and governance requirements applicable to emerging growth companies, which could result in our Common Stock being less attractive to investors and adversely affect the market price of our Common Stock or make it more difficult to raise capital as and when we need it.

We are an “emerging growth company” as that term is used in the JOBS Act, and we intend to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved, and exemptions from any rules that the Public Company Accounting Oversight Board may adopt requiring mandatory audit firm rotation or a supplement to the auditor’s report on the financial statements. We currently intend to take advantage of some of the reduced regulatory and reporting requirements that will be available to us under the JOBS Act, so long as we qualify as an “emerging growth company.” For example, so long as we qualify as an “emerging growth company,” we may elect not to provide you with certain information, including certain financial information and certain information regarding compensation of our executive officers, that we would have otherwise been required to provide in filings we make with the SEC, which may make it more difficult for investors and securities analysts to evaluate us.

Because of the exemptions from various reporting requirements provided to us as an “emerging growth company,” we may be less attractive to investors and it may be difficult for us to raise additional capital as and when we need it. We may take advantage of these reporting exemptions until we are no longer an emerging growth company. 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 be more volatile. Investors may be unable to compare our business with other companies in our industry if they believe that our financial accounting is not as transparent as other companies in our industry. If we are unable to raise additional capital as and when we need it, our business, results of operations, financial condition and cash flows, and future prospects may be materially and adversely affected.

Item 1B. *Unresolved Staff Comments.*

Not applicable.

Item 2. *Properties.*

As of December 31, 2019, our corporate headquarters is located in Phoenix, Arizona, where we lease and occupy approximately 5,529 square feet of office space pursuant to a lease that commenced on December 1, 2019 and expires in November 2024. Our manufacturing facilities are located in Flagstaff, Arizona, occupying a total of 7,632 square feet of space. The lease for our manufacturing facilities expires in December 2020. We believe that our existing facilities are adequate and meet our current needs for business, manufacturing and research.

Item 3. *Legal Proceedings.*

On February 20, 2018, New Enterprises, Ltd. (“New Enterprises”) filed a lawsuit against the Company and Roth Capital Partners, LLC (“Roth”) in the U.S. District Court for the District of Arizona, alleging nine counts against the Company, including claims of common law fraud and securities fraud to induce the chairman of New Enterprises into investing in the Company; failure to register New Enterprises’ requested transfer; breach of stock certificates and the lock-up contract; tortious interference with prospective business advantage; and conversion. New Enterprises sought monetary damages, including compensatory damages, punitive damages, and attorney’s fees. After initial motions to dismiss and written discovery, the parties reached a settlement, and the lawsuit was dismissed with prejudice on December 27, 2019. Outside of the litigation, Roth made a claim for indemnification to the Company based on contractual indemnification agreements, and the parties fully resolved Roth’s indemnity claim.

On April 20, 2018, the Company’s former Executive Vice President and Chief Operating Officer Andrew Altman filed a charge of employment discrimination with the Equal Employment Opportunity Commission (EEOC) against the Company. Mr. Altman claimed that he was terminated after he expressed opposition to an email Cheryl Dyer, former Chief Research Officer, had sent out to the management team, in which she criticized a Mormon newspaper. The Company filed a position statement on May 21, 2018. No substantive action has been taken since then, and the Company has not heard anything further either from Mr. Altman’s attorneys. On February 28, 2020, the EEOC issued a Dismissal and Notice of Rights to the Company closing its file on the charge on the basis that the EEOC was unable to conclude that the information obtained established violations of the relevant statutes.

Item 4. *Mine Safety Disclosures.*

Not applicable.

PART II

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

Market Information

Our common stock is traded on the NASDAQ Capital Market under the symbol "SNES." Our common stock was initially listed for trading on the NASDAQ Capital Market on December 8, 2016.

Holders

As of March 16, 2020, there were approximately 618 holders of record of our common stock. Because many shares of our common stock are held by brokers and other institutions on behalf of stockholders, we are unable to determine the total number of beneficial owners represented by these holders of record.

Dividends

We have never declared or paid any cash dividends on our common stock. We currently intend to retain all available funds and any future earnings to support our operations and finance the growth and development of our business. We do not intend to pay cash dividends on our common stock for the foreseeable future. Any future determination related to our dividend policy will be made at the discretion of our board of directors and will depend upon, among other factors, our results of operations, financial condition, capital requirements, contractual restrictions, business prospects and other factors our board of directors may deem relevant.

Recent Sales of Unregistered Securities

None.

Purchases of Equity Securities by the Company

We withhold (repurchase) shares of common stock in connection with the vesting of restricted shares to satisfy required tax withholding obligations when they occur. There were no purchases of our equity securities during the three months ended December 31, 2019.

Item 6. *Selected Financial Data.*

Not applicable.

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

The following Management's Discussion and Analysis of Financial Condition and Results of Operations should be read in conjunction with our condensed consolidated financial statements and related notes. Some statements and information contained in this Management's Discussion and Analysis of Financial Condition and Results of Operations, notes to our condensed consolidated financial statements and elsewhere in this report are not historical facts but are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). In some cases, readers can identify forward-looking statements by terms such as "may," "will," "should," "expect," "plan," "intend," "forecast," "anticipate," "believe," "estimate," "predict," "potential," "continue," or the negative of these terms or other comparable terminology, which when used are meant to signify the statement as forward-looking. See "Cautionary Note Regarding Forward-Looking Statements" immediately prior to Item 1 of Part I, "Business."

Overview

Since our inception, we have sustained significant operating losses in the course of our research and development and commercialization activities and expect such losses to continue for the near future. We have generated limited revenue to date from product sales, research grants and licensing fees received under our former license agreement with Neogen. In 2017, we began to prepare and launch commercialization of our first product, ContraPest. We have primarily funded our operations to date through the sale of equity securities, including convertible preferred stock, Common Stock and warrants to purchase Common Stock. See "Description of Capital Stock" elsewhere in this filing for a description of our public equity sales. We have also raised capital through debt financing, consisting primarily of convertible notes; and, to a lesser extent, payments received in connection with product sales, research grants and licensing fees.

Through December 31, 2019, we had received net proceeds of \$67.2 million from our sales of common stock, preferred stock and issuance of convertible and other promissory notes and an aggregate of \$1.7 million from research grants and licensing fees and an aggregate of \$0.6 million in product sales. At December 31, 2019, we had an accumulated deficit of \$95.9 million and cash and cash equivalents of \$1.9 million.

We have incurred significant operating losses every year since our inception. Our net losses were \$10.0 million and \$12.2 million for the years ended December 31, 2019 and 2018 respectively. We expect to continue to incur significant expenses and generate operating losses for at least the next 12 months.

We have historically utilized, and intend to continue to utilize, various forms of stock-based awards in order to hire, retain and motivate talented employees, consultants and directors and encourage them to devote their best efforts to our business and financial success. In addition, we believe that our ability to grant stock-based awards is a valuable and necessary compensation tool that aligns the long-term financial interests of our employees, consultants and directors with the financial interests of our stockholders. As a result, a significant portion of our operating expenses includes stock-based compensation expense. Stock-based compensation expense has been, and will continue to be for the foreseeable future, a significant recurring expense in our business and an important part of our compensation strategy. Specifically, our stock-based compensation expense for the year ended December 31, 2019 and December 31, 2018 was \$0.9 million and \$3.4 million, respectively, which represented 8.5% and 30.0%, respectively, of our total operating expenses for those periods.

Components of our Results of Operations

Net Sales

Net sales are comprised primarily of sales, net of discounts and promotions, of ContraPest and related components, to our distributors and customers.

Operating Expenses

Research and Development Expenses

Research and development expenses consist primarily of costs incurred in connection with the research and development of ContraPest and our other product candidates, which include:

- Employee related expenses, including salaries, related benefits, travel and stock-based compensation expense for employees engaged in research and development functions;
- Expenses incurred in connection with the development of our product candidates; and
- Facilities, depreciation and other expenses, which include direct and allocated expenses for rent and maintenance of facilities, insurance and supplies.

We expense research and development costs as incurred.

We continue to investigate other applications of our core technology to other product candidates, which includes laboratory tests and academic collaborations. We also continue to develop our supply chain, particularly identifying and improving our sourcing of triptolide, a key active ingredient for our product candidates. At this time, we cannot reasonably estimate the costs for further development of ContraPest or the cost associated with the development of any of our other product candidates.

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist primarily of salaries and related costs, including stock-based compensation, for personnel in executive, finance, sales, marketing and administrative functions. Selling, general and administrative expenses also include direct and allocated facility-related costs as well as professional fees for legal, consulting, accounting and audit services.

We continue to focus on improving our cost structure, with the goals of shifting resources to commercialization, significantly reducing our year over year burn rate and achieving a 50% or greater gross margin. Steps have included relocating to more cost efficient space, organizational restructuring, and improving our manufacturing and supply processes. We expect to see the benefit of these steps in the coming quarters.”

We plan to continue to hire employees to support our commercialization of ContraPest and further development of our product candidates and anticipate that we will continue to utilize various forms of stock-based compensation awards in order to attract and retain qualified employees. As a result, we anticipate that stock-based compensation expense will continue to represent a significant portion of our selling, general and administrative expenses for the foreseeable future.

Interest Income

Interest income consists primarily of interest income earned on cash and cash equivalents.

Interest Expense

Interest expense consists primarily of interest accrued on our finance lease and note commitments.

Other Income (Expense), Net

Other income (expense), net, consists primarily of recognized change in value of short-term investments and income (expense) related to the year-over-year fair market value adjustment of our derivative warrant.

Income Taxes

Deferred tax assets and liabilities are determined based on differences between the financial statement and tax basis of assets and liabilities, as well as a consideration of net operating loss and credit carry forwards, using enacted tax rates in effect for the period in which the differences are expected to impact taxable income. A valuation allowance is established, when necessary, to reduce deferred tax assets to the amount that is more likely than not to be realized. The Company’s effective tax rate for the years ended December 31, 2019 and December 31, 2018 has been affected by the valuation allowance on the Company’s deferred tax assets.

Since our inception, we have not recorded any U.S. federal or state income tax benefits for the net losses we have incurred in each year or for our earned research and development tax credits, due to our uncertainty of realizing a benefit from those items. At December 31, 2019, the Company has federal and state net operating loss carryforwards of approximately \$61.3 million and \$47.8 million, respectively, not considering the IRC Section 382 annual limitation discussed below. The federal loss carryforwards begin to expire in 2023, unless previously utilized. Additionally, the utilization of the net operating loss carryforwards are subject to an annual limitation under Section 382 and 383 of the Internal Revenue Code of 1986, and similar state tax provisions due to ownership change limitations that have occurred previously or that could occur in the future. These ownership changes limit the amount of net operating loss carryforwards and other deferred tax assets that can be utilized to offset future taxable income and tax, respectively. In general, an ownership change, as defined by Section 382 and 383, results from transactions increasing ownership of certain stockholders or public groups in the stock of the corporation by more than 50 percent points over a three-year period. The Company has not conducted an analysis of an ownership change under section 382. To the extent that a study is completed and an ownership change is deemed to occur, the Company's net operating losses could be limited.

Comparison of the Years December 31, 2019 to 2018

The following table summarizes our results of operations for the years ended December 31, 2019 and 2018:

SENESTECH, INC.
STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(In thousands, except shares and per share data)

| | For the Years Ended December 31, | |
|-----------------------------------------------------------------------|-------------------------------------|-------------|
| | 2019 | 2018 |
| Net Sales | \$ 143 | \$ 297 |
| Cost of sales | 101 | 241 |
| Gross profit | 42 | 56 |
| Operating expenses: | | |
| Research and development | 1,908 | 2,404 |
| Selling, general and administrative | 8,421 | 9,532 |
| Total operating expenses | 10,329 | 11,936 |
| Net operating loss | (10,287) | (11,880) |
| Other income (expense): | | |
| Interest income | 45 | 25 |
| Interest expense | (42) | (74) |
| Other income (expense) | 266 | 21 |
| Total other income (expense) | 269 | (28) |
| Net loss and comprehensive loss | \$ (10,018) | \$ (11,908) |
| Warrant revaluation | 11 | |
| Deemed dividend-warrant price protection-revaluation adjustment | - | 333 |
| Net loss attributable to common shareholders | \$ (10,029) | \$ (12,241) |
| Loss per share attributable to common shareholders, basic and diluted | \$ (7.69) | \$ (12.62) |
| Weighted average common shares outstanding - basic and fully diluted | 1,304,045 | 970,105 |

Net Sales

Net sales, shown net of sales discounts and promotions, were \$143,000 for the year ended December 31, 2019, compared to \$297,000 for year ended December 31, 2018. Net sales decreased by \$154,000 in 2019 due to the receipt of an initial stocking order in the fourth quarter of 2018 from a customer that did not re-order in 2019 and our shift to pull through sales strategy directed at end users. This strategy has shown significant initial promise however, we have experienced an increase in lead to conversion time resulting in a longer sales process.

Cost of Goods Sold

Cost of goods sold was \$101,000, or 70.6% of net sales, for the year ended December 31, 2019, compared to \$241,000, or 81.1% of net sales for year ended December 31, 2017. The decrease in cost of goods sold of \$130,000 in 2019 primarily due to lower sales volume and reduced scrap expense associated with manufacturing scale up activities that were experienced during 2018. The decrease as a percentage of sales was a result of continued process improvement and efficiencies.

Gross Profit

Gross profit for the year ended December 31, 2018 was \$42,000 or 29.4% of net sales, compared to a gross profit of \$56,000 or 18.9% of net sales, for the year ended December 31, 2018. The increase in gross profit was a direct result of a decrease in scrap in 2019.

Research and Development Expenses

| | Year Ended December 31, | | Increase (Decrease) |
|--------------------------------------------------------|------------------------------------|-----------------|--------------------------------|
| | 2019 | 2018 | |
| | (in thousands) | | |
| Direct research and development expenses: | | | |
| Personnel related (including stock-based compensation) | \$ 807 | \$ 1,548 | \$ (741) |
| Facility related | 261 | 234 | 27 |
| Other | 840 | 622 | 218 |
| Total research and development expenses | <u>\$ 1,908</u> | <u>\$ 2,404</u> | <u>\$ (496)</u> |

Research and development expenses were \$1.9 million for the year ended December 31, 2019, compared to \$2.4 million for the year ended December 31, 2018. The \$496,000 decrease in research and development expenses was primarily due to a decrease of \$741,000 in personnel-related costs, including stock-based compensation expense, due to the classification of certain field support employees to sales and marketing offset by an increase in facility related expenses of \$27,000 and other research and development expenses of \$218,000.

With more focus on commercialization of ContraPest, we determined that these certain field support employees previously classified as research and development are now refocused on sales and marketing efforts and thus, reclassified as such.

Facility-related expense increased \$27,000 due primarily to facility lease payment escalation and additional rent associated with moving into our new facility in Phoenix, AZ.

The increase in other research and development expenses of \$218,000 was primarily due to increased consulting expenses related to certain product testing and development expenses offset by a reclass of other expenses related to certain field support employees to sales and marketing as described above.

We also continue to develop our supply chain, particularly identifying and improving our sourcing key ingredients for our product candidates.

Selling, General and Administrative Expenses

Selling, general and administrative expenses were \$8.4 million for the year ended December 31, 2019, compared to \$9.5 million for the year ended December 31, 2018. The decrease of \$1.1 million in selling, general and administrative expenses was primarily due to lower stock compensation expenses of \$2.5 million associated with inducement warrants issued in June 2018 and option grants fully vesting and resulting in lower stock compensation expense, offset by increased salary and wages of \$1.1 million associated with the reclassification of certain field support employees, an increase of \$126,000 in professional services expense and a \$123,000 expense for a reserve for potential bad debt expenses. The increase in professional services expenses was primarily due to increased legal and Board of Directors related expenses.

Interest Income/Expense Net

We recorded \$3,000 of interest income, net for the year ended December 31, 2019, as opposed to interest expense, net of \$49,000 for the year ended December 31, 2018. The decrease in interest expense, net of \$52,000 was the result of decreased debt in the form of notes payable and leases due primarily to maturing debt obligations during 2019.

Other Income (Expense), Net

We recorded \$266,000 of other income, net for the year ended December 31, 2019, compared to \$21,000 of other income for the year ended December 31, 2018. The \$245,000 net increase in other income was primarily due to the reversal of a previously recorded litigation reserve of \$269,000, offset by lower income recognized for year-over-year fair market value adjustment of our derivative warrant during 2019.

Liquidity and Capital Resources

Since our inception, we have sustained significant operating losses in the course of our research and development activities and commercialization efforts and expect such losses to continue for the near future. We have generated limited revenue to date from product sales, research grants and licensing fees received under our former license agreement with Neogen. In 2017, we began full scale marketing of our first product, ContraPest. We have funded our operations to date through the sale of equity securities, including convertible preferred stock, Common Stock and warrants to purchase Common Stock, debt financing, consisting primarily of convertible notes; and, to a lesser extent, payments received in connection with product sales, research grants and licensing fees.

Through December 31, 2019, we had received net proceeds of \$67.2 million from our sales of common stock, preferred stock and warrant exercises and issuance of convertible and other promissory notes, and an aggregate of \$1.7 million from licensing fees and an aggregate of \$0.6 million from product sales. At December 31, 2019, we had an accumulated deficit of \$95.9 million and cash and cash equivalents of \$1.9 million.

Our ultimate success depends upon the outcome of a combination of factors, including: (i) successful commercialization of ContraPest and maintaining and obtaining regulatory approval of our products and product candidates; (ii) market acceptance, commercial viability and profitability of ContraPest and other products; (iii) the ability to market our products and establish an effective sales force and marketing infrastructure to generate significant revenue; (iv) the success of our research and development; (v) the ability to retain and attract key personnel to develop, operate and grow our business; and (vi) our ability to meet our working capital needs.

Based upon our current operating plan, we expect that cash and cash equivalents at December 31, 2019, in combination with anticipated revenue and additional sales of our equity securities, will be sufficient to fund our current operations for at least the next six months. We have taken and will continue to take actions to reduce our operating expenses and to concentrate our resources toward the successful commercialization of ContraPest in the United States. However, if anticipated revenue targets and margin targets are not achieved and we are unable to raise necessary capital through the sale of our securities, we may be required to take other measures that could impair our ability to be successful and operate as a going concern. In any event, we will require additional capital in order to fund our operating losses and research and development activities until we become profitable. We may never achieve profitability or generate positive cash flows, and unless and until we do, we will continue to need to raise capital through equity or debt financing. If such equity or debt financing is not available at adequate levels or on acceptable terms, we may need to delay, limit or terminate commercialization and development efforts or discontinue operations.

Additional Funding Requirements

We expect our expenses to continue or increase in connection with our ongoing activities, particularly as we market and focus on sales of ContraPest, and as we advance field studies of our product candidates in development. In addition, we will continue to incur costs associated with operating as a public company.

In particular, we expect to incur substantial and increased expenses as we:

- Work to maximize market acceptance for, and generate sales of, our products;
- Manage the infrastructure for the sales, marketing and distribution of ContraPest and any other product candidates for which we may receive regulatory approval;
- Continue the development of ContraPest and our other product candidates, including engaging in any necessary field studies;
- Seek additional regulatory approvals for ContraPest and our other product candidates;
- Scale up manufacturing processes and quantities to meet future demand of ContraPest and any other product candidates for which we receive regulatory approval;
- Continue product development of ContraPest and advance our research and development activities and advance the research and development programs for other product candidates;
- Maintain, expand and protect our intellectual property portfolio; and
- Add operational, financial and management information systems and personnel, including personnel to support our product development and commercialization efforts and operations as a public company.

Cash Flows

The following table summarizes our sources and uses of cash for each of the years presented:

| | Year Ended December 31, | |
|------------------------------------------------------|----------------------------|------------|
| | 2019 | 2018 |
| Cash used in operating activities | \$ (8,058) | \$ (9,129) |
| Cash used in investing activities | (71) | 5,016 |
| Cash provided by financing activities | 5,145 | 6,932 |
| Net increase (decrease) in cash and cash equivalents | \$ (2,984) | \$ 2,819 |

Operating Activities.

During the year ended December 31, 2019, operating activities used \$8.1 million of cash, primarily resulting from our net loss of \$10.0 million, changes in our operating assets and liabilities of \$0.5 million and non-cash charges of \$1.4 million. Our net loss was primarily attributed to research and development activities and our selling, general and administrative expenses, as we generated limited product sales and no research grant and licensing revenue during the year. Net cash used by changes in our operating assets and liabilities for the year ended December 31, 2019 consisted primarily of a \$547,000 increase in accrued expenses and accounts payable, a decrease in prepaid expenses and deposits of \$85,000 and a decrease in inventories of \$81,000 offset by a decrease in deferred rent of \$16,000 and a net increase in accounts receivable and deposits of \$139,000.

During the year ended December 31, 2018, operating activities used \$9.1 million of cash, primarily resulting from our net loss of \$11.9 million and changes in our operating assets and liabilities of \$1.0 million, partially offset by non-cash charges of \$3.8 million. Our net loss was primarily attributed to research and development activities and our selling, general and administrative expenses, as we generated limited product sales and no research grant and licensing revenue during the period. Net cash used by changes in our operating assets and liabilities for the year ended December 31, 2018 consisted primarily of a \$29,000 decrease in accrued expenses and accounts payable, an increase in inventories of \$721,000, a net increase in accounts receivable and deposits of \$113,000 and an increase in prepaid expenses of \$172,000.

Investing Activities

During the year ended December 31, 2019, we used \$71,000 of cash in investing activities, which consisted entirely of the purchases of property and equipment.

During the year ended December 31, 2018, we generated \$5.0 million of cash in investing activities, which consisted of \$5 million in the sale of short term, highly liquid investments and \$185,000 generated from the sale of equipment, offset by \$239,000 used in the purchases of property and equipment.

Financing Activities

During the year ended December 31, 2019, net cash provided by financing activities was \$5.1 million as a result of \$3.6 million in net proceeds from the issuance of common stock, \$1.8 million in proceeds from warrant exercises, partially offset by \$220,000 of repayments related to notes payable and \$55,000 of payments for employee withholding taxes related to share-based awards.

During the year ended December 31, 2018, net cash provided by financing activities was \$6.9 million as a result of \$5.1 million in proceeds from the issuance of common stock, net, \$2.2 million in proceeds from warrant exercises and \$9,000 in proceeds from issuances of notes, offset by \$293,000 of repayments of related to notes payable and notes payable, related party, \$71,000 in repayments of finance lease obligations and \$58,000 of payments for employee withholding taxes related to share-based awards.

Recent Developments

Our common stock is listed on the Nasdaq Capital Market. In order to maintain that listing, we must satisfy minimum financial and other continued listing requirements and standards.

On November 12, 2019, we received an initial deficiency letter from the listing qualifications staff of The Nasdaq Stock Market (“Nasdaq”) providing notification that the bid price for our Common Stock had closed below \$1.00 per share for the previous 30 consecutive business days and that as a result our Common Stock no longer met the minimum bid price requirement for listing on The Nasdaq Capital Market. We were provided with an initial compliance period of 180 calendar days, or until May 11, 2020, to regain compliance with the minimum bid price requirement. We implemented a 1-for-20 reverse stock split on February 4, 2020. On February 20, 2020 we received notification from Nasdaq that we had regained compliance with the minimum bid price requirement. We have also in the past received minimum bid deficiency notices.

We cannot provide any assurance that our stock price will maintain the minimum bid price requirements of Nasdaq or that we will be able to satisfy any other continued listing requirement of the Nasdaq Stock Market. In the event that our common stock is not eligible for quotation on another market or exchange, trading of our common stock could be conducted in the over-the-counter market or on an electronic bulletin board established for unlisted securities such as the Pink Sheets or the OTC Bulletin Board. In such event, it could become more difficult to dispose of, or obtain accurate price quotations for, our common stock, and there would likely be a reduction in our coverage by security analysts and the news media, which could cause the price of our common stock to decline further. In addition, it may be difficult for us to raise additional capital if we are not listed on a major exchange.

Critical Accounting Policies and Significant Judgments and Estimates

Our financial statements are prepared in accordance with generally accepted accounting principles in the United States, or U.S. GAAP. The preparation of our financial statements and related disclosures requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue, costs and expenses, and the disclosure of contingent assets and liabilities in our financial statements. We base our estimates on historical experience, known trends and events and various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. We evaluate our estimates and assumptions on an ongoing basis. Our actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in Note 1 — Summary of Significant Accounting Policies to our financial statements included elsewhere in this Annual Report on Form 10-K, we believe that the following accounting policies are those most critical to the judgments and estimates used in the preparation of our financial statements.

Revenue Recognition

Effective January 1, 2018, the Company adopted ASC 606 — *Revenue from Contracts with Customers*. Under ASC 606, the Company recognizes revenue from the commercial sales of products, licensing agreements and contracts to perform pilot studies by applying the following steps: (1) identify the contract with a customer; (2) identify the performance obligations in the contract; (3) determine the transaction price; (4) allocate the transaction price to each performance obligation in the contract; and (5) recognize revenue when each performance obligation is satisfied. For the comparative periods, revenue has not been adjusted and continues to be reported under ASC 605 — *Revenue Recognition*. Under ASC 605, revenue is recognized when the following criteria are met: (1) persuasive evidence of an arrangement exists; (2) the performance of service has been rendered to a customer or delivery has occurred; (3) the amount of the fee to be paid by a customer is fixed and determinable; and (4) the collectability of the fee is reasonably assured. The performance obligations identified by the Company under Accounting Standards Codification (“ASC”) Topic 606, Revenue From Contracts With Customers, are straightforward and similar to the unit of account and performance obligation determination under ASC Topic 605, *Revenue Recognition*. There was no impact on the Company’s financial statements as a result of adopting ASC 606 for the years ended December 31, 2019 and 2018, respectively.

Stock-Based Compensation

We recognize compensation costs related to stock options granted to employees based on the estimated fair value of the awards on the date of grant, net of estimated forfeitures, in accordance with ASC Topic 718 — *Stock Compensation* (“ASC 718”). We estimate the grant date fair value of the awards, and the resulting stock-based compensation expense, using the Black-Scholes option pricing model. The grant date fair value of stock-based awards is expensed on a straight-line basis over the vesting period of the respective award. We account for stock-based compensation arrangements with non-employees using a fair value approach. The fair value of these stock options is measured using the Black-Scholes option-pricing model reflecting the same assumptions as applied to employee options in each of the reported periods, other than the expected life, which is assumed to be the remaining contractual life of the option. The fair value of the stock options granted to non-employees is re-measured as the stock options vest and is recognized in the statements of operations and comprehensive loss during the period the related services are rendered.

We recorded stock-based compensation expense of approximately \$0.9 million and \$3.4 million for the years ended December 31, 2019 and 2018 respectively. We expect to continue to grant stock options and other equity-based awards in the future, and to the extent that we do, our stock-based compensation expense recognized in future periods will likely remain significant.

The Black-Scholes option pricing model requires the use of highly subjective and complex assumptions, which determine the fair value of stock-based awards. If we had made different assumptions, our stock-based compensation expense, net loss and loss per share of common stock could have been significantly different. Our assumptions are as follows:

- *Expected term.* The expected term represents the period that the stock-based awards are expected to be outstanding. Our historical share option exercise experience does not provide a reasonable basis upon which to estimate an expected term because of a lack of sufficient data. Therefore, we estimate the expected term by using the simplified method, which calculates the expected term as the average of the time-to-vesting and the contractual life of the options.
- *Expected volatility.* Expected volatility is derived from the average historical volatilities of publicly traded companies within our industry that we consider to be comparable to our business over a period approximately equal to the expected term. We intend to continue to consistently apply this process using the same or similar public companies until a sufficient amount of historical information regarding the volatility of our own common stock price becomes available, or unless circumstances change such that the identified companies are no longer similar to us, in which case, more suitable companies whose share prices are publicly available would be utilized in the calculation.
- *Risk-free interest rate.* The risk-free interest rate is based on the U.S. Treasury yield in effect at the time of grant for zero coupon U.S. Treasury notes with maturities approximately equal to the expected term.
- *Expected dividend.* The expected dividend is assumed to be zero as we have never paid dividends and have no current plans to pay any dividends on our common stock.
- *Expected forfeitures.* We use historical data to estimate pre-vesting option forfeitures and record stock-based compensation expense only for those awards that are expected to vest. To the extent actual forfeitures differ from the estimates, the difference will be recorded as a cumulative adjustment in the period that the estimates are revised.

Significant Factors, Assumptions and Methodologies Used in Determining Fair Value of Our Common Stock

As noted above, we are required to estimate the fair value of the common stock underlying our stock-based awards when performing the fair value calculations using the Black-Scholes option-pricing model.

The assumptions underlying these valuations represent management’s best estimates, which involve inherent uncertainties and the application of management’s judgment. If we had made different assumptions than those used, the amount of our stock-based compensation expense, net income and net income per share amounts could have been significantly different. The fair value per share of our common stock for purposes of determining stock-based compensation expense is the closing price of our common stock as reported on the applicable grant date. The compensation cost that has been included in the statements of operations and comprehensive loss for all stock-based compensation arrangements is as follows:

| | Years Ended December 31, | |
|-----------------------------------------------|-----------------------------|-----------------|
| | 2019 | 2018 |
| | (in thousands) | |
| Selling, general and administrative expenses | \$ 859 | \$ 3,306 |
| Research and development expense | 14 | 106 |
| Total stock-based compensation expense | \$ 873 | \$ 3,412 |

The intrinsic value of stock options outstanding as of December 31, 2019 is \$0.

Emerging Growth Company Status

The Jumpstart Our Business Startups Act of 2012, or the JOBS Act, permits an “emerging growth company” such as us to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies until those standards would otherwise apply to private companies. We have irrevocably elected to “opt out” of this provision and, as a result, we intend to comply with new or revised accounting standards when they are required to be adopted by public companies that are not emerging growth companies.

Off-Balance Sheet Arrangements

None.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

Not applicable.

Item 8. *Financial Statements and Supplementary Data.*

SENESTECH, INC.
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SENESTECH, INC.
REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and
Stockholders of SenesTech, Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheets of SenesTech, Inc. (the Company) as of December 31, 2019 and 2018, and the related statements of income, comprehensive income, stockholders' equity, and cash flows for each of the years in the two-year period ended December 31, 2019, and the related notes and schedules (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, 2019 and 2018, and the results of its operations and its cash flows for each of the years in the two-year period ended December 31, 2019, 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.

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company suffered a net loss from operations and has a net capital deficiency, which raises substantial doubt about its ability to continue as a going concern. Management's plans regarding those matters are also described in Note 1. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

/s/ M&K CPAS, PLLC

We have served as the Company's auditor since 2014.

Houston, TX
March 16, 2020

SENESTECH, INC.
BALANCE SHEETS
(In thousands, except shares and per share data)

| | <u>December 31,</u> <u>2019</u> | <u>December 31,</u> <u>2018</u> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------|
| ASSETS | | |
| Current assets: | | |
| Cash | \$ 1,936 | \$ 4,920 |
| Accounts receivable trade, net | 26 | 139 |
| Accounts receivable-other | 123 | - |
| Prepaid expenses | 257 | 342 |
| Inventory | 1,180 | 1,261 |
| Deposits | 20 | 9 |
| Total current assets | <u>3,542</u> | <u>6,671</u> |
| Right to use asset-operating leases | 699 | - |
| Property and equipment, net | 738 | 1,083 |
| Total assets | <u>\$ 4,979</u> | <u>\$ 7,754</u> |
| LIABILITIES AND STOCKHOLDERS' EQUITY | | |
| Current liabilities: | | |
| Short-term debt | \$ 123 | \$ 219 |
| Accounts payable | 265 | 173 |
| Accrued expenses | 1,193 | 771 |
| Total current liabilities | <u>1,581</u> | <u>1,163</u> |
| Long-term debt, net | 137 | 261 |
| Operating lease liability | 694 | - |
| Deferred rent | - | 16 |
| Total liabilities | <u>2,412</u> | <u>1,440</u> |
| Commitments and contingencies (See note 12) | <u>-</u> | <u>-</u> |
| Stockholders' equity: | | |
| Common stock, \$0.001 par value, 100,000,000 shares authorized, 1,414,671 and 1,173,854 shares issued and outstanding at December 31, 2019 and December 31, 2018, respectively | 1 | 1 |
| Additional paid-in capital | 98,433 | 92,151 |
| Accumulated deficit | (95,867) | (85,838) |
| Total stockholders' equity | <u>2,567</u> | <u>6,314</u> |
| Total liabilities and stockholders' equity | <u>\$ 4,979</u> | <u>\$ 7,754</u> |

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

SENESTECH, INC.
STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(In thousands, except shares and per share data)

| | For the Years Ended | |
|----------------------------------------------------------------------|----------------------------|--------------------|
| | December 31, | |
| | 2019 | 2018 |
| Revenue: | | |
| Sales | \$ 143 | \$ 297 |
| Cost of sales | 101 | 241 |
| Gross profit | <u>42</u> | <u>56</u> |
| Operating expenses: | | |
| Research and development | 1,908 | 2,404 |
| Selling, general and administrative | 8,421 | 9,532 |
| Total operating expenses | <u>10,329</u> | <u>11,936</u> |
| Net operating loss | <u>(10,287)</u> | <u>(11,880)</u> |
| Other income (expense): | | |
| Interest income | 45 | 25 |
| Interest expense | (42) | (74) |
| Other income | 266 | 21 |
| Total other income (expense) | <u>269</u> | <u>(28)</u> |
| Net loss and comprehensive loss | (10,018) | (11,908) |
| Warrant revaluation | 11 | - |
| Deemed dividend-warrant price protection-revaluation adjustment | - | 333 |
| Net loss attributable to common shareholders | <u>\$ (10,029)</u> | <u>\$ (12,241)</u> |
| Weighted average common shares outstanding - basic and fully diluted | <u>1,304,045</u> | <u>970,105</u> |
| Net loss per common share - basic and fully diluted | <u>\$ (7.69)</u> | <u>\$ (12.62)</u> |

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

SENESTECH, INC.
STATEMENT OF CHANGES IN STOCKHOLDERS' EQUITY (DEFICIT)
(In thousands, except shares and per share data)

| | Common Stock | | Additional Paid-In Capital | Accumulated Deficit | Total Stockholders' Equity (Deficit) |
|-----------------------------------------------------------------------|--------------|--------|----------------------------------|------------------------|-----------------------------------------------|
| | Shares | Amount | | | |
| Balance, December 31, 2017 | 820,509 | \$ 1 | \$ 81,118 | \$ (73,597) | \$ 7,522 |
| Issuance of common stock, sold for cash, net | 267,852 | - | 5,133 | | 5,133 |
| Issuance of common stock for services | 11,060 | - | 36 | - | 36 |
| Stock-based compensation | - | - | 1,691 | - | 1,691 |
| Issuance of warrants | - | - | 1,693 | - | 1,693 |
| Issuance of common stock upon cashless exercise of stock options | 695 | - | - | - | - |
| Issuance of common stock upon exercise of warrants | 73,738 | - | 2,214 | - | 2,214 |
| Option forfeitures and expirations | - | - | (67) | - | (67) |
| Payments for employee withholding taxes related to share-based awards | - | - | - | - | - |
| Warrant antidilution price protection adjustment | - | - | 333 | (333) | - |
| Net loss for the year ended December 31, 2018 | - | - | - | (11,908) | (11,908) |
| Balance, December 31, 2018 | 1,173,854 | \$ 1 | \$ 92,151 | \$ (85,838) | \$ 6,314 |
| Issuance of common stock, sold for cash, net | 151,838 | - | 3,631 | - | 3,631 |
| Issuance of common stock for services | 7,203 | - | 34 | - | 34 |
| Stock-based compensation | - | - | 873 | - | 873 |
| Issuance of common stock upon exercise of warrants | 80,511 | - | 1,788 | - | 1,788 |
| Issuance of common stock upon exercise of stock options | 1,265 | - | - | - | - |
| Payments for employee withholding taxes related to share-based awards | - | - | (55) | - | (55) |
| Warrant revaluation | - | - | 11 | - | 11 |
| Net loss for the year ended December 31, 2019 | - | - | - | (10,029) | (10,029) |
| Balance, December 31, 2019 | 1,414,671 | \$ 1 | \$ 98,433 | \$ (95,867) | \$ 2,567 |

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

SENESTECH, INC.
STATEMENTS OF CASH FLOWS
(In thousands)

| | For the Years Ended December 31, | |
|-----------------------------------------------------------------------------|-------------------------------------|------------------------|
| | 2019 | 2018 |
| CASH FLOWS FROM OPERATING ACTIVITIES | | |
| Net loss | \$ (10,018) | \$ (11,908) |
| Adjustments to reconcile net loss to net cash used in operating activities: | | |
| Gain on investments held to maturity | - | (47) |
| Depreciation and amortization | 413 | 447 |
| Stock-based compensation | 873 | 3,413 |
| Bad Debt Expense | 123 | - |
| Loss on sale of equipment | 3 | 15 |
| Loss on early extinguishment of debt | - | 10 |
| Loss on change in fair value of derivative | - | 1 |
| (Increase) decrease in current assets: | | |
| Accounts receivable - trade | (10) | (123) |
| Accounts receivable - other | (123) | - |
| Other assets | (5) | - |
| Prepaid expenses | 85 | (172) |
| Inventory | 81 | (721) |
| Deposits | (11) | 10 |
| Increase (decrease) in current liabilities: | | |
| Accounts payable | 92 | (218) |
| Accrued expenses | 455 | 189 |
| Deferred rent | (16) | (25) |
| Net cash used in operating activities | <u>(8,058)</u> | <u>(9,129)</u> |
| CASH FLOWS FROM INVESTING ACTIVITIES | | |
| Proceeds received on sale of securities held to maturity | - | 5,070 |
| Proceeds received on sale of equipment | - | 185 |
| Purchase of property and equipment | (71) | (239) |
| Net cash provided by (used in) investing activities | <u>(71)</u> | <u>5,016</u> |
| CASH FLOWS FROM FINANCING ACTIVITIES | | |
| Proceeds from the issuance of common stock, net | 3,631 | 5,132 |
| Proceeds from the issuance of notes payable | - | 9 |
| Repayments of notes payable | (220) | (281) |
| Repayments of notes payable, related parties | - | (12) |
| Repayments of finance lease obligations | - | (71) |
| Proceeds from the exercise of warrants | 1,789 | 2,213 |
| Payment of employee withholding taxes related to share-based awards | (55) | (58) |
| Net cash provided by financing activities | <u>5,145</u> | <u>6,932</u> |
| NET CHANGE IN CASH | (2,984) | 2,819 |
| CASH AT BEGINNING OF PERIOD | 4,920 | 2,101 |
| CASH AT END OF PERIOD | <u>\$ 1,936</u> | <u>\$ 4,920</u> |
| SUPPLEMENTAL INFORMATION: | | |
| Interest paid | \$ 42 | \$ 74 |
| Income taxes paid | \$ - | \$ - |
| NON-CASH INVESTING AND FINANCING ACTIVITIES: | | |
| Common stock warrant revaluation | \$ 11 | \$ - |
| Deemed dividend | \$ - | \$ 333 |
| Purchases of equipment under finance lease obligations | \$ - | \$ 37 |
| Common stock issued on accrued bonus | \$ 33 | \$ - |

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

SENESTECH, INC.
NOTES TO THE FINANCIAL STATEMENTS
(In thousands, except share and per share data)

1. Organization and Description of Business

SenesTech, Inc. (referred to in this report as “SenesTech,” the “Company,” “we” or “us”) was formed in July 2004 and incorporated in the state of Nevada. The Company subsequently reincorporated in the state of Delaware in November 2015. Our corporate headquarters is in Phoenix, Arizona. We have developed and are commercializing a global, proprietary technology for managing animal pest populations, initially rat populations, through fertility control.

Although myriad tools are available to fight rat infestations, communities, food producers, zoos, sanctuaries and others continue to face challenges in controlling today’s infestations. Infestations result in significant infrastructure damage, as well as pose additional risks to the health and food security of communities. In addition to these challenges, the pest management industry and pest management professionals (PMPs) are being increasingly asked for new solutions to help solve the problem. With growing concerns about rat resistance to rodenticides and a growing interest in non-lethal options, it is becoming increasingly important for PMPs to have new tools at their disposal. Our goal is to provide customers with not only a solution to combat their most difficult infestations, but also offer a non-lethal option to serve customers that are looking to decrease or remove the amount of poison used in their pest management programs.

Our first fertility control product, ContraPest, is a liquid bait containing the active ingredients 4-vinylcyclohexene diepoxide (VCD) and triptolide. When consumed, ContraPest targets reproduction, limiting fertility in male and female rats beginning with the first breeding cycle following consumption. ContraPest is being marketed for use in controlling rat populations, specifically Norway and roof rats. On August 23, 2015, the United States Environmental Protection Agency (EPA) granted registration approval for ContraPest as a Restricted Product Due to Professional Expertise (referred to in this report as a “Restricted Use designation”), effective August 2, 2016. On October 18, 2018, the EPA approved the removal of the Restricted Use designation. We believe ContraPest is the first and only non-lethal fertility control product approved by the EPA for the management of rodent populations.

In addition to the EPA registration of ContraPest in the United States, we must obtain registration from the various state regulatory agencies prior to selling in each state. As of the date of this report, we have received registration for ContraPest in all 50 states and the District of Columbia, 47 of which have approved the removal of the Restricted Use designation.

We expect to continue to pursue regulatory approvals and amendments to existing registration in the United States for ContraPest, and if ContraPest begins to generate sufficient revenue, regulatory approvals for any additional jurisdictions beyond the United States.

Reverse Stock Split

On February 4, 2020, we amended our amended and restated certificate of incorporation to effect a 1-for-20 reverse split of our issued and outstanding shares of our Common Stock. The accompanying condensed financial statements and notes thereto give retrospective effect to the reverse stock split for all periods presented. All issued and outstanding common stock, options and warrants exercisable for common stock, restricted stock units, preferred stock conversions to common stock and per share amounts contained in our condensed financial statements have been retrospectively adjusted.

Going Concern

Although our audited financial statements for the year ended December 31, 2019 were prepared under the assumption that we would continue our operations as a going concern, the report of our independent registered public accounting firm that accompanies our financial statements for the year ended December 31, 2019 contains a going concern qualification in which such firm expressed substantial doubt about our ability to continue as a going concern, based on the financial statements at that time. Specifically, as noted above, we have incurred operating losses since our inception, and we expect to continue to incur significant expenses and operating losses for the foreseeable future. These prior losses and expected future losses have had, and will continue to have, an adverse effect on our financial condition. If we cannot continue as a going concern, our stockholders would likely lose most or all of their investment in us.

SENESTECH, INC.
NOTES TO THE FINANCIAL STATEMENTS
(In thousands, except share and per share data)

1. Organization and Description of Business – (continued)

Need for Additional Capital

Since our inception, we have sustained significant operating losses in the course of our research and development activities and expect such losses to continue for the near future. We have generated limited revenue to date from product sales, research grants and licensing fees received under our former license agreement with Neogen. In 2017, we began to prepare and launch commercialization of our first product, ContraPest. We have funded our operations to date through the sale of equity securities, including convertible preferred stock, common stock and warrants to purchase common stock. Such sales include:

- (i) an initial public offering of 93,750 shares of our common stock on December 8, 2016 with warrants to purchase an additional 9,375 shares issued to Roth Capital Partners, LLC with an exercise price of \$192.00 per share, as underwriter,
- (ii) a public offering on November 21, 2017 of 293,000 shares of our common stock at \$20.00 per share with warrants issued to investors to purchase an additional 232,875 shares of our common stock with an initial exercise price of \$30.00 per share that subsequently adjusted downward to \$19.00 per share pursuant to antidilution price protection contained within those warrants, and warrants issued to Roth Capital Partners, LLC, as underwriter, to purchase an additional 47,250 shares with an exercise price of \$30.00 per share,
- (iii) a private placement of warrants to purchase 56,696 shares of common stock in June 2018 with an exercise price of \$36.40 per share in connection with an inducement agreement with a holder of outstanding warrants issued in November 2017 to exercise its original warrant representing 56,696 shares at an exercise price of \$30.00 per share,
- (iv) a rights offering in August 2018 (the “Rights Offering”), where we accepted subscriptions for 267,853 units for a purchase price of \$23.00 per unit, with each unit consisting of one share of our common stock and one warrant, with each warrant exercisable for one share of our common stock at an exercise price of \$23.00 per share, and warrants issued to an affiliate of Maxim Group, LLC, as dealer-manager, to purchase an additional 13,393 shares at \$34.50 per share,
- (v) a public offering on July 16, 2019, of 151,838 shares of Common Stock, including 34,815 shares to the Company’s chief executive officer and 371 shares to an employee of the Company, at \$27.00 per share, resulting in net proceeds of approximately \$3.6 million after deducting certain fees due to the placement agent and other transaction expenses. In addition, the Company issued a warrant to purchase 8,334 shares of the Company’s Common Stock to the placement agent at an exercise price of \$33.75 per share.

We have also raised capital through debt financing, consisting primarily of convertible notes; and, to a lesser extent, payments received in connection with product sales, research grants and licensing fees.

Through December 31, 2019, we had received net proceeds of \$67.2 million from our sales of common stock, preferred stock and warrant exercises and issuance of convertible and other promissory notes, an aggregate of \$1.7 million from licensing fees and an aggregate of \$0.6 million in net product sales. At December 31, 2019, we had an accumulated deficit of \$95.9 million and cash and cash equivalents of \$1.9 million.

Our ultimate success depends upon the outcome of a combination of factors, including: (i) successful commercialization of ContraPest and maintaining and obtaining regulatory approval of our products and product candidates; (ii) market acceptance, commercial viability and profitability of ContraPest and other products; (iii) the ability to market our products and establish an effective sales force and marketing infrastructure to generate significant revenue; (iv) the success of our research and development; (v) the ability to retain and attract key personnel to develop, operate and grow our business; and (vi) our ability to meet our working capital needs.

Based upon our current operating plan, we expect that cash and cash equivalents at December 31, 2019, in combination with anticipated revenue and additional sales of our equity securities, will be sufficient to fund our current operations for at least the next six months. We have taken and will continue to take actions to reduce our operating expenses and to concentrate our resources toward the successful commercialization of ContraPest in the United States. However, if anticipated revenues and margins are not achieved and we are unable to raise necessary capital through the sale of our securities, we may be required to take other measures that could impair our ability to be successful and operate as a going concern. In any event, we will require additional capital in order to fund our operating losses and research and development activities until we become profitable. We may never achieve profitability or generate positive cash flows, and unless and until we do, we will continue to need to raise capital through equity or debt financing. If such equity or debt financing is not available at adequate levels or on acceptable terms, we may need to delay, limit or terminate commercialization and development efforts or discontinue operations.

Major Customer

The Company has two major customers that accounted for approximately 12% and 20% and \$17 and \$28 of sales for the year ended December 31, 2019 and 83% and \$123 of total accounts receivable at December 31, 2019. The Company expects to maintain these relationships with these customers.

SENESTECH, INC.
NOTES TO THE FINANCIAL STATEMENTS
(In thousands, except share and per share data)

2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of the financial statements in conformity with accounting principles generally accepted in the United States of America (“U.S. GAAP”) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and reported amounts of revenues and expenses during the reporting period. The significant estimates in the Company’s financial statements include the valuation of preferred stock, common stock and related warrants, and other stock-based awards. Actual results could differ from such estimates.

Reclassifications

Certain prior year amounts have been reclassified to conform to the current year presentation. These reclassifications had no impact on net earnings, financial position or cash flows.

Accounts Receivable-Trade

Accounts receivable-trade consist primarily of receivables from customers. The Company provides an allowance for doubtful trade receivables equal to the estimated uncollectible amounts. That estimate is based on historical collection experience, current economic and market conditions and a review of the current status of each customer’s trade accounts receivable. The allowance for doubtful trade receivables was \$123 and less than \$1 at December 31, 2019 and at December 31, 2018, respectively.

Accounts Receivable-Other

Accounts receivable-other at December 31, 2019 consist primarily of receivables related to insurance reimbursements due the Company.

Inventories

Inventories are stated at the lower of cost or market value, using the first-in, first-out convention. Inventories consist of raw materials, work in progress and finished goods. Raw materials are stocked to reduce the risk of manufacturing impact of long lead times on certain ingredients.

Components of inventory are:

| | December 31, | |
|----------------------|---------------------|-------------|
| | 2019 | 2018 |
| Raw materials | \$ 1,035 | \$ 1,117 |
| Work in progress | - | 3 |
| Finished goods | 149 | 145 |
| Total inventory | 1,184 | 1,265 |
| Less: | | |
| Reserve for obsolete | (4) | (4) |
| Total net inventory | \$ 1,180 | \$ 1,261 |

Prepaid Expenses

Prepaid expenses consist primarily of payments made for director and officer insurance, director compensation, rent, legal and inventory purchase deposits and seminar fees to be expensed in the current year.

Property and Equipment

Property and equipment are stated at cost less accumulated depreciation. Equipment held under finance leases are stated at the present value of minimum lease payments less accumulated amortization.

SENESTECH, INC.
NOTES TO THE FINANCIAL STATEMENTS
(In thousands, except share and per share data)

2. Summary of Significant Accounting Policies – (continued)

Depreciation on property and equipment is computed using the straight-line method over the estimated useful lives of the respective assets. The cost of leasehold improvements is amortized over the life of the improvement or the term of the lease, whichever is shorter. Equipment held under finance leases are amortized over the shorter of the lease term or estimated useful life of the asset. The Company incurs maintenance costs on its major equipment. Repair and maintenance costs are expensed as incurred.

Impairment of Long-Lived Assets

Long-lived assets, such as property and equipment, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If circumstances require long-lived assets or asset groups to be tested for possible impairment, the Company compares the undiscounted cash flows expected to be generated from the use of the asset or asset group to its carrying amount. If the carrying amount of the long-lived asset or asset group is not recoverable on an undiscounted cash flow basis, an impairment charge is recognized to the extent that the carrying amount exceeds its fair value. Fair value is determined through various valuation techniques, such as discounted cash flow models and the use of third-party independent appraisals. The Company has not recorded an impairment of long-lived assets since its inception.

Revenue Recognition

Effective January 1, 2018, the Company adopted Accounting Standards Codification (“ASC”) 606 — *Revenue from Contracts with Customers*. Under ASC 606, the Company recognizes revenue from the commercial sales of products, licensing agreements and contracts to perform pilot studies by applying the following steps: (1) identify the contract with a customer; (2) identify the performance obligations in the contract; (3) determine the transaction price; (4) allocate the transaction price to each performance obligation in the contract; and (5) recognize revenue when each performance obligation is satisfied. For the comparative periods, revenue has not been adjusted and continues to be reported under ASC 605 — *Revenue Recognition*. Under ASC 605, revenue is recognized when the following criteria are met: (1) persuasive evidence of an arrangement exists; (2) the performance of service has been rendered to a customer or delivery has occurred; (3) the amount of the fee to be paid by a customer is fixed and determinable; and (4) the collectability of the fee is reasonably assured. The performance obligations identified by the Company under ASC Topic 606, Revenue From Contracts With Customers, are straightforward and similar to the unit of account and performance obligation determination under ASC Topic 605, *Revenue Recognition*. There was no impact on the Company’s financial statements as a result of adopting ASC 606 for the twelve months ended December 31, 2019 and 2018, respectively.

The Company recognizes revenue when product leaves its dock at a fixed selling price on payment terms of 30 to 120 days from invoicing. The Company recognizes other revenue earned from pilot studies upon the performance of specific services under the respective service contract.

The Company derives revenue primarily from commercial sales of products.

Research and Development

Research and development costs are expensed as incurred. Research and development expenses primarily consist of salaries and benefits for research and development employees, stock-based compensation, consulting fees, lab supplies, costs incurred related to conducting scientific trials and field studies, and regulatory compliance costs. Also, included in research and development expenses is an allocation of facilities related costs, including depreciation of research and development equipment.

Stock-based Compensation

Employee stock-based awards, consisting of restricted stock units and stock options expected to be settled in shares of the Company’s common stock, are recorded as equity awards. The grant date fair value of these awards is measured using the Black-Scholes option pricing model for stock options and grant date market value for restricted stock units. The Company expenses the grant date fair value of its stock options on a straight-line basis over their respective vesting periods. Performance-based awards are expensed over the performance period when the related performance goals are probable of being achieved.

For equity instruments issued to non-employees, the stock-based consideration is measured using a fair value method. The measurement of the stock-based compensation is subject to re-measurement as the underlying equity instruments vest.

SENESTECH, INC.
NOTES TO THE FINANCIAL STATEMENTS
(In thousands, except share and per share data)

2. Summary of Significant Accounting Policies – (continued)

The stock-based compensation expense recorded for the twelve months ended December 31, 2019 and 2018, is as follows:

| | Twelve Months Ended December 31, | |
|----------------------------------------|---------------------------------------------|-----------------|
| | 2019 | 2018 |
| Research and development | \$ 14 | \$ 106 |
| General and administrative | 859 | 3,306 |
| Total stock-based compensation expense | <u>\$ 873</u> | <u>\$ 3,412</u> |

See Note 11 for additional discussion on stock-based compensation.

Income Taxes

The Company accounts for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements. Under this method, deferred tax assets and liabilities are determined based on the differences between the financial statements and tax bases of assets and liabilities and net operating loss carryforwards using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in the period that includes the enactment date.

The Company records net deferred tax assets to the extent it believes these assets will more likely than not be realized. These deferred tax assets are subject to periodic assessments as to recoverability and if it is determined that it is more likely than not that the benefits will not be realized, valuation allowances are recorded which would increase the provision for income taxes. In making such determination, the Company considers all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax planning strategies and recent financial operations.

The Company applies a more-likely-than-not recognition threshold for all tax uncertainties. Only those benefits that have a greater than fifty percent likelihood of being sustained upon examination by the taxing authorities are recognized. Based on its evaluation, the Company has concluded there are no significant uncertain tax positions requiring recognition in its financial statements.

The Company recognizes interest and/or penalties related to uncertain tax positions in income tax expense. There are no uncertain tax positions as of December 31, 2019 or December 31, 2018 and as such, no interest or penalties were recorded in income tax expense.

Comprehensive Loss

Net loss and comprehensive loss were the same for all periods presented; therefore, a separate statement of comprehensive loss is not included in the accompanying financial statements.

Loss Per Share Attributable to Common Stockholders

Basic loss per share attributable to common stockholders is calculated by dividing the net loss attributable to common stockholders by the weighted average number of common shares outstanding during the period. Diluted loss per share attributable to common stockholders is computed by dividing the loss attributable to common stockholders by the weighted average number of common shares and potentially dilutive securities outstanding for the period determined using the treasury stock and if-converted methods. For purposes of the computation of diluted loss per share attributable to common stockholders, common stock purchase warrants, restricted stock units and common stock options are considered to be potentially dilutive securities but have been excluded from the calculation of diluted loss per share attributable to common stockholders because their effect would be anti-dilutive given the net loss reported for the years ended December 31, 2019 and 2018. Therefore, basic and diluted loss per share attributable to common stockholders was the same for all periods presented.

SENESTECH, INC.
NOTES TO THE FINANCIAL STATEMENTS
(In thousands, except share and per share data)

2. Summary of Significant Accounting Policies – (continued)

The following table sets forth the outstanding potentially dilutive securities that have been excluded in the calculation of diluted loss per share attributable to common stockholders (in common stock equivalent shares):

| | December 31, | |
|--------------------------------|---------------------|----------------|
| | 2019 | 2018 |
| Common stock purchase warrants | 489,176 | 561,342 |
| Restricted stock unit | 5,877 | 6,813 |
| Common stock options | 136,489 | 86,089 |
| Total | <u>631,542</u> | <u>654,244</u> |

In February 2016, the FASB issued ASU 2016-02, *Leases* (“ASU 2016-02”). This standard amends various aspects of existing accounting guidance for leases, including the recognition of a right-of-use asset and a lease liability on the balance sheet for all leases with terms longer than 12 months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement. This standard also introduces new disclosure requirements for leasing arrangements. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years for public business entities. Early adoption was permitted, and the new standard had been adopted using a modified retrospective approach and provides for certain practical expedients.

Effective January 1, 2019, the Company adopted Accounting Standards Updated (“ASU”) No. 2016-02, *Leases (Topic 842)* (“ASU No. 2016-02”). Under ASU No. 2016-02, an entity is required to recognize right-of-use lease assets and lease liabilities on its balance sheet and disclose key information about leasing arrangements. The Company elected the optional transition method provided by the FASB in ASU 2018-11, *Leases (Topic 842): Targeted Improvements*, and as a result, has not restated its condensed consolidated financial statements for prior periods presented. The Company has elected the practical expedients upon transition to retain the lease classification and initial direct costs for any leases that existed prior to adoption. The Company has also not reassessed whether any contracts entered into prior to adoption are leases. The Company applied the new guidance to all operating leases within the scope of the standard that were in effect on January 1, 2019, or entered into after, the adoption date. Comparative information for prior periods has not been restated and continues to be reported under the accounting standards in effect for those periods. The adoption did not have a material impact on the Company’s consolidated statement of comprehensive income (loss). However, the new standard established \$87 of liabilities and corresponding right-of-use assets of \$87 on the Company’s consolidated balance sheet for leases, primarily related to operating leases on rented office properties, that existed as of the January 1, 2019, adoption date.

At December 31, 2019, the balance remaining in Right to Use Asset-Long Term and Lease Liability-Long Term was \$699 and (\$694) respectively.

The Company’s leases primarily relate to operating leases of rented office properties. For contracts entered into on or after January 1, 2019, at the inception of a contract the Company assesses whether the contract is, or contains, a lease. The Company’s assessment is based on: (1) whether the contract involves the use of a distinct identified asset, (2) whether the Company obtains the right to substantially all the economic benefit from the use of the asset throughout the period, and (3) whether the Company has the right to direct the use of the asset. At inception of a lease, the Company allocates the consideration in the contract to each lease component based on its relative stand-alone price to determine the lease payments.

For leases with terms greater than 12 months, the Company records the related asset and obligation at the present value of lease payments over the term. The right-of-use lease asset represents the right to use the leased asset for the lease term. The lease liability represents the present value of the lease payments under the lease.

SENESTECH, INC.
NOTES TO THE FINANCIAL STATEMENTS
(In thousands, except share and per share data)

2. Summary of Significant Accounting Policies – (continued)

The right-of-use lease asset is initially measured at cost, which primarily comprises the initial amount of the lease liability, plus any initial direct costs incurred. All right-of-use lease assets are reviewed for impairment. The lease liability is initially measured at the present value of the lease payments, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Company's secured incremental borrowing rate for the same term as the underlying lease.

The Company identified and assessed the following significant assumptions in recognizing the right-of-use lease assets and corresponding liabilities.

Expected lease term – The expected lease term includes both contractual lease periods and, when applicable, cancelable option periods. When determining the lease term, the Company includes options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option.

Incremental borrowing rate – As the Company's leases do not provide an implicit rate, the Company obtained the incremental borrowing rate ("IBR") based on the remaining term of each lease. The IBR is the rate of interest that a lessee would have to pay to borrow on a collateralized basis over a similar term an amount equal to the lease payments in a similar economic environment.

The Company has elected not to recognize right-of-use lease assets and lease liabilities for short-term leases that have a term of 12 months or less.

The Company reports right-of-use lease assets within non-current assets in its consolidated balance sheet. The Company reports the lease liabilities within long-term liabilities in its consolidated balance sheet.

See Note 13, Commitments and Contingencies, for future minimum lease payments and maturities.

Accounting Standards Issued but Not Yet Adopted

In August 2018, the FASB issued *ASU 2018-15 Accounting for Implementation Costs Related to Cloud Computing or Hosting Arrangements*. This standard provides authoritative guidance intended to address a customer's accounting for implementation costs incurred in a cloud computing arrangement that is a service contract. This guidance aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. The guidance also requires presentation of the capitalized implementation costs in the statement of financial position and in the statement of cash flows in the same line item that a prepayment for the fees of the associated hosting arrangement would be presented, and the expense related to the capitalized implementation costs to be presented in the same line item in the statement of operations as the fees associated with the hosting element (service) of the arrangement. This guidance is effective for annual periods beginning after December 15, 2019, including interim periods within those annual periods, with early adoption permitted. We are currently evaluating the potential impact on our financial position, results of operations and statement of cash flows upon adoption of this guidance. We do not expect this guidance to have a significant impact, or potential significant impact, to our unaudited condensed consolidated interim financial statements.

Other than the items noted above, there have been no new accounting pronouncements not yet effective or adopted in the current year that we believe have a significant impact, or potential significant impact, to our unaudited condensed consolidated interim financial statements.

3. Fair Value Measurements

We invest in various short term, highly liquid financial instruments, which may include municipal debt securities, corporate bonds, U.S. agency securities and commercial paper. We value these instruments at fair value. The accounting guidance for fair value, among other things, establishes a consistent framework for measuring fair value and expands disclosure for each major asset and liability category measured at fair value on either a recurring or nonrecurring basis. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (an exit price) in an orderly transaction between market participants at the reporting date. The framework for measuring fair value consists of a three-level valuation hierarchy that prioritizes the inputs to valuation techniques used to measure fair value based upon whether such inputs are observable or unobservable. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect market assumptions made by the reporting entity. The three-level hierarchy for the inputs to valuation techniques is briefly summarized as follows:

Level 1—Inputs are unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date;

Level 2—Inputs are observable, unadjusted quoted prices in active markets for similar assets or liabilities, unadjusted quoted prices for identical or similar assets or liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the related assets or liabilities; and

Level 3—Unobservable inputs that are significant to the measurement of the fair value of the assets or liabilities that are supported by little or no market data.

SENESTECH, INC.
NOTES TO THE FINANCIAL STATEMENTS
(In thousands, except share and per share data)

3. Fair Value Measurements – (continued)

An asset's or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques used need to maximize the use of observable inputs and minimize the use of unobservable inputs.

Assets and liabilities measured at fair value are based on one or more of the following three valuation techniques:

- A. Market approach: Prices and other relevant information generated by market transactions involving identical or comparable assets or liabilities.
- B. Cost approach: Amount that would be required to replace the service capacity of an asset (replacement cost).
- C. Income approach: Techniques to convert future amounts to a single present amount based upon market expectations, including present value techniques, option-pricing and excess earnings models.

The Company's cash equivalents, which include money market funds, are classified as Level 1 because they are valued using quoted market prices. The Company's marketable securities consist of securities and are generally classified as Level 2 because their value is based on valuations using significant inputs derived from or corroborated by observable market data.

In certain cases where there is limited activity or less transparency around the inputs to valuation, securities are classified as Level 3. Level 3 liabilities consist of common stock warrant liability.

Items Measured at Fair Value on a Recurring Basis

The following table sets forth the Company's financial instruments that were measured at fair value on a recurring basis by level within the fair value hierarchy (in thousands):

| | December 31, 2019 | | | |
|-----------------------------------------------|--------------------------|----------------|----------------|--------------|
| | Level 1 | Level 2 | Level 3 | Total |
| Financial Assets: | | | | |
| Money market funds | \$ — | \$ — | \$ — | \$ — |
| Corporate fixed income debt securities | — | — | — | — |
| Total | \$ — | \$ — | \$ — | \$ — |
| Financial Liabilities: | | | | |
| Common stock warrant liability ⁽¹⁾ | \$ — | \$ — | \$ — | \$ — |
| Total | \$ — | \$ — | \$ — | \$ — |
| | December 31, 2018 | | | |
| | Level 1 | Level 2 | Level 3 | Total |
| Financial Assets: | | | | |
| Money market funds | \$ 3 | \$ — | \$ — | \$ — |
| Corporate fixed income debt securities | — | — | — | — |
| Total | \$ — | \$ — | \$ — | \$ — |
| Financial Liabilities: | | | | |
| Common stock warrant liability ⁽¹⁾ | \$ — | \$ — | \$ — | \$ — |
| Total | \$ — | \$ — | \$ — | \$ — |

(1) The change in the fair value of the common stock warrant and convertible notes payable for the twelve months ended December 31, 2019 and 2018 was recorded as a decrease to other income (expense) and interest expense of \$0 and \$1, respectively, in the statements of operations and comprehensive loss.

Financial Instruments Not Carried at Fair Value

The carrying amounts of the Company's financial instruments, including accounts payable and accrued liabilities, approximate fair value due to their short maturities. The estimated fair value of the convertible notes and other notes, not recorded at fair value, are recorded at cost or amortized cost which was deemed to estimate fair value.

SENESTECH, INC.
NOTES TO THE FINANCIAL STATEMENTS
(In thousands, except share and per share data)

4. Credit Risk

The Company is potentially subject to concentrations of credit risk in its accounts receivable. Credit risk with respect to receivables is limited due to the number of companies comprising the Company's customer base, however the Company did identify a potentially uncollectable account at December 31, 2019 and established a reserve for this receivable balance of \$123. The Company does not require collateral or other securities to support its accounts receivable.

5. Prepaid expenses

Prepaid expenses consist of the following:

| | December 31, | |
|------------------------------------------|---------------|---------------|
| | 2019 | 2018 |
| Director compensation | \$ 9 | \$ 100 |
| Director, officer and other insurance | 115 | 121 |
| Marketing programs and conferences | 80 | 53 |
| Legal retainer | 25 | 25 |
| Professional service retainer | 8 | 8 |
| Rent | 11 | 19 |
| Equipment service deposits | 1 | 3 |
| Engineering, software licenses and other | 8 | 13 |
| Total prepaid expenses | \$ 257 | \$ 342 |

6. Property and Equipment

Property and equipment, net consist of the following:

| | Useful Life | December 31, | |
|------------------------------------------------|-------------|---------------|-----------------|
| | | 2019 | 2018 |
| Research and development equipment | 5 years | \$ 1,585 | \$ 1,552 |
| Office and computer equipment | 3 years | 753 | 742 |
| Autos | 5 years | 54 | 54 |
| Furniture and fixtures | 7 years | 41 | 37 |
| Leasehold improvements | * | 283 | 283 |
| | | 2,716 | 2,668 |
| Less accumulated depreciation and amortization | | 1,978 | 1,585 |
| Total | | \$ 738 | \$ 1,083 |

* Shorter of lease term or estimated useful life

Depreciation and amortization expense was approximately \$413 and \$447 for the year ended December 31, 2019 and 2018, respectively.

7. Accrued Expenses

Accrued expenses consist of the following:

| | December 31, | |
|----------------------------------------------|-----------------|---------------|
| | 2019 | 2018 |
| Compensation, severance and related benefits | \$ 935 | \$ 479 |
| Accrued Litigation | 238 | 269 |
| Personal property and franchise tax | 2 | 23 |
| Board Compensation | 17 | — |
| Other | 1 | — |
| Total accrued expenses | \$ 1,193 | \$ 771 |

SENESTECH, INC.
NOTES TO THE FINANCIAL STATEMENTS
(In thousands, except share and per share data)

8. Borrowings

A summary of the Company's borrowings, including finance lease obligations, is as follows:

| | At December 31, | |
|-----------------------------------------|-----------------|--------|
| | 2019 | 2018 |
| Short-term debt: | | |
| Current portion of long-term debt | 123 | 219 |
| Total short-term debt | \$ 123 | \$ 219 |
| Long-term debt: | | |
| Finance lease obligations | \$ 155 | \$ 232 |
| Other unsecured promissory notes | 105 | 248 |
| Total | 260 | 480 |
| Less: current portion of long-term debt | 123 | 219 |
| Total long-term debt | \$ 137 | \$ 261 |

Finance Lease Obligations

Finance lease obligations are for computer and lab equipment leased through GreatAmerica Financial Services, Navitas Credit Corp., Wells Fargo and ENGS Commercial Finance Co. These finance leases expire at various dates through July 2023 and carry interest rates ranging from 6.0% to 18.3%.

Other Promissory Notes

Also included in the table above are two notes payable to Direct Capital, one note to M2 Financing and one note to Fidelity Capital, all for the financing of fixed assets. These notes expire at various dates through June 2022 and carry interest rates ranging from 13.1% to 13.3%.

9. Common Stock Warrants and Common Stock Warrant Liability

The table summarizes the common stock warrant activity as of December 31, 2019 as follows:

| Issue Date | Warrant Type | Expiration Date | Exercise Price | Balance December 31, | | | Balance December 31, | | | Balance December 31, | | |
|-------------------|--------------------------|-------------------|----------------|----------------------|----------|----------|----------------------|---------|----------|----------------------|----------|---------|
| | | | | 2017 | Issued | Expired | 2018 | Issued | Expired | 2019 | | |
| 2016 and prior | Various | Various-2020/2021 | Various | 41,465 | | (24,406) | 17,059 | | | | 17,059 | |
| Common Stock | | | | | | | | | | | | |
| November 21, 2017 | Offering Warrants | November 21, 2022 | \$ 19.00(1) | 2,32,875 | | (73,783) | 1,59,092 | | (15,591) | | 1,43,501 | |
| November 21, 2017 | Dealer Manager Warrants | November 21, 2022 | \$ 30.00 | 47,250 | | | 47,250 | | | | 47,250 | |
| June 20, 2018 | Warrant Reissue | December 20, 2023 | \$ 36.40 | | 56,696 | | 56,696 | | | | 56,696 | |
| August 13, 2018 | Rights Offering Warrants | August 13, 2023 | \$ 23.00 | | 2,67,853 | | 2,67,853 | | (64,910) | | 2,02,943 | |
| August 13, 2018 | Dealer Manager Warrants | August 13, 2023 | \$ 34.50 | | 13,393 | | 13,393 | | | | 13,393 | |
| July 16, 2019 | Dealer Manager Warrants | July 16, 2024 | \$ 33.75 | | | | | 8,334 | | | 8,334 | |
| | | | | 321,590 | | | | 561,343 | | | | 489,176 |

(1) The initial exercise price of these warrants was \$30.00 per share. Pursuant to antidilution price adjustment protection contained within these warrants, the initial exercise price of these warrants was adjusted downward to \$29.40 on July 24, 2018, the record date of the Right's Offering and downward to \$19.00 per share on August 13, 2018. These warrants were further adjusted downward from \$19.00 to \$7.13 and \$2.1122 on January 28, 202 and March 4, 2020, respectively, in connection with separate Registered Direct Offerings. These warrants are subject to further adjustment pursuant to antidilution price adjustment protection.

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9. Common Stock Warrants and Common Stock Warrant Liability – (continued)

On November 21, 2017, the Company issued a total of 232,875 detachable Common Stock warrants issued with the second public offering of 293,000 shares of its Common Stock at \$20.00 per share. The Common Stock warrant is exercisable until five years from the date of grant. The common shares of the Company's stock and detachable warrants exist independently as separate securities. As such, the Company estimated the fair value of the Common Stock warrants, exercisable at \$30.00 per share, to be \$661 using a lattice model based on the following significant inputs: Common stock price of \$20.00; comparable company volatility of 73.8%; remaining term 5 years; dividend yield of 0% and risk-free interest rate of 1.87. The initial exercise price of these warrants was \$30.00 per share, which adjusted downward to \$29.40 on July 24, 2018, the record date of the Right's Offering and downward to \$19.00 per share on August 13, 2018, the date of the Rights Offering, pursuant to antidilution price adjustment protection contained within these warrants. Per guidance of ASC 260, the Company recorded a deemed dividend of \$333 on the 159,093 unexercised warrants that contained this antidilution price adjustment protection provision and was calculated as the difference between the fair value of the warrants immediately prior to downward exercise price adjustment and immediately after the adjustment using a Black Scholes model based on the following significant inputs: On July 24, 2018: Common stock price of \$26.60; comparable company volatility of 72.4%; remaining term 4.33 years; dividend yield of 0% and risk-free interest rate of 2.83. On August 13, 2018: Common stock price of \$20.40; comparable company volatility of 74.0%; remaining term 4.25 years; dividend yield of 0% and risk-free interest rate of 2.75.

On June 20, 2018, the Company entered into an agreement with a holder of 56,696 of the November 2017 warrants to exercise its original warrant representing 56,696 shares of Common Stock for cash at the \$30.00 exercise price for gross proceeds of \$1.7 million and the Company issued to holder a new warrant to purchase 56,696 shares of Common Stock at an exercise price of \$36.40 per share. The new warrant did not contain the antidilution price adjustment protection that was contained within the exercised warrants. In June 2018, the Company recorded stock compensation expense of \$1.7 million representing the fair value of the of 56,696 inducement warrants issued. The Company estimated the fair value of the Common Stock warrants, exercisable at \$36.40 per share, to be \$1.7 million using a Black Scholes model based on the following significant inputs: Common stock price of \$42.20; comparable company volatility of 72.6%; remaining term 5 years; dividend yield of 0% and risk-free interest rate of 2.8%. Also, in June 2018, an additional 17,088 of the November 8, 2017 warrants that were in the money at the time of exercise, were exercised for gross proceeds of \$513.

On August 13, 2018, in connection with a Rights Offering of 267,853 shares of its Common Stock, the Company issued 267,853 warrants to purchase shares of its Common Stock at an exercise price of \$23.00 per share. The Company estimated the fair value of the Common Stock warrants, exercisable at \$23.00 per share, to be \$3.6 million using a Monte Carlo model based on the following significant inputs: Common Stock price of \$18.80; comparable company volatility of 159.0%; remaining term 5 years; dividend yield of 0% and risk-free interest rate of 2.77%.

In connection with the closing of the Rights Offering, the Company issued a warrant to purchase 13,393 shares of Common Stock to Maxim Partners LLC, an affiliate of the dealer-manager of the Rights Offering. The Company estimated the fair value of the Common Stock warrants, exercisable at \$34.50 per share, to be \$169 using a using a Monte Carlo model based on the following significant inputs: Common Stock price of \$18.80; comparable company volatility of 159.0%; remaining term 5 years; dividend yield of 0% and risk-free interest rate of 2.77%.

Common Stock Warrant Issued to Underwriter of Common Stock Offering

In July 2019, the Company issued to H.C. Wainwright & Co., as placement agent, a warrant to purchase 8,334 shares of Common Stock at an exercise price of \$33.75 per share as consideration for providing services in connection with a Common Stock offering in July 2019. The warrant was fully vested and exercisable on the date of issuance. The Common Stock warrant is exercisable until five years from the date of grant. The Company estimated the fair value of the Common Stock warrants, exercisable at \$33.75 per share, to be \$127 using a lattice model based on the following significant inputs: Common stock price of \$26.80; comparable company volatility of 133.3%; remaining term 5 years; dividend yield of 0% and risk-free interest rate of 2.07%.

University of Arizona Common Stock Warrant

In connection with the June 2015 amended and restated exclusive license agreement with the University of Arizona ("University"), the Company issued to the University a Common Stock warrant to purchase 750 shares of Common Stock at an exercise price of \$150.00 per share. The warrant was fully vested and exercisable on the date of grant, and expires, if not exercised, five years from the date of grant. In the event of a "terminating change" of the Company, as defined in the warrant agreement, the warrant holder would be paid in cash the aggregate fair market value of the underlying shares immediately prior to the consummation of the terminating change event. Due to the cash settlement provision, the derivative warrant liability was recorded at fair value and is revalued at the end of each reporting period. The changes in fair value are reported in other income (expense) in the statements of operations and comprehensive loss. The estimated fair value of the derivative warrant liability was \$53 at the date of grant.

The estimated fair value of the derivative warrant liability was \$0 at December 31, 2019. As this derivative warrant liability is revalued at the end of each reporting period, the fair values as determined at the date of grant and subsequent periods was based on the following significant inputs using a Monte Carlo option pricing model: Common Stock price of \$158.20; comparable company volatility of 77.7% of the underlying Common Stock; risk-free rates of 1.93%; and dividend yield of 0%; including the probability assessment of a terminating change event occurring. The change in fair value of the derivative warrant liability was \$0 for the twelve months ended December 31, 2019. As such, no entry was recorded in other income (expense) in the accompanying statements of operations and comprehensive loss.

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9. Common Stock Warrants and Common Stock Warrant Liability – (continued)

Warrant Revaluation

On December 2, 2019, in connection with the settlement of a filed lawsuit against the Company on February 20, 2018 by New Enterprises, Ltd. (“New Enterprises”), the Company agreed to modify the terms of 6,934 common stock warrants that were originally issued to New Enterprises between September 2015 and February 2016. Specifically, the original strike price was reduced to \$20.00 per warrant from \$150.00 per warrant and the expiration date of these warrants was extended one year to December 13, 2020.

Per guidance of ASC 260, the Company recorded a warrant revaluation of \$11 on the 6,934 unexercised warrants that were affected by the modification of terms. The revaluation was calculated as the difference between the fair value of the warrants immediately prior to modification of terms and immediately after the adjustment using a Black Scholes model based on the following significant inputs: On December 2, 2019: Common stock price of \$12.00; comparable company volatility of 73.2%; remaining term 0.01 years; dividend yield of 0% and risk-free interest rate of 1.63. As adjusted, Common stock price of \$12.00; comparable company volatility of 73.2%; remaining term 1.01 years; dividend yield of 0% and risk-free interest rate of 1.63.

10. Stockholders’ Deficit

Capital Stock

The Company was organized under the laws of the state of Nevada on July 27, 2004 and was subsequently reincorporated under the laws of the state of Delaware on November 10, 2015. In connection with the reincorporation, as approved by the stockholders, the Company changed its authorized capital stock to consist of (i) 100 million shares of common stock, \$.001 par value, and (ii) 2 million shares of preferred stock, \$0.001 par value, designated as Series A convertible preferred stock. In December 2015, the Company amended its Certificate of Incorporation to change its authorized capital stock to provide for 15 million authorized shares of preferred stock of which 7,515,000 was designated as Series B convertible preferred stock, par value \$.001 per share.

Prior to November 10, 2015, the Company’s authorized capital stock consisted of 100 million shares of common stock, \$.001 par value, and 10 million shares of preferred stock, \$.001 par value.

Common Stock

The Company had 1,414,671 and 1,173,854 shares of common stock issued and outstanding as of December 31, 2019 and 2018, respectively. During the year ending December 31, 2019, the Company issued 240,817 shares of common stock as follows:

- an aggregate of 151,838 shares in connection with a public offering generating net proceeds to the Company of approximately \$3.6 million, as further described below
- an aggregate of 80,511 shares for the exercise of outstanding warrants for gross proceeds of \$1.8 million (see Note 9 — Common Stock Warrants and Common Stock Warrant Liability for further details)
- An aggregate of 5,274 shares for service as a result of the vesting of restricted stock units
- 152 shares for the exercise of stock options
- 1,113 shares for the cashless exercise of stock options and
- an aggregate of 1,929 shares to certain employees in net settlement of bonus compensation totaling \$32.

Public Offering

On July 16, 2019, the Company issued 151,838 shares of Common Stock, including 34,815 shares to the Company’s chief executive officer and 371 shares to an employee of the Company, in a public offering of shares of the Company’s Common Stock at \$27.00 per share, resulting in net proceeds of approximately \$3.6 million after deducting certain fees due to the placement agent and other transaction expenses. In addition, the Company issued a warrant to purchase 8,334 shares of the Company’s Common Stock to the placement agent at an exercise price of \$33.75 per share.

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11. Stock-based Compensation

On June 12, 2018, the Company's stockholders approved the 2018 Equity Incentive Plan (the "2018 Plan") to replace the Company's 2015 Equity Incentive Plan (the "2015 Plan"). The 2018 Plan authorized the issuance of 50,000 shares of our common stock. In addition, up to 143,714 shares of our common stock previously reserved for issuance under the 2015 Plan became available for issuance under the 2018 Plan to the extent such shares were available for issuance under the 2015 Plan as of June 12, 2018 or subsequently cease to be subject to awards outstanding under the 2015 Plan, such as by expiration, cancellation, or forfeiture of such awards.

Options are generally issued with a price equal to no less than fair value at the date of grant. Options granted under the 2018 Plan generally vest immediately, or ratably over a two- to 36-month period coinciding with their respective service periods. Options under the 2018 Plan generally have a term of five years. Certain stock option awards provide for accelerated vesting upon a change in control.

As of December 31, 2019, the Company had 33,758 shares of common stock available for issuance under the 2018 Plan.

The Company measures the fair value of stock options with service-based and performance-based vesting criteria to employees, directors and consultants on the date of grant using the Black-Scholes option pricing model. The fair value of equity instruments issued to non-employees is re-measured as the award vests. The Black-Scholes valuation model requires the Company to make certain estimates and assumptions, including assumptions related to the expected price volatility of the Company's stock, the period under which the options will be outstanding, the rate of return on risk-free investments, and the expected dividend yield for the Company's stock.

The weighted-average assumptions used in the Black-Scholes option-pricing model used to calculate the fair value of options granted during the year ended December 31, 2018, were as follows:

| | Employee | Non-Employee |
|--------------------------|-----------------|---------------------|
| Expected volatility | 71.0%-79.8% | N/A |
| Expected dividend yield | — | N/A |
| Expected term (in years) | 3.0-3.5 | N/A |
| Risk-free interest rate | 71.0%-79.8% | N/A |

The weighted-average assumptions used in the Black-Scholes option-pricing model used to calculate the fair value of options granted during the year ended December 31, 2019, were as follows:

| | Employee | Non-Employee |
|--------------------------|-----------------|---------------------|
| Expected volatility | 76.4%-80.6% | N/A |
| Expected dividend yield | — | N/A |
| Expected term (in years) | 3.0-6.0 | N/A |
| Risk-free interest rate | 1.63%-2.48% | N/A |

Due to the Company's limited operating history and lack of company-specific historical or implied volatility, the expected volatility assumption was determined based on historical volatilities from traded options of biotech companies of comparable in size and stability, whose share prices are publicly available. The expected term of options granted to employees is calculated based on the mid-point between the vesting date and the end of the contractual term according to the simplified method as described in SEC Staff Accounting Bulletin 110 because the Company does not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected term due to the limited period of time its awards have been outstanding. For non-employee options, the expected term of options granted is the contractual term of the options. The risk-free rate by reference to the implied yields of U.S. Treasury securities with a remaining term equal to the expected term assumed at the time of grant. The expected dividend assumption is based on the Company's history and expectation of dividend payouts. The Company has not paid and does not intend to pay dividends on its shares of capital stock.

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11. Stock-based Compensation – (continued)

The table summarizes the stock option activity, for both plans, for the periods indicated as follows:

| | Number of Options | Weighted Average Exercise Price Share | Weighted Average Remaining Contractual Per Term (years) | Aggregate Intrinsic Value (1) |
|----------------------------------|----------------------|---------------------------------------------------|------------------------------------------------------------------------|-------------------------------------|
| Outstanding at December 31, 2017 | 82,590 | \$ 33.40 | 3.7 | \$ — |
| Granted | 8,974 | \$ 30.60 | 4.4 | \$ — |
| Exercised | (2,450) | \$ 10.00 | | |
| Forfeited | (2,525) | \$ — | | |
| Expired | (530) | \$ — | | |
| Outstanding at December 31, 2018 | 86,059 | \$ 31.40 | 4.0 | \$ — |
| Granted | 58,396 | \$ 25.80 | 4.9 | \$ — |
| Exercised | (3,450) | \$ 13.00 | — | \$ — |
| Forfeited | (3,445) | \$ — | — | \$ — |
| Expired | (1,071) | \$ — | — | \$ — |
| Outstanding at December 31, 2019 | 136,489 | \$ 27.84 | 3.9 | \$ — |
| Exercisable at December 31, 2019 | 88,029 | \$ 30.77 | 2.8 | \$ — |

(1) The aggregate intrinsic value on the table was calculated based on the difference between the estimated fair value of the Company's stock and the exercise price of the underlying option. The estimated stock values used in the calculation was \$11.00 and \$11.70 per share for each of the years ended December 31, 2019 and 2018 respectively.

The weighted average grant date fair value of options granted to employees for the year Ended December 31, 2019 was \$25.80 per share.

At December 31, 2019, the total compensation cost related to non-vested options not yet recognized was \$1,005, which will be recognized over a weighted average period of 27 months, assuming the employees complete their service period required for vesting.

Restricted Stock Units

The following table summarizes restricted stock unit activity for the years ended December 31, 2019 and 2018:

| | Number of Units | Weighted Average Grant Date Fair Value Per Units |
|-------------------------------------|--------------------|--------------------------------------------------------------|
| Outstanding as of December 31, 2017 | 14,395 | \$ 37.20 |
| Granted | 3,787(1) | \$ 32.40 |
| Vested | (11,190) | \$ 51.20 |
| Forfeited | (179) | \$ 139.80 |
| Outstanding as of December 31, 2018 | 6,813 | \$ 19.60 |
| Granted | 6,191(2) | \$ 30.20 |
| Vested | (7,127) | \$ 22.00 |
| Forfeited | — | \$ — |
| Outstanding as of December 31, 2019 | 5,877 | \$ 30.28 |

(1) 641 restricted stock units were granted on June 12, 2017 with a weighted average grant date fair value of \$13.00 and 3,146 restricted stock units were granted on June 12, 2018 with a weighted average grant date fair value of \$36.40

(2) 314 restricted stock units were granted on February 14, 2019 with a weighted average grant date fair value of \$17.09. 3,877 restricted stock units were granted on June 18, 2019 with a weighted average grant date fair value of \$28.40. 2,000 restricted stock units were granted on June 30, 2019 with a weighted average grant date fair value of \$36.00.

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11. Stock-based Compensation – (continued)

The stock-based compensation expense was recorded as follows:

| | Years Ended December 31, | |
|----------------------------------------|---------------------------------|-----------------|
| | 2019 | 2018 |
| Research and development | \$ 14 | \$ 106 |
| General and administrative | 859 | 3,306 |
| Total stock-based compensation expense | <u>\$ 873</u> | <u>\$ 3,412</u> |

The allocation between research and development and general and administrative expense was based on the department and services performed by the employee or non-employee.

12. Income Taxes

The components of the pretax loss from operations for the years ended December 31, 2019 and 2018 are as follows (in thousands)

| | Years Ended December 31, | |
|-----------------------------|---------------------------------|-----------------|
| | 2019 | 2018 |
| U.S. Domestic | (10,029) | (11,908) |
| Foreign | — | — |
| Pretax loss from operations | <u>(10,029)</u> | <u>(11,908)</u> |

The provision for income taxes from continuing operations for the years ended December 31, 2019 and 2018 are as follows:

| | Years Ended December 31, | |
|------------------------------------|---------------------------------|-------------|
| | 2019 | 2018 |
| Current | | |
| Federal | — | — |
| State | — | — |
| Foreign | — | — |
| Total current | <u>—</u> | <u>—</u> |
| Deferred | | |
| Federal | — | — |
| State | — | — |
| Foreign | — | — |
| Total deferred | <u>—</u> | <u>—</u> |
| Total income tax expense (benefit) | <u>—</u> | <u>—</u> |

Tax Rate Reconciliation

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

| | Years Ended December 31, | |
|------------------------------------------|---------------------------------|-------------|
| | 2019 | 2018 |
| Income tax benefit at statutory rates | (2,106) | (2,501) |
| State income tax, net of federal benefit | (337) | (331) |
| Permanent items | 5 | 8 |
| Stock-based compensation | 27 | 697 |
| Tax Rate Adjustment – TCJA | — | 7,758 |
| Change in rate | — | 941 |
| Stock Compensation DTA Adjustment | — | 5,794 |
| Change in Valuation Allowance | 2,408 | (12,673) |
| RTP and Other | 3 | 307 |
| Income tax expense (benefit) | <u>—</u> | <u>—</u> |

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12. Income Taxes – (continued)

Significant components of the Company's deferred tax assets as of December 31, 2019 and 2018 are shown below. A valuation allowance has been recognized to offset the net deferred tax assets as realization of such deferred tax assets have not met the more likely than not threshold.

| | December 31, | |
|--------------------------------------------------------|---------------------|---------------|
| | 2019 | 2018 |
| Deferred tax assets: | | |
| Deferred Rent | — | 4 |
| ASC 842 Leases | 173 | — |
| Federal and State Net Operating Loss Carryovers | 15,492 | 12,964 |
| Stock Based Compensation | 230 | 448 |
| Compensation Accruals and Other | 245 | 187 |
| Total deferred tax assets | 16,140 | 13,603 |
| Valuation Allowance for deferred tax assets | (15,958) | (13,550) |
| Deferred tax assets, net of valuation allowance | 182 | 53 |
| Deferred tax liabilities: | | |
| Depreciation | (8) | (53) |
| ASC 842 Assets | (174) | — |
| Total deferred tax liabilities | (182) | (53) |
| | — | — |

At December 31, 2019, the Company has federal and state net operating loss carryforwards of approximately \$61.3 million and \$47.8 million, respectively, not considering the IRC Section 382 annual limitation discussed below. The federal loss carryforwards begin to expire in 2023, unless previously utilized. In addition, the Company has approximately \$16.8 million of the total \$61.3 million of net operating losses that do not expire, as these losses were generated after the law change introduced as part of the Tax Cuts and Jobs Act. 023.

Additionally, the utilization of the net operating loss carryforwards could be subject to an annual limitation under Section 382 and 383 of the Internal Revenue Code of 1986, and similar state tax provisions due to ownership change limitations that have occurred previously or that could occur in the future. These ownership changes limit the amount of net operating loss carryforwards and other deferred tax assets that can be utilized to offset future taxable income and tax, respectively. In general, an ownership change, as defined by Section 382 and 383, results from transactions increasing ownership of certain stockholders or public groups in the stock of the corporation by more than 50 percentage points over a three-year period. The Company has not conducted an analysis of an ownership change under section 382. To the extent that a study is completed and an ownership change is deemed to occur, the Company's net operating losses could be limited.

The following table summarizes the activity related to the Company's gross unrecognized tax benefits at the beginning and end of the years ended December 31, 2019 and 2018 (in thousands):

| | Years Ended December 31, | |
|--------------------------------------------------------------|---------------------------------|-------------|
| | 2019 | 2018 |
| Gross unrecognized tax benefits at the beginning of the year | — | — |
| Increases related to current year positions | — | — |
| Increases related to prior year positions | — | — |
| Decreases related to prior year positions | — | — |
| Expiration of unrecognized tax benefits | — | — |
| Gross unrecognized tax benefits at the end of the year | — | — |

None of the unrecognized tax benefits would affect the Company's annual effective tax rate.

The Company does not expect a significant change in unrecognized tax benefits over the next 12 months.

The Company files income tax returns in the United States and Arizona with general statutes of limitations of 3 and 4 years, respectively. Due to net operating losses incurred, the Company's tax returns from inception to date are subject to examination by taxing authorities. The Company's policy is to recognize interest expense and penalties related to income tax matters as a component of income tax expense. As of December 31, 2019, the Company had no interest or penalties accrued for uncertain tax positions.

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13. Commitments and Contingencies

Legal Proceedings

The Company may be subject to legal proceedings and claims arising from contracts or other matters from time to time in the ordinary course of business. Management is not aware of any pending or threatened litigation where the ultimate disposition or resolution could have a material adverse effect on its financial position, results of operations or liquidity.

On February 20, 2018, New Enterprises, Ltd. (“New Enterprises”) filed a lawsuit against the Company and Roth Capital Partners, LLC (“Roth”) in the U.S. District Court for the District of Arizona, alleging nine counts against the Company, including claims of common law fraud and securities fraud to induce the chairman of New Enterprises into investing in the Company; failure to register New Enterprises’ requested transfer; breach of stock certificates and the lock-up contract; tortious interference with prospective business advantage; and conversion. New Enterprises sought monetary damages, including compensatory damages, punitive damages, and attorney’s fees. After initial motions to dismiss and written discovery, the parties reached a settlement, and the lawsuit was dismissed with prejudice on December 27, 2019. Outside of the litigation, Roth made a claim for indemnification to the Company based on contractual indemnification agreements, and the parties have resolved Roth’s indemnity claim.

Lease Commitments

The Company is obligated under finance leases for certain research and computer equipment that expire on various dates through July 2023. At December 31, 2019, the gross amount of office and computer equipment, and research equipment and the related accumulated amortization recorded under the finance leases was \$498 and \$275, respectively.

In February 2012, the Company entered into an operating lease for its then corporate headquarters in Flagstaff, Arizona. The lease was originally due to expire in January 2015. In December 2013, the Company amended its lease to expand into the remaining area in the building and extended the term to December 31, 2019. In February 2014, the Company further amended the lease to expand into an adjacent building. The lease requires escalating rental payments over the lease term. Minimum rental payments under the operating lease are recognized on a straight-line basis over the term of the lease and accordingly, the Company records the difference between the cash rent payments and the recognition of rent expense as a deferred rent liability. The lease is guaranteed by the former President of the Company. In December 2019, we extended the current lease for only our manufacturing facilities are located in Flagstaff, Arizona, occupying a total of 7,632 square feet of space. The lease for our manufacturing facilities expires in December 2020.

On November 16, 2016, we leased an additional 1,954 square feet of research and development space, also in Flagstaff. This lease expired on November 15, 2018 but was extended for an additional 24 months, through November 2020. A subsequent amendment to the lease allows for the Company to cancel the lease at any time through the lease term with 30 days notice. The Company provided a 30 day cancellation notice effective February 2020.

On December 1, 2019, we entered into a lease for our corporate headquarters in Phoenix, Arizona where we lease and occupy approximately 5,529 square feet of office space. This lease expires in November 2024.

We believe that our existing facilities are adequate and meet our current needs for business, manufacturing and research.

Rent expense was \$253 and \$242 for the year ended December 31, 2019 and 2018, respectively. The future minimum lease payments under non-cancellable operating lease and future minimum finance lease payments as of December 31, 2019 are follows:

| Years Ending December 31, | Finance Leases | Operating Lease |
|----------------------------------|---------------------------|----------------------------|
| 2020 | 78 | 256 |
| 2021 | 63 | 136 |
| 2022 | 33 | 138 |
| 2023 | 3 | 141 |
| 2024 | — | 132 |
| Total minimum lease payments | <u>\$ 177</u> | <u>\$ 803</u> |

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13. Commitments and Contingencies – (continued)

| | Finance Leases |
|----------------------------------------------------------------------------|---------------------------|
| Less: amounts representing interest (6.39%, ranging from 10.48% to 11.56%) | \$ (22) |
| Present value of minimum lease payments | 155 |
| Less: current installments under finance lease obligations | (65) |
| Total long-term portion | \$ 90 |

14. Subsequent Events

On January 28, 2020, the Company consummated a Registered Direct Offering of an aggregate of 177,500 shares of its Common Stock at a purchase price of \$8.00 per share for aggregate gross proceeds of approximately \$1.42 million, before deducting fees payable to the placement agent and other estimated offering expenses payable by us. In a concurrent private placement, we also agreed to issue and sell warrants exercisable for an aggregate of up to 177,500 shares of Common Stock which represents 100% of the shares of Common Stock sold in the Registered Direct Offering, with an exercise price of \$9.00 per warrant share. In connection with the Registered Direct Offering, the Company paid H.C. Wainwright & Co., LLC, as placement agent, a cash fee of \$106,500, a management fee of \$14,200, \$40,000 for non-accountable expenses and clearing expenses of \$12,900. In addition, the Company issued H.C. Wainwright & Co., LLC or its designees, a warrant to purchase 13,313 shares of Common Stock at an exercise price of \$10.00 per share.

The January 2020 registered direct offering resulted in an additional downward adjustment of the exercise price of adjustable warrants from \$19.00 per share to \$7.126 per share.

On February 6, 2020, the Company issued 24 shares of Common stock to shareholders of record in connection with fractional shares as a result of a 1-for-20 reverse stock split of our outstanding common stock on February 4, 2020.

On March 2, 2020, the Company issued 51,414 shares of Common stock for the cashless exercise of 47,250 common stock warrants and in settlement of outstanding indemnification costs of \$238,000 that were reserved for at December 31, 2019.

On March 4, 2020, the Company consummated a Registered Direct Offering of an aggregate of 176,372 shares of its Common Stock at a purchase price of \$3.005 per share for aggregate gross proceeds of approximately \$0.5 million, before deducting fees payable to the placement agent and other estimated offering expenses payable by us. In a concurrent private placement, the Company also agreed to issue and sell warrants exercisable for an aggregate of up to 176,372 shares of Common Stock which represents 100% of the shares of Common Stock sold in the Registered Direct Offering, with an exercise price of \$2.88 per warrant share. In connection with the Registered Direct Offering, the Company paid H.C. Wainwright & Co., LLC, as placement agent, a cash fee of \$39,750, a management fee of \$5,300, \$10,000 for non-accountable expenses and clearing expenses of \$12,900. In addition, the Company issued H.C. Wainwright & Co., LLC or its designees, a warrant to purchase 13,228 shares of Common Stock at an exercise price of \$3.7563 per share.

The March 2020 Registered Direct Offering resulted in an additional downward adjustment of the exercise price of adjustable warrants from \$7.126 per share to \$2.1122 per share.

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

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that the information required to be disclosed in the reports that we file or submit under the Securities Exchange Act of 1934 (“Exchange Act”) is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

In connection with the preparation of this Annual Report on Form 10-K, our management carried out an evaluation, under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, as of December 31, 2019, of the effectiveness of the design and operation of our disclosure controls and procedures, as such term is defined under Rule 13a-15(e) and 15d-15(e) under the Exchange Act. Based upon this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2018.

Management’s Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) or 15d-15(f) under the Exchange Act of 1934. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. GAAP. All internal control systems, no matter how well designed, have inherent limitations. Even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. Management is committed to continue monitoring our internal controls over financial reporting and will modify or implement additional controls and procedures that may be required to ensure the ongoing integrity of our consolidated financial statements.

With the participation of our Chief Executive Officer and Chief Financial Officer, management conducted an evaluation of the effectiveness of internal control over financial reporting as of December 31, 2019. In making this assessment, the Company used the framework established in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, (COSO). Based on this assessment, management has concluded that internal control over financial reporting was effective as of December 31, 2019 based on those criteria.

This annual report does not include an attestation report of the company’s registered public accounting firm due to a transition period established by rules of the Securities and Exchange Commission for smaller reporting companies and emerging growth companies.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting that occurred during the quarter ended December 31, 2019, that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

None.

PART III

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

Certain information required by this Item regarding our directors and executive officers will be included in our definitive proxy statement for our 2020 Annual Meeting of Stockholders to be filed with the SEC under the captions “Nominees and Continuing Directors” and “Executive Officers” and is incorporated herein by this reference.

The information required by this Item regarding compliance by our directors, executive officers and holders of ten percent of a registered class of our equity securities with Section 16(a) of the Securities Exchange Act of 1934 will be included in our definitive proxy statement for our 2020 Annual Meeting of Stockholders to be filed with the SEC under the caption “Delinquent Section 16(a) Reports,” “Stock Ownership” and is incorporated herein by this reference.

The remaining information required by this Item will be included in our definitive proxy statement for our 2020 Annual Meeting of Stockholders to be filed with the SEC under the caption “Corporate Governance” and is incorporated herein by this reference.

Item 11. *Executive Compensation.*

The information required by this Item will be included in our definitive proxy statement for our 2020 Annual Meeting of Stockholders to be filed with the SEC under the captions “Corporate Governance” and “Executive Officer Compensation” and is incorporated herein by this reference.

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

The information required by this Item regarding equity compensation plan information will be included in our definitive proxy statement for our 2020 Annual Meeting of Stockholders to be filed with the SEC under the caption “Equity Compensation Plan Information” and is incorporated herein by this reference.

The information required by this Item regarding security ownership will be included in our definitive proxy statement for our 2020 Annual Meeting of Stockholders to be filed with the SEC under the caption “Security Ownership of Principal Stockholders, Directors and Management” and is incorporated herein by this reference.

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

The information required by this Item will be included in our definitive proxy statement for our 2020 Annual Meeting of Stockholders to be filed with the SEC under the captions “Corporate Governance” and “Certain Relationships and Related Transactions” and is incorporated herein by this reference.

Item 14. *Principal Accounting Fees and Services.*

The information required by this Item with respect to principal accounting fees and services will be included in our definitive proxy statement for our 2020 Annual Meeting of Stockholders to be filed with the SEC under the caption “Ratify Appointment of Independent Registered Public Accounting Firm” and is incorporated herein by this reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(a) Financial Statements and Schedules

1. *Financial Statements.*

The following consolidated financial statements are filed as part of this report under Item 8 of Part II, "Financial Statements and Supplementary Data."

- A. Balance Sheets as of December 31, 2019 and 2018.
- B. Statements of Operations and Comprehensive Income (Loss) for the years ended December 31, 2019 and 2018.
- C. Statements of Stockholders' Equity for the years ended December 31, 2019 and 2018.
- D. Statements of Cash Flows for the years ended December 31, 2019 and 2018.

2. *Financial Statement Schedules.*

Financial statement schedules not included herein have been omitted because they are either not required, not applicable, or the information is otherwise included herein.

3. *Exhibits*

Exhibits are incorporated herein by reference or are filed with this report as indicated below (numbered in accordance with Item 601 of Regulation S-K).

(b) Exhibits

The exhibits listed in the accompanying Index to Exhibits are filed with this report or incorporated herein by reference.

**SENESTECH, INC.
INDEX TO EXHIBITS**

| Exhibit Number | Description |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1* | Amended and Restated Certificate of Incorporation, as amended by the Certificate of Amendment to the Amended and Restated Certificate of Incorporation |
| 3.2 | Amended and Restated Bylaws (incorporated by reference to Exhibit 3.5 to the Registrant's Registration Statement on Form S-1, filed with the SEC on September 21, 2016 (File no. 333-213736)) |
| 4.1* | Description of Securities |
| 4.2 | Form of the Registrant's Common Stock certificate (incorporated by reference to Exhibit 4.1 to the Registrant's Amendment No. 1 to Registration Statement on Form S-1, filed with the SEC on October 7, 2016 (File no. 333-213736)) |
| 4.3+ | Form of Restricted Stock Unit Agreement (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on December 21, 2016 (File no. 001-37941)) |
| 4.4 | Form of Warrant (incorporated by reference to Exhibit 4.2 to the Registrant's Amendment No. 1 to Registration Statement on Form S-1, filed with the SEC on November 16, 2017 (File no. 333-221433)) |
| 4.5 | Form of Underwriter's Warrant, as amended (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on November 21, 2017 (File no. 001-37941)) |
| 4.6* | Form of Restricted Stock Unit Notice and Agreement |
| 4.7 | Form of New Warrant (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on June 20, 2018 (File no. 001-37941)) |
| 4.8 | Form of Warrant issued to investors in Rights Offering (incorporated by reference to Exhibit 4.1 to the Registrant's Quarterly Report on Form 10-Q, filed with the SEC on August 14, 2018 (File no. 001-37941)) |
| 4.9 | Form of Warrant issued to dealer-manager in Rights Offering (incorporated by reference to Exhibit 4.2 to the Registrant's Quarterly Report on Form 10-Q, filed with the SEC on August 14, 2018 (File no. 001-37941)) |
| 4.10 | Warrant Agency Agreement, dated August 13, 2018, between the Registrant and Transfer Online, Inc. (incorporated by reference to Exhibit 4.3 to the Registrant's Quarterly Report on Form 10-Q, filed with the SEC on August 14, 2018 (File no. 001-37941)) |
| 4.11 | Form of Placement Agent Warrant (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on July 17, 2019 (File no. 001-37941)) |
| 4.12 | Form of Warrant (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on January 28, 2020 (File no. 001-37941)) |
| 4.13 | Form of Placement Agent Warrant (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K, filed with the SEC on January 28, 2020 (File no. 001-37941)) |
| 4.14 | Form of Warrant (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on March 6, 2020 (File no. 001-37941)) |
| 4.15 | Form of Placement Agent Warrant (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K, filed with the SEC on March 6, 2020 (File no. 001-37941)) |
| 10.1+ | SenesTech, Inc. 2008 – 2009 Non-Qualified Stock Option Plan and form of agreement thereunder (incorporated by reference to Exhibit 10.1 to the Registrant's Registration Statement on Form S-1, filed with the SEC on September 21, 2016 (File no. 333-213736)) |
| 10.2+ | SenesTech, Inc. 2015 Equity Incentive Plan and forms of agreement thereunder (incorporated by reference to Exhibit 10.2 to the Registrant's Registration Statement on Form S-1, filed with the SEC on September 21, 2016 (File no. 333-213736)) |
| 10.3+ | Form of Indemnification Agreement (incorporated by reference to Exhibit 10.6 to the Registrant's Registration Statement on Form S-1, filed with the SEC on September 21, 2016 (File no. 333-213736)) |
| 10.4+ | Employment Letter Agreement by and between the Registrant and Loretta P. Mayer, Ph.D. dated June 30, 2016 (incorporated by reference to Exhibit 10.7 to the Registrant's Registration Statement on Form S-1, filed with the SEC on September 21, 2016 (File no. 333-213736)) |
| 10.5+* | Separation Agreement between the Registrant and Loretta P. Mayer, Ph.D., dated December 18, 2019 |
| 10.6+ | Employment Letter Agreement by and between the Registrant and Cheryl A. Dyer, Ph.D. dated June 30, 2016 (incorporated by reference to Exhibit 10.8 to the Registrant's Registration Statement on Form S-1, filed with the SEC on September 21, 2016 (File no. 333-213736)) |
| 10.7+* | Separation Agreement between the Registrant and Cheryl A. Dyer, Ph.D., dated December 18, 2019 |
| 10.8+ | Employment Offer Letter by and between the Registrant and Thomas Chesterman dated November 20, 2015 (incorporated by reference to Exhibit 10.9 to the Registrant's Registration Statement on Form S-1, filed with the SEC on September 21, 2016 (File no. 333-213736)) |
| 10.9+ | Employment Letter Agreement by and between the Registrant and Kim Wolin dated January 28, 2020 (incorporated by reference to Exhibit 10.7 to the Registrant's Registration Statement on Form S-1, filed with the SEC on February 13, 2020 (File no. 333-236302)) |
| 10.10 | Agency Agreement by and between the Registrant, Inmet S.A. and Bioceres, Inc., dated January 21, 2016 (incorporated by reference to Exhibit 10.10 to the Registrant's Registration Statement on Form S-1, filed with the SEC on September 21, 2016 (File no. 333-213736)) |

| | |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10.11 | Services Agreement by and between the Registrant, Inmet S.A. and Bioceres, Inc., dated January 21, 2016 (incorporated by reference to Exhibit 10.11 to the Registrant's Registration Statement on Form S-1, filed with the SEC on September 21, 2016 (File no. 333-213736)) |
| 10.12 | Settlement Agreement and Release, dated January 23, 2017 by and between Neogen Corporation and the Registrant (incorporated by reference to Exhibit 1.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on January 23, 2017 (File No. 001-37941)) |
| 10.13+ | SenesTech, Inc. 2018 Equity Incentive Plan and forms of agreement thereunder (incorporated by reference to Annex A to the Registrant's definitive proxy statement on Schedule 14A with respect to the 2018 annual meeting of stockholders filed with the SEC on April 30, 2018 (File no. 001-37941)) |
| 10.14+ | Employment Letter Agreement by and between the Registrant and Kenneth Siegel dated May 16, 2019 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on May 20, 2019 (File no. 001-37941)) |
| 10.15 | Lease by and between the Registrant and Caden Court, LLC, dated as of December 20, 2011 and amendments thereto dated December 6, 2013 and February 27, 2014 (collectively, the "Caden Court Lease") (incorporated by reference to Exhibit 10.5 to the Registrant's Registration Statement on Form S-1, filed with the SEC on September 21, 2016 (File no. 333-213736)) |
| 10.16 | Lease Addendum #3 to the Caden Court Lease by and between the Registrant and Caden Court, LLC, dated as of December 20, 2019 (incorporated by reference to Exhibit 10.7 to the Registrant's Registration Statement on Form S-1, filed with the SEC on February 13, 2020 (File no. 333-236302)) |
| 10.17 | Lease by and between the Registrant and Pinnacle Campus Office-Retail, LLC, dated as of November 18, 2019 (incorporated by reference to Exhibit 10.7 to the Registrant's Registration Statement on Form S-1, filed with the SEC on February 13, 2020 (File no. 333-236302)) |
| 10.18 | Form of Securities Purchase Agreement (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on July 17, 2019 (File no. 001-37941)) |
| 10.19 | Form of Securities Purchase Agreement (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on January 28, 2020 (File no. 001-37941)) |
| 10.20 | Form of Securities Purchase Agreement (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on March 6, 2020 (File no. 001-37941)) |
| 21.1* | List of Subsidiaries of the Registrant |
| 23.1* | Consent of M&K CPAS, PLLC, independent registered public accounting firm |
| 31.1* | Certification of Chief Executive Officer pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934 |
| 31.2* | Certification of Chief Financial Officer pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934 |
| 32.1* | Certification of Chief Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 |
| 32.2* | Certification of Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 |
| 101.INS* | XBRL Instance Document |
| 101.SCH* | XBRL Taxonomy Extension Schema Document |
| 101.CAL* | XBRL Taxonomy Extension Calculation Linkbase Document |
| 101.DEF* | XBRL Taxonomy Extension Definition Linkbase |
| 101.LAB* | XBRL Taxonomy Extension Label Linkbase Document |
| 101.PRE* | XBRL Taxonomy Extension Presentation Linkbase Document |

* Filed herewith.

+ Indicates a management contract or compensatory plan.

(c) Financial Statement Schedules

None

Item 16. Form 10-K Summary.

Not applicable.

10,000,000 shares of Preferred Stock, par value \$0.001 per share, which may be issued from time to time in one or more series pursuant to a resolution or resolutions providing for such issue duly adopted by the Board of Directors (authority to do so being hereby expressly vested in the Board of Directors). The Board of Directors is further authorized, subject to limitations prescribed by law, to fix by resolution or resolutions the designations, powers, preferences and rights, and the qualifications, limitations or restrictions thereof, of any wholly unissued series of Preferred Stock, including without limitation authority to fix by resolution or resolutions the dividend rights, dividend rate, conversion rights, voting rights, rights and terms of redemption (including sinking fund provisions), redemption price or prices, and liquidation preferences of any such series, and the number of shares constituting any such series and the designation thereof, or any of the foregoing.

The Board of Directors is further authorized to increase (but not above the total number of authorized shares of the class) or decrease (but not below the number of shares of any such series then outstanding) the number of shares of any series, the number of which was fixed by it, subsequent to the issuance of shares of such series then outstanding, subject to the powers, preferences and rights, and the qualifications, limitations and restrictions thereof stated in the Certificate of Incorporation or the resolution of the Board of Directors originally fixing the number of shares of such series. If the number of shares of any series is so decreased, then the shares constituting such decrease shall resume the status which they had prior to the adoption of the resolution originally fixing the number of shares of such series.

Except as otherwise required by law, holders of Common Stock shall not be entitled to vote on any amendment to this Certificate of Incorporation (including any certificate of designation filed with respect to any series of Preferred Stock) that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together as a class with the holders of one or more other such series, to vote thereon by law or pursuant to this Certificate of Incorporation (including any certificate of designation filed with respect to any series of Preferred Stock).

Upon the filing and effectiveness (the “**Effective Time**”) pursuant to the DGCL of this Amended and Restated Certificate of Incorporation, and without regard to any other provision of this Certificate of Incorporation, each five (5) shares of Common Stock, either issued or outstanding or held by the Corporation as treasury stock, immediately prior to the Effective Time shall be and is hereby automatically combined and converted (without any further act) into one (1) share of fully paid and nonassessable shares of Common Stock without increasing or decreasing the amount of stated capital or paid-in surplus of the Corporation, with resultant fractional shares rounded to the nearest whole number of shares (and no consideration payable therefor). Each certificate that immediately prior to the Effective Time represented shares of Common Stock (each, an “**Old Certificate**”), shall thereafter represent that number of shares of Common Stock into which the shares of Common Stock represented by the Old Certificate shall have been combined, subject to the rounding of fractional share interests as described above.

ARTICLE V

The number of directors that constitutes the entire Board of Directors of the Corporation shall be fixed by, or in the manner provided in, the Bylaws of the Corporation. At each annual meeting of stockholders, directors of the Corporation shall be elected to hold office until the expiration of the term for which they are elected and until their successors have been duly elected and qualified or until their earlier resignation or removal; except that if any such election shall not be so held, such election shall take place at a stockholders’ meeting called and held in accordance with the DGCL.

Effective upon the effective date of the Corporation's initial public offering (the "**IPO Effective Date**"), the directors of the Corporation shall be divided into three classes as nearly equal in size as is practicable, hereby designated Class I, Class II and Class III. The Board of Directors may assign members of the Board of Directors already in office to such classes at the time such classification becomes effective. The term of office of the initial Class I directors shall expire at the first regularly scheduled annual meeting of the stockholders following the IPO Effective Date, the term of office of the initial Class II directors shall expire at the second annual meeting of the stockholders following the IPO Effective Date and the term of office of the initial Class III directors shall expire at the third annual meeting of the stockholders following the IPO Effective Date. At each annual meeting of stockholders, commencing with the first regularly-scheduled annual meeting of stockholders following the IPO Effective Date, each of the successors elected to replace the directors of a Class whose term shall have expired at such annual meeting shall be elected to hold office until the third annual meeting next succeeding his or her election and until his or her respective successor shall have been duly elected and qualified.

Any director or the entire Board of Directors may be removed from office at any time, but only for cause, and only by the affirmative vote of the holders of at least a majority of the voting power of the issued and outstanding capital stock of the Corporation entitled to vote in the election of directors.

Except as otherwise provided for or fixed by or pursuant to the provisions of Article IV hereof in relation to the rights of the holders of Preferred Stock to elect directors under specified circumstances, Newly created directorships resulting from any increase in the number of directors, created in accordance with the Bylaws of the Corporation, and any vacancies on the Board of Directors resulting from death, resignation, disqualification, removal or other cause shall be filled only by the affirmative vote of a majority of the remaining directors then in office, even though less than a quorum of the Board of Directors, or by a sole remaining director, and not by the stockholders. A person so elected by the Board of Directors to fill a vacancy or newly created directorship shall hold office until the next election of the class for which such director shall have been chosen until his or her successor shall have been duly elected and qualified, or until such director's earlier death, resignation or removal. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

ARTICLE VI

In furtherance and not in limitation of the powers conferred by statute, the Board of Directors of the Corporation is expressly authorized to adopt, amend or repeal the Bylaws of the Corporation. The affirmative vote of at least a majority of the Board of Directors then in office shall be required in order for the Board of Directors to adopt, amend, alter or repeal the Corporation's Bylaws. The Corporation's Bylaws may also be adopted, amended, altered or repealed by the stockholders of the Corporation. Notwithstanding the above or any other provision of this Certificate of Incorporation, the Bylaws of the Corporation may not be amended, altered or repealed except in accordance with Article XIII of the Bylaws. No Bylaw hereafter legally adopted, amended, altered or repealed shall invalidate any prior act of the directors or officers of the Corporation that would have been valid if such Bylaw had not been adopted, amended, altered or repealed.

ARTICLE VII

The Corporation is to have perpetual existence.

ARTICLE VIII

Any action required or permitted to be taken by the stockholders of the Corporation must be effected at a duly called annual or special meeting of stockholders of the Corporation and may not be effected by any consent in writing by such stockholders.

The annual meeting of stockholders for the election of directors and for the transaction of such other business as may properly come before the meeting shall be held at such date, time and place, if any, as shall be determined exclusively by resolution of the Board of Directors in its sole and absolute discretion.

Except as otherwise expressly provided by the terms of any series of Preferred Stock permitting the holders of such series of Preferred Stock to call a special meeting of the holders of such series, special meetings of stockholders of the Corporation may be called only by the Chairperson of the Board of Directors, the Chief Executive Officer, the President or the Board of Directors acting pursuant to a resolution adopted by a majority of the Board of Directors, and any power of the stockholders to call a special meeting is hereby specifically denied. Only such business shall be considered at a special meeting of stockholders as shall have been stated in the notice for such meeting. The Board of Directors may cancel, postpone or reschedule any previously scheduled special meeting at any time, before or after the notice for such meeting has been sent to the stockholders.

Advance notice of stockholder nominations for the election of directors and of business to be brought by stockholders before any meeting of the stockholders of the Corporation shall be given in the manner provided in the Bylaws of the Corporation.

Elections of directors need not be by written ballot unless the Bylaws of the Corporation shall so provide.

No stockholder will be permitted to cumulate votes at any election of directors.

Meetings of stockholders may be held within or outside of the State of Delaware, as the Bylaws may provide. The books of the Corporation may be kept (subject to any provision contained in the statutes) outside of the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the Bylaws of the Corporation.

ARTICLE IX

To the fullest extent permitted by the DGCL or any other law of the State of Delaware, in each case as they presently exist or may hereafter be amended from time to time, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director. If the DGCL is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the DGCL, as so amended.

The Corporation shall indemnify, to the fullest extent permitted by applicable law, any director or officer of the Corporation who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (a "**Proceeding**") by reason of the fact that he or she is or was a director, officer, employee or agent of the Corporation or is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, including service with respect to employee benefit plans, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with any such Proceeding. The Corporation shall be required to indemnify a person in connection with a Proceeding initiated by such person only if the Proceeding was authorized by the Board of Directors.

The Corporation shall have the power to indemnify, to the extent permitted by the DGCL, as it presently exists or may hereafter be amended from time to time, any employee or agent of the Corporation who was or is a party or is threatened to be made a party to any Proceeding by reason of the fact that he or she is or was a director, officer, employee or agent of the Corporation or is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, including service with respect to employee benefit plans, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with any such Proceeding.

Neither any amendment nor repeal of this Article IX, nor the adoption of any provision of this Corporation's Certificate of Incorporation inconsistent with this Article IX, shall eliminate or reduce the effect of this Article IX in respect of any matter occurring, or any cause of action, suit or proceeding accruing or arising or that, but for this Article IX, would accrue or arise, prior to such amendment, repeal or adoption of an inconsistent provision.

ARTICLE X

If any provision of this Certificate of Incorporation is held to be invalid, illegal or unenforceable for any reason: (i) the validity, legality and enforceability of such provisions in any other circumstance and of the remaining provisions of this Certificate of Incorporation (including, without limitation, each portion of any paragraph of this Certificate of Incorporation containing any such provision held to be invalid, illegal or unenforceable that is not itself held to be invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby and (ii) to the fullest extent possible, the provisions of this Certificate of Incorporation (including, without limitation, each such portion of any paragraph of this Certificate of Incorporation containing any such provision held to be invalid, illegal or unenforceable) shall be construed so as to permit the Corporation to protect its directors, officers, employees and agents from personal liability in respect of their good faith service or for the benefit of the Corporation to the fullest extent permitted by law.

ARTICLE XI

Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (A) any derivative action or proceeding brought on behalf of the Corporation, (B) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of the Corporation to the Corporation or the Corporation's stockholders, (C) any action asserting a claim against the Corporation or any director, officer or other employee of the Corporation arising pursuant to any provision of the DGCL or the Corporation's Certificate of Incorporation or Bylaws, or (D) any action or proceeding asserting a claim against the Corporation or any director, officer or other employee of the Corporation governed by the internal affairs doctrine.

ARTICLE XII

The Corporation reserves the right to amend, alter, change or repeal any provision contained in this Certificate of Incorporation (including any rights, preferences or other designations of Preferred Stock), in the manner now or hereafter prescribed by this Certificate of Incorporation and the DGCL; and all rights, preferences and privileges herein conferred upon stockholders by and pursuant to this Certificate of Incorporation in its present form or as hereafter amended are granted subject to the right reserved in this Article XII; *provided, however*, that notwithstanding any other provision of this Certificate of Incorporation or any provision of law that might otherwise permit a lesser vote or no vote, the Board of Directors acting pursuant to a resolution adopted by a majority of the Board of Directors and the affirmative vote of the holders of at least sixty-six and two-third percent (66 2/3%) of the voting power of all then outstanding shares of capital stock of the Corporation entitled to vote generally in the election of directors, voting together as a single class, shall be required to amend, alter or repeal, or adopt any provision as part of this Certificate of Incorporation inconsistent with the purpose and intent of, Article V, Article VI, Article VII, Article VIII, Article IX, Article XI or this Article XII (including, without limitation, any such Article as renumbered as a result of any amendment, alteration, change, repeal or adoption of any other Article).

* * *

3. That the foregoing amendment and restatement was approved by the holders of the requisite number of shares of this corporation in accordance with Section 228 of the DGCL.
4. That this Amended and Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of this corporation's Certificate of Incorporation, has been duly adopted in accordance with Sections 242 and 245 of the DGCL.

IN WITNESS WHEREOF, this Amended and Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on this _____, 2016.

By: _____

Loretta P. Mayer, Ph.D,
Chief Executive Officer

**CERTIFICATE OF
AMENDMENT TO
AMENDED AND
RESTATED
CERTIFICATE OF
INCORPORATION OF
SENESTECH, INC.**

SENESTECH, INC., a corporation organized and existing under the General Corporation Law of the State of Delaware (the "Corporation"), does hereby certify as follows:

1. The name of the Corporation is SenesTech, Inc.
2. The Board of Directors of the Corporation has duly adopted a resolution pursuant to Section 242 of the General Corporation Law of the State of Delaware setting forth a proposed amendment to the Amended and Restated Certificate of Incorporation of the Corporation and declaring said amendment to be advisable. The requisite stockholders of the Corporation have duly approved the proposed amendment in accordance with Section 242 of the General Corporation Law of the State of Delaware. The amendment amends the Amended and Restated Certificate of Incorporation of the Corporation as follows:
3. Article IV of the Amended and Restated Certificate of Incorporation is hereby amended by deleting the last paragraph of Article IV in its entirety and adding the following paragraph as the last paragraph of such Article IV.

"Upon the filing and effectiveness (the "Effective Time") of this Certificate of Amendment to Amended and Restated Certificate of Incorporation of the Corporation, each 20 shares of the Corporation's Common Stock, par value \$0.001 per share ("Common Stock"), issued and outstanding or held by the Corporation in treasury stock immediately prior to the Effective Time shall automatically be combined into one (1) validly issued, fully paid and non-assessable share of Common Stock without any further action by the Corporation or the holder thereof, subject to the treatment of fractional interests as described below. Notwithstanding the immediately preceding sentence, no fractional shares will be issued in connection with the reverse stock split. Stockholders of record who otherwise would be entitled to receive fractional shares, will automatically be entitled to rounding up of their fractional share to the nearest whole share. No stockholders will receive cash in lieu of fractional shares. Each certificate that immediately prior to the Effective Time represented shares of Common Stock shall thereafter automatically and without the necessity of presenting the same for exchange, subject to the adjustment for fractional shares as described above, represent that number of whole shares of Common Stock into which the shares of Common Stock formerly represented such certificate shall have been combined, provided however, that each person of record holding a certificate that represented shares of Common Stock that were issued and outstanding immediately prior to the Effective Time shall receive, upon surrender of such certificate, a new certificate evidencing and representing the number of whole shares of Common stock after the Effective Time into which the shares of Common Stock formerly represented by such certificate shall have been combined."

4. The foregoing amendment shall become effective on February 4, 2020, at 4:01 p.m, Eastern Time.

IN WITNESS WHEREOF, SenesTech, Inc. has caused this Certificate of Amendment to be executed as of this February 4, 2020.

SENESTECH, INC.

By: /s/ Kenneth Siegel
Name: Kenneth Siegel
Title: Chief Executive Officer

Exhibit 4.1

**DESCRIPTION OF THE REGISTRANT'S SECURITIES REGISTERED PURSUANT TO SECTION 12
OF THE SECURITIES EXCHANGE ACT OF 1934**

General

The descriptions of our capital stock and certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws are summaries and are qualified by reference to the amended and restated certificate of incorporation and amended and restated bylaws that are currently in effect.

Our amended and restated certificate of incorporation provides for Common Stock and preferred stock, the rights, preferences and privileges of which may be designated from time to time by our board of directors.

Our authorized capital stock consists of 110,000,000 shares, all with a par value of \$0.001 per share, of which 100,000,000 shares are designated as Common Stock and 10,000,000 shares are designated as preferred stock.

Common Stock

The holders of our Common Stock are entitled to one vote per share on all matters submitted to a vote of our stockholders. Subject to preferences that may be applicable to any preferred stock outstanding at the time, the holders of outstanding shares of Common Stock are entitled to receive ratably any dividends declared by our board of directors out of assets legally available therefor. In the event that we liquidate, dissolve or wind up, holders of our Common Stock are entitled to share ratably in all assets remaining after payment of liabilities and the liquidation preference of any then outstanding shares of preferred stock. Holders of Common Stock have no preemptive or conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to the Common Stock. As discussed in "Risk Factors" above, certain provisions in our amended and restated certificate of incorporation and our amended and restated bylaws may discourage, delay or prevent a merger, acquisition or other change of control involving us that our stockholders may consider favorable. All outstanding shares of Common Stock are fully paid and non-assessable.

Except as otherwise required by Delaware law, all stockholder action, other than the election of directors or certain amendments of our amended and restated certificate of incorporation, is taken by the vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the subject matter, at a meeting in which a quorum, consisting of a majority of the outstanding shares of Common Stock is present in person or by proxy. The election of directors by our stockholders is determined by a plurality of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote, at a meeting held for such purposes at which a quorum, consisting of a majority of the outstanding shares of Common Stock, is present in person or by proxy. Certain amendments to our amended and restated certificate of incorporation require the approval of holders of at least sixty-six and two-third percent (66 2/3%) of the voting power of all then-outstanding shares of our Common Stock entitled to vote generally in the election of directors, voting together as a single class.

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain all available funds and any future earnings to support our operations and finance the growth and development of our business. We do not intend to pay cash dividends on our Common Stock for the foreseeable future. Any future determination related to our dividend policy will be made at the discretion of our board of directors and will depend upon, among other factors, our results of operations, financial condition, capital requirements, contractual restrictions, business prospects and other factors our board of directors may deem relevant.

Preferred Stock

Our amended and restated certificate of incorporation provides that our board of directors may, without further action by our stockholders, fix the rights, preferences, privileges and restrictions of up to an aggregate of 10,000,000 shares of preferred stock in one or more series and authorize their issuance. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting any series or the designation of such series, any or all of which may be greater than the rights of our Common Stock. The issuance of our preferred stock could adversely affect the voting power of holders of our Common Stock and the likelihood that such holders will receive dividend payments and payments upon liquidation. In addition, the issuance of preferred stock

could have the effect of delaying, deferring or preventing a change of control or other corporate action. We have no present plan to issue any shares of preferred stock.

Description of the Warrants

Common Stock Warrants Issued in July 2019 Equity Offering (“July 2019 Warrant”)

On July 16, 2019, in connection with a secondary public offering of shares of the Company’s Common Stock, the Company issued to H.C. Wainwright & Co., LLC, as placement agent, a warrant to purchase 8,334 shares of Common Stock. The warrant was issued in reliance on the exemption from registration provided by Section 4(a)(2) of the Securities Act and Rule 506(b) of Regulation D promulgated thereunder. Terms used but not otherwise defined herein will have the meaning given them in the warrant, attached as Exhibit 4.1 to our Form 8-K filed on July 17, 2019.

Duration and Exercise Price. The warrant has an exercise price of \$33.75 per share and will expire July 11, 2024.

Adjustment. For so long as the warrant remains outstanding, the exercise price and number of shares of Common Stock issuable upon exercise of the warrant is subject to adjustment as follows: (a) upon payment of a stock dividend or other distribution on a class or series of shares Common Stock, not including shares issued under this warrant; (b) upon subdivision (by stock split, stock dividend, recapitalization, or otherwise) or combination (by reverse stock split or otherwise) of shares of Common Stock; or (c) upon the issuance of any shares of capital stock by reclassification of shares of the Common Stock.

Rights upon Distribution of Assets. In the event that the Company declares or makes any dividend or other distribution of its assets to holders of its Common Stock, the warrant holder will be entitled to participate in such distribution to the same extent that such holder would have participated therein if the holder had held the number of shares of Common Stock acquirable upon exercise of the warrant.

Fundamental Transaction. In the event of a Fundamental Transaction, as described in the warrant and generally including the sale, transfer or other disposition of all or substantially all of our properties or assets; our consolidation or merger with or into another person or reorganization; a recapitalization, reorganization or reclassification in which our Common Stock is converted into other securities, cash or property; or any acquisition of our outstanding Common Stock that results in any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding Common Stock, then the holders of the warrant will be entitled to receive upon exercise of the warrant the kind and amount of securities, cash, assets or other property that the holders would have received had they exercised the warrant immediately prior to such Fundamental Transaction. Subject to certain limitations, in the event of a Fundamental Transaction the warrant holder may at its option require the Company or any Successor Entity to purchase the warrant from the holder by paying to the holder an amount of cash equal to the Black Scholes Value of the remaining unexercised portion of the warrant on the date of the consummation of the Fundamental Transaction.

Purchase Right. Any time that the Company grants, issues, or sells any securities pro rata to all of the record holders of the Common Stock (the “July 2019 Purchase Right”), the holder of the warrant will be entitled to acquire the aggregate July 2019 Purchase Rights that the holder could have acquired if the holder had held the number of shares of Common Stock acquirable upon exercise of the warrant. However, to the extent that an exercise of the July 2019 Purchase Right would exceed the Beneficial Ownership Limitation (defined below), then to such extent the July 2019 Purchase Right will be held in abeyance until such time, if ever, that complete exercise of the July 2019 Purchase Right would not exceed the Beneficial Ownership Limitation.

Transferability. Subject to applicable laws and restrictions on transfer, the warrant may be transferred at the option of the holder. The warrant is not listed on any securities exchange or nationally recognized trading system.

Exercisability. After the Initial Exercisability Date, the warrant will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our Common Stock purchased upon such exercise. If, at the time a holder exercises its warrant (but not sooner than six months following the date of the warrant), a registration statement registering the issuance of the shares of Common Stock underlying the warrant under the Securities Act is not then effective or available, nor is any current prospectus thereto available, and an exemption from registration under the Securities Act is not available for the issuance of such shares, then in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the number of shares of Common Stock determined according to a formula set forth in the warrant.

Limitations on Exercise. A holder (together with its affiliates) may not exercise any portion of the warrant to the extent that the holder would own more than 4.99% of the outstanding Common Stock after exercise (the “Beneficial Ownership Limitation”), except that upon at least 61 days’ prior notice from the holder to us, the holder may increase the Beneficial Ownership Limitation up to 9.99% of the number of shares of our Common Stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the warrants. No fractional shares of Common Stock will be issued in connection with the exercise of a warrant. In lieu of fractional shares, we will either pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price or round up to the next whole share.

Right as a Stockholder. Except as otherwise provided in the warrant or by virtue of such holder's ownership of shares of our Common Stock, the holders of the warrant do not have the rights or privileges of holders of our Common Stock, including any voting rights, unless and until they exercise their warrant.

Waivers and Amendments. Subject to certain exceptions, any term of the warrant may be amended or waived with our written consent and the written consent of the holders.

Compensation for Buy-In on Failure to Timely Deliver Securities. Upon exercise of the warrant by the holder, if the Company fails to cause its transfer agent to deliver the securities to holder by the required share delivery date set forth in the warrant, and as result the holder or the holder's broker must purchase shares of Common Stock in satisfaction of a sale by the holder of Common Stock that the holder anticipated receiving upon an exercise of the warrant (a "July 2019 Buy-In"), then, generally, the holder may require the Company to (1) pay to the holder the difference, if any, between the price at which the holder or its broker purchased Common Stock to cover the July 2019 Buy-In and the price at which the same number of shares could have been purchased under the warrant and (2) at the option of the holder, either reinstate the portion of the warrant that the holder exercised and the Company failed to honor or issue the number of shares requested in such exercise.

Common Stock Warrants Issued in August 2018 Rights Offering

On August 13, 2018, in connection with a rights offering of 267,853 shares of its Common Stock (the "2018 Rights Offering"), the Company issued to investors warrants to purchase 267,853 shares of its Common Stock. Terms used but not otherwise defined herein will have the meaning given them in the warrant, attached as Exhibit 4.1 to our Form 10-Q filed on August 14, 2018. This warrant has substantially similar terms as the July 2019 Warrant described above, except that this warrant has an exercise price of \$23.00 per share and will expire August 13, 2023. In addition, this warrant has the following terms:

Right of Redemption. Subject to certain limitations in the warrant, the Company may redeem for consideration equal to \$0.01 all of the outstanding warrants for which a Notice of Exercise has not been delivered if, six months after the warrants become exercisable, (1) the VWAP for each of five consecutive trading days is \$57.50 and (2) the holders of the warrants have no material, non-public information from the Company. The Company must provide at least thirty days' notice of the date of such redemption. Following such notice and prior to the date of redemption, the warrants may be exercised for cash in accordance with the terms therein.

Common Stock Warrants Issued to Dealer-Manager in August 2018 Rights Offering

In connection with the closing of the 2018 Rights Offering, the Company also issued a warrant to purchase 13,393 shares of Common Stock to Maxim Partners LLC, an affiliate of the dealer-manager of the 2018 Rights Offering. The warrant was issued in reliance on the exemption from registration provided by Section 4(a)(2) of the Securities Act and Rule 506(b) of Regulation D promulgated thereunder. Terms used but not otherwise defined herein will have the meaning given them in the warrant, attached as Exhibit 4.2 to our Form 10-Q filed on August 14, 2018. This warrant has substantially similar terms as the warrants described in the August 2018 Rights Offering described above, except that this warrant has an exercise price of \$34.50 per share, will expire July 25, 2023, and does not have a redemption feature.

Common Stock Warrants Issued in June 2018 Private Placement

On June 20, 2018, the Company issued warrants to purchase a total of 56,696 shares of Common Stock to an investor in a private placement. The warrants were issued in reliance on the exemption from registration provided by Section 4(a)(2) of the Securities Act and Rule 506(b) of Regulation D promulgated thereunder. Terms used but not otherwise defined herein will have the meaning given them in the warrant, attached as Exhibit 4.1 to our Form 8-K filed on June 20, 2018.

Duration and Exercise Price. The warrants have an exercise price of \$36.40 per share and are exercisable after December 20, 2018. The warrants will expire in December 2023.

Adjustment. For so long as the warrants remain outstanding, the exercise price and number of shares of Common Stock issuable upon exercise of the warrant is subject to adjustment as follows: (a) as the Company's board of directors deems appropriate, or (b) upon subdivision (by stock split, stock dividend, recapitalization, or otherwise) or combination (by reverse stock split or otherwise) of shares of Common Stock.

Rights upon Distribution of Assets. In the event that the Company declares or makes any dividend or other distribution of its assets to holders of its Common Stock, the warrant holder will be entitled to participate in such distribution to the same extent that such holder would have participated therein if the holder had held the number of shares of Common Stock acquirable upon exercise of the warrant.

Fundamental Transaction. In the event of a Fundamental Transaction, as described in the warrants and generally including the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person or reorganization, recapitalization or reclassification or the acquisition of our outstanding Common Stock which results in any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding Common Stock, the holders of the warrants will be entitled to receive upon exercise of the warrants the kind and amount of securities, cash, assets or other property that the holders would have received had they exercised the warrants immediately prior to such Fundamental Transaction. Subject to certain limitations, in the event of a Fundamental Transaction the warrant holder may at its option require the Company or any Successor Entity to purchase the warrant from the holder by paying to the holder an amount of cash equal to the Black Scholes Value of the remaining unexercised portion of the warrant on the date of the consummation of the Fundamental Transaction.

Purchase Right. Any time that the Company grants, issues, or sells any securities pro rata to all of the record holders of the Common Stock (the "June 2018 Purchase Right"), the holder of the warrant will be entitled to acquire the aggregate June 2018 Purchase Rights which the holder could have acquired if the holder had held the number of shares of Common Stock acquirable upon exercise of the warrant.

Transferability. Subject to applicable laws and restrictions on transfer, the warrant may be transferred at the option of the holder. The warrants are not listed on any securities exchange or nationally recognized trading system.

Exercisability. After the Initial Exercisability Date, the warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our Common Stock purchased upon such exercise. If, at the time a holder exercises its warrant, a registration statement registering the issuance of the shares of Common Stock underlying the warrants under the Securities Act is not then effective or available and an exemption from registration under the Securities Act is not available for the issuance of such shares, then in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of Common Stock determined according to a formula set forth in the warrant.

Limitations on Exercise. A holder (together with its affiliates) may not exercise any portion of the warrant to the extent that the holder would own more than 4.99% of the outstanding Common Stock after exercise, except that upon at least 61 days' prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder's warrants up to 9.99% of the number of shares of our Common Stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the warrants. No fractional shares of Common Stock will be issued in connection with the exercise of a warrant. In lieu of fractional shares, we will round up to the next whole share.

Right as a Stockholder. Except as otherwise provided in the warrants or by virtue of such holder's ownership of shares of our Common Stock, the holders of the warrants do not have the rights or privileges of holders of our Common Stock, including any voting rights, unless and until they exercise their warrants.

Waivers and Amendments. Subject to certain exceptions, any term of the warrants may be amended or waived with our written consent and the written consent of the holders.

Failure to Timely Deliver Securities. Upon exercise of the warrant by the holder, if the Company or its transfer agent fails to deliver the securities to holder by the required share delivery date set forth in the warrant, then, generally, the holder may require the Company to pay to the holder an amount in cash to make the investor whole in connection with the Company's failure to timely deliver securities.

Common Stock Warrants Issued to Participants in November 2017 Offering

On November 21, 2017, in its public offering of Common Stock, the Company issued warrants to purchase a total of 232,875 shares of Common Stock to investors. Terms used but not otherwise defined herein will have the meaning given them in the warrant, attached as Exhibit 4.2 to our Form 8-K filed on November 17, 2017.

Duration and Exercise Price. The warrants have an exercise price of \$30.00 per share, are exercisable immediately and will expire in November 2022, on the fifth anniversary of the original issuance date.

Adjustment. For so long as the warrants remain outstanding, the exercise price and number of shares of Common Stock issuable upon exercise of the warrant is subject to adjustment as follows: (a) as the Company's board of directors deems appropriate, (b) upon subdivision (by stock split, stock dividend, recapitalization, or otherwise) or combination (by reverse stock split or otherwise) of shares of Common Stock, (c) upon the issuance or announcement of contemplated issuance ("Dilutive Issuance") of shares of Common Stock, options or convertible securities for consideration per share less than the price equal to the exercise price of the warrants, except for certain Excluded Securities issued in connection with an Approved Equity Plan, (d) at the option of the warrant holder upon the Company's entering into an agreement to issue securities that are issuable at a price which varies or may vary with the market price of the Company's Common Stock (the "Variable Price"), and (e) in certain cases upon granting of stock appreciation rights, phantom stock rights or other rights with equity features, except for those granted pursuant to an Approved Equity Plan. For the adjustments summarized in (c) above, the exercise price of the warrants outstanding generally will adjust upon the record date of such issuance to the New Issuance Price (as defined in the warrant, and which will be based on the net price at which new securities in the Dilutive Issuance are issued or subsequently adjusted, and in some cases, the lower of such price or the weighted average trading price of the Common Stock for the four trading days immediately following public announcement of the Dilutive Issuance). For the adjustments summarized in (d) above, the holder may, at its option, elect to adjust the exercise price of the warrants to the Variable Price of securities sold by the Company pursuant to the agreement. Any adjustment made upon announcement or pursuant to a Dilutive Issuance will not be readjusted in the event that such Dilutive Issuance does not occur.

Rights upon Distribution of Assets. In the event that the Company declares or makes any dividend or other distribution of its assets to holders of its Common Stock, the warrant holder will be entitled to participate in such distribution to the same extent that such holder would have participated therein if the holder had held the number of shares of Common Stock acquirable upon exercise of the warrant.

Fundamental Transaction. In the event of a Fundamental Transaction, as described in the warrants and generally including the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person or reorganization, recapitalization or reclassification or the acquisition of our outstanding Common Stock which results in any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding Common Stock, the holders of the warrants will be entitled to receive upon exercise of the warrants the kind and amount of securities, cash, assets or other property that the holders would have received had they exercised the warrants immediately prior to such Fundamental Transaction. Subject to certain limitations, in the event of a Fundamental Transaction the warrant holder may at its option require the Company or any Successor Entity to purchase the warrant from the holder by paying to the holder an amount of cash equal to the Black Scholes Value of the remaining unexercised portion of the warrant on the date of the consummation of the Fundamental Transaction.

Purchase Right. Any time that the Company grants, issues, or sells any securities pro rata to all of the record holders of the Common Stock (the "November 2017 Purchase Right"), the holder of the warrant will be entitled to acquire the aggregate November 2017 Purchase Rights which the holder could have acquired if the holder had held the number of shares of Common Stock acquirable upon exercise of the warrant.

Transferability. Subject to applicable laws and restrictions on transfer, the warrant may be transferred at the option of the holder. The warrants are not listed on any securities exchange or nationally recognized trading system.

Exercisability. The warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our Common Stock purchased upon such exercise. If, at the time a holder exercises its warrant, a registration statement registering the issuance of the shares of Common Stock underlying the warrants under the Securities Act is not then effective or available and an exemption from registration under the Securities Act is not available for the issuance of such shares, then in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of Common Stock determined according to a formula set forth in the warrant.

Limitations on Exercise. A holder (together with its affiliates) may not exercise any portion of the warrant to the extent that the holder would own more than 4.99% of the outstanding Common Stock after exercise, except that upon at least 61 days' prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder's warrants up to 9.99% of the number of shares of our Common Stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the warrants. No fractional shares of Common Stock will be issued in connection with the exercise of a warrant. In lieu of fractional shares, we will either pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price or round up to the next whole share.

Right as a Stockholder. Except as otherwise provided in the warrants or by virtue of such holder's ownership of shares of our Common Stock, the holders of the warrants do not have the rights or privileges of holders of our Common Stock, including any voting rights, unless and until they exercise their warrants.

Limitation on Variable Rate Transactions. The Company may not effect or enter into any agreement to sell securities in a Variable Rate Transaction.

Waivers and Amendments. Subject to certain exceptions, any term of the warrants may be amended or waived with our written consent and the written consent of the holders.

Failure to Timely Deliver Securities. Upon exercise of the warrant by the holder, if the Company or its transfer agent fails to deliver the securities to holder by the required share delivery date set forth in the warrant, or if the Company did not provide the required notice to holder that a registration statement covering the issuance of the warrant shares subject to the exercise notice is not available and the Company is unable to deliver the securities without any restrictive legend (each, an Exercise Failure), then, generally, the holder may rescind the exercise in whole or in part or may require the Company to pay to the holder an amount in cash to make the investor whole in connection with the Company's failure to timely deliver securities.

Common Stock Warrant Issued to Underwriter of November 2017 Offering

In November 2017, the Company issued to Roth Capital Partners, LLC, as underwriter, a warrant to purchase 27,000 shares of Common Stock, which shares include a warrant (in the form of warrant issued to the public) to purchase an additional 20,250 shares of Common Stock in connection with our November 2017 offering. The warrant was issued in reliance on the exemption from registration provided by Section 4(a)(2) of the Securities Act and Rule 506(b) of Regulation D promulgated thereunder. Terms used but not otherwise defined herein will have the meaning given them in the warrant.

Duration and Exercise Price. The warrants have an exercise price of \$30.00 per share, are exercisable immediately and will expire in November 2022, on the fifth anniversary of the original issuance date. The terms of the warrant are limited by FINRA Rule 5110(f)(2)(G), which provide, among others, that the warrant may not be exercised more than five years from the date that the registration statement registering the warrant was declared effective by the SEC.

Adjustment. The exercise price and number of shares of Common Stock issuable upon exercise of the warrant is subject to adjustment as follows: (a) as the Company's board of directors deems appropriate, or (b) upon a stock dividend, stock split, reorganization, subdivision or combination of shares of Common Stock.

Fundamental Transaction. In the event of a Fundamental Transaction, as described in the warrants and generally including any reorganization, recapitalization or reclassification of our Common Stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of more than 50% of our outstanding Common Stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding Common Stock, the holders of the warrants will be entitled to receive upon exercise of the warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the warrants immediately prior to such Fundamental Transaction.

Purchase Right. Any time that the Company grants, issues, or sells any securities pro rata to all of the record holders of the Common Stock (the "November Purchase Right"), the holder of the warrant will be entitled to acquire the aggregate November Purchase Rights which the holder could have acquired if the holder had held the number of shares of Common Stock acquirable upon exercise of the warrant.

Transferability. Subject to applicable laws and restrictions on transfer, the warrant may be transferred at the option of the holder after the expiration of the Lock-Up Period, which is 180 days after the registration statement registering the warrant became effective. The warrants are not listed on any securities exchange or nationally recognized trading system.

Exercisability. The warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our Common Stock purchased upon such exercise. If, at the time a holder exercises its warrant, a registration statement registering the issuance of the shares of Common Stock underlying the warrants under the Securities Act is not then effective or available and an exemption from registration under the Securities Act is not available for the issuance of such shares, then in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of Common Stock determined according to a formula set forth in the warrant.

Limitations on Exercise. A holder (together with its affiliates) may not exercise any portion of the warrant to the extent that the holder would own more than 4.99% of the outstanding Common Stock after exercise, except that upon at least 61 days' prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder's warrants up to 9.99% of the number of shares of our Common Stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the warrants. No fractional shares of Common Stock will be issued in connection with the exercise of a warrant. In lieu of fractional shares, we will either pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price or round up to the next whole share.

Right as a Stockholder. Except as otherwise provided in the warrants or by virtue of such holder's ownership of shares of our Common Stock, the holders of the warrants do not have the rights or privileges of holders of our Common Stock, including any voting rights, unless and until they exercise their warrants.

Waivers and Amendments. Subject to certain exceptions, any term of the warrants may be amended or waived with our written consent and the written consent of the holder.

Other Warrants

Prior to our initial public offering and in connection with entering into a license agreement, we issued warrants to purchase 750 shares of Common Stock to the University of Arizona. Terms used but not otherwise defined herein will have the meaning given them in the warrant.

Duration and Exercise Price. The warrants expire in June 2020 and have an exercise price of \$150.00 per share.

Adjustment. The exercise price and number of shares of Common Stock issuable upon exercise of the warrant is subject to adjustment upon a stock dividend, stock split, reorganization, subdivision, combination, reclassification or reorganization of shares of Common Stock.

Terminating Change. In the event of a Terminating Change, defined to include any consolidation, merger, sale of all or substantially all of the assets of the Company, or capital reorganization or certain reclassifications of the Company's stock, the Company will pay to the holder the fair market value of the warrant shares immediately prior to the Terminating Change.

Notice. The warrant holder is entitled to notice of certain transactions, including when: (i) the Company takes a record of holders of its Common Stock for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of stock or any class or other securities, (ii) the Company offers to sell certain Company securities, (iii) the Company's Common Stock is reorganized or reclassified, (iv) any consolidation or merger of the Company or any conveyance of all or substantially all of the assets of the Company, (v) the Company undergoes a voluntary or involuntary dissolution, liquidation or winding up of the Company.

Transferability. Subject to applicable laws and restrictions on transfer, the warrant may be transferred at the option of the holder.

Exercisability. The warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our Common Stock purchased upon such exercise. At the election of the holder, in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of Common Stock determined according to a formula set forth in the warrant.

Right as a Stockholder. Except as otherwise provided in the warrants or by virtue of such holder's ownership of shares of our Common Stock, the holders of the warrants do not have the rights or privileges of holders of our Common Stock, including any voting rights, unless and until they exercise their warrants.

Waivers and Amendments. Subject to certain exceptions, any term of the warrants may be amended or waived with our written consent and the written consent of the holder.

IPO Underwriter Warrant

In connection with our initial public offering in December 2016, we issued warrants to purchase 9,375 shares of our Common Stock to Roth Capital Partners LLC.

Duration and Exercise Price. The warrants have an exercise price of \$192.00 per share. The warrant was fully vested and exercisable on the date of grant and will expire in December 2021, on the fifth anniversary of the original issuance date.

Adjustment. The exercise price and number of shares of Common Stock issuable upon exercise of the warrant is subject to adjustment as follows: (a) as the Company's board of directors deems appropriate, or (b) upon a stock dividend, stock split, reorganization, subdivision or combination of shares of Common Stock.

Rights upon Distribution of Assets. In the event that the Company declares or makes any dividend or other distribution of its assets to holders of its Common Stock, the warrant holder will be entitled to participate in such distribution to the same extent that such holder would have participated therein if the holder had held the number of shares of Common Stock acquirable upon exercise of the warrant.

Fundamental Transaction. In the event of a Fundamental Transaction, as described in the warrants and generally including any reorganization, recapitalization or reclassification of our Common Stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of more than 50% of our outstanding Common Stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding Common Stock, the holders of the warrants will be entitled to receive upon exercise of the warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the warrants immediately prior to such Fundamental Transaction. The Company may not enter into a Fundamental Transaction unless the successor entity assumes all obligations of the Company under the warrant pursuant to an agreement in form and substance reasonably satisfactory to the holder.

Purchase Right. Any time that the Company grants, issues, or sells any securities pro rata to all of the record holders of the Common Stock (the "December 2016 Purchase Right"), the holder of the warrant will be entitled to acquire the aggregate December 2016 Purchase Rights which the holder could have acquired if the holder had held the number of shares of Common Stock acquirable upon exercise of the warrant.

Transferability. Subject to applicable laws and restrictions on transfer, the warrant may be transferred at the option of the holder. The warrants are not listed on any securities exchange or nationally recognized trading system.

Exercisability. The warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our Common Stock purchased upon such exercise. If, at the time a holder exercises its warrant, a registration statement registering the issuance of the shares of Common Stock underlying the warrants under the Securities Act is not then effective or available and an exemption from registration under the Securities Act is not available for the issuance of such shares, then in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of Common Stock determined according to a formula set forth in the warrant.

Limitations on Exercise. A holder (together with its affiliates) may not exercise any portion of the warrant to the extent that the holder would own more than 4.99% of the outstanding Common Stock after exercise, except that upon at least 61 days' prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder's warrants up to 9.99% of the number of shares of our Common Stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the warrants. No fractional shares of Common Stock will be issued in connection with the exercise of a warrant. In lieu of fractional shares, we will either pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price or round up to the next whole share.

Right as a Stockholder. Except as otherwise provided in the warrants or by virtue of such holder's ownership of shares of our Common Stock, the holders of the warrants do not have the rights or privileges of holders of our Common Stock, including any voting rights, unless and until they exercise their warrants.

Waivers and Amendments. Subject to certain exceptions, any term of the warrants may be amended or waived with our written consent and the written consent of the holder.

For additional information about outstanding warrants, please read "Item 1. Financial Statements — Notes to Condensed Financial Statements — Note 11. Common Stock Warrants and Common Stock Warrant Liability" in our Quarterly Report on Form 10-Q filed with the SEC on May 15, 2018, as amended by Form 10-Q/A filed with the SEC on May 22, 2018.

Registration Rights

The Common Stock warrants issued under our 2018 Rights Offering provide for a registration right. During any period that the holders of these warrants wish to exercise their warrants and (1) we do not have an effective registration statement or current prospectus relating thereto (2) and an exemption to registration is not available in the opinion of the holder's counsel, then we must immediately file a registration statement and use our best efforts to have it declared effective within 30 days.

Anti-Takeover Provisions

Certificate of Incorporation and Bylaws

Because our stockholders do not have cumulative voting rights, our stockholders holding a majority of the outstanding shares of Common Stock outstanding will be able to satisfy the quorum requirement and be able to elect all of our directors by a plurality of the voting power of the shares present in person or by proxy. Our amended and restated certificate of incorporation and amended and restated bylaws provide that all stockholder actions must be effected at a duly called meeting of stockholders and not by written consent. A special meeting of stockholders may be called by a resolution adopted by a majority of our board, our chair of the board, our chief executive officer or the president in absence of the chief executive officer. Any power of the stockholders to call a special meeting is specifically denied by the terms of our amended and restated certificate of incorporation.

Our board of directors is divided into three classes with staggered three-year terms. These provisions make it more difficult for our existing stockholders to replace our board of directors as well as for another party to obtain control of us by replacing our board of directors. Since our board of directors has the power to retain and discharge our officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to obtain control of us.

These provisions are intended to enhance the likelihood of continued stability in the composition of our board of directors and its policies and to discourage certain types of transactions that may involve an actual or threatened acquisition of us. These provisions are also designed to reduce our vulnerability to an unsolicited acquisition proposal and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of deterring hostile takeovers or delaying changes in our control or management. As a consequence, these provisions also may inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts.

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- Before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- Upon closing of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned by (i) persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- On or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least sixty-six and two-third percent (66 2/3%) of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines business combination to include the following:

- Any merger or consolidation involving the corporation and the interested stockholder;
- Any sale, lease, exchange, mortgage, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- Subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- Any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; or
- The receipt by the interested stockholder of the benefit of any loss, advances, guarantees, pledges or other financial benefits by or through the corporation.

In general, Section 203 defines an “interested stockholder” as an entity or person who, together with the person’s affiliates and associates, beneficially owns, or within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

Choice of Forum

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting a claim of a breach of fiduciary duty owed by any director, officer or other employee to the Company or the Company’s stockholders; any action asserting a claim against us or any of our directors, officers or other employees arising pursuant to the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws; or any action or proceeding asserting a claim against us or any of our directors, officers or other employees that is governed by the internal affairs doctrine.

Listing of our Common Stock

Our Common Stock is listed on The Nasdaq Capital Market under the symbol “SNES.”

**SENESTECH, INC.
2018 EQUITY INCENTIVE PLAN**

RESTRICTED STOCK UNIT GRANT NOTICE

SENESTECH, INC. (the “*Company*”), pursuant to its 2018 Equity Incentive Plan (the “*Plan*”), hereby grants to you (“*Grantee*”) a Restricted Stock Unit Award for the number of Restricted Stock Units (the “*Restricted Stock Units*”) set forth below. Each Restricted Stock Unit represents the right to receive one share of Common Stock, subject to the terms and conditions set forth herein.

The Restricted Stock Units are subject to all of the terms and conditions as set forth in this Restricted Stock Unit Grant Notice (this “*Notice*”) and in the Restricted Stock Unit Agreement and the Plan, which are attached hereto and incorporated herein in their entirety. Capitalized terms not explicitly defined in this Notice or in the Restricted Stock Unit Agreement but defined in the Plan have the same definitions as in the Plan. If there is any conflict between the terms in this Notice and the Plan, the terms of the Plan will control.

Grantee: _____

Date of Grant: _____

Number of Restricted Stock Units: _____

Vesting Commencement Date: _____

Vesting Schedule: [Insert vesting schedule:

Vesting is subject to Continuous Service through each applicable vesting date.]

Additional Terms/Acknowledgements: You acknowledge receipt of, and understand and agree to, this Notice, the Restricted Stock Unit Agreement and the Plan. You acknowledge and agree that this Notice and the Restricted Stock Unit Agreement may not be modified, amended or revised except as provided in the Plan. You further acknowledge that as of the Date of Grant, this Notice, the Restricted Stock Unit Agreement and the Plan set forth the entire understanding between you and the Company regarding the Restricted Stock Units and supersede all prior oral and written agreements, promises and/or representations on that subject with the exception of any provisions applicable to the Restricted Stock Units in the agreements set forth below. By accepting the Restricted Stock Units, you consent to receive documents related to current or future participation in the Plan by electronic delivery and to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

OTHER AGREEMENTS: _____

SENESTECH, INC.
By: _____
Signature
Title: _____
Date: _____

GRANTEE:
By: _____
Signature
Date: _____

ATTACHMENTS: Restricted Stock Unit Agreement and 2018 Equity Incentive Plan

ATTACHMENT I

SENESTECH, INC.
2018 EQUITY INCENTIVE PLAN

RESTRICTED STOCK UNIT AGREEMENT

Pursuant to your Restricted Stock Unit Grant Notice (the “*Grant Notice*”) and this Restricted Stock Unit Agreement (together with the Grant Notice, this “*Agreement*”), SENESTECH, INC. (the “*Company*”) has granted you a Restricted Stock Unit Award under its 2018 Equity Incentive Plan (the “*Plan*”) for the number of Restricted Stock Units (the “*Restricted Stock Units*”) indicated in your Grant Notice. The Restricted Stock Units are granted to you effective as of the date of grant set forth in the Grant Notice (the “*Date of Grant*”). Capitalized terms not explicitly defined in this Restricted Stock Unit Agreement or the Grant Notice but defined in the Plan have the same definitions as in the Plan.

The details of your Restricted Stock Units, in addition to those set forth in the Grant Notice and the Plan, are as follows:

1. VESTING. The Restricted Stock Units will vest as provided in your Grant Notice. Once vested, the Restricted Stock Units become “*Vested Units*.” The foregoing vesting schedule notwithstanding, if your Continuous Service terminates for any reason other than as a result of your death or Disability at any time before all your Restricted Stock Units have vested, your unvested Restricted Stock Units will be automatically forfeited upon such termination of Continuous Service and neither the Company nor any Affiliate will have any further obligations to you under this Agreement. The period during which the Restricted Stock Units vest is the “*Restricted Period*.”

2. SEPARATE ACCOUNT. The Restricted Stock Units will be credited to a separate account maintained for you on the books and records of the Company (the “*Account*”). All amounts credited to the Account will continue for all purposes to be part of the general assets of the Company.

3. CONSIDERATION. The grant of the Restricted Stock Units is made in consideration of the services rendered or to be rendered by you to the Company or an Affiliate.

4. RESTRICTIONS. Subject to any exceptions set forth in this Agreement or the Plan, during the Restricted Period and until such time as the Restricted Stock Units are settled in accordance with Section 6, the Restricted Stock Units or the rights relating thereto may not be assigned, alienated, pledged, attached, sold or otherwise transferred or encumbered by you. Any attempt to assign, alienate, pledge, attach, sell or otherwise transfer or encumber the Restricted Stock Units or the rights relating thereto will be wholly ineffective and, if any such attempt is made, the Restricted Stock Units will be forfeited by you and all of your rights to such units will immediately terminate without any payment or consideration by the Company.

5. RIGHTS AS STOCKHOLDER; DIVIDEND EQUIVALENTS.

5.1 You will not have any rights of a stockholder with respect to the shares of Common Stock underlying the Restricted Stock Units unless and until the Restricted Stock Units vest and are settled by the issuance of shares of Common Stock.

5.2 Upon and following the settlement of the Restricted Stock Units, you will be the record owner of the shares of Common Stock underlying the Restricted Stock Units unless and until such shares are sold or otherwise disposed of, and as record owner you will be entitled to all rights of a stockholder of the Company (including voting rights).

5.3 You will not be entitled to any dividend equivalents with respect to the Restricted Stock Units to reflect any dividends payable on shares of Common Stock.

6. SETTLEMENT OF RESTRICTED STOCK UNITS.

6.1 Subject to Section 9 hereof, promptly following the vesting date (but generally in no event more than five (5) business days thereafter), the Company will (a) issue and deliver to you the number of shares of Common Stock equal to the number of Vested Units; and (b) enter your name on the books of the Company as the stockholder of record with respect to the shares of Common Stock delivered to you.

6.2 If you are deemed a "specified employee" within the meaning of Section 409A of the Code, as determined by the Committee, at a time when you become eligible for settlement of the Restricted Stock Units upon your "separation from service" within the meaning of Section 409A of the Code, then to the extent necessary to prevent any accelerated or additional tax under Section 409A of the Code, such settlement will be delayed until the earlier of: (a) the date that is six months following your separation from service and (b) your death.

7. **NO RIGHT TO CONTINUED SERVICE.** Neither the Plan nor this Agreement confers upon you any right to be retained in any position, as an Employee, Consultant or Director of the Company or an Affiliate. Further, nothing in the Plan or this Agreement will be construed to limit the discretion of the Company or an Affiliate to terminate your Continuous Service at any time, with or without Cause.

8. **ADJUSTMENTS.** If any change is made to the outstanding Common Stock or the capital structure of the Company, if required, the Restricted Stock Units will be adjusted or terminated in any manner as contemplated by Section 9 of the Plan.

9. TAX LIABILITY AND WITHHOLDING.

9.1 You agree to make adequate arrangements satisfactory to the Company prior to any relevant taxable or tax withholding event, as applicable, to satisfy all applicable income tax, social insurance, payroll tax or other tax-related withholding items ("**Tax-Related Items**"). In this regard, you authorize the Company to deduct from any compensation paid to you the amount of Tax-Related Items in respect of the Restricted Stock Units and to take all such other action as the Company deems necessary to satisfy all obligations for the payment of such Tax-Related Items. Alternatively, or in addition, the Company, in its sole discretion and without prior authorization from you, may satisfy any Tax-Related Items by any of the following means, or by a combination of such means:

(a) by withholding shares of Common Stock from the shares of Common Stock otherwise issuable or deliverable to you as a result of the vesting of the Restricted Stock Units; *provided, however*, that no shares of Common Stock will be withheld with a value exceeding the minimum amount of tax required to be withheld by law; or

(b) By selling or arranging for the sale of shares of Common Stock otherwise issuable or deliverable to you as a result of the vesting of the Restricted Stock Units.

9.2 To the extent not prohibited by applicable legal or regulatory provisions, the Company intends that Tax-Related Items be satisfied in accordance with Section 9.1(a) above, unless the Company determines otherwise at any time. Notwithstanding any action the Company takes with respect to any Tax-Related Items, the ultimate liability for all Tax-Related Items is and remains your responsibility and the Company (a) makes no representation or undertakings regarding the treatment of any Tax-Related Items in connection with the grant, vesting or settlement of the Restricted Stock Units or the subsequent sale of any shares; and (b) does not commit to structure the Restricted Stock Units to reduce or eliminate your liability for Tax-Related Items.

10. COMPLIANCE WITH LAW. The issuance and transfer of shares of Common Stock is subject to compliance by the Company and you with all applicable requirements of federal and state securities laws and with all applicable requirements of any stock exchange on which the Company's shares of Common Stock may be listed. No shares of Common Stock will be issued or transferred unless and until any then applicable requirements of state and federal laws and regulatory agencies have been fully complied with to the satisfaction of the Company and its counsel.

11. NOTICES. Any notices provided for in this Agreement or the Plan will be given in writing (including electronically) and will be deemed effectively given upon receipt or, in the case of notices delivered by mail by the Company to you, five (5) days after deposit in the United States mail, postage prepaid, addressed to you at the last address you provided to the Company. The Company may, in its sole discretion, decide to deliver any documents related to participation in the Plan and the Restricted Stock Units by electronic means.

12. GOVERNING LAW. This Agreement will be construed and interpreted in accordance with the laws of the State of Delaware without regard to conflict of law principles.

13. INTERPRETATION. Any dispute regarding the interpretation of this Agreement must be submitted by you or the Company to the Committee for review. The resolution of such dispute by the Committee will be final and binding on you and the Company.

14. GOVERNING PLAN DOCUMENT. The Restricted Stock Units are subject to the provisions of the Plan, the provisions of which are hereby made a part of this Agreement, and are further subject to all interpretations, amendments, rules and regulations, which may from time to time be promulgated and adopted pursuant to the Plan. If there is any conflict between the provisions of this Agreement and those of the Plan, the provisions of the Plan will control.

15. SUCCESSORS AND ASSIGNS. The Company may assign any of its rights under this Agreement. This Agreement will be binding upon and inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer set forth herein, this Agreement will be binding upon you and your beneficiaries, executors, administrators and the person(s) to whom the Restricted Stock Units may be transferred by will or the laws of descent or distribution.

16. SEVERABILITY. The invalidity or unenforceability of any provision of the Plan or this Agreement will not affect the validity or enforceability of any other provision of the Plan or this Agreement, and each provision of the Plan and this Agreement will be severable and enforceable to the extent permitted by law.

17. DISCRETIONARY NATURE OF PLAN. The Plan is discretionary and may be amended, cancelled or terminated by the Company at any time, in its discretion. The grant of the Restricted Stock Units in this Agreement does not create any contractual right or other right to receive any Restricted Stock Units or other Stock Awards in the future. Future Stock Awards, if any, will be at the sole discretion of the Company. Any amendment, modification, or termination of the Plan will not constitute a change or impairment of the terms and conditions of your employment or service with the Company.

18. RESTRICTED STOCK UNITS NOT A SERVICE CONTRACT. The Restricted Stock Units are not an employment or service contract, and nothing in the Restricted Stock Units will be deemed to create in any way whatsoever any obligation on your part to continue in the employ of the Company or an Affiliate, or of the Company or an Affiliate to continue your employment. In addition, nothing in the Restricted Stock Units will obligate the Company or an Affiliate, their respective stockholders, boards of directors, officers or employees to continue any relationship that you might have as a Director or Consultant for the Company or an Affiliate.

19. AMENDMENT. The Committee has the right to amend, alter, suspend, discontinue or cancel the Restricted Stock Units, prospectively or retroactively; *provided, that*, no such amendment will adversely affect your material rights under this Agreement without your consent.

20. TAX CONSEQUENCES; SECTION 409A. You agree that the Company does not have a duty to design or administer the Plan or its other compensation programs in a manner that minimizes your tax liabilities. You will not make any claim against the Company, or any of its Officers, directors, Employees or Affiliates related to tax liabilities arising from the Restricted Stock Units or your other compensation. In particular, this Agreement is intended to comply with Section 409A of the Code or an exemption thereunder and will be construed and interpreted in a manner that is consistent with the requirements for avoiding additional taxes or penalties under Section 409A of the Code. Notwithstanding the foregoing, the Company makes no representations that the payments and benefits provided under this Agreement comply with Section 409A of the Code and in no event will the Company be liable for all or any portion of any taxes, penalties, interest or other expenses that may be incurred by you on account of non-compliance with Section 409A of the Code. You acknowledge that there may be adverse tax consequences upon the vesting or settlement of the Restricted Stock Units or disposition of the underlying shares and that you have been advised to consult a tax advisor prior to such vesting, settlement or disposition.

21. NO IMPACT ON OTHER BENEFITS. The value of your Restricted Stock Units is not part of your normal or expected compensation for purposes of calculating any severance, retirement, welfare, insurance or similar employee benefit.

22. COUNTERPARTS. The Grant Notice may be executed in counterparts, each of which will be deemed an original but all of which together will constitute one and the same instrument. Counterpart signature pages to the Grant Notice transmitted by facsimile transmission, by electronic mail in portable document format (.pdf), or by any other electronic means intended to preserve the original graphic and pictorial appearance of a document, will have the same effect as physical delivery of the paper document bearing an original signature.

ATTACHMENT II
2018 EQUITY INCENTIVE PLAN

Exhibit 10.5

November 12, 2019

Dr. Loretta Mayer
Via Email Delivery

Re: Separation Agreement

Dear Loretta:

This letter sets forth the substance of the separation agreement (the “**Agreement**”) that SenesTech, Inc. (the “**Company**”) is offering to you to aid in your employment transition.

1. SEPARATION DATE. Your last day of employment with the Company was November 11, 2019 (the “**Separation Date**”). On the Separation Date, the Company paid you all accrued salary, and all accrued and unused vacation earned through the Separation Date, subject to standard payroll deductions and withholdings. By your execution of this Agreement, you are also hereby resigning from your position on the Company’s Board of Directors (the “**Board**”), and the Company hereby accepts such resignation.

2. SEVERANCE BENEFITS. If you timely sign this Agreement and allow the releases set forth herein to become effective, and comply with your obligations hereunder, then the Company will provide you with the severance benefits set forth in your June 30, 2016 employment agreement with the Company (the “**Employment Agreement**”) for a termination without Cause:

(a) Severance Pay. The Company will pay you the equivalent of twelve (12) months of your base salary in effect as of the Separation Date, subject to standard payroll deductions and withholdings (“**Severance Pay**”), paid in the form of salary continuation over the twelve (12) month period following the Separation Date. The Severance Pay shall start on the first regular Company payroll date that falls on or after the 60th day following the Separation Date, with the first payment to include those payments that you otherwise would have been paid during such 60-day period.

(b) COBRA. To the extent provided by the federal COBRA law or, if applicable, state insurance laws, and by the Company’s current group health insurance policies, you will be eligible to continue your group health insurance benefits at your own expense. Later, you may be able to convert to an individual policy through the provider of the Company’s health insurance, if you wish. If you timely elect continued coverage under COBRA, the Company will pay your COBRA premiums to continue your coverage (including coverage for eligible dependents, if applicable) through the period (the “**COBRA Premium Period**”) starting on the Separation Date and ending on the earliest to occur of: (i) November 30, 2020; (ii) the date you become eligible for group health insurance coverage through a new employer; or (iii) the date you cease to be eligible for COBRA continuation coverage for any reason, including plan termination. In the event you become covered under another employer’s group health plan or otherwise cease to be eligible for COBRA during the COBRA Premium Period, you must immediately notify the Company in writing of such event.

(c) Acceleration. The Company will accelerate the vesting on all of your outstanding equity awards such that you will be deemed fully vested in all such awards. Your equity interests shall continue to be governed in all respects by the terms of the applicable equity agreements, grant notices, and plan documents.

3. SALE BONUS. Pursuant to your Employment Agreement, you will remain eligible for a Sale Bonus, as defined in the Employment Agreement, if a Sale of the Company (as defined in the Employment Agreement) occurs within twelve (12) months after the Separation Date, subject to the terms and conditions set forth in the Employment Agreement.

4. EXTENSION OF EXERCISE PERIOD. If you timely sign this Agreement and allow the releases set forth herein to become effective, then the Company will extend the exercise period on your equity awards through November 11, 2022 (but in no event past the term of the applicable equity award).

5. TRANSITIONAL MATTERS. As a precondition to your receipt of the severance benefits described in this Agreement, you are required to cooperate promptly and thoroughly with respect to any request the Company may reasonably make for information about the status of any work you were performing for the Company prior to your being placed on paid administrative leave.

6. OTHER COMPENSATION OR BENEFITS. You acknowledge that, except as expressly provided in this Agreement, you will not receive any additional compensation, severance or benefits after the Separation Date, with the exception of any vested right you may have under the express terms of a written ERISA-qualified benefit plan (e.g., 401(k) account). You acknowledge and agree that you have not earned, are not owed and will not receive, any annual bonus for 2019. You further acknowledge that upon receipt of the severance benefits set forth in this Agreement, you will have received all severance benefits you are entitled to receive from the Company, whether under the Employment Agreement or otherwise.

7. EXPENSE REIMBURSEMENTS. You agree that, within ten (10) days after the Separation Date, you will submit your final documented expense reimbursement statement reflecting all business expenses you incurred through the Separation Date, if any, for which you seek reimbursement. The Company will reimburse you for these expenses pursuant to its regular business practice.

8. RETURN OF COMPANY PROPERTY. By signing below, you represent and warrant that you have returned to the Company all Company documents (and all copies thereof) and other Company property in your possession or control. You further represent that you have made a diligent search to locate any such documents, property and information. In addition, if you have used any personally owned computer, server, or e-mail system to receive, store, review, prepare or transmit any confidential or proprietary data, materials or information of the Company, then within five (5) business days after the Separation Date, if requested by the Company, you must provide the Company with a computer-useable copy of such information and then permanently delete and expunge such confidential or proprietary information from those systems without retaining any reproductions (in whole or in part). **Your timely compliance with the provisions of this paragraph is a precondition to your receipt of the severance benefits provided hereunder.**

9. PROPRIETARY INFORMATION OBLIGATIONS. As a precondition to your receipt of the severance benefits set forth herein, you are required to execute the Employee Confidential Information and Inventions Assignment Agreement attached hereto as **Exhibit A**, as well as any other documents requested by the Company to ensure assignment of intellectual property to the Company.

10. NONDISPARAGEMENT. You agree not to disparage the Company or the Company's officers, directors, employees, shareholders, parents, subsidiaries, affiliates, and agents, in any manner likely to be harmful to them or their business, business reputation or personal reputation, and the Company agrees that the members of its Board and Company officers will not disparage you in any manner likely to be harmful to your personal or professional reputations; *provided that* both you and the Company may respond accurately and fully to any question, inquiry or request for information when required by legal process. In addition, nothing in this provision or this Agreement is intended to prohibit or restrain you in any manner from making disclosures that are protected under the whistleblower provisions of federal or state law or regulation.

11. NO VOLUNTARY ADVERSE ACTION. You agree that you will not voluntarily assist any person in bringing or pursuing any claim or action of any kind against the Company or its parents, subsidiaries, affiliates, officers, directors, employees or agents, unless pursuant to subpoena or other compulsion of law. In addition, you agree to execute all documents (if any) necessary to carry out the terms of this Agreement, such as but not exclusive of assignments, declarations and other documents necessary for procurement and enforcement of IP rights globally.

12. NO ADMISSIONS. You understand and agree that the promises and payments in consideration of this Agreement shall not be construed to be an admission of any liability or obligation by the Company to you or to any other person, and that the Company makes no such admission.

13. YOUR RELEASE OF CLAIMS.

(a) General Release. In exchange for the consideration provided to you under this Agreement to which you would not otherwise be entitled, you hereby generally and completely release the Company, and its affiliated, related, parent and subsidiary entities, and its and their current and former directors, officers, employees, shareholders, partners, agents, attorneys, predecessors, successors, insurers, affiliates, and assigns (collectively, the "**Released Parties**") from any and all claims, liabilities and obligations, both known and unknown, that arise out of or are in any way related to events, acts, conduct, or omissions occurring prior to or on the date you sign this Agreement (collectively, the "**Released Claims**").

(b) Scope of Release. The Released Claims include, but are not limited to: (i) all claims arising out of or in any way related to your employment with the Company, or the termination of that employment; (ii) all claims related to your compensation or benefits from the Company, including salary, bonuses, commissions, vacation, expense reimbursements, severance pay, fringe benefits, stock, stock options, or any other ownership, equity, or profits interests in the Company; (iii) all claims for breach of contract, wrongful termination, and breach of the implied covenant of good faith and fair dealing; (iv) all tort claims, including claims for fraud, defamation, emotional distress, and discharge in violation of public policy; and (v) all federal, state, and local statutory claims, including claims for discrimination, harassment, retaliation, attorneys' fees, or other claims arising under the federal Civil Rights Act of 1964 (as amended), the federal Americans with Disabilities Act of 1990, the federal Age Discrimination in Employment Act of 1967 (as amended) (the "**ADEA**"), the California Labor Code (as amended), the California Fair Employment and Housing Act (as amended), and all state law claims under Arizona law.

(c) ADEA Waiver. You acknowledge that you are knowingly and voluntarily waiving and releasing any rights you may have under the ADEA and that the consideration given for this waiver is in addition to anything of value to which you are already entitled. You further acknowledge that you have been advised, as required by the ADEA, that: (i) your waiver does not apply to any rights or claims that may arise after the date that you sign this Agreement; (ii) you should consult with an attorney prior to signing this Agreement (although you may choose voluntarily not to do so); (iii) you will have at least twenty-one (21) days to consider this Agreement (although you may choose voluntarily to sign it earlier); (iv) you have seven (7) days following the date you sign this Agreement to revoke your acceptance of this Agreement (by providing written notice of your revocation to me); and (v) this Agreement will not be effective until the date upon which the revocation period has expired, which will be the eighth day after the date that this Agreement is signed by you provided that you do not revoke it (the “**Effective Date**”).

(d) Section 1542 Waiver. YOU UNDERSTAND THAT THIS AGREEMENT INCLUDES A RELEASE OF ALL KNOWN AND UNKNOWN CLAIMS. In giving the release herein, which includes claims which may be unknown to you at present, you acknowledge that you have read and understand Section 1542 of the California Civil Code, which reads as follows: “**A general release does not extend to claims which the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her would have materially affected his or her settlement with the debtor or released party.**” You hereby expressly waive and relinquish all rights and benefits under that section and any law of any other jurisdiction of similar effect with respect to your release of any unknown or unsuspected claims herein.

(e) Excluded Claims. Notwithstanding the foregoing, the following are not included in the Released Claims (the “**Excluded Claims**”): (i) any rights or claims for defense and/or indemnification you may have pursuant to any written indemnification agreement with the Company to which you are a party or under applicable law; (ii) any rights which are not waivable as a matter of law; and (iii) any claims for breach of this Agreement. You hereby represent and warrant that, other than the Excluded Claims, you are not aware of any claims you have or might have against any of the Released Parties that are not included in the Released Claims. You understand that nothing in this Agreement limits your ability to file a charge or complaint with the Equal Employment Opportunity Commission, the Department of Labor, the National Labor Relations Board, the Occupational Safety and Health Administration, the Securities and Exchange Commission or any other federal, state or local governmental agency or commission (“**Government Agencies**”). You further understand this Agreement does not limit your ability to communicate with any Government Agencies or otherwise participate in any investigation or proceeding that may be conducted by any Government Agency, including providing documents or other information, without notice to the Company. While this Agreement does not limit your right to receive an award for information provided to the Securities and Exchange Commission or any other Government Agency, you understand and agree that, to maximum extent permitted by law, you are otherwise waiving any and all rights you may have to individual relief based on any claims that you have released and any rights you have waived by signing this Agreement.

14. THE COMPANY'S RELEASE OF CLAIMS. In exchange for your execution of this Agreement, including the release you are granting pursuant to Section 13 above, the Company generally and completely releases you, your heirs, agents, and attorneys from any and all claims, liabilities and obligations, both known and unknown, that arise out of or are in any way related to events, acts, conduct, or omissions occurring prior to or on the date you sign this Agreement; provided, however, that this release shall not extend to claims arising at any time from your contractual and statutory obligations to refrain from the unauthorized use or disclosure of proprietary or trade secret information belonging to the Company, nor to any claims arising at any time from your willful misconduct that causes material injury to the Company or its shareholders. (These two exceptions shall, collectively, be deemed "**the Exceptions.**") The Company represents that it has no present intention to bring claims against you that fall within the Exceptions. The Company understands that its release extends to all known and unknown claims, and the Company acknowledges that it has read and understands Section 1542 of the California Civil Code, which reads as noted in Section 13(d) above. The Company expressly waives and relinquishes all rights and benefits under that section and any law of any other jurisdiction or similar effect with respect to its release of any unknown or unsuspected claims herein.

15. REPRESENTATIONS. You hereby represent that you have been paid all compensation owed and for all hours worked, have received all the leave and leave benefits and protections for which you are eligible, pursuant to the Family and Medical Leave Act or otherwise, and, to your knowledge, have not suffered any on-the-job injury for which you have not already filed a claim.

16. DISPUTE RESOLUTION. To aid in the rapid and economical resolution of any disputes which may arise under this Agreement, you and the Company agree that any and all claims, disputes or controversies of any nature whatsoever arising from or regarding the interpretation, performance, negotiation, execution, enforcement or breach of this Agreement, your employment, or the termination of your employment, including but not limited to statutory claims, shall be resolved, to the greatest extent permitted by law, by confidential, final and binding arbitration conducted before a single arbitrator with the American Arbitration Association ("AAA") in Flagstaff, Arizona or Phoenix, Arizona under AAA's then-applicable arbitration rules. **The parties acknowledge that, by agreeing to this arbitration procedure, they waive the right to resolve any such dispute through a trial by jury, judge or administrative proceeding.** You will have the right to be represented by legal counsel at any arbitration proceeding. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be available under applicable law in a court proceeding; and (b) issue a written statement signed by the arbitrator regarding the disposition of each claim and the relief, if any, awarded as to each claim, the reasons for the award, and the arbitrator's essential findings and conclusions on which the award is based. The Company shall bear the arbitration association's arbitration fees and administrative costs. Nothing in this Agreement shall prevent either you or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

17. ATTORNEYS' FEES. As an additional benefit to you under this Agreement, the Company will pay, directly to your counsel, up to \$20,000 in documented attorneys' fees incurred by you in connection with the negotiation of this Agreement.

18. GENERAL. This Agreement, including Exhibit A, constitutes the complete, final and exclusive embodiment of the entire agreement between you and the Company with regard to this subject matter. It is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations. This Agreement may not be modified or amended except in a writing signed by both you and a duly authorized officer of the Company. This Agreement will bind the heirs, personal representatives, successors and assigns of both you and the Company, and inure to the benefit of both you and the Company, their heirs, successors and assigns. If any provision of this Agreement is determined to be invalid or unenforceable, in whole or in part, this determination will not affect any other provision of this Agreement and the provision in question will be modified by the court so as to be rendered enforceable to the fullest extent permitted by law, consistent with the intent of the parties. This Agreement will be deemed to have been entered into and will be construed and enforced in accordance with the laws of the State of Arizona as applied to contracts made and to be performed entirely within Arizona.

If this Agreement is acceptable to you, please sign below and return the original to me. You must return this signed Agreement, with the revocation period having elapsed, within sixty (60) days.

I wish you good luck in your future endeavors.

Sincerely,

SENESTECH, INC.

By: /s/ Jamie Bechtel
Jamie Bechtel, Director

Exhibit A – Proprietary Information and Inventions Agreement

ACCEPTED AND AGREED:

/s/ Loretta P. Mayer

Loretta Mayer

December 16, 2019

Date

November 12, 2019

Dr. Cheryl Dyer
Via Email Delivery

Re: Separation Agreement

Dear Cheryl:

This letter sets forth the substance of the separation agreement (the “**Agreement**”) that SenesTech, Inc. (the “**Company**”) is offering to you to aid in your employment transition.

1. SEPARATION DATE. Your last day of employment with the Company was November 11, 2019 (the “**Separation Date**”). On the Separation Date, the Company paid you all accrued salary, and all accrued and unused vacation earned through the Separation Date, subject to standard payroll deductions and withholdings.

2. SEVERANCE BENEFITS. If you timely sign this Agreement and allow the releases set forth herein to become effective, and comply with your obligations hereunder, then the Company will provide you with the severance benefits set forth in your June 30, 2016 employment agreement with the Company (the “**Employment Agreement**”) for a termination without Cause:

(a) Severance Pay. The Company will pay you the equivalent of twelve (12) months of your base salary in effect as of the Separation Date, subject to standard payroll deductions and withholdings (“**Severance Pay**”), paid in the form of salary continuation over the twelve (12) month period following the Separation Date. The Severance Pay shall start on the first regular Company payroll date that falls on or after the 60th day following the Separation Date, with the first payment to include those payments that you otherwise would have been paid during such 60-day period.

(b) COBRA. To the extent provided by the federal COBRA law or, if applicable, state insurance laws, and by the Company’s current group health insurance policies, you will be eligible to continue your group health insurance benefits at your own expense. Later, you may be able to convert to an individual policy through the provider of the Company’s health insurance, if you wish. If you timely elect continued coverage under COBRA, the Company will pay your COBRA premiums to continue your coverage (including coverage for eligible dependents, if applicable) through the period (the “**COBRA Premium Period**”) starting on the Separation Date and ending on the earliest to occur of: (i) November 30, 2020; (ii) the date you become eligible for group health insurance coverage through a new employer; or (iii) the date you cease to be eligible for COBRA continuation coverage for any reason, including plan termination. In the event you become covered under another employer’s group health plan or otherwise cease to be eligible for COBRA during the COBRA Premium Period, you must immediately notify the Company in writing of such event.

(c) Acceleration. The Company will accelerate the vesting on all of your outstanding equity awards such that you will be deemed fully vested in all such awards. Your equity interests shall continue to be governed in all respects by the terms of the applicable equity agreements, grant notices, and plan documents.

3. SALE BONUS. Pursuant to your Employment Agreement, you will remain eligible for a Sale Bonus, as defined in the Employment Agreement, if a Sale of the Company (as defined in the Employment Agreement) occurs within twelve (12) months after the Separation Date, subject to the terms and conditions set forth in the Employment Agreement.

4. EXTENSION OF EXERCISE PERIOD. If you timely sign this Agreement and allow the releases set forth herein to become effective, then the Company will extend the exercise period on your equity awards through November 11, 2022 (but in no event past the term of the applicable equity award).

5. TRANSITIONAL MATTERS. As a precondition to your receipt of the severance benefits described in this Agreement, you are required to cooperate promptly and thoroughly with respect to any request the Company may reasonably make for information about the status of any work you were performing for the Company prior to your being placed on paid administrative leave.

6. OTHER COMPENSATION OR BENEFITS. You acknowledge that, except as expressly provided in this Agreement, you will not receive any additional compensation, severance or benefits after the Separation Date, with the exception of any vested right you may have under the express terms of a written ERISA-qualified benefit plan (e.g., 401(k) account). You acknowledge and agree that you have not earned, are not owed and will not receive, any annual bonus for 2019. You further acknowledge that upon receipt of the severance benefits set forth in this Agreement, you will have received all severance benefits you are entitled to receive from the Company, whether under the Employment Agreement or otherwise.

7. EXPENSE REIMBURSEMENTS. You agree that, within ten (10) days after the Separation Date, you will submit your final documented expense reimbursement statement reflecting all business expenses you incurred through the Separation Date, if any, for which you seek reimbursement. The Company will reimburse you for these expenses pursuant to its regular business practice.

8. RETURN OF COMPANY PROPERTY. By signing below, you represent and warrant that you have returned to the Company all Company documents (and all copies thereof) and other Company property in your possession or control. You further represent that you have made a diligent search to locate any such documents, property and information. In addition, if you have used any personally owned computer, server, or e-mail system to receive, store, review, prepare or transmit any confidential or proprietary data, materials or information of the Company, then within five (5) business days after the Separation Date, if requested by the Company, you must provide the Company with a computer-useable copy of such information and then permanently delete and expunge such confidential or proprietary information from those systems without retaining any reproductions (in whole or in part). **Your timely compliance with the provisions of this paragraph is a precondition to your receipt of the severance benefits provided hereunder.**

9. PROPRIETARY INFORMATION OBLIGATIONS. As a precondition to your receipt of the severance benefits set forth herein, you are required to execute the Employee Confidential Information and Inventions Assignment Agreement attached hereto as **Exhibit A**, as well as any other documents requested by the Company to ensure assignment of intellectual property to the Company.

10. NONDISPARAGEMENT. You agree not to disparage the Company or the Company's officers, directors, employees, shareholders, parents, subsidiaries, affiliates, and agents, in any manner likely to be harmful to them or their business, business reputation or personal reputation, and the Company agrees that the members of its Board of Directors and Company officers will not disparage you in any manner likely to be harmful to your personal or professional reputations; *provided that* both you and the Company may respond accurately and fully to any question, inquiry or request for information when required by legal process. In addition, nothing in this provision or this Agreement is intended to prohibit or restrain you in any manner from making disclosures that are protected under the whistleblower provisions of federal or state law or regulation.

11. NO VOLUNTARY ADVERSE ACTION. You agree that you will not voluntarily assist any person in bringing or pursuing any claim or action of any kind against the Company or its parents, subsidiaries, affiliates, officers, directors, employees or agents, unless pursuant to subpoena or other compulsion of law. In addition, you agree to execute all documents (if any) necessary to carry out the terms of this Agreement, such as but not exclusive of assignments, declarations and other documents necessary for procurement and enforcement of IP rights globally.

12. NO ADMISSIONS. You understand and agree that the promises and payments in consideration of this Agreement shall not be construed to be an admission of any liability or obligation by the Company to you or to any other person, and that the Company makes no such admission.

13. YOUR RELEASE OF CLAIMS.

(a) General Release. In exchange for the consideration provided to you under this Agreement to which you would not otherwise be entitled, you hereby generally and completely release the Company, and its affiliated, related, parent and subsidiary entities, and its and their current and former directors, officers, employees, shareholders, partners, agents, attorneys, predecessors, successors, insurers, affiliates, and assigns (collectively, the "**Released Parties**") from any and all claims, liabilities and obligations, both known and unknown, that arise out of or are in any way related to events, acts, conduct, or omissions occurring prior to or on the date you sign this Agreement (collectively, the "**Released Claims**").

(b) Scope of Release. The Released Claims include, but are not limited to: (i) all claims arising out of or in any way related to your employment with the Company, or the termination of that employment; (ii) all claims related to your compensation or benefits from the Company, including salary, bonuses, commissions, vacation, expense reimbursements, severance pay, fringe benefits, stock, stock options, or any other ownership, equity, or profits interests in the Company; (iii) all claims for breach of contract, wrongful termination, and breach of the implied covenant of good faith and fair dealing; (iv) all tort claims, including claims for fraud, defamation, emotional distress, and discharge in violation of public policy; and (v) all federal, state, and local statutory claims, including claims for discrimination, harassment, retaliation, attorneys' fees, or other claims arising under the federal Civil Rights Act of 1964 (as amended), the federal Americans with Disabilities Act of 1990, the federal Age Discrimination in Employment Act of 1967 (as amended) (the "**ADEA**"), the California Labor Code (as amended), the California Fair Employment and Housing Act (as amended), and all state law claims under Arizona law.

(c) ADEA Waiver. You acknowledge that you are knowingly and voluntarily waiving and releasing any rights you may have under the ADEA and that the consideration given for this waiver is in addition to anything of value to which you are already entitled. You further acknowledge that you have been advised, as required by the ADEA, that: (i) your waiver does not apply to any rights or claims that may arise after the date that you sign this Agreement; (ii) you should consult with an attorney prior to signing this Agreement (although you may choose voluntarily not to do so); (iii) you will have at least twenty-one (21) days to consider this Agreement (although you may choose voluntarily to sign it earlier); (iv) you have seven (7) days following the date you sign this Agreement to revoke your acceptance of this Agreement (by providing written notice of your revocation to me); and (v) this Agreement will not be effective until the date upon which the revocation period has expired, which will be the eighth day after the date that this Agreement is signed by you provided that you do not revoke it (the “**Effective Date**”).

(d) Section 1542 Waiver. YOU UNDERSTAND THAT THIS AGREEMENT INCLUDES A RELEASE OF ALL KNOWN AND UNKNOWN CLAIMS. In giving the release herein, which includes claims which may be unknown to you at present, you acknowledge that you have read and understand Section 1542 of the California Civil Code, which reads as follows: “**A general release does not extend to claims which the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her would have materially affected his or her settlement with the debtor or released party.**” You hereby expressly waive and relinquish all rights and benefits under that section and any law of any other jurisdiction of similar effect with respect to your release of any unknown or unsuspected claims herein.

(e) Excluded Claims. Notwithstanding the foregoing, the following are not included in the Released Claims (the “**Excluded Claims**”): (i) any rights or claims for defense and/or indemnification you may have pursuant to any written indemnification agreement with the Company to which you are a party or under applicable law; (ii) any rights which are not waivable as a matter of law; and (iii) any claims for breach of this Agreement. You hereby represent and warrant that, other than the Excluded Claims, you are not aware of any claims you have or might have against any of the Released Parties that are not included in the Released Claims. You understand that nothing in this Agreement limits your ability to file a charge or complaint with the Equal Employment Opportunity Commission, the Department of Labor, the National Labor Relations Board, the Occupational Safety and Health Administration, the Securities and Exchange Commission or any other federal, state or local governmental agency or commission (“**Government Agencies**”). You further understand this Agreement does not limit your ability to communicate with any Government Agencies or otherwise participate in any investigation or proceeding that may be conducted by any Government Agency, including providing documents or other information, without notice to the Company. While this Agreement does not limit your right to receive an award for information provided to the Securities and Exchange Commission or any other Government Agency, you understand and agree that, to maximum extent permitted by law, you are otherwise waiving any and all rights you may have to individual relief based on any claims that you have released and any rights you have waived by signing this Agreement.

14. THE COMPANY'S RELEASE OF CLAIMS. In exchange for your execution of this Agreement, including the release you are granting pursuant to Section 13 above, the Company generally and completely releases you, your heirs, agents, and attorneys from any and all claims, liabilities and obligations, both known and unknown, that arise out of or are in any way related to events, acts, conduct, or omissions occurring prior to or on the date you sign this Agreement; provided, however, that this release shall not extend to claims arising at any time from your contractual and statutory obligations to refrain from the unauthorized use or disclosure of proprietary or trade secret information belonging to the Company, nor to any claims arising at any time from your willful misconduct that causes material injury to the Company or its shareholders. (These two exceptions shall, collectively, be deemed "**the Exceptions.**") The Company represents that it has no present intention to bring claims against you that fall within the Exceptions. The Company understands that its release extends to all known and unknown claims, and the Company acknowledges that it has read and understands Section 1542 of the California Civil Code, which reads as noted in Section 13(d) above. The Company expressly waives and relinquishes all rights and benefits under that section and any law of any other jurisdiction or similar effect with respect to its release of any unknown or unsuspected claims herein.

15. REPRESENTATIONS. You hereby represent that you have been paid all compensation owed and for all hours worked, have received all the leave and leave benefits and protections for which you are eligible, pursuant to the Family and Medical Leave Act or otherwise, and, to your knowledge, have not suffered any on-the-job injury for which you have not already filed a claim.

16. DISPUTE RESOLUTION. To aid in the rapid and economical resolution of any disputes which may arise under this Agreement, you and the Company agree that any and all claims, disputes or controversies of any nature whatsoever arising from or regarding the interpretation, performance, negotiation, execution, enforcement or breach of this Agreement, your employment, or the termination of your employment, including but not limited to statutory claims, shall be resolved, to the greatest extent permitted by law, by confidential, final and binding arbitration conducted before a single arbitrator with the American Arbitration Association ("**AAA**") in Flagstaff, Arizona or Phoenix, Arizona under AAA's then-applicable arbitration rules. **The parties acknowledge that, by agreeing to this arbitration procedure, they waive the right to resolve any such dispute through a trial by jury, judge or administrative proceeding.** You will have the right to be represented by legal counsel at any arbitration proceeding. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be available under applicable law in a court proceeding; and (b) issue a written statement signed by the arbitrator regarding the disposition of each claim and the relief, if any, awarded as to each claim, the reasons for the award, and the arbitrator's essential findings and conclusions on which the award is based. The Company shall bear the arbitration association's arbitration fees and administrative costs. Nothing in this Agreement shall prevent either you or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

17. ATTORNEYS' FEES. As an additional benefit to you under this Agreement, the Company will pay, directly to your counsel, up to \$20,000 in documented attorneys' fees incurred by you in connection with the negotiation of this Agreement.

18. GENERAL. This Agreement, including Exhibit A, constitutes the complete, final and exclusive embodiment of the entire agreement between you and the Company with regard to this subject matter. It is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations. This Agreement may not be modified or amended except in a writing signed by both you and a duly authorized officer of the Company. This Agreement will bind the heirs, personal representatives, successors and assigns of both you and the Company, and inure to the benefit of both you and the Company, their heirs, successors and assigns. If any provision of this Agreement is determined to be invalid or unenforceable, in whole or in part, this determination will not affect any other provision of this Agreement and the provision in question will be modified by the court so as to be rendered enforceable to the fullest extent permitted by law, consistent with the intent of the parties. This Agreement will be deemed to have been entered into and will be construed and enforced in accordance with the laws of the State of Arizona as applied to contracts made and to be performed entirely within Arizona.

If this Agreement is acceptable to you, please sign below and return the original to me. You must return this signed Agreement, with the revocation period having elapsed, within sixty (60) days.

I wish you good luck in your future endeavors.

Sincerely,

SENESTECH, INC.

By: /s/ Jamie Bechtel
Jamie Bechtel, Director

Exhibit A – Proprietary Information and Inventions Agreement

ACCEPTED AND AGREED:

/s/ Cheryl A. Dyer, Ph.D.

Cheryl Dyer

12/17/19

Date

Exhibit 21.1

SUBSIDIARIES OF THE REGISTRANT

The following is a list of subsidiaries of the registrant as of December 31, 2019.

| <u>Name</u> | <u>Jurisdiction of incorporation or organization</u> |
|-------------|------------------------------------------------------|
| NONE | |

Exhibit 23.1



CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements (Form S-3 No. 333-226842, Form S-3 No. 333-225712, Form S-1 No. 333-225713, Form S-1 No. 333-221433, Form S-8 No. 333-215026 and Form S-8 No. 333-225710) of our report dated March 16, 2020, of SenesTech, Inc. relating to the audits of the financial statements for the periods ending December 31, 2019 and 2018, and the reference to our firm under the caption “Experts” in the Registration Statement.

/s/ M&K CPAS, PLLC

www.mkacpas.com

Houston, Texas

March 16, 2020

Exhibit 31.1

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER PURSUANT TO
RULE 13(a)-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934**

I, Kenneth Siegel, certify that:

1. I have reviewed this Annual Report on Form 10-K of SenesTech, 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.

Dated: March 16, 2020

/s/ Kenneth Siegel

Kenneth Siegel

Chief Executive Officer

Exhibit 31.2

**CERTIFICATION OF CHIEF FINANCIAL OFFICER PURSUANT TO
RULE 13(a)-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934**

I, Thomas C. Chesterman, certify that:

1. I have reviewed this Annual Report on Form 10-K of SenesTech, 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.

Dated: March 16, 2020

/s/ Thomas C. Chesterman
Thomas C. Chesterman
Chief Financial Officer and Treasurer

Exhibit 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER PURSUANT TO 18 U.S.C. SECTION 1350

Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, I, Kenneth Siegel, Chief Executive Officer of SenesTech, Inc., certify that:

1. To my knowledge, this report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. To my knowledge, the information contained in this report fairly presents, in all material respects, the financial condition and results of operations of SenesTech, Inc.

Dated: March 16, 2020

/s/ Kenneth Siegel
Kenneth Siegel
Chief Executive Officer

Exhibit 32.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER PURSUANT TO 18 U.S.C. SECTION 1350

Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, I, Thomas C. Chesterman, Chief Financial Officer and Treasurer of SenesTech, Inc., certify that:

1. To my knowledge, this report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. To my knowledge, the information contained in this report fairly presents, in all material respects, the financial condition and results of operations of SenesTech, Inc.

Dated: March 16, 2020

/s/ Thomas C. Chesterman
Thomas C. Chesterman
Chief Financial Officer and Treasurer