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, 2018

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: 0-20859

GERON CORPORATION
(Exact name of registrant as specified in its charter)

Delaware	**75-2287752**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
149 Commonwealth Drive, Suite 2070, Menlo Park, CA	**94025**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (650) 473-7700

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

Title of each class	**Name of each exchange on which registered**
Common Stock, $0.001 par value	**The Nasdaq Stock Market LLC**

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 Section 15(d) of the Act. Yes ☐ No ☒

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§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 if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or 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 Act). Yes ☐ No ☒

The aggregate market value of voting and non-voting common equity held by non-affiliates of the registrant was approximately $623,076,000 based upon the closing price of the registrant's common stock on June 29, 2018 on the Nasdaq Global Select Market. The calculation of the aggregate market value of voting and non-voting common equity held by non-affiliates of the registrant excludes shares of common stock held by each officer, director and stockholder that the registrant concluded were affiliates on that date. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of March 1, 2019, there were 186,392,682 shares of common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE:

Document	**Form 10-K Parts**
Portions of the Registrant's definitive proxy statement for the 2019 annual meeting of stockholders to be filed pursuant to Regulation 14A within 120 days of the Registrant's fiscal year ended December 31, 2018	III

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In this report, unless otherwise indicated or the context otherwise requires, "Geron," "the registrant," "we," "us," and "our" refer to Geron Corporation, a Delaware corporation.

Forward-Looking Statements

This annual report on Form 10-K, including "Business" in Part I, Item 1 and "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7, contains forward-looking statements that involve risks and uncertainties, as well as assumptions that, if they never materialize or prove incorrect, could cause the results of Geron Corporation, or Geron or the Company, to differ materially from those expressed or implied by such forward-looking statements. All statements other than statements of historical fact are statements that could be deemed forward-looking statements. In some cases, forward-looking statements can be identified by the use of terminology such as "may," "expects," "plans," "intends," "will," "should," "projects," "believes," "predicts," "anticipates," "estimates," "potential," or "continue" or the negative thereof or other comparable terminology. The risks and uncertainties referred to above include, without limitation, risks related to our ability to timely transition the imetelstat program from Janssen Biotech, Inc., or Janssen, to us, uncertainty of non-clinical and clinical trial results or regulatory approvals or clearances, the future development of imetelstat, including any future efficacy or safety results that may cause the benefit-risk profile of imetelstat to become unacceptable, our need for additional capital to support the development and commercialization of imetelstat and to otherwise grow our business, enforcement of our patent and proprietary rights, potential competition and other risks that are described herein and that are otherwise described from time to time in our Securities and Exchange Commission reports including, but not limited to, the factors described in Part I, Item 1A, "Risk Factors," of this annual report on Form 10-K. Geron assumes no obligation for and except as required by law, disclaims any obligation to update these forward-looking statements to reflect future information, events or circumstances.

Calculation of Aggregate Market Value of Non-Affiliate Shares

For purposes of calculating the aggregate market value of shares of our common stock held by non-affiliates as set forth on the cover page of this annual report on Form 10-K, we have assumed that all outstanding shares are held by non-affiliates, except for shares held by each of our executive officers, directors and 5% or greater stockholders. In the case of 5% or greater stockholders, we have not deemed such stockholders to be affiliates unless there are facts and circumstances which would indicate that such stockholders exercise any control over our Company. These assumptions should not be deemed to constitute an admission that all executive officers, directors and 5% or greater stockholders are, in fact, affiliates of our Company, or that there are no other persons who may be deemed to be affiliates of our Company. Further information concerning shareholdings of our executive officers, directors and principal stockholders is incorporated by reference in Part III, Item 12 of this annual report on Form 10-K.

PART I

ITEM 1. BUSINESS

Company Overview

We are a late-stage clinical biopharmaceutical company that is focused on the development and commercialization of innovative therapeutics for hematologic myeloid malignancies. We have global rights to imetelstat, a first-in-class telomerase inhibitor, that was discovered and developed at Geron. We believe clinical data from two Phase 2 clinical trials of imetelstat (IMerge and IMbark, discussed below) conducted by Janssen Biotech, Inc., or Janssen, support further development of imetelstat in hematologic myeloid malignancies. We are working with Janssen to transition the imetelstat program to us. See further discussion below regarding our past and current relationship with Janssen.

We plan to open patient screening and enrollment by mid-year of 2019 in a Phase 3 clinical trial (Part 2 of IMerge) to evaluate imetelstat in transfusion dependent patients with Low or Intermediate-1 risk myelodysplastic syndromes, or MDS, who have relapsed after or are refractory to prior treatment with an erythropoiesis stimulating agent, or ESA, have not received prior treatment with either a hypomethylating agent or lenalidomide and do not have a deletion 5q chromosomal abnormality. This target population of lower risk MDS patients depend on serial red blood cell transfusions to manage symptoms of anemia and fatigue. However, dependency on transfusions is associated with poor survival, because of toxicity due to iron overload, as well as potential infections and allergic reactions. The ultimate goal for most trials of investigational agents in lower risk MDS is to enable patients to become transfusion independent for as long as possible. In December 2018, we reported results from the Phase 2 portion of IMerge in which 37% of patients experienced red blood cell transfusion independence for at least 8 consecutive weeks, or an 8-week RBC-TI, rate. Importantly, this 8-week RBC-TI rate was observed in patients with high transfusion burdens, an indicator of a more difficult to treat population. Patients enrolled into the Phase 2 portion of IMerge had a baseline median red blood cell transfusion burden of eight units per eight weeks with a range of four to 14 units. Our results compare favorably to currently used treatments in a similar patient population, such as hypomethylating agents, or HMAs, which have a reported 8-week RBC-TI rate of 17%, or lenalidomide, which has a reported 8-week RBC-TI rate of 27%. In addition, among the patients in the Phase 2 portion of IMerge who achieved a durable response, as reflected by achieving a 24-week RBC-TI, all showed a hemoglobin rise of $\geq$3.0 g/dL compared to baseline during the transfusion-free interval. We believe these data suggest potential disease-modifying activity of imetelstat treatment.

Regarding our myelofibrosis, or MF, program, we reported data in December 2018 from the IMbark Phase 2 clinical trial, including the median overall survival of 29.9 months observed in the trial in comparison to the median overall survival of 14 – 16 months for patients previously treated with janus kinase, or JAK, inhibitors. We plan to discuss the IMbark data with experts in MF, as well as regulatory authorities, to consider how these results compare with other therapies currently available to MF patients, and to gain a better understanding of the potential significance of these results to patients and physicians. Because IMbark is the first clinical trial to apply rigorous, objective eligibility criteria to define patients considered relapsed or refractory to JAK inhibitors, we believe feedback from these discussions could provide important information on the feasibility, scope and design, including possible outcome measures, of any potential future clinical trials for imetelstat in Intermediate-2 or High-risk MF patients who have relapsed after or are refractory to prior treatment with a JAK inhibitor. We expect to outline our decision whether to continue late-stage development of imetelstat in MF by the end of the third quarter of 2019. This decision will be influenced by our assessment of what would be required to achieve clinical and regulatory success in MF, including the cost and duration of any potential clinical trials.

We had approximately $182.1 million in cash, cash equivalents, restricted cash and current and noncurrent marketable securities as of December 31, 2018, which is sufficient to commence the planned Phase 3 portion IMerge. If approved for marketing by regulatory authorities, we plan to commercialize imetelstat in the United States ourselves and seek potential commercialization partners for territories outside of the United States.

Telomerase: Scientific Rationale

Telomeres and Telomerase in Normal Development

In the human body, normal growth and maintenance of tissues occurs by cell division. However, most cells are only able to divide a limited number of times, and this number of divisions is regulated by telomere length. Telomeres are repetitions of a deoxyribonucleic acid, or DNA, sequence located at the ends of chromosomes. They act as protective caps to maintain stability and integrity of the chromosomes, which contain the cell's genetic material. Normally, every time a cell divides, the telomeres shorten. Eventually, they shrink to a critically short length, and as a result, the cell either dies by apoptosis or stops dividing and senesces.

Telomerase is a naturally occurring enzyme that maintains telomeres and prevents them from shortening during cell division, such as stem cells that must remain immortalized to support normal health. Telomerase consists of at least two essential components: a ribonucleic acid, or RNA, template (hTR), which binds to the telomere, and a catalytic subunit (hTERT) with reverse transcriptase activity, which adds a specific DNA sequence to the chromosome ends. The 2009 Nobel Prize for Physiology or Medicine was awarded to Drs. Elizabeth H. Blackburn, Carol W. Greider and Jack Szostak, former Geron collaborators, for the discovery of how chromosomes are protected by both telomeres and telomerase.

Telomerase is active during embryonic development, enabling the rapid cell division that supports normal growth. During the latter stages of human fetal development and in adulthood, telomerase is repressed in most cells, and telomere length gradually decreases during a lifetime. In tissues that have a high turnover throughout life, such as blood and gut, telomerase can be transiently upregulated in progenitor cells to enable controlled, self-limited proliferation to replace cells lost through natural cell aging processes. As the progeny of progenitor cells mature, telomerase is downregulated and telomeres shorten with cell division, preventing uncontrolled proliferation.

Telomeres and Telomerase in Cancer

Telomerase is upregulated in many tumor progenitor cells, enabling the continued and uncontrolled proliferation of the malignant cells that drive tumor growth and progression. Telomerase expression has been found to be present in approximately 90% of biopsies taken from a broad range of human cancers. Our nonclinical studies, in which the telomerase gene was artificially introduced and expressed in normal cells grown in culture, have suggested that telomerase does not itself cause a normal cell to become malignant. Instead, the sustained upregulation of telomerase enables tumor cells to maintain telomere length, providing them with the capacity for limitless proliferation. We believe that the sustained upregulation of telomerase is critical for tumor progression as it enables malignant progenitor cells to acquire cellular immortality and avoid apoptosis, or cell death.

Telomerase Inhibition: Inducing Cancer Cell Death

We believe that inhibiting telomerase may be an attractive approach to treating cancer because it may limit the proliferative capacity of malignant cells. We and others have observed in various in vitro and rodent tumor models that inhibiting telomerase results in telomere shortening and arrests uncontrolled malignant cell proliferation and tumor growth. In vitro studies have suggested that tumor cells with short telomeres may be especially sensitive to the anti-proliferative effects of inhibiting telomerase. Our nonclinical data also suggest that inhibiting telomerase is particularly effective at limiting the proliferation of malignant progenitor cells, which have high levels of telomerase and are believed to be important drivers of tumor growth and progression.

Imetelstat: The First Telomerase Inhibitor to Advance to Clinical Development

Imetelstat is a lipid conjugated 13-mer oligonucleotide that we designed to be complementary to and bind with high affinity to the RNA template of telomerase, thereby directly inhibiting telomerase activity. Imetelstat does not elicit its effect through an antisense inhibition of protein translation. The compound has a proprietary thio-phosphoramidate backbone, which is designed to provide resistance to the effect of cellular nucleases, thus conferring improved stability in plasma and tissues, as well as improved binding affinity to its target. To improve the ability of imetelstat to penetrate cellular membranes, we conjugated the oligonucleotide to a lipid group. Imetelstat's IC50, or half maximal inhibitory concentration, is 0.5 – 10 nM in cell free assays. Single-dose kinetics in patients has shown dose-dependent increases in exposure to imetelstat, with a plasma half-life, which is the time it takes for the

concentration or amount of imetelstat to be reduced by half, ranging from 4 – 5 hours. Data from animal studies and clinical trials have suggested that the residence time of imetelstat in bone marrow is long, with 0.19 – 0.51 μM observed at 41 – 45 hours after a 7.5 mg/kg dose in patients. Imetelstat also has been shown in nonclinical studies to exhibit relatively preferential inhibition of the clonal proliferation of malignant progenitor cells compared to normal progenitors. For these reasons, imetelstat has been studied as a potential treatment for malignant diseases.

Imetelstat is the first telomerase inhibitor to advance to clinical development. The Phase 1 trials that we completed evaluated the safety, tolerability, pharmacokinetics and pharmacodynamic effects of imetelstat. We established doses and dosing schedules that were tolerable and achieved target exposures in patients that were consistent with those required for efficacy in animal models. Following intravenous administration of imetelstat using tolerable dosing regimens, clinically relevant and significant inhibition of telomerase activity was observed in various types of tissue in which telomerase activity is measurable, including normal bone marrow hematopoietic cells, malignant plasma cells, hair follicle cells and peripheral blood mononuclear cells. Dose-limiting toxicities included thrombocytopenia, or reduced platelet count, and neutropenia, or reduced neutrophil count.

Disease Characteristics of Hematologic Malignancies

Hematologic malignancies, or blood cancers, are classified according to the predominant location of the malignancy. A hematologic myeloid malignancy is a cancer that occurs in the precursor cells to red blood cells, platelets and white blood cells, such as granulocytes. Examples include acute myelogenous leukemia, chronic myelogenous leukemia, MDS and the myeloproliferative neoplasms, such as essential thrombocythemia, or ET, polycythemia vera and MF. These are different from lymphocytic malignancies which typically occur in the lymphoid lineage that includes white blood cells, such as T lymphocytes and B lymphocytes. Examples of lymphoid malignancies include acute lymphoblastic leukemia, chronic lymphocytic leukemia, lymphomas and multiple myeloma.

Many hematologic myeloid malignancies, such as ET, MF, and MDS, have been shown to arise from malignant progenitor cells in the bone marrow that express higher telomerase activity and have shorter telomeres when compared to normal healthy cells.

Unmet Medical Need in Myelodysplastic Syndromes

MDS is a group of blood disorders in which the proliferation of malignant progenitor cell clones in the bone marrow results in disordered and ineffective production of the myeloid lineage, which includes red blood cells, white blood cells and platelets. In MDS, bone marrow and peripheral blood cells may have abnormal, or dysplastic, cell morphology. MDS is frequently characterized clinically by severe anemia, or low red blood cell counts, and low hemoglobin. In addition, other peripheral cytopenias, or low numbers of white blood cells and platelets, may cause life-threatening infections and bleeding. Transformation to acute myelogenous leukemia, or AML, occurs in up to 30% of MDS cases and results in poorer overall survival.

MDS is the most common of the myeloid malignancies. There are approximately 60,000 people in the United States living with the disease and approximately 16,000 reported new cases of MDS in the United States every year. MDS is primarily a disease of the elderly, with median age at diagnosis around 70 years. The majority of patients, approximately 70%, fall into what are considered to be the lower risk groups at diagnosis, according to the International Prognostic Scoring System, or IPSS, that takes into account the presence of a number of disease factors, such as cytopenias and cytogenetics, to assign relative risk of progression to AML and overall survival.

Chronic anemia is the predominant clinical problem in patients who have lower risk MDS. Many of these patients become dependent on red blood cell transfusions due to low hemoglobin. Serial red blood cell transfusions can lead to elevated levels of iron in the blood and other tissues, which the body has no normal way to eliminate. Iron overload is a potentially dangerous condition. Studies in patients with MDS have shown that iron overload resulting from regular red blood cell transfusions is associated with a poorer overall survival and a higher risk of developing AML.

There have been no new drugs approved by the United States Food and Drug Administration, or FDA, for MDS therapy since 2006 and clinicians note that currently available therapies are likely to fail the majority of patients within two to three years after treatment initiation even if there is initial favorable response. Typically, patients with lower risk MDS are treated with ESAs, such as erythropoietin, or EPO. Although ESAs provide an improvement in anemia in approximately 50% of patients, the effect is transient with a median duration of treatment of approximately two years. Once ESAs fail for patients, HMAs and lenalidomide have been used to improve anemia, but with limited success, such as reported 8-week RBC-TI rates of 17% for azacitidine, an HMA, and 27% for lenalidomide. No drug therapy has been shown prospectively to prolong survival in lower risk MDS, nor to delay disease progression.

Unmet Medical Need in Myelofibrosis

MF, a type of myeloproliferative neoplasm, is a chronic blood cancer in which abnormal or malignant precursor cells in the bone marrow proliferate rapidly, causing scar tissue, or fibrosis, to form. As a result, normal blood production in the bone marrow is impaired and may shift to other organs, such as the spleen and liver, which can cause them to enlarge substantially. People with MF may have abnormally low or high numbers of circulating red blood cells, white blood cells or platelets, and abnormally high numbers of immature cells in the blood or bone marrow. MF patients can also suffer from debilitating constitutional symptoms, such as drenching night sweats, fatigue, severe itching, or pruritus, abdominal pain, fever and bone pain. The estimated prevalence of MF in the United States, or U.S., is approximately 13,000 patients, with an annual incidence of approximately 3,000 patients. Up to 20% of patients with MF develop AML.

Approximately 70% of MF patients are classified as having Intermediate-2 or High-risk disease, as defined by the Dynamic International Prognostic Scoring System Plus, or DIPSS Plus, described in a 2011 *Journal of Clinical Oncology* article. There is currently only one targeted drug therapy, ruxolitinib, a JAK inhibitor, approved by the FDA and other regulatory authorities for treating these MF patients. Currently, no drug therapy is approved for those patients who fail or no longer respond to that treatment, and median survival for such MF patients is only approximately 14 – 16 months, representing a significant unmet medical need.

Developing Imetelstat to Treat Hematologic Myeloid Malignancies

Proof-of-Concept of Imetelstat's Disease-Modifying Potential

We believe that imetelstat may have the potential to suppress the proliferation of malignant progenitor cell clones to allow recovery of normal hematopoiesis in patients with hematologic myeloid malignancies. Early clinical data from a Phase 2 trial of imetelstat in patients with ET, or the ET Trial, and a pilot study of imetelstat in patients with MF conducted at Mayo Clinic, or the Pilot Study, suggest imetelstat may exhibit such disease-modifying activity. These data were published in two separate articles in a September 2015 issue of *The New England Journal of Medicine*.

Reported adverse events, or AEs, and laboratory investigations associated with imetelstat in the ET Trial and the Pilot Study included cytopenias, gastrointestinal symptoms, constitutional symptoms, and hepatic biochemistry abnormalities. Dose-limiting toxicities, such as profound and prolonged thrombocytopenia and neutropenia, and other safety issues, including death, were observed in the ET Trial and the Pilot Study. In those trials, such myelosuppression was managed by dose holds and modification rules.

IMerge (Phase 2/3 Trial) in Lower Risk MDS

Trial Design

IMerge is a two-part clinical trial evaluating imetelstat in transfusion dependent patients with Low or Intermediate-1 risk, also referred to as lower risk, MDS, who have relapsed after or are refractory to prior treatment with an ESA. Part 1 of IMerge was designed as a Phase 2, open-label, single-arm trial to assess the efficacy and safety of imetelstat administered as an intravenous infusion at a starting dose of 7.5 mg/kg every four weeks in approximately 30 patients, and originally was conducted by Janssen as part of a Collaboration and License Agreement, or the Collaboration Agreement. See further discussion below regarding our past and current relationship with Janssen. The first patient was dosed in January 2016. To be eligible for the Phase 2 portion of IMerge, patients were required to be

transfusion dependent, defined as requiring at least four units of packed red blood cells, or RBCs, over an eight week period during the 16 weeks before entry into the trial.

The primary efficacy endpoint of IMerge is the rate of RBC transfusion independence, or RBC-TI, lasting at least eight weeks, defined as the proportion of patients without any RBC transfusion during any consecutive eight weeks since entry to the trial, or 8-week RBC-TI rate. Key secondary endpoints include the rate of RBC-TI lasting at least 24 weeks, or 24-week RBC-TI rate, and the rate of hematologic improvement-erythroid, or HI-E, defined as a rise in hemoglobin of at least 1.5 g/dL above the pretreatment level for at least eight weeks or a reduction of at least four units of RBC transfusions over eight weeks compared with the prior RBC transfusion burden. Other secondary efficacy endpoints include the time to and duration of RBC-TI; the proportion of patients achieving Complete Response, or CR, or Partial Response, or PR, according to the 2006 International Working Group, or IWG, criteria for MDS; the proportion of patients requiring RBC transfusions and the transfusion burden; the proportion of patients requiring the use of myeloid growth factors and the dose; assessments of the change in the patients' quality of life using several validated instruments; as well as an assessment of overall survival and time to progression to AML.

32 patients were initially enrolled in the Phase 2 portion of IMerge, of which a cohort of 13 patients had not received prior treatment with either an HMA or lenalidomide and did not have a deletion 5q chromosomal abnormality, also known as non-del(5q). Preliminary data from the Phase 2 portion of IMerge were presented at the European Hematology Association, or EHA, Annual Congress, in June 2018. These data showed that the 13-patient initial cohort exhibited an increased rate and durability of transfusion independence compared to the overall trial population (8-week RBC-TI rate: 54% vs. 34%). The safety profile in the Phase 2 portion of IMerge was consistent with prior clinical trials of imetelstat in hematologic malignancies, and no new safety signals were identified. The most frequently reported adverse events were cytopenias, which were predictable, manageable and reversible, in most cases, including Grade 3 and 4, or severe, neutropenia and thrombocytopenia. In addition, reported adverse events did not differ significantly between the overall trial population and the 13-patient initial cohort.

Based on the preliminary data from the initial cohort of 13 patients, Janssen expanded new patient enrollment in the Phase 2 portion of IMerge and enrolled 25 additional patients, or an expansion cohort, who are non-del(5q) and naïve to HMA and lenalidomide treatment, to increase the clinical experience and confirm the benefit-risk profile of imetelstat in this target patient population. In November 2017, the first patient was dosed in the expanded Phase 2 portion of IMerge and enrollment was completed in February 2018.

Detailed results for the target patient population (n=38) from the combined initial cohort of 13 patients and expansion cohort of 25 patients were recently presented at the 60th American Society of Hematology, or ASH, Annual Meeting and Exposition in December 2018. A summary of the results is below.

ASH Presentation Highlights

In the ASH presentation, results were reported using a clinical cut-off date of October 26, 2018. For the initial 13-patient cohort, the median follow-up was 29.1 months and for the 25-patient expansion cohort, the median follow-up was 8.7 months. The median number of treatment cycles was 8.0 (range: 1 – 34) and the mean dose intensity was 6.9 mg/kg/cycle. The baseline characteristics of the aggregate 38 patients in the combined cohorts highlight the high transfusion burden of these patients, indicating the significant disease burden of this patient population.

Patient Baseline Characteristics (n=38)	
Median age (range), years	71.5 (46-83)
Male, n (%)	25 (66%)
Eastern Cooperative Oncology Group (ECOG) Performance Standard 0-1, n (%)	34 (89%)
International Prognostic Scoring System risk, n (%) Low Intermediate-1	 24 (63%) 14 (37%)
Baseline median (range) RBC transfusion burden, units/8 weeks	8 (4–14)
WHO 2001 category, n (%) Refractory Anemia with Ringed Sideroblasts (RARS) or Refractory Cytopenia with Multilineage Dysplasia and Ringed Sideroblasts (RCMD-RS) All others	 27 (71%) 11 (29%)
Prior ESA use, n (%)	34 (89%)
Serum EPO > 500 mU/mL, n (%)	12[a] (32%)

a Of the 37 patients with sEPO (serum erythropoietin) levels reported.

The 8-week RBC-TI rate for the 38 patients in the combined cohorts was 37% and 26% of patients achieved a durable response with 24-week RBC-TI. In addition, among the patients achieving durable transfusion independence, all showed a hemoglobin rise of ≥3.0 g/dL compared to baseline during the transfusion-free interval. We believe these data suggest potential disease-modifying activity of imetelstat treatment. In addition, similar 8-week RBC-TI rates were observed between ringed sideroblast positive (37%) patients and other patients (36%), and between those patients with baseline erythropoietin levels >500 mU/mL (33%) and ≤500 mU/mL (40%), indicating the broad clinical activity of imetelstat in the Phase 2 portion of this trial. These and other efficacy data are also summarized in the table below:

Key Efficacy Outcomes	**n=38**
Rate of 8-week RBC-TI, n (%)	14 (37%)
Rate of 24-week RBC-TI, n (%)	10 (26%)
Median time to onset of RBC-TI (range), weeks	8.1 (0.1-33.1)
Median duration of RBC-TI (range), weeks	Not Evaluable (17.0-NE)
Rate of transfusion reduction (hematologic improvement-erythroid, or HI-E), n (%)	27 (71%)
Mean relative reduction of RBC transfusion burden from baseline, %	-68%
CR+ marrow CR + PR (per International Working Group, or IWG), n (%)	8 (21%)

As summarized in the table below, the safety profile was consistent with prior clinical trials of imetelstat in hematologic malignancies, and no new safety signals were identified. Nineteen patients (50%) had dose reductions and 26 patients (68%) had cycle delays. Reversible Grade 3 liver function test, or LFT, elevations were observed in three patients (8%) and an independent Hepatic Review Committee deemed the observed LFT elevations were not imetelstat-related hepatic toxicities.

Most Common Treatment-Emergent Adverse Events (TEAE)	**Patients ≥ 1 TEAE**	
	Grade 1-2	**Grade ≥ 3**
Neutropenia	1	21
Thrombocytopenia	2	23
Anemia	2	7
Leukopenia	0	7
Aspartate Aminotransferase, or AST, increased	3	3
Alanine Aminotransferase, or ALT, increased	5	2
Headache	5	1
Bronchitis	4	2
Nasopharyngitis	6	0
Diarrhea	6	0
Peripheral edema	6	0
Back pain	4	2

The majority of Grade ≥3 neutropenia and thrombocytopenia were reversible within four weeks as shown in the table below:

Occurrence and Reversibility of Cytopenias	**All events n=38**	**Recovered in < 4wks of patients with an event**
Neutrophils, n (%)		
Grade 3	10 (26%)	8 (80%)
Grade 4	12 (32%)	12 (100%)
Platelets, n (%)		
Grade 3	14 (37%)	13 (93%)
Grade 4	10 (26%)	9 (90%)

Current Status of the Phase 2 Portion of IMerge

The Phase 2 portion of IMerge has been officially closed to new patient enrollment and patients remaining in the treatment phase are eligible to continue to receive imetelstat treatment, per investigator discretion. Data collection and patient follow-up continue in accordance with the trial protocol and is being conducted by Janssen during the program transition period. In connection with the transition of the imetelstat program, we expect sponsorship for IMerge to be transferred from Janssen to us by the end of the second quarter of 2019. Once the IND transfer has been completed, we will assume responsibility for treating and following patients in accordance with the Phase 2 trial protocol.

We expect more mature data from the patients continuing in the treatment phase of the Phase 2 portion of IMerge to be available in 2019 and anticipate submitting such data for presentation at a future medical conference in 2019.

Plan for IMerge Phase 3 Clinical Trial to Begin by Mid-Year 2019

Based on the results of the Phase 2 portion of IMerge, we intend to continue the development of imetelstat in lower risk MDS. Importantly, the 37% 8-week RBC-TI rate observed in the Phase 2 portion of IMerge compares favorably to currently used treatments in a similar patient population, such as HMAs, with a reported 8-week RBC-TI rate of 17% or lenalidomide, with a reported 8-week RBC-TI rate of 27%. Also, the IMerge results were observed in patients with high transfusion burdens, an indicator of a more difficult to treat population and among the patients who achieved durable transfusion independence in the Phase 2 portion of IMerge, all showed a hemoglobin rise of ≥3.0 g/dL compared to baseline during the transfusion-free interval. We believe these data suggest potential disease-modifying activity of imetelstat treatment.

We expect patient screening and enrollment of Part 2, or the Phase 3 portion, of IMerge, to begin by mid-year of 2019, after sponsorship of the ongoing imetelstat clinical trials has been transferred from Janssen to us. The Phase 3 portion of IMerge is a double-blind, randomized, placebo-controlled trial in approximately 170 patients, which will evaluate imetelstat in transfusion dependent patients with Low or Intermediate-1 risk MDS, who have relapsed after or are refractory to prior treatment with an ESA, have not received prior treatment with either an HMA or lenalidomide and do not have a deletion 5q chromosomal abnormality. We expect the trial to be conducted at multiple medical centers globally, including North America, Europe and Asia. Trial design information for the Phase 3 portion of IMerge, including patient eligibility criteria and locations of clinical sites, will be posted on clinicaltrials.gov.

IMbark (Phase 2 Trial) in Relapsed/Refractory MF

Trial Design

IMbark was designed as a Phase 2 clinical trial to evaluate two starting dose levels of imetelstat (either 4.7 mg/kg or 9.4 mg/kg administered by intravenous infusion every three weeks) in approximately 200 patients with Intermediate-2 or High-risk MF who have relapsed after or are refractory to prior treatment with a JAK inhibitor. We believe IMbark is the first clinical trial to rigorously define this specific patient population, as currently there is no established clinical definition for relapsed after or refractory to prior treatment with a JAK inhibitor. Patients eligible for the trial were required to have active symptoms of MF, together with worsening of splenomegaly-related abdominal pain at any time after the start of JAK inhibitor therapy, and either: no reduction in spleen volume or size after 12 weeks of JAK inhibitor therapy, or worsening splenomegaly after the start of JAK inhibitor therapy, as documented by an increase in spleen volume from its lowest point, or nadir, by 25% when measured by imaging, or an increase in spleen size when assessed by palpation. IMbark was originally conducted by Janssen as part of the Collaboration Agreement.

The co-primary efficacy endpoints for the trial are spleen response rate, defined as the proportion of patients who achieve a ≥35% reduction in spleen volume assessed by imaging, and symptom response rate, defined as the proportion of patients who achieve a ≥50% reduction in Total Symptom Score, or TSS, at 24 weeks. Key secondary endpoints are safety and overall survival. Other secondary efficacy endpoints include the number of patients achieving complete remission, or CR, or partial remission, or PR, clinical improvement, or CI, and anemia, spleen and symptom responses. Exploratory endpoints include cytogenetic and molecular responses, as well as leukemia-free survival.

The first patient in IMbark was dosed in September 2015 and the last patient was enrolled in October 2016. Janssen initiated a protocol-specified primary analysis of IMbark in the second quarter of 2018. The IMbark protocol-specified primary analysis, which included an assessment of overall survival, or OS, coincided with the protocol-specified final analysis for the trial, due to an overlap in the dates triggering each analysis, which resulted in a joint primary/final analysis, which we refer to herein as the primary analysis. The results of this primary analysis and updated data on overall survival were presented at the ASH Annual Meeting and Exposition in December 2018. A summary of the results is below.

ASH Presentation Highlights

As reported in the ASH presentation, a total of 107 patients were enrolled in IMbark (48 in the 4.7 mg/kg dosing arm and 59 in the 9.4 mg/kg dosing arm). At the time of the April 26, 2018 clinical cut-off for the primary analysis, patients in IMbark had been followed for a median of 22.6 months (range: 0.2 – 27.4), including median treatment duration of 26.9 weeks (range: 0.2 – 118.1). Seven patients remained on active treatment and 50 patients were being followed for survival. The baseline characteristics of the patients enrolled in IMbark, as presented at ASH and highlighted below, indicate the advanced nature of the disease in, and the potential difficulty to treat, this patient population:

Patient Baseline Characteristic Highlights	**4.7 mg/kg (n = 48)**	**9.4 mg/kg (n = 59)**	**Total (n = 107)**
Median age (range), years	68.5 (44 – 84)	67 (31 – 86)	68.0 (31 – 86)
Myelofibrosis subtype, n (%) Primary Post-Essential Thrombocythemia, or ET Post-Polycythemia Vera, or PV	 27 (56%) 9 (19%) 12 (25%)	 36 (61%) 10 (17%) 13 (22%)	 63 (59%) 19 (18%) 25 (23%)
DIPSS risk status, n (%) Intermediate-1 risk Intermediate-2 risk High-Risk	 1[a] (2%) 28 (58%) 19 (40%)	 0 (0%_ 34 (58%) 25 (42%)	 1 (1%) 62 (58%) 44 (41%)
Spleen volume (MRI) – Median, IRC (range), cm^3	3353 (726 – 7243)	2998 (890 – 7607)	3167 (726 – 7607)
Platelet count – Median (range), $x10^9/L$	153 (74 – 1097)	146 (65 – 798)	147 (65 – 1097)
Time since initial diagnosis – Median (range), months	49 (2 – 227)	43 (7 – 201)	44 (2 – 227)
Duration of prior JAKi Tx – Median (range), months	22 (3 – 90)	25 (1 – 73)	23 (1 – 90)
Triple negative [b], n (%)	10 (21%)	16 (28%)	26 (25%)
High molecular risk [c], n (%)	36 (75%)	35 (61%)	71 (68%)

a Indicated in electronic case report form comments, but does not appear in statistical output. This is a protocol deviation.
b Absence of JAK2 V617F, CALR or MPL mutations. Indicator of a poor prognosis.
c One or more mutations in ASXL1, EZH2, SRSF2, IDH1, or IDH2. An indicator of progressive disease in the patient.

Six patients (10%) in the 9.4 mg/kg dosing arm and no patients in the 4.7 mg/kg dosing arm had a spleen response per imaging. The spleen volume response rate observed, including in the 9.4 mg/kg dosing arm, was less than that reported in clinical trials with JAK inhibitors in front-line MF patients. Nineteen patients (32%) in the 9.4 mg/kg dosing arm and three patients (6%) in the 4.7 mg/kg dosing arm had a symptom response.

For the assessment of OS, the clinical cut-off date for the ASH presentation was October 22, 2018. The median follow-up was 27.4 months (range: 0.2 – 33.0). The median OS in the 9.4 mg/kg dosing arm was 29.9 months. These and other efficacy data are also summarized in the table below:

	Dosing Arm	
n (%)	**4.7 mg/kg**	**9.4 mg/kg**
Number of enrolled patients	48	59
Spleen response rate	0 (0%)	6 (10%)
Symptom response rate	3 (6%)	19 (32%)
Complete remission rate	0 (0%)	0 (0%)
Partial remission rate	0 (0%)	1 (2%)
Median overall survival	19.9 mos	29.9 mos

As summarized in the table below, the safety profile was consistent with prior clinical trials of imetelstat in hematologic malignancies, and no new safety signals were identified.

n (%)	4.7 mg/kg (n = 48)		9.4 mg/kg (n = 59)	
	All Grades	Grade ≥ 3	All Grades	Grade ≥ 3
Hematologic (≥ 10% in either arm)				
Thrombocytopenia	11 (23%)	11 (23%)	29 (49%)	24 (41%)
Anemia	15 (31%)	15 (31%)	26 (44%)	23 (39%)
Neutropenia	5 (10%)	5 (10%)	21 (36%)	19 (32%)
Leukopenia	3 (6%)	3 (6%)	8 (14%)	8 (14%)
Non-hematologic (≥ 20% in either arm)				
Nausea	15 (31%)	1 (2%)	20 (34%)	2 (3%)
Vomiting	10 (21%)	1 (2%)	8 (14%)	1 (2%)
Diarrhea	18 (38%)	2 (4%)	18 (31%)	0 (0%)
Fatigue	10 (21%)	3 (6%)	16 (27%)	4 (7%)
Cough	11 (23%)	0 (0%)	9 (15%)	0 (0%)
Dyspnea	9 (19%)	6 (13%)	14 (24%)	3 (5%)
Abdominal pain	10 (21%)	2 (4%)	14 (24%)	3 (5%)
Asthenia	9 (19%)	3 (6%)	14 (24%)	6 (10%)
Pyrexia	8 (17%)	1 (2%)	13 (22%)	3 (5%)
Edema peripheral	13 (27%)	0 (0%)	11 (19%)	0 (0%)

Most cytopenias resolved within four weeks. Grade 3/4 LFT elevations were observed in seven patients on study. An independent Hepatic Review Committee deemed that the observed LFT elevations were not imetelstat-related hepatic toxicities.

Current Status of IMbark

The trial has been officially closed to new patient enrollment since March 2018 and has entered an extension phase to enable patients remaining in the treatment phase to continue to receive imetelstat treatment, per investigator discretion. During the extension phase, which is being conducted by Janssen during the program transition period, standard data collection will primarily consist of safety information.

In connection with the transition of the imetelstat program, we expect sponsorship for IMbark to be transferred from Janssen to us by the end of the second quarter of 2019. Once the IND transfer has been completed, we will be responsible for following patients in accordance with the extension phase protocol.

For MF, we plan to discuss the results of the IMbark primary analysis, including the assessment of OS, with experts in MF, as well as regulatory authorities, to consider how these results compare with other therapies currently available to MF patients, and to gain a better understanding of the potential significance of these results to patients and physicians. We believe feedback from these discussions will provide important information on the feasibility, scope and design, including possible outcome measures, of any potential future clinical trials for imetelstat in Intermediate-2 or High-risk MF patients who have relapsed after or are refractory to prior treatment with a JAK inhibitor. We expect to outline our decision whether to continue late-stage development of imetelstat in MF by the end of the third quarter of 2019. This decision will be influenced by our assessment of what would be required to achieve clinical and regulatory success in MF, including the cost and duration of any potential clinical trials.

Transition from Janssen

In December 2014, we entered into the Collaboration Agreement with Janssen, pursuant to which Janssen conducted IMbark and IMerge. Janssen terminated the Collaboration Agreement effective September 28, 2018, and upon the effective date of termination, we regained the global rights to the imetelstat program. Under the terms of the Collaboration Agreement, Janssen is required to provide operational support for the imetelstat program during transition of the program to us. Each company is responsible for its own costs incurred related to transition activities, unless otherwise specified in the Collaboration Agreement. We expect the transition process to be completed by September 2019 to enable the orderly transfer of all ongoing clinical, regulatory, medical affairs and non-clinical activities to us, including transfer of the sponsorship of ongoing imetelstat clinical trials from Janssen to us. In addition, following the effective date of termination of the Collaboration Agreement, we expect Janssen to supply imetelstat to us for up to 24 months during a transition period for clinical manufacturing and such supply will be charged to us at Janssen's cost plus a premium. See "Licensing—Former Collaboration and License Agreement with Janssen" below, for more information about the Collaboration Agreement.

We have engaged Parexel International (IRL) Limited, or Parexel, a global contract research organization, or CRO, to support imetelstat clinical development activities. In addition to recently hiring a head of Pharmacovigilance and Drug Safety and a Chief Medical Officer in January of 2019, we are actively recruiting senior personnel to staff our internal drug development group, as well as contract with subject matter experts in clinical science, biostatistics, clinical operations, pharmacovigilance, quality, manufacturing and regulatory affairs.

Intellectual Property

Intellectual property, including patent protection, is very important to our business. We file patent applications in the United States and other jurisdictions, and we also rely on trade secret protection and contractual arrangements to protect aspects of our business. An enforceable patent with appropriate claim coverage can provide an advantage over competitors who may seek to employ similar approaches to develop therapeutics, and so the future commercial success of imetelstat, and therefore our future success, will be in part dependent on our intellectual property strategy. The information provided in this section should be reviewed in the context of the section entitled "Risks Related to Protecting Our Intellectual Property" under Item 1A, "Risk Factors".

The development of biotechnology products, including imetelstat, typically includes the early development of a technology, followed by rounds of increasingly focused innovation around a product opportunity, including identification and definition of a specific product candidate and uses thereof, manufacturing processes, product formulation and administration methods. The result of this process is that biotechnology products are often protected by several families of patent filings that are filed at different times during product development and cover different aspects of the product. Consequently, earlier filed, broad technology patents will usually expire ahead of patents covering later developments, such as product formulations, so that patent expirations on a product may span several years. Patent coverage may also vary from country to country based on the scope of available patent protection. There are also opportunities to obtain an extension of patent coverage for a product in certain countries, which adds further complexity to the determination of patent life.

We endeavor to monitor worldwide patent filings by third parties that are relevant to our business. Based on this monitoring, we may determine that an action is appropriate to protect our business interests. Such actions may include negotiating patent licenses where appropriate, filing oppositions against a patent, filing a request for post grant review against a patent or filing a request for the declaration of an interference with a patent application or issued patent.

Imetelstat

We own issued patents in the United States, Europe and other countries related to imetelstat. Composition of matter patents generally provide the most material coverage, and therefore may convey competitive advantages. Because imetelstat is still under development, subsequent innovation and associated patent filings may provide additional patent coverage with later expiration dates. Examination of overseas patent applications typically lags behind U.S. examination particularly where cases are filed first in the United States. It may be possible to obtain patent term extensions of some patents in some countries for claims covering imetelstat which could further extend the patent term.

Product Candidate	U.S. Patent Status / Expiration Date	Europe Patent Status / Expiration Date	Japan Patent Status / Expiration Date
Imetelstat (composition of matter)	Issued / 2025	Issued / 2024	Issued / 2024

Our patent rights relating to imetelstat include those covering composition claims to the drug molecule and related nucleic acid telomerase inhibiting molecules, as well as reagents useful in manufacturing processes for the drug, and method of treatment and kit claims, certain of which are co-owned with other entities.

Upon the effective date of termination of the Collaboration Agreement with Janssen on September 28, 2018, we regained all of the worldwide rights to imetelstat. In accordance with the termination provisions of the Collaboration Agreement, we have an exclusive worldwide license for intellectual property developed under the Collaboration Agreement for the further development of imetelstat, without any economic obligations to Janssen with respect to such license. Janssen has assigned to us certain intellectual property developed by it under the Collaboration Agreement. We now bear all of the costs for maintaining, prosecuting and litigating all imetelstat intellectual property that we own.

Telomerase

Our U.S. patent rights relating to telomerase that cover technologies, such as variants of the protein component of human telomerase, or hTERT, are co-owned with and in-licensed exclusively from the University of Colorado. We expect the last of these U.S. patent rights to expire in 2019. A U.S. patent for identifying inhibitors of telomerase activity is in-licensed from the University of Texas Southwestern Medical Center and the University of California and will expire in 2019. The expiration of these patents is not expected to have any impact on our intellectual property rights related to imetelstat, or our continued planned development of imetelstat. See Item 1A, “Risk Factors” for additional information regarding our patent rights relating to telomerase.

Licensing

Former Collaboration and License Agreement with Janssen

On November 13, 2014, we entered into the Collaboration Agreement, pursuant to which we granted to Janssen the exclusive rights to develop and commercialize imetelstat worldwide for all indications in oncology, including hematologic myeloid malignancies, and all other human therapeutic uses. The Collaboration Agreement became effective on December 15, 2014, and we received $35 million from Janssen as an upfront payment.

We regained the global rights to imetelstat upon Janssen’s termination of the Collaboration Agreement effective September 28, 2018. As a result of the termination of the Collaboration Agreement, we will not receive any further milestone payments or royalties from Janssen for the development or commercialization of imetelstat, including any clinical development or sales milestones, and Janssen has no further obligations to us or any third parties, such as clinical sites or vendors, to fund any of the ongoing or any potential future imetelstat clinical trials.

Under the termination provisions of the Collaboration Agreement, Janssen is required to provide certain operational support for the imetelstat program during transition of the program to us. The transition process is expected to occur through September 2019 to enable the orderly transfer of all ongoing clinical, regulatory, medical affairs and non-clinical activities to us, including the transfer of the sponsorship of ongoing imetelstat clinical trials from Janssen to us. Each company is responsible for costs incurred related to transition activities unless otherwise specified in the Collaboration Agreement. Under the Collaboration Agreement, Janssen is required, among other things, to:

- assign all regulatory files and regulatory clearances specific to imetelstat to us, including sponsorship of the ongoing clinical trials, IMbark and the Phase 2 portion of IMerge;
- transfer all safety data to us;
- facilitate negotiations between us and any subcontractors of Janssen performing development or manufacturing activities related to imetelstat;
- transfer any remaining inventory of imetelstat to us at Janssen’s cost plus a premium, and use commercially reasonable efforts to facilitate an orderly and prompt transition of manufacturing activities to us; and

- supply imetelstat drug product to us at Janssen's cost plus a premium for up to 24 months following the termination of the Collaboration Agreement, while we seek to re-establish our own supply chain for clinical manufacturing of imetelstat.

Until the sponsorship responsibilities for imetelstat transfers from Janssen to us, including the U.S. Investigational New Drug, or IND, application and all foreign regulatory applications, Janssen will continue conducting IMbark and the Phase 2 portion of IMerge. Patients currently enrolled in IMbark and the Phase 2 portion of IMerge will continue to receive treatment and follow-up under the respective trial protocols. After September 28, 2018, the effective termination date of the Collaboration Agreement, our responsibility for imetelstat development costs, including ongoing conduct of the extension phase of IMbark and the Phase 2 portion of IMerge, and costs for the prosecution of patents that were licensed to Janssen under the Collaboration Agreement increased from 50% to 100%. In the second quarter of 2018, Janssen informed us that no patients remain on study or in follow-up in the Pilot Study. Therefore, we expect Janssen to close the Pilot Study, and the related IND under which the Pilot Study has been conducted will be inactivated.

For a further discussion of the Collaboration Agreement, see Note 4 on License Agreements in Notes to Financial Statements of this Form 10-K. Information about the transition of the imetelstat program from Janssen to us should be reviewed in the context of the section entitled "Risks Related to Transition of the Imetelstat Program from Janssen to Geron" included in Item 1A, "Risk Factors" of this Form 10-K.

Other License Agreements

In addition to the above agreement, we have also granted licenses to a number of other organizations in the ordinary course of our business to utilize aspects of our technologies to develop and commercialize products outside of the imetelstat program. These include:

- a license to Janssen Pharmaceuticals, Inc., or Janssen Pharmaceuticals, an affiliate of Janssen, for the research, development and commercialization of products based on specialized oligonucleotide backbone chemistry and novel amidates for disorders, excluding cancers originating from the blood or bone marrow. In connection with this license, we also granted to Janssen Pharmaceuticals a non-exclusive worldwide license under our patent rights covering the synthesis of monomers, which are the building blocks of oligonucleotides;
- two licenses, both of which will expire in 2019, to companies to use or commercialize telomerase immortalized cells in drug discovery research;
- six licenses, five of which will expire in 2019, to companies to develop and commercialize reagent kits, or to provide services, for the measurement of telomere length or telomerase activity for research purposes;
- a license to a company to develop and commercialize a particular telomerase-based technology for cancer detection; and
- a license to a company for the development of cancer immunotherapies for veterinary applications.

See Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations—Revenues" for a further discussion of revenues from our license agreements. We expect revenues under our license agreements related to our telomerase technology to be eliminated by the end of 2019 due to upcoming patent expirations on such technology.

Concentration of Revenues

Our revenues were $1.1 million, $1.1 million and $6.2 million for the years ended December 31, 2018, 2017 and 2016, respectively. See Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations—Revenues" for additional detail regarding the composition of our revenues.

Manufacturing

A typical sequence of steps in the manufacture of imetelstat drug product includes the following key components:

- starting materials, which are well-defined raw materials that are used to make bulk drug substance;

- bulk drug substance, which is the active pharmaceutical ingredient in a drug product that provides pharmacological activity or other direct effect in the treatment of disease; and
- final drug product, which is the finished dosage form that contains the drug substance that is shipped to the clinic for patient treatment.

In accordance with the termination provisions of the Collaboration Agreement, Janssen is required to supply imetelstat drug product to us at Janssen's cost plus a premium for up to 24 months following the termination of the Collaboration Agreement, while we seek to re-establish our own supply chain for clinical manufacturing of imetelstat. During the transition of the imetelstat program from Janssen to us, we plan to engage third-party contractors to perform certain process development and other technical and scientific work with respect to imetelstat, as well as supply starting materials and manufacture drug substance and drug product. Many of these contractors previously had relationships with Geron related to the manufacture and/or supply of imetelstat.

We do not have direct control over third-party personnel or operations. These third-party contractors, and/or any other contractors that we may rely upon for the manufacture and/or supply of imetelstat, typically complete their services on a proposal by proposal basis under master supply agreements and may need to make substantial investments to enable sufficient capacity increases and cost reductions, and to implement those regulatory and compliance standards necessary for successful Phase 3 clinical trials and commercial production. These third-party contractors, and/or any other contractors that we may rely upon for the manufacture and/or supply of imetelstat, may not be able to achieve such capacity increases, cost reductions, or regulatory and compliance standards, and even if they do, such achievements may not be at a commercially reasonable cost. We are responsible for establishing any long-term commitments or commercial supply agreements with any of the third-party contractors for imetelstat. The information provided in this section should be reviewed in the context of the section entitled "Risks Related to Manufacturing" and "Risks Related to Transition of the Imetelstat Program from Janssen to Geron" under Item 1A, "Risk Factors".

Consultants

To rebuild our drug development expertise, we have established, and expect to continue to establish, consulting agreements with drug development professionals, clinicians and regulatory experts with experience in numerous fields, including clinical science, biostatistics, clinical operations, pharmacovigilance, quality, manufacturing and regulatory affairs. We retain each consultant according to the terms of a consulting agreement. Under such agreements, we pay them a consulting fee and reimburse them for out-of-pocket expenses incurred in performing their services for us. In addition, we have in the past and may again in the future grant options to purchase our common stock to consultants, subject to the vesting requirements contained in the consulting agreements. Our consultants may be employed by other entities and therefore may have commitments to their employer, or may have other consulting or advisory agreements that may limit their availability to us.

Competition

The pharmaceutical and biotechnology industries are intensely competitive. Other pharmaceutical and biotechnology companies and research organizations currently engage in or have in the past engaged in efforts related to the biological mechanisms related to imetelstat, the study of telomeres, telomerase, or our proprietary oligonucleotide chemistry, and the research and development of therapies for the treatment of hematologic myeloid malignancies. In addition, other products and therapies that could directly compete with imetelstat currently exist or are being developed by pharmaceutical and biopharmaceutical companies and by academic institutions, government agencies and other public and private research organizations.

If approved for commercial sale for the treatment of lower risk MDS, imetelstat would compete against a number of treatment options, including erythropoiesis stimulating agents and other hematopoietic growth factors; immunomodulators, such as lenalidomide by Celgene Corporation, or Celgene,; hypomethylating agents, such as azacitidine by Celgene and decitabine by Janssen; in addition to investigational treatments that may be further along in development than imetelstat, such as oral versions of azacitidine; histone deacetylase inhibitors; TGF-beta superfamily inhibitors, such as luspatercept by Acceleron Pharma, Inc., or Acceleron, in collaboration with Celgene; PI3 Kinase inhibitors; proteasome inhibitors; aminopeptidase inhibitors, such as tosedostat by CTI Biopharma

Corporation, or CTI Biopharma; TLR2-specific antibodies; TPO agonists, such as romiplostim by Amgen Inc.; anti-CD33 antibodies; anti-CD38 antibodies, such as daratumumab by Genmab A/S in collaboration with Janssen; anti-CD123 antibodies, such as talacotuzumab by Janssen; antagonists of Toll-like receptor signaling; retinoic acid receptor alpha agonists, such as SY-1425 by Syros Pharmaceuticals; hypoxia-inducible factor prolyl hydroxylase inhibitors, such as roxadustat by FibroGen, Inc.; Fas ligand inhibitors; immune checkpoint regulators; and JAK-STAT pathway inhibitors.

If approved for commercial sale for the treatment of MF, imetelstat would compete against Incyte Corporation's ruxolitinib, or Jakafi®, which is orally administered. In clinical trials, Jakafi® reduced spleen size, abdominal discomfort, early satiety, bone pain, night sweats and itching in MF patients. Recently, there have also been reports of overall survival benefit as well as improvement in bone marrow fibrosis from Jakafi® treatment. Other treatment modalities for MF include hydroxyurea for the management of splenomegaly, leukocytosis, thrombocytosis and constitutional symptoms; splenectomy and splenic irradiation for the management of splenomegaly and co-existing cytopenias, or low blood cell counts; chemotherapy and pegylated interferon. Drugs for the treatment of MF-associated anemia include erythropoiesis stimulating agents, androgens, danazol, corticosteroids, thalidomide and lenalidomide. There are other investigational treatments for MF further along in development than imetelstat, such as pacritinib by CTI Biopharma, momelotinib by Sierra Oncology, and fedratinib by Celgene, which have reported results from Phase 3 clinical trials. Other investigational treatments for MF include inhibitors of the JAK-STAT pathway, such as NS-018 by NS Pharma, Inc.; histone deacetylase inhibitors; interleukin-3 receptor targeted agents; inhibitors of heat shock protein 90; hypomethylating agents; PI3 Kinase and mTOR inhibitors; anti-fibrosis antibodies, such as PRM-151 from Promedior, Inc.; hedgehog and SMO inhibitors; PIM kinase inhibitors; IAP inhibitors; anti-LOX2 inhibitors; recombinant pentraxin 2 protein; KIP-1 activators; TGF-beta superfamily inhibitors, such as sotatercept and luspatercept by Acceleron, in collaboration with Celgene; FLT inhibitors; BET inhibitors, such as CPI-0610 by Constellation Pharmaceuticals, Inc.; SMAC mimetics, such as LCL161 by Novartis Pharmaceuticals Corporation; and tyrosine kinase inhibitors.

Smaller companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. We anticipate increased competition in the future as new companies explore treatments for hematologic myeloid malignancies, which may significantly impact the commercial viability of imetelstat. Academic institutions, government agencies and other public and private research organizations may also conduct research, seek patent protection and establish collaborative arrangements for research, clinical development and marketing of products similar to imetelstat. These companies and institutions compete with us in recruiting and retaining qualified development and management personnel as well as in acquiring technologies complementary to the imetelstat program.

In addition to the above factors, imetelstat will face competition based on:

- product efficacy and safety;
- convenience of product administration;
- cost of manufacturing;
- the timing and scope of regulatory consents;
- status of coverage and reimbursement;
- price; and
- patent position, including potentially dominant patent positions of others.

As a result of the foregoing, competitors may develop more commercially desirable or affordable products than imetelstat, or achieve earlier patent protection or product commercialization than we may be able to achieve with imetelstat. Competitors have developed, or are in the process of developing, technologies that are, or in the future may be, competitive to imetelstat. Some of these products may have an entirely different approach or means of accomplishing therapeutic effects similar or superior to those that may be demonstrated by imetelstat. Competitors may develop products that are safer, more effective, or less costly than imetelstat, or more convenient to administer to patients and, therefore, present a serious competitive threat to imetelstat. In addition, competitors may price their

products below what we may determine to be an acceptable price for imetelstat, may receive better third-party payor coverage and/or reimbursement, or may be more cost-effective than imetelstat. Such competitive products or activities by competitors may render imetelstat obsolete, which may cause us to cease any further development or future commercialization of imetelstat, which would severely and adversely affect our financial results, business and business prospects, and the future of imetelstat, and might cause us to cease operations.

Government Regulation

Regulation by governmental authorities in the United States and other countries is a significant factor in the development, manufacture and marketing of imetelstat. Imetelstat will require regulatory approval by governmental agencies prior to commercialization. In particular, potential human therapeutic products, such as imetelstat, are subject to rigorous preclinical and clinical testing and other approval procedures of the FDA and similar regulatory authorities in European and other countries. Various governmental statutes and regulations also govern or influence testing, manufacturing, safety, labeling, storage, import, export, distribution and recordkeeping related to such products and their marketing. The process of obtaining these approvals and the subsequent compliance with appropriate statutes and regulations require the expenditure of substantial time and money, and there can be no guarantee that approvals will be granted. The information provided in this section should be reviewed in the context of the sections entitled "Risks Related to the Development of Imetelstat" and "Risks Related to Regulatory Approval and Commercialization of Imetelstat" under Item 1A, "Risk Factors".

United States Food and Drug Administration Regulatory Approval Process

Prior to commencement of clinical trials involving humans, preclinical testing of new pharmaceutical products is generally conducted on animals in the laboratory to evaluate the potential efficacy and safety of a product candidate. The results of these trials are submitted to the FDA as part of an Investigational New Drug, or IND, application, which must become effective before clinical testing in humans can begin. The FDA can place an IND on clinical hold at any time, which prevents the conduct of clinical trials under the IND until safety concerns are addressed by the IND sponsor to the FDA's satisfaction. Typically, clinical evaluation involves a time consuming and costly three phase trial process. In Phase 1, clinical trials are conducted with a small number of healthy volunteers or patients afflicted with a specific disease to assess safety and to evaluate the pattern of drug distribution and metabolism within the body. In Phase 2, clinical trials are conducted with groups of patients afflicted with a specific disease in order to determine preliminary efficacy, optimal dosages and expanded evidence of safety. The Phase 2 trials can be conducted comparing the investigational treatment to a comparator arm, or not. If used, a comparator usually includes standard of care therapy. Safety and efficacy data from Phase 2 clinical trials, even if favorable, may not provide sufficient rationale for proceeding to a Phase 3 clinical trial. In Phase 3, large scale, multi-center, comparative trials are conducted with patients afflicted with a target disease to provide sufficient data to demonstrate the efficacy and safety required by the FDA. The FDA closely monitors the progress of each of the three phases of clinical testing and may, at its discretion, re-evaluate, alter, suspend, or terminate the trials. Human clinical trials must be conducted in compliance with Good Clinical Practice regulations and applicable laws, with the oversight of Institutional Review Boards for the protection of human subjects. The manufacture of drug product candidates is subject to requirements that drugs be manufactured, packaged and labeled in conformity with current Good Manufacturing Practices and applicable laws.

The results of the preclinical and clinical testing of drugs and complete manufacturing information are submitted to the FDA in the form of a New Drug Application, or NDA, for review and for approval prior to commencement of commercial sales. Submission of an NDA requires the payment of a substantial user fee to the FDA, which may be waived in certain cases. In responding to an NDA submission, the FDA may approve the drug for commercialization, impose limitations on its indications for use and labeling, including in the form of Risk Evaluation and Mitigation Strategies or may issue a complete response letter. Even if an NDA is approved, its sponsor is subject to ongoing and pervasive regulatory compliance requirements.

European and Other Regulatory Approval Process

Prior to initiating clinical trials in a region outside of the United States, a clinical trial application must be submitted and reviewed by the appropriate regulatory authority regulating the country in which the trial will be conducted. Whether or not FDA clearance or approval has been obtained, approval of a product by comparable regulatory authorities in Europe and other countries is necessary prior to commencement of marketing the product in

such countries. The regulatory authorities in each country may impose their own requirements and may refuse to grant an approval, or may require additional data before granting it, even though the relevant product has been cleared or approved by the FDA or another authority. As with the FDA, the regulatory authorities in the European Union, or EU, and other developed countries have lengthy approval processes for pharmaceutical products. The process for gaining approval in particular countries varies, but generally follows a similar sequence to that described for FDA approval. In Europe, the European Medicine Agency, or EMA, and the European Committee for Proprietary Medicinal Products, or CPMP, provide a mechanism for EU member states to exchange information on all aspects of product licensing. The EU has established the EMA for the evaluation of medical products, with both a centralized procedure with which the marketing authorization is recognized in all EU member states and a decentralized procedure, the latter being based on the principle of licensing within one member country followed by mutual recognition by the other member countries.

Orphan Drug Designation

For a drug to qualify for orphan drug designation by the FDA, both the drug and the disease or condition must meet certain criteria specified in the Orphan Drug Act, or ODA, and FDA's implementing regulations. Orphan drug designation is granted by the FDA's Office of Orphan Drug Products in order to support development of medicines for underserved or rare diseases and patient populations that affect fewer than 200,000 people in the United States or, if the disease or condition affects more than 200,000 individuals annually in the United States, if there is no reasonable expectation that the cost of developing and making the drug would be recovered from sales in the United States. Orphan drug designation qualifies the sponsor of the drug for various development incentives of the ODA, including, if regulatory approval is received, the potential for seven years of market exclusivity with certain limited exceptions and certain tax credits for qualified clinical testing. A marketing application for a prescription drug product that has received orphan drug designation is not subject to a prescription drug user fee unless the application includes an indication for a disease or condition other than the rare disease or condition for which the drug was granted orphan drug designation. The granting of orphan drug designation does not alter the standard regulatory requirements and process for obtaining marketing approval. The safety and effectiveness of a drug must be established through adequate and well-controlled studies. Orphan drug exclusivity does not prevent the FDA from approving a different drug for the same disease or condition, or the same drug for a different disease or condition.

On June 11, 2015 and December 23, 2015, the FDA granted orphan drug designation to imetelstat for the treatment of MF and MDS, respectively.

Orphan drug designation by the European Commission provides regulatory and financial incentives for companies to develop and market therapies that treat a life-threatening or chronically debilitating condition affecting no more than five in 10,000 persons in the EU, and where no satisfactory treatment is available. In the EU, orphan drug designation also entitles a party to financial incentives such as reduction of fees or fee waivers, as well as protocol assistance from the EMA during the product development phase, and direct access to the centralized authorization procedure. In addition, ten years of market exclusivity is granted following drug product approval, meaning that another application for marketing authorization of a later similar medicinal product for the same therapeutic indication will generally not be approved in the EU. This period may be reduced to six years if the orphan drug designation criteria are no longer met, including where it is shown that the product is sufficiently profitable to not justify maintenance of market exclusivity.

On December 14, 2015, the EMA granted orphan drug designation to imetelstat for the treatment of MF.

Fast Track Designation

Fast Track designation provides opportunities for frequent interactions with FDA review staff, as well as eligibility for priority review, if relevant criteria are met, and rolling review. Fast Track designation is intended to facilitate and expedite development and review of a New Drug Application to address unmet medical needs in the treatment of serious or life-threatening conditions. However, Fast Track designation does not accelerate conduct of clinical trials or mean that the regulatory requirements are less stringent, nor does it ensure that imetelstat will receive marketing approval or that approval will be granted within any particular timeframe. In addition, the FDA may withdraw Fast Track designation if it believes that the designation is no longer supported by data emerging from the imetelstat clinical development program.

In October 2017, the FDA granted Fast Track designation to imetelstat for the treatment of adult patients with transfusion-dependent anemia due to Low or Intermediate-1 risk MDS who are non-del(5q) and who are refractory or resistant to treatment with an ESA.

Fraud and Abuse, Data Privacy and Security, and Transparency Laws and Regulations

We may also be subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which we conduct our business. These additional healthcare regulations could affect our current and future arrangements with healthcare professionals, principal investigators, consultants, customers and third-party payors. Such laws include, without limitation, state and federal anti-kickback, fraud and abuse, false claims, privacy and security, and physician payment sunshine laws.

The federal Anti-Kickback Statute makes it illegal for any person or entity, including a prescription drug manufacturer (or a party acting on its behalf) to knowingly and willfully, directly or indirectly, solicit, receive, offer, or pay any remuneration that is intended to induce the referral of business, including the purchase, order, or lease of any good, facility, item or service for which payment may be made under a federal healthcare program, such as Medicare or Medicaid. The term "remuneration" has been broadly interpreted to include anything of value. Several courts have interpreted the statute's intent requirement to mean that if any one purpose of an arrangement involving remuneration is to induce referrals of federal healthcare covered business, the Anti-Kickback Statute has been violated. The Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Reconciliation Act, collectively the Affordable Care Act or ACA, among other things, amended the intent requirement of the federal Anti-Kickback Statute such that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate, in order to commit a violation.

Federal civil and criminal false claims and false statement laws, including the federal civil False Claims Act and its whistleblower or *qui tam* provisions that permit private individuals to bring an action on behalf of the government to enforce the civil False Claims Act, prohibit, among other things, any person or entity from knowingly presenting, or causing to be presented, for payment to, or approval by, federal programs, including Medicare and Medicaid, claims for items or services, including drugs, that are false or fraudulent or not provided as claimed. Entities can be held liable under these laws if they are deemed to "cause" the submission of false or fraudulent claims by, for example, providing inaccurate billing or coding information to customers, promoting a product off-label, or for providing medically unnecessary services or items. In addition, a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal civil False Claims Act. Criminal prosecution is also possible for making or presenting a false, fictitious or fraudulent claim to the federal government.

The federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, created criminal and civil liability for, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, including private third-party payors, knowingly and willfully embezzling or stealing from a healthcare benefit program, willfully obstructing a criminal investigation of a healthcare offense, and knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services.

HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and their implementing regulations, imposes obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security, transmission and breach reporting of individually identifiable health information, upon entities subject to the law, such as health plans, healthcare clearinghouses and certain healthcare providers and their respective business associates that perform services for them that involve individually identifiable health information. HITECH also created new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in U.S. federal courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions.

The federal Physician Payments Sunshine Act requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program, with specific exceptions, to report annually to the Centers for Medicare & Medicaid Services, or CMS,

information related to payments or other transfers of value made to physicians and teaching hospitals, and applicable manufacturers and applicable group purchasing organizations to report annually to CMS ownership and investment interests held by physicians and their immediate family members.

Analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers. Additionally, we may be subject to state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government. Further, we may be subject to state laws that require drug manufacturers to report information related to payments and other transfers of value to physicians, other healthcare providers and healthcare entities, or marketing expenditures, as well as state and local laws that require the registration of pharmaceutical sales representatives; state laws that require the reporting of information related to drug pricing; and state and foreign laws governing the privacy and security of health information, including the General Data Protection Regulation, or GDPR, from the European Union, or EU, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Efforts to ensure that our current and future business arrangements will comply with applicable healthcare, privacy and data security laws and regulations will involve substantial costs. For example, the GDPR, which became effective on May 25, 2018, imposes several requirements relating to the consent of the individuals to whom the personal data relates, the information provided to the individuals, the security and confidentiality of the personal data, data breach notification and the use of third-party processors in connection with the processing of personal data. The GDPR also imposes strict rules on the transfer of personal data out of the EU, provides an enforcement authority and authorizes the imposition of large penalties for noncompliance, including the potential for fines of up to €20 million or 4% of the annual global revenues of the noncompliant company, whichever is greater. The GDPR has increased our responsibility and potential liability in relation to personal data that we process or control compared to prior EU law, including in clinical trials, and we may be required to put in place additional mechanisms to ensure compliance with the GDPR, which could divert management's attention and increase our cost of doing business. Likewise, we expect that there will continue to be new proposed laws, regulations and industry standards relating to privacy and data protection in the United States, the EU and other jurisdictions, such as the California Consumer Privacy Act of 2018, which has been characterized as the first "GDPR-like" privacy statute to be enacted in the United States because it mirrors a number of the key provisions in the GDPR, that will go into effect beginning January 1, 2020, and we cannot determine the impact that such laws, regulations and standards will have on our business. In any event, it is possible that governmental authorities will conclude that our business practices do not comply with current or future statutes, regulations, agency guidance or case law involving applicable healthcare or privacy laws, including the GDPR, in light of the lack of applicable precedent and regulations. Federal and state enforcement bodies have recently increased their scrutiny of interactions between healthcare companies and healthcare providers, which has led to a number of investigations, prosecutions, convictions and settlements in the healthcare industry.

If our operations are found to be in violation of any of these or any other healthcare and privacy-related regulatory laws that may apply to us, we may be subject to significant penalties, including the imposition of significant civil, criminal and administrative penalties, damages, monetary fines, disgorgement, imprisonment, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, reputational harm, diminished profits and future earnings, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations. Defending against any such actions can be costly, time-consuming and may require significant financial and personnel resources. Therefore, even if we are successful in defending against any such actions that may be brought against us, our business may be impaired.

Reimbursement and Healthcare Reform

Significant uncertainty exists as to the coverage and reimbursement status of any product candidate that receives regulatory approval. In the United States and markets in other countries, sales of imetelstat, if approved for commercial sale, will depend, in part, on the extent to which third-party payors provide coverage and establish adequate reimbursement levels for imetelstat.

In the United States, third-party payors include federal and state healthcare programs, government authorities, private managed care providers, private health insurers and other organizations. There has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. Congressional inquiries and federal and state legislative activity designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the cost of drugs under Medicare, and reform government program reimbursement methodologies for drugs, some of which are included in the Trump Administration's budget proposal for fiscal year 2019. Additionally, at the federal level, the Trump Administration released a "Blueprint" that contains additional proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. On January 31, 2019, the U.S. Department of Health and Human Services, Office of Inspector General, proposed modifications to federal Anti-Kickback Statute safe harbors which, among other things, will affect rebates paid by manufacturers to Medicare Part D plans, the purpose of which is to further reduce the cost of drug products to consumers. While a number of these and other proposed measures may require authorization through additional legislation to become effective, Congress and the Trump Administration have each indicated that they will continue to seek new legislative and/or administrative measures to control drug costs. At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, to encourage importation from other countries and bulk purchasing. Further, third-party payors are increasingly challenging the price, examining the medical necessity and reviewing the cost-effectiveness of medical drug products and medical services, in addition to questioning their safety and efficacy. Such payors may limit coverage to specific drug products on an approved list, also known as a formulary, which might not include all of the FDA-approved drugs for a particular indication. We may need to conduct expensive pharmaco-economic studies in order to demonstrate the medical necessity and cost-effectiveness of imetelstat, in addition to the costs required to obtain the FDA approvals. Nonetheless, imetelstat may not be considered medically necessary or cost-effective.

Moreover, the process for determining whether a third-party payor will provide coverage for a drug product may be separate from the process for setting the price of a drug product or for establishing the reimbursement rate that such a payor will pay for the drug product. A payor's decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Further, one payor's determination to provide coverage for a drug product does not assure that other payors will also provide coverage for the drug product, as there is no uniform coverage and reimbursement policy among third-party payors in the United States. Adequate third-party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in imetelstat.

The United States and some foreign jurisdictions are considering or have enacted legislative and regulatory proposals to contain healthcare costs, as well as to improve quality and expand access. For example, in March 2010, the ACA, was signed into law that included a number of provisions of importance to the biopharmaceutical industry. Since its enactment, there have been judicial and Congressional challenges to certain aspects of the ACA, as well as recent efforts by the Trump Administration to repeal or replace certain aspects of the ACA. For example, since January 2017, President Trump has signed two executive orders and other directives designed to delay, circumvent, or loosen certain requirements mandated by the ACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the ACA. While Congress has not passed comprehensive repeal legislation, two bills affecting the implementation of certain taxes under the ACA have been signed into law. The Tax Cuts and Jobs Act of 2017, or Tax Act, includes a provision which repealed, effective January 1, 2019, the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year, that is commonly referred to as the "individual mandate." On January 22, 2018, President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain ACA-mandated fees.

The Bipartisan Budget Act of 2018, among other things, amended the ACA, effective January 1, 2019, to close the coverage gap in most Medicare Part D drug plans, commonly referred to as the "donut hole". In July 2018, CMS published a final rule permitting further collections and payments to and from certain ACA qualified health plans and health insurance issuers under the ACA risk adjustment program in response to the outcome of federal district court litigation regarding the method CMS uses to determine this risk adjustment. On December 14, 2018, a Texas U.S.

District Court Judge ruled that the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress as part of the Tax Act. While the Texas U.S. District Court Judge, as well as the Trump administration and CMS, have stated that the ruling will have no immediate effect pending appeal of the decision, it is unclear how this decision, subsequent appeals, and other efforts to repeal and replace the ACA will impact the ACA. We expect that other healthcare reform measures that may be adopted in the future may result in more rigorous coverage criteria and lower reimbursement, and additional downward pressure on the price that may be charged for imetelstat.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. For example, in August 2011, the Budget Control Act of 2011 was enacted, which, among other things, created the Joint Select Committee on Deficit Reduction to recommend to Congress proposals in spending reductions. The Joint Select Committee on Deficit Reduction did not achieve a targeted deficit reduction of at least $1.2 trillion for fiscal years 2012 through 2021, triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, which went into effect beginning on April 1, 2013 and, due to subsequent legislative amendments to the statute, including the Bipartisan Budget Act of 2018, will stay in effect through 2027 unless additional Congressional action is taken. Additionally, in January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, reduced Medicare payments to several providers, including hospitals and imaging centers. More recently, there has been heightened governmental scrutiny in the United States to control the rising cost of healthcare.

Executive Officers of the Company

The following table sets forth certain information with respect to our executive officers as of January 31, 2019:

Name	Age	Position
John A. Scarlett, M.D.	67	President, Chief Executive Officer and Chairman of the Board
Olivia K. Bloom	50	Executive Vice President, Finance, Chief Financial Officer and Treasurer
Melissa A. Kelly Behrs	55	Executive Vice President and Chief Business Officer
Andrew J. Grethlein, Ph.D.	54	Executive Vice President and Chief Operating Officer
Aleksandra Rizo, M.D., Ph.D.	44	Executive Vice President and Chief Medical Officer
Stephen N. Rosenfield, J.D.	69	Executive Vice President, Chief Legal Officer and Corporate Secretary

John A. Scarlett, M.D., has served as our Chief Executive Officer and a director since September 2011 and President since January 2012 and was appointed to Chairman of the Board in December 2018. Dr. Scarlett has served as a director for Chiasma, Inc., a biopharmaceutical company focused on transforming injectable drugs into oral medications, since February 2015 and CytomX Therapeutics, Inc., a biopharmaceutical company focused on developing antibody therapeutics for the treatment of cancer, since June 2016. Prior to joining Geron, Dr. Scarlett served as President, Chief Executive Officer and a member of the board of directors of Proteolix, Inc., a privately held, oncology-oriented biopharmaceutical company, from February 2009 until its acquisition by Onyx Pharmaceuticals, Inc., an oncology-oriented biopharmaceutical company, in November 2009. From February 2002 until its acquisition by Ipsen, S.A. in October 2008, Dr. Scarlett served as the Chief Executive Officer and a member of the board of directors of Tercica, Inc., an endocrinology-oriented biopharmaceutical company, and also as its President from February 2002 through February 2007. From March 1993 to May 2001, Dr. Scarlett served as President and Chief Executive Officer of Sensus Drug Development Corporation. In 1995, he co-founded Covance Biotechnology Services, Inc., a contract biopharmaceutical manufacturing operation, and served as a member of its board of directors from inception to 2000. From 1991 to 1993, Dr. Scarlett headed the North American Clinical Development Center and served as Senior Vice President of Medical and Scientific Affairs at Novo Nordisk Pharmaceuticals, Inc., a wholly owned subsidiary of Novo Nordisk A/S. Dr. Scarlett received his B.A. degree in chemistry from Earlham College and his M.D. from the University of Chicago, Pritzker School of Medicine.

Olivia K. Bloom has served as our Executive Vice President, Finance since February 2014, Chief Financial Officer since December 2012 and Treasurer since February 2011. Ms. Bloom previously served as our Senior Vice President, Finance from December 2012 to February 2014, Chief Accounting Officer from September 2010 to December 2012 and Vice President, Finance from January 2007 to December 2012. Ms. Bloom joined the Company in 1994 as a Senior Financial Analyst and from 1996 to 2011 served as our Controller. Prior to joining Geron, Ms. Bloom started her career in public accounting at KPMG Peat Marwick and became a Certified Public Accountant in 1994. Ms. Bloom graduated Phi Beta Kappa with a B.S. in Business Administration from the University of California at Berkeley.

Melissa A. Kelly Behrs has served as our Executive Vice President and Chief Business Officer since January 2019. Previously, she was our Executive Vice President, Business Development and Portfolio & Alliance Management, from February 2014 to January 2019, and our Senior Vice President, Portfolio and Alliance Management from September 2012 to February 2014. Ms. Behrs joined Geron in November 1998 as Director of Corporate Development. Since then, she has also served in various managerial positions, including General Manager, R&D Technologies; Vice President, Corporate Development; Senior Vice President, Therapeutic Development, Oncology; and Senior Vice President, Strategic Portfolio Management. From 1990 to 1998, Ms. Behrs worked at Genetics Institute, Inc., a biotechnology research and development company, serving initially as Assistant Treasurer and then as Associate Director of Preclinical Operations where she was responsible for all business development, regulatory, and project management activities for the Preclinical Development function. Ms. Behrs received a B.S. from Boston College and an M.B.A. from Babson College.

Andrew J. Grethlein, Ph.D., has served as our Executive Vice President and Chief Operating Officer since January 2019. Previously, he served as our Executive Vice President, Development and Technical Operations, from July 2014 to January 2019. He joined Geron in September 2012 as our Executive Vice President, Technical Operations. Prior to joining Geron, Dr. Grethlein was Executive Vice President and Chief Operating Officer for Inspiration Biopharmaceuticals, a biopharmaceutical company, from January 2010 to September 2012. From October 2008 until January 2010, Dr. Grethlein was Senior Vice President of Biotechnology and Portfolio Management Team Leader for Hematology at Ipsen S.A., a global specialty pharmaceutical company. His responsibilities at Ipsen included planning and execution of worldwide strategy for product and portfolio development in the hematologic therapeutic area. From 2003 to 2008, Dr. Grethlein served as Senior Vice President of Pharmaceutical Operations at Tercica, Inc., an endocrinology-oriented biopharmaceutical company, where he was a member of the senior executive team that governed corporate strategy, business planning and company operations, and had responsibility for all manufacturing and quality functions. Before joining Tercica, Dr. Grethlein served in various positions at Elan Corporation, a biotechnology company, from 1997 to 2003, including as Senior Director, South San Francisco Pharmaceutical Operations. From 1995 to 1997, Dr. Grethlein served as Manager, Biologics Development and Manufacturing, for Athena Neurosciences, Inc., a pharmaceutical company. Prior to this, he served in various engineering positions for the Michigan Biotechnology Institute, a nonprofit technology research and business development corporation. Dr. Grethlein received his A.A. degree in liberal arts from Simon's Rock Early College, his B.S. in biology from Bates College, and his M.S. and Ph.D. in chemical engineering from Michigan State University.

Aleksandra Rizo, M.D., Ph.D., has served as our Executive Vice President and Chief Medical Officer since January 2019. Prior to joining Geron, Dr. Rizo was Executive Director, Strategy and Clinical Lead at Celgene Corporation, a biopharmaceutical company, from March 2018 to January 2019, where she led submission activities and participated in strategic and business development initiatives. From October 2008 to March 2018, Dr. Rizo served in a number of oncology drug development functions at Janssen Research and Development, LLC, a pharmaceutical company, including Senior Director, Compound Development Team Leader for all Phase 1 myeloid assets, and Global Clinical Leader for all late-stage myeloid assets, including imetelstat from November 2014 to March 2018, as well as Global Clinical Leader for the ibrutinib mantle cell lymphoma program. In these roles, she had oversight and leadership responsibilities for overall clinical development strategy, study designs, execution and data interpretation. In addition, Dr. Rizo was a core member of Janssen's Hematology Strategy Team where she participated and led diligence projects in hematology. During her initial tenure with Janssen, Dr. Rizo also worked on a variety of Velcade clinical trials in lymphoma and multiple myeloma. Dr. Rizo holds an M.D. from the University Ss Cyril and Methodius, Skopje, Macedonia, where she also completed a residency in internal medicine/hematology. She also has a Ph.D. in human leukemic stem cell biology from the University of Groningen, Groningen, Netherlands, and a Ph.D. in mouse stem cell biology from the University of Tokyo, Tokyo, Japan.

Stephen N. Rosenfield, J.D., has served as our Executive Vice President, Chief Legal Officer and Corporate Secretary since January 2019. Previously, he served as our Executive Vice President, General Counsel and Corporate Secretary from February 2012 to January 2019, General Counsel and Secretary since January 2012 and Secretary since October 2011. From July 2009 to February 2012, Mr. Rosenfield served as a consultant to private companies. From June 2004 until June 2009, Mr. Rosenfield held several positions at Tercica, Inc., an endocrinology-oriented biopharmaceutical company, and through its acquisition by Ipsen, S.A. in October 2008, including General Counsel and Secretary. Prior to joining Tercica, Mr. Rosenfield served as the Executive Vice President of Legal Affairs, General Counsel and Secretary of InterMune, Inc., a biotechnology company that focused on pulmonology and fibrotic diseases. Prior to joining InterMune, Mr. Rosenfield was an attorney at Cooley LLP, an international law firm, where he served as outside counsel for biotechnology and technology clients. Mr. Rosenfield received a B.S. from Hofstra University and a J.D. from Northeastern University School of Law.

Employees

As of December 31, 2018, we had 17 full-time employees and one part-time employee. One of our employees holds a Ph.D. degree and seven hold other advanced degrees. Of this current total workforce, three employees were engaged in, or directly supported, our research and development activities, and 15 employees were engaged in business development, legal, finance and administration. None of our employees are covered by a collective bargaining agreement; nor have we experienced work stoppages. We consider relations with our employees to be good.

Corporate Information

Geron Corporation was incorporated in the State of Delaware on November 28, 1990.

Available Information

Our internet address is www.geron.com. Information included on our website is not part of this annual report on Form 10-K. We make available free of charge on our website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports as soon as reasonably practicable after such material is electronically filed with or furnished to the United States Securities and Exchange Commission, or the SEC. In addition, copies of our annual reports are available free of charge upon written request.

ITEM 1A. RISK FACTORS

Our business is subject to various risks and uncertainties that may have a material adverse effect on our business, financial condition or results of operations. You should carefully consider the risks and uncertainties described below, together with all of the other information included in this annual report on Form 10-K. Our business faces significant risks and uncertainties, and those described below may not be the only risks and uncertainties we face. Additional risks and uncertainties not presently known to us or that we currently believe are immaterial may also significantly impair our business, financial condition or results of operations. If any of these risks or uncertainties occur, our business, financial condition or results of operations could suffer, the market price of our common stock could decline and you could lose all or part of your investment in our common stock.

RISKS RELATED TO THE DEVELOPMENT OF IMETELSTAT

Our future success depends solely on imetelstat, our only product candidate, and we cannot be certain that we will be able to continue to develop imetelstat or advance imetelstat to subsequent clinical trials, or that we will be able to receive regulatory approval for imetelstat on a timely basis, or at all.

Imetelstat is our sole product candidate, upon whose success we are wholly dependent. We do not have any other products or product candidates. Our ability to develop imetelstat to and through regulatory approval and commercial launch is subject to significant risks and uncertainties, including, among other things, our ability to:

- cause the IND for imetelstat to be maintained without such IND being placed on full or partial clinical hold by the FDA;
- generate additional safety and efficacy data from existing and potential future clinical trials of imetelstat, providing a positive benefit-risk profile that supports the continued and future development of imetelstat in hematologic myeloid malignancies;
- ascertain that the use of imetelstat does not result in significant systemic or organ toxicities, including hepatotoxicity, or other safety issues resulting in an unacceptable benefit-risk profile;
- develop clinical plans for, and successfully enroll and complete, potential future clinical trials of imetelstat in hematologic myeloid malignancies, including the Phase 3 portion of IMerge;
- collaborate successfully with clinical trial sites, academic institutions, clinical research organizations, physician investigators and other third parties;
- obtain required regulatory clearances and approvals for imetelstat; for example, it is uncertain:
  - whether the FDA and regulatory authorities in other countries will require us to obtain and submit additional non-clinical, manufacturing, or clinical data to proceed with any potential future clinical trials,
  - how the FDA and other regulatory authorities will interpret safety and efficacy data from any clinical trial, including from IMbark or IMerge,
  - what scope and type of clinical development and other data will be required before the FDA and other regulatory authorities might grant us marketing approval, if any, and
  - what the length of time and cost for us will be to complete any such requirements;
- enter into and maintain arrangements with third parties to provide services needed to further research and develop imetelstat, including maintaining the agreement with our CRO, or to manufacture imetelstat, in each case at commercially reasonable costs;
- enter into and maintain arrangements with third parties, or establish internal capabilities, to provide sales, marketing and distribution functions in compliance with applicable laws;
- obtain appropriate coverage and reimbursement levels for the cost of imetelstat from governmental authorities, private health insurers and other third-party payors;
- maintain and enforce adequate intellectual property protection for imetelstat;

- maintain adequate financial resources and personnel to advance imetelstat to and through potential future clinical trials, regulatory approval and commercial launch; and
- obtain funding necessary to fund our operations and to advance the development of imetelstat on commercially reasonable terms, including completion of the Phase 3 portion of IMerge and potential clinical development of other indications.

If we are not able to successfully achieve the above-stated goals and overcome other challenges that we may encounter in the research, development, manufacturing and potential commercialization of imetelstat, we may be forced to abandon our development of imetelstat, which would severely harm our business and prospects, and might cause us to cease operations.

Commencement of potential future clinical trials of imetelstat, including the Phase 3 portion of IMerge, and completion of the extension phase of IMbark and the Phase 2 portion of IMerge, could be interrupted, further delayed or abandoned for a variety of reasons.

Currently, there are two active clinical trials of imetelstat, the extension phase of IMbark and the Phase 2 portion of IMerge. Completion of these clinical trials, and the commencement of any potential future clinical trials of imetelstat, including the Phase 3 portion of IMerge, could be interrupted, delayed or abandoned for a variety of reasons, including as a result of failures or delays in:

- the comprehensive transition of the imetelstat program from Janssen to us, as discussed in more detail under the heading, "Risks Related to Transition of the Imetelstat Program from Janssen to Geron";
- demonstrating sufficient safety and efficacy of imetelstat in IMerge and any potential future clinical trials, without safety issues, side effects or dose-limiting toxicities, including any additional or more severe safety issues in addition to those that have been observed to date in previous or ongoing clinical trials related to imetelstat, whether or not in the same indications or therapeutic areas;
- obtaining or maintaining regulatory clearances in the United States or other countries to conduct clinical trials, such as obtaining or maintaining regulatory clearances to commence, conduct or modify current or potential future clinical trials of imetelstat, in a timely manner, or at all, which could, for example, cause the anticipated commencement of the Phase 3 portion of IMerge to be delayed beyond mid-year 2019 or prevent us from commencing or completing the Phase 3 portion of IMerge;
- maintaining the IND for imetelstat without such IND being placed on full or partial clinical hold, suspended or subject to other requirements by the FDA or other regulatory authorities;
- properly (i) completing the extension phase of IMbark, including collecting data about serious adverse events and overall survival from the extension phase of IMbark; (ii) completing the Phase 2 portion of IMerge, including assessing the durability of RBC-TI responses; and (iii) designing, enrolling, conducting and completing the Phase 3 portion of IMerge, and promptly or adequately reporting data from such trials;
- determining, after consultations with experts in MF and discussions with regulatory authorities, whether the results from the IMbark primary analysis provide a feasible registration path, if any, for imetelstat in Intermediate-2 or High risk MF patients who have relapsed after or are refractory to prior treatment with a JAK inhibitor;
- obtaining or accessing necessary clinical data in accordance with appropriate clinical or quality practices to ensure complete data sets;
- responding to safety findings by the data review committees of current clinical trials, including the extension phase of IMbark and the Phase 2 portion of IMerge, and safety or futility findings by the data review committees of potential future clinical trials of imetelstat, such as the Phase 3 portion of IMerge, based on emerging data occurring during such clinical trials, such as significant systemic or organ toxicities, including severe cytopenias, hepatotoxicity, fatal bleeding with or without any associated thrombocytopenia, patient injury or death, or other safety issues, resulting in an unacceptable benefit-risk profile;
- obtaining funding on commercially reasonable terms necessary to advance the development of imetelstat;

- manufacturing sufficient quantities of imetelstat or other clinical trial materials in a manner that meets the quality standards of the FDA and other regulatory authorities, and responding to any disruptions to drug supply, clinical trial materials or quality issues that may arise;
- ensuring the ability to manufacture imetelstat at acceptable costs for potential Phase 3 clinical trials and commercialization;
- obtaining sufficient quantities of any study-related treatments, materials (including comparator products, placebo or combination therapies) or ancillary supplies;
- obtaining acceptance by regulatory authorities of manufacturing changes, as well as successfully implementing any such manufacturing changes;
- complying with current and future regulatory requirements, policies or guidelines, including domestic and international laws and regulations pertaining to fraud and abuse, transparency, and the privacy and security of health information;
- reaching agreement on acceptable terms and on a timely basis, if at all, with collaborators and vendors located in the United States or foreign jurisdictions, including contract research organizations, laboratory service providers and clinical trial sites, on all aspects of clinical development;
- obtaining timely review and clearances by regulatory authorities of future protocol amendments which may be sought for the Phase 3 portion of IMerge and potential future clinical trials of imetelstat, including responding to questions or comments from these authorities in a timely and adequate manner, which could, for example, cause the anticipated commencement of the Phase 3 portion of IMerge to be delayed beyond mid-year 2019 or prevent us from commencing or completing the Phase 3 portion of IMerge; and
- obtaining institutional review board or ethics committee approval of clinical trial protocols or protocol amendments, including any future refinements to the trial design we may seek for the Phase 3 portion of IMerge, which could, for example, cause the anticipated commencement of the Phase 3 portion of IMerge to be delayed beyond mid-year 2019 or prevent us from commencing or completing the Phase 3 portion of IMerge.

Failures or delays with respect to any of these events could adversely affect our ability to continue or successfully complete the extension phase of IMbark or the Phase 2 portion of IMerge or to commence potential future clinical trials of imetelstat, including the Phase 3 portion of IMerge, which could increase development costs, or interrupt, further delay or halt our development or commercialization of imetelstat, any of which could severely and adversely affect our financial results, business and business prospects, and the future of imetelstat, and might cause us to cease operations.

Imetelstat may cause, or have attributed to it, undesirable or unintended side effects or other adverse events that further delay or prevent the commencement and/or completion of clinical trials for imetelstat, further delay or prevent its regulatory approval, or limit its commercial potential.

Imetelstat may cause, or have attributed to it, undesirable or unintended side effects or other adverse events affecting its safety or efficacy that could interrupt, further delay or halt current or potential future clinical trials of imetelstat. For example, adverse events and dose-limiting toxicities observed in previous clinical trials of imetelstat include:

- hematologic toxicities, such as profound and/or prolonged thrombocytopenia or neutropenia, including one case of febrile neutropenia after prolonged myelosuppression with intracranial hemorrhage resulting in patient death, which the investigator assessed as possibly related to imetelstat;
- bleeding events, with or without thrombocytopenia;
- liver function test, or LFT, abnormalities, the clinical significance and long-term consequences of which are currently undetermined;
- gastrointestinal events;
- infections;

- muscular and joint pain;
- fatigue; and
- infusion reactions.

Such adverse events and other safety issues, including deaths, were also observed in IMbark and the Phase 2 portion of IMerge. If patients in any potential future clinical trials of imetelstat, including the Phase 3 portion of IMerge, experience similar or more severe adverse events, or new or unusual adverse events, or if the FDA or other regulatory authorities determine that efficacy and safety data in current or potential future clinical trials of imetelstat do not support an adequate benefit-risk profile to justify continued treatment of patients, then the FDA or other regulatory authorities may again place the IND for imetelstat on clinical hold, as occurred in March 2014.

Further, clinical trials by their nature examine the effect of a potential therapy in a sample of the potential future patient population. As such, clinical trials conducted with imetelstat, to date and in the future, may not uncover all possible adverse events that patients treated with imetelstat may experience. Because remaining patients in the treatment phase continue to receive imetelstat, in the extension phase of IMbark and in the Phase 2 portion of IMerge, additional or more severe toxicities or safety issues, including additional serious adverse events and dose-limiting toxicities, may be observed as patient treatment continues and more data become available. In addition, since additional data are being generated from the extension phase of IMbark and Part 1 of IMerge, the benefit-risk profile of imetelstat will continue to be assessed, including the risk of hepatotoxicity, severe cytopenias, fatal bleeding with or without any associated thrombocytopenia, patient injury or death, and any other severe adverse effects that may be associated with life-threatening clinical outcomes. If such toxicities or other safety issues in any clinical trial of imetelstat are determined by us, the FDA or any other regulatory authority to result in an unacceptable benefit-risk profile, then:

- additional information supporting the benefit-risk profile of imetelstat may be requested by the FDA or other regulatory authorities and if any such information supplied by Janssen, or by us following the transition of the imetelstat program to us is not deemed acceptable, current clinical trials of imetelstat could be suspended, terminated, or placed on clinical hold by the FDA or other regulatory authorities;
- the ability to retain enrolled patients in current clinical trials may be negatively affected, resulting in incomplete data sets and the inability to adequately assess the benefit-risk profile of imetelstat in a specific patient population; or
- additional, unexpected clinical trials or non-clinical studies may be required to be conducted.

The occurrence of any of these events could interrupt, further delay, or halt, any development and commercialization of imetelstat by us, which would have a severe adverse effect on our results of operations, financial condition, business prospects and the future of imetelstat, any of which might cause us to cease operations.

Results obtained in prior non-clinical studies and clinical trials do not predict success in later clinical trials. Likewise, preliminary data from clinical trials should be considered carefully and with caution since final data may be materially different from preliminary data, particularly as more patient data become available.

Success in non-clinical testing and early clinical trials does not ensure that later clinical trials will be successful. We cannot be certain that any of the prior, current or potential future clinical trials of imetelstat will generate sufficient, consistent or adequate efficacy and safety data demonstrating a positive benefit-risk profile, which would be necessary to obtain regulatory approval to market imetelstat in any indication. Product candidates in later stages of clinical trials may fail to show the desired benefit-risk profile despite having progressed through non-clinical studies and initial clinical trials. Other companies in the biopharmaceutical industry have frequently suffered significant setbacks in later clinical trials, even after achieving promising results in earlier non-clinical studies or clinical trials.

Safety and efficacy data from previous or current imetelstat clinical trials in hematologic myeloid malignancies should not be relied upon as predictive or indicative of future clinical trial results. For example, complete and partial remissions observed in the Pilot Study suggested potential disease-modifying activity of imetelstat in the MF patient population enrolled in the Pilot Study. However, similar activity was not observed in the MF patients enrolled in IMbark, as shown by the one partial remission observed in the IMbark primary analysis. We believe that differences in the IMbark study design when compared to the Pilot Study design, such as more restrictive patient enrollment criteria requiring either documented objective lack of response to a JAK inhibitor or evidence of progressive disease while on treatment with a JAK inhibitor, may have contributed to the data observed in IMbark differing significantly from data reported from the Pilot Study, but we cannot assure you that any future clinical trials of imetelstat in MF will yield results comparable to IMbark or the Pilot Study. In addition, the potential improvement in survival observed in the 9.4 mg/kg dosing arm in IMbark will need to be further assessed in a Phase 3 clinical trial comparing imetelstat to a control therapy, and similar results, including potential improvement in survival, if any, with respect to any patient population or patient population subgroup, may not be observed.

Similarly, in the Phase 2 portion of IMerge, the initial data review for the expansion cohort conducted by Janssen in the second quarter of 2018, which Janssen called a "data snapshot," exhibited 8-week RBC-TI rate of 28%, while the 13-patient initial cohort exhibited 8-week RBC-TI rate of 54% resulting in an overall 8-week RBC-TI rate of 37% for the combined cohorts. We believe the observed difference in 8-week RBC-TI rate between the 13-patient initial cohort and the 25-patient expansion cohort may be attributable to factors such as the maturity of the data at the time of the data snapshot since the median follow-up time of the expansion cohort at the time of the data snapshot was less than half the length of time the 13-patient initial cohort had been followed when their data were first reported, or the higher overall baseline transfusion burden of the expansion cohort, but we cannot assure you that the combined 8-week RBC-TI rate observed in the Phase 2 portion of IMerge will improve with longer follow-up, or at all, or that the 8-week RBC-TI rate of patients enrolled in the Phase 3 portion of IMerge, if any, will be comparable to what has been observed in the 13-patient initial cohort, the expansion cohort, or the combined cohorts.

Additional or updated safety and efficacy data from current or potential future imetelstat clinical trials may result in a benefit-risk profile that does not justify continued development of imetelstat in a particular patient population, or at all. For example, because patients remaining in the treatment phase continue to receive imetelstat, in the extension phase of IMbark and the Phase 2 portion of IMerge, efficacy and safety data continue to be generated. Such additional data could result in a lower benefit-risk profile than initially expected, which could hinder the commencement, completion and potential success in the Phase 3 portion of IMerge, or could cause us to abandon further development of imetelstat entirely. Data from the Phase 3 portion, of IMerge could materially differ from the overall conclusions reported for the Phase 2 portion of IMerge. In general, Phase 3 clinical trials with larger numbers of patients or longer durations of therapy may fail to replicate efficacy results observed in earlier clinical trials, or may reveal safety concerns that were not identified in smaller or shorter trials, any of which could adversely affect future development prospects of imetelstat.

From time-to-time, safety and efficacy data from previous and current imetelstat clinical trials have been reported or announced by us, clinical investigators or Janssen. For example, preliminary data from the Phase 2 portion of IMerge was presented at the ASH annual meetings in December 2017 and December 2018, and at the EHA annual congress in June 2018. We expect similar reports or announcements of safety and efficacy data from us or clinical investigators as data matures in current imetelstat clinical trials and from potential future clinical trials. Preliminary or interim results may not be reproduced in any potential future clinical trials of imetelstat, and thus should be considered carefully and with caution, and not relied upon as indicative of future clinical results. Material adverse differences in final data, compared to preliminary or interim data, could severely and adversely affect our financial results, business and business prospects, and the future of imetelstat, and might cause us to cease operations.

The research and development of imetelstat is subject to numerous risks and uncertainties.

The science and technology of telomere biology, telomerase and our proprietary oligonucleotide chemistry are relatively new. There is no precedent for the successful commercialization of a therapeutic product candidate based on these technologies. Significant research and development activities will be necessary to further develop imetelstat, which is our sole product candidate, which may take years to accomplish, if at all.

Because of the significant scientific, regulatory and commercial challenges that must be overcome to successfully research, develop and commercialize imetelstat, the development of imetelstat in hematologic myeloid malignancies, including MF and MDS, or any other indications, may be further delayed or abandoned, even after significant resources have been expended on it. Examples of such situations include:

- the discontinuation of our Phase 2 clinical trial of imetelstat in metastatic breast cancer in September 2012;
- the discontinuation of our development of imetelstat in solid tumors with short telomeres in April 2013;
- Janssen's decisions in the third quarter of 2016 to close the 4.7 mg/kg dosing arm in IMbark to new patient enrollment and to suspend enrollment in the 9.4 mg/kg dosing arm in IMbark because an insufficient number of patients in the 9.4 mg/kg dosing arm met the protocol defined interim efficacy criteria at 12 weeks;
- Janssen's decision in the third quarter of 2017 to expand the Phase 2 portion of IMerge to enroll additional lower risk MDS patients in a target patient population; and
- Janssen's decision in September 2018 to terminate the Collaboration Agreement.

Further delay, suspension or abandonment of the development of imetelstat in hematologic myeloid malignancies, including further delays resulting from the termination of the Collaboration Agreement, transition of the imetelstat program from Janssen to us, and our ability to successfully plan for and commence future clinical trials of imetelstat, including the Phase 3 portion of IMerge, could have a material adverse effect on the future of imetelstat and our business prospects, and we might cease operations.

If we encounter difficulties enrolling or retaining patients in current or potential future clinical trials of imetelstat, including in the Phase 3 portion of IMerge, clinical development and commercialization activities could be further delayed or otherwise adversely affected, which would cause our business and business prospects to be severely harmed, and we might cease operations.

The timely completion of a clinical trial in accordance with its protocol depends, among other things, on the ability to enroll a sufficient number of patients who remain in the trial until its conclusion. For example, if we experience difficulties in retaining patients in the extension phase of IMbark, our ability to continue to assess OS would be adversely affected. If we experience difficulties in retaining patients in the Phase 2 portion of IMerge, our ability to continue to assess the durability of RBC-TI responses would be adversely affected. In addition, we may encounter challenges in enrolling and retaining patients in potential future clinical trials of imetelstat, including the Phase 3 portion of IMerge, for a variety of reasons. The enrollment and retention of patients depends on many factors, including:

- the patient eligibility criteria specified in the protocol;
- the size of the patient population required for analysis of the trial's primary endpoint;
- the proximity of patients to trial sites;
- the design of the trial;
- our ability to recruit and retain clinical trial investigators with the appropriate competencies and experience;
- clinicians' and patients' perceptions of the potential advantages of imetelstat, both in relation to other available therapies, including any new drugs that may be approved for the indications being investigated, and as a result of data reported from previous or current clinical trials of imetelstat;
- the ability to obtain and maintain patient consents; and
- the risk that patients enrolled in any imetelstat clinical trial will drop out of the trial before completion due to lack of efficacy, adverse side effects, investigator decision, slow progress to later stage clinical trials or personal issues.

In addition, potential future clinical trials of imetelstat, including the Phase 3 portion of IMerge, will compete, with other clinical trials for product candidates that are in the same therapeutic areas with imetelstat and such trials may also be conducted at the same clinical sites, and this competition will reduce the number and type of patients available to enroll or remain in the imetelstat clinical trials. Moreover, because imetelstat represents a departure from more commonly used methods for cancer treatment, potential patients and their doctors may be inclined to use conventional therapies, rather than enroll patients into imetelstat clinical trials, or may decide not to enroll, or may not recommend enrollment, in future clinical trials of imetelstat, based on efficacy and safety results reported to date and that may be reported in the future.

Delays in patient enrollment or the inability to retain or treat patients could result in increased costs, lead to incomplete data sets, or adversely affect the timing or outcome of current or potential future clinical trials of imetelstat, including the Phase 3 portion of IMerge, which could prevent completion of these trials and adversely affect the clinical development and potential commercialization of imetelstat. Such occurrences would severely and adversely affect our financial results, business and business prospects, and the future of imetelstat, and might cause us to cease operations.

We do not have experience as a company in conducting large-scale, late-stage clinical trials, such as the Phase 3 portion of IMerge or potential future similar trials, or in those functional areas that would be required for the successful commercialization of our sole product candidate, imetelstat.

We have no experience in conducting large-scale, late-stage clinical trials, such as the Phase 3 portion of IMerge, nor do we have experience with activities that would be required for the commercialization of imetelstat, should we receive future regulatory approval to do so. We cannot be certain that we will be able to design, enroll, conduct or complete the Phase 3 portion of IMerge, or any other future large-scale, late-stage clinical trial of imetelstat, in a timely fashion, or at all. Large-scale, late-stage clinical trials require additional financial resources and certain internal development experience that we do not currently possess, as well as increased reliance on third-party clinical investigators, CROs, service providers, vendors, suppliers and consultants. Relying on these third parties and establishing effective and collaborative relationships with them to conduct large-scale, late-stage clinical trials may cause further delays that are outside of our control. Any such further delays could have a material adverse effect on our business.

We also do not have commercialization capabilities. Developing an internal sales, marketing and distribution capability would be an expensive and time-consuming process, and will require additional management expertise. We may not be able to negotiate and enter into third-party marketing and distribution agreements on terms that are economically attractive, or at all. Even if we do enter into such agreements, third party marketers and distributors may not successfully market or distribute our sole product candidate, imetelstat.

Our inability to successfully conduct large-scale, late-stage clinical trials, such as the Phase 3 portion of IMerge or future similar trials, or to successfully establish commercialization capabilities for imetelstat if we receive future regulatory approval to do so, would severely and adversely affect our financial results, business and business prospects, and the future of imetelstat, and might cause us to cease operations.

We will rely on third parties to conduct our current and potential future clinical trials of imetelstat. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may be unable to continue the development of, obtain regulatory approval for, or commercialize imetelstat.

We do not have the ability to independently conduct clinical trials. Therefore, we will rely on medical institutions, clinical investigators, contract laboratories and other third parties, such as CROs, service providers, vendors, suppliers and consultants, to conduct clinical trials of imetelstat. The third parties with whom we contract for execution of our clinical trials will play a critical role in the conduct of these trials and the subsequent collection and analysis of data. However, these third parties are not our employees, and except for contractual duties and obligations, we have limited ability to control their performance, or the amount or timing of resources that they devote to imetelstat. For example, the CRO we have retained to support our clinical development activities will be critical to our development of imetelstat, including the Phase 3 portion of IMerge, and any failure by our CRO to perform its contractual obligations, or disputes with our CRO about the quality of its performance or other matters, could cause the anticipated commencement of the Phase 3 portion of IMerge to be delayed beyond mid-year 2019 or

prevent us from commencing or completing the Phase 3 portion of IMerge, or could otherwise further delay or halt our imetelstat development activities. These third parties may also have relationships with other commercial entities, some of which may compete with us. Under certain circumstances, these third parties may terminate their agreements with us without cause and upon immediate written notice.

Although we will rely on third parties to conduct any imetelstat clinical trials, including the Phase 3 portion of IMerge, we remain responsible for ensuring that each clinical trial is conducted in accordance with its investigational plan and protocol. Moreover, the FDA and foreign regulatory authorities require us to comply with regulations and standards, including regulations commonly referred to as good clinical practices, or GCPs, for conducting, monitoring, recording and reporting the results of clinical trials to ensure that the data and results are scientifically credible and accurate, and that patients are adequately informed of the potential risks of participating in clinical trials. Our ability to comply with these regulations and standards is contingent upon activities conducted by third parties, and if they fail to perform in accordance with contractual obligations and legal requirements, our development of imetelstat may be interrupted, further delayed or halted, which would have a severe adverse effect on our results of operations, financial condition, business prospects and the future of imetelstat, any of which might cause us to cease operations.

In addition, the execution of clinical trials and the subsequent compilation and analysis of the data produced, requires coordination among various parties. In order for these functions to be carried out effectively and efficiently, it is imperative that these parties communicate and coordinate with one another. If the quality or accuracy of the clinical data obtained, compiled or analyzed by third parties is compromised due to their failure to adhere to our clinical trial protocols or GCPs, or for any other reason, we may need to enter into new arrangements with alternative third parties, which could be difficult, costly or impossible. If third parties conducting our clinical trials do not perform their contractual duties or obligations, experience work stoppages, do not meet expected deadlines, terminate their agreements with us or need to be replaced, our clinical trials may be extended, delayed or terminated, or may be unsuccessful or need to be repeated, which could have a material adverse effect on our business and might cause us to cease operations.

RISKS RELATED TO TRANSITION OF THE IMETELSTAT PROGRAM FROM JANSSEN TO GERON

Encountering delays or difficulties in transitioning the imetelstat program from Janssen to us would prevent us from timely developing imetelstat, or preclude us from developing imetelstat at all, which could severely and adversely affect our financial results, business and business prospects, and might cause us to cease operations.

Under the terms of the Collaboration Agreement, Janssen is required to provide operational support for the imetelstat program during transition of the program to us. The transition process is expected to occur through September 2019, to enable the orderly transfer of all ongoing clinical, regulatory, medical affairs and non-clinical activities to us, including transfer of the sponsorship of ongoing imetelstat clinical trials from Janssen to us. In addition, following the effective date of termination of the Collaboration Agreement, we expect Janssen to supply imetelstat to us for up to 24 months during a transition period for clinical manufacturing and such supply will be charged to us at Janssen's cost plus a premium. Our future clinical development plans for imetelstat substantially depend on the timely and comprehensive transition of the imetelstat program from Janssen to us. Delays in completing the transition activities or unwillingness by Janssen to fully perform all of the transition activities will further delay or preclude the clinical development of imetelstat, increase our operating costs and thereby negatively impact our financial results, as well as harm imetelstat's future prospects, any of which could severely and adversely affect our business and business prospects, and might cause us to cease operations.

During the transition period, we remain dependent on Janssen for several key operational development areas. Poor or incomplete performance by Janssen in these areas could severely and adversely affect imetelstat's future value and our business and business prospects, and might cause us to cease operations.

During the transition period, we will remain dependent on Janssen to perform certain activities related to imetelstat, which subjects us to a number of risks, including:

- Janssen may not perform as expected or required by the Collaboration Agreement, and we are not able to control the amount or timing of the resources that Janssen may devote to the transition;
- there may be disputes between us and Janssen that result in the delay of the transition, or the achievement of development, regulatory and commercial objectives, or affect our license to the proprietary rights arising

under the Collaboration Agreement, which may result in costly litigation or arbitration that diverts our management's attention and resources;

- the manner and timing in which Janssen effects the transition could adversely impact the development of imetelstat;
- failure by Janssen to comply with applicable regulatory guidelines could result in our inability to assume sponsorship responsibility for the IND for imetelstat or to plan for and commence future clinical trials of imetelstat, including the Phase 3 portion of IMerge, or could result in administrative or judicially imposed sanctions on us, including warning letters, civil and criminal penalties, injunctions, product seizures or detention, product recalls, total or partial suspension of manufacturing activities, and the potential refusal to approve any new drug applications;
- our ability to transfer and subsequently maintain the IND for imetelstat and to submit required regulatory reports within required timelines may be compromised if Janssen is not fully cooperative in transferring all data and information from the imetelstat program, including IMbark and IMerge, to us;
- business combinations or significant changes in Janssen's business strategy or failure to apply financial and other resources to the transition may also adversely affect Janssen's ability to perform its obligations related to transition of the imetelstat program to us; and
- Janssen may not properly maintain or defend intellectual property rights arising from the Collaboration Agreement, may use our proprietary information in such a way as to cause disputes that could jeopardize or invalidate our proprietary information or expose us to potential litigation, or may disclose our proprietary information in a manner that could put our intellectual property rights at risk.

The occurrence of any of these events could severely and adversely affect imetelstat's future value and our business and business prospects, and might cause us to cease operations.

RISKS RELATED TO REGULATORY APPROVAL AND COMMERCIALIZATION OF IMETELSTAT

Maintaining regulatory clearances and approvals to continue the clinical development of imetelstat, and obtaining future regulatory clearances to potentially market imetelstat, in the United States and other countries, is a costly and lengthy process, and we cannot predict when or if regulatory authorities will permit additional imetelstat development or when or if regulatory authorities will approve imetelstat for commercial sale.

Federal, state and local governments in the United States and governments in other countries have significant regulations in place that govern drug research and development and may prevent us from successfully conducting development efforts or commercializing imetelstat. Delays in obtaining regulatory clearances and approvals or limitations in the scope of such clearances or approvals could:

- impede or halt our clinical development activities and plans;
- significantly harm the commercial potential of imetelstat;
- impose additional development costs;
- diminish any competitive advantages that may have been available to us; or
- further delay or preclude any revenue we may receive from the future commercialization of imetelstat, if any.

Before we can seek to obtain regulatory approval for the commercial sale of imetelstat, multiple clinical trials, including larger-scale Phase 3 clinical trials, will need to be conducted to demonstrate if imetelstat is safe and effective for use in a diverse population. Significant additional research, non-clinical testing and clinical testing is required before we can file any application with the FDA or other regulatory authorities for regulatory approval of imetelstat. As such, we do not expect imetelstat to be commercially available for many years, if at all. Our clinical development program for imetelstat may not lead to regulatory approval from the FDA and similar foreign regulatory authorities if we fail to demonstrate that imetelstat is safe and effective. If imetelstat cannot be developed in potential future clinical trials, including in Phase 3 clinical trials, our business and business prospects would be severely and adversely affected, and we might cease operations. Even if we do successfully complete one or more future clinical trials of

imetelstat in hematologic myeloid malignancies, including the Phase 3 portion of IMerge, those results are not necessarily predictive of results of future pivotal trials that may be needed before we may submit an NDA to the FDA for the initial or other future indications. We may therefore fail to further develop or commercialize imetelstat.

If our interpretation of safety and efficacy data obtained from non-clinical studies and clinical trials varies from interpretations by the FDA or regulatory authorities in other countries, this would likely further delay, limit or prevent further development and approval of imetelstat. For example, the FDA and regulatory authorities in other countries may require more or different data than what has been generated from our non-clinical studies and previous or ongoing clinical trials, even though protocols for these trials may have been reviewed by FDA and any resulting feedback incorporated. In addition, delays or rejections of regulatory approvals, or limitations in marketing authorizations, may be encountered as a result of changes in the regulatory environment or regulatory policy during the period of product development and/or the period of review of any application for regulatory approval for imetelstat.

The benefit-risk profile of imetelstat will also affect the assessment by the FDA and regulatory authorities in other countries of the drug's cost-effectiveness and/or marketability, which assessment could prevent or limit its approval for marketing and successful commercial use. If regulatory submissions requesting approval to market imetelstat are submitted, the FDA and regulatory authorities in other countries may conclude that the overall benefit-risk profile of imetelstat treatment does not merit approval of imetelstat for marketing or further development for any indication. Any of these events could cause us to halt future development and commercialization of imetelstat, if any, which would severely harm our business and business prospects, and might cause us to cease operations.

Imetelstat must receive all relevant regulatory approvals before it may be marketed in the United States or other countries. Obtaining regulatory approval is a lengthy, expensive and uncertain process. For example, in June 2016, the electorate in the United Kingdom voted in favor of exiting the European Union, and in March 2017, the Government of the United Kingdom initiated the formal procedure of withdrawal from the European Union. Although the impact of the withdrawal of the United Kingdom from the European Union will not be known for some time, this could lead to a period of considerable uncertainty in relation to the regulatory process in Europe, which could result in a delay in the review of regulatory submissions made in Europe by biotechnology and pharmaceutical companies, including potentially by us in the future, and could also lead to less efficient, more expensive, and potentially lengthier regulatory review processes for companies like us, who may seek to obtain regulatory approval for drug products in the European Union or the United Kingdom. Such changes could adversely affect and/or delay our ability to obtain approval of, and market and sell, imetelstat in the United States. In addition, because imetelstat involves the application of new technologies and a new therapeutic approach, it may be subject to substantial additional review by various government regulatory authorities, and, as a result, the process of obtaining regulatory approvals for imetelstat may proceed more slowly than for product candidates based upon more conventional technologies, and any approval that may be received could limit the use of imetelstat. We do not expect imetelstat to be approved for commercial sale for many years, if at all.

Even if the necessary time and resources are committed by us, the required regulatory clearances and approvals may not be obtained for imetelstat. Further, if regulatory clearances and approvals are obtained to commence commercial sales of imetelstat, they may impose significant limitations on the indicated uses or other aspects of the product label for which imetelstat can be marketed. An approval might also be contingent on the performance of costly additional post-marketing clinical trials. Any failure to advance imetelstat to subsequent clinical trials, failure to obtain regulatory approval of imetelstat, or limitations on any regulatory approval that we might receive, could reduce the potential commercial use of imetelstat, and potential market demand for imetelstat and therefore result in decreased revenue for us from any commercialization of imetelstat, any of which would severely and adversely affect our financial results, business and business prospects, and the future of imetelstat, and might cause us to cease operations.

Although orphan drug designation has been granted to imetelstat for the treatment of MF and MDS, these designations may not be maintained, which would eliminate the benefits associated with orphan drug designation, including the potential for market exclusivity, which would likely result in decreased sales revenue from commercialization of imetelstat, if any, and would likely harm our business and business prospects.

The FDA granted orphan drug designation to imetelstat in June 2015 for the treatment of MF and for the treatment of MDS in December 2015, and the European Medicines Agency, or EMA, granted it in December 2015 for the treatment of MF. The designation of imetelstat as an orphan drug does not guarantee that any regulatory authority

will accelerate regulatory review of, or ultimately approve, imetelstat, nor does it limit the ability of any regulatory authority to grant orphan drug designation to product candidates of other companies that treat the same indications as imetelstat prior to imetelstat receiving any exclusive marketing approval.

We may lose orphan drug exclusivity if the FDA or EMA determines that the request for orphan drug designation was materially defective or if we cannot ensure sufficient quantities of imetelstat to meet the needs of patients with MF or MDS.

Even if we maintain orphan drug exclusivity for imetelstat, the exclusivity may not effectively protect imetelstat from competition because different drugs with different active moieties can be approved for the same condition. Even after an orphan drug product is approved, the FDA or EMA can subsequently approve a different drug with the same active moiety for the same condition, if the FDA or EMA concludes that the later drug is safer, more effective, or makes a major contribution to patient care. The occurrence of any of these events could result in decreased sales of imetelstat, should it ever receive marketing approval, and may harm our business and business prospects. In addition, orphan drug designation will neither shorten the development time nor regulatory review time for imetelstat, and does not give imetelstat any advantage in the regulatory review or approval process.

A Fast Track designation by the FDA, such as the Fast Track designation received for imetelstat, does not guarantee approval and may not lead to a faster development, regulatory review or approval process.

In October 2017, the FDA granted fast track designation for the imetelstat clinical development program for the treatment of adult patients with transfusion-dependent anemia due to Low or Intermediate-1 risk MDS who are non-del(5q) and who are refractory or resistant to treatment with an erythropoiesis stimulating agent. Fast track designation provides opportunities for frequent interactions with FDA review staff, as well as eligibility for priority review, if relevant criteria are met, and rolling review. Fast track designation is intended to facilitate and expedite development and review of a New Drug Application to address unmet medical needs in the treatment of serious or life-threatening conditions. However, fast track designation does not accelerate conduct of clinical trials or mean that the regulatory requirements are less stringent, nor does it ensure that imetelstat will receive marketing approval or that approval will be granted within any particular timeframe. In addition, the FDA may withdraw fast track designation if it believes that the designation is no longer supported by data emerging from the imetelstat clinical development program.

Failure to achieve continued compliance with government regulations could delay or halt commercialization of imetelstat.

Approved products and their manufacturers are subject to continual review, and discovery of previously unknown problems with a product or its manufacturer may result in restrictions on the product or manufacturer, including import restrictions, seizure and withdrawal of the product from the market. If approved for commercial sale, future sales of imetelstat will be subject to government regulation related to numerous matters, including the processes of:

- manufacturing;
- advertising and promoting;
- selling and marketing;
- labeling; and
- distribution.

If, and to the extent that, we are unable to comply with these regulations, our ability to earn potential revenue from the commercialization of imetelstat, if any, would be materially and adversely impacted.

Failure to comply with regulatory requirements can result in severe civil and criminal penalties, including but not limited to:

- recall or seizure of products;
- injunctions against the import, manufacture, distribution, sales and/or marketing of products; and

- criminal prosecution.

The imposition of any of these penalties or other commercial limitations would severely and adversely affect our financial results, business and business prospects, and the future of imetelstat, and might cause us to cease operations.

RISKS RELATED TO MANUFACTURING IMETELSTAT

Failure by Janssen to manufacture or provide adequate clinical quantities of imetelstat on a timely basis, or at all, for the period required by the Collaboration Agreement, or our failure to establish a manufacturing supply chain to appropriately and adequately supply imetelstat for future clinical and commercial uses, would result in a further delay in or cessation of clinical trials and a further delay in or our inability to obtain regulatory approvals of imetelstat, and our business and business prospects could be severely harmed, and we could cease operations.

Pursuant to the Collaboration Agreement, Janssen is required to supply imetelstat to us until September 28, 2020 while we are planning to re-establish our own manufacturing supply chain. Consequently, we will remain dependent on Janssen to appropriately supply imetelstat and other clinical trial materials until such date or when we re-establish our own manufacturing supply chain. Thereafter, we will be responsible for the manufacture and supply of imetelstat for future clinical and commercial uses. The process of manufacturing imetelstat is complex and subject to several risks, including:

- the ability to scale-up and attain sufficient production yields with appropriate quality control and quality assurance;
- reliance on third-party manufacturers and suppliers;
- supply chain issues, including the timely availability and shelf life requirements of raw materials and other supplies;
- shortage of qualified personnel; and
- compliance with regulatory requirements, which are less well-defined for oligonucleotide products than for small molecule drugs and vary in each country where imetelstat might be sold or used.

As a result of these and other risks, Janssen may not perform as agreed or may default in its obligations to supply clinical quantities of imetelstat for the period of time required by the Collaboration Agreement, or may fail to deliver the required quantities of imetelstat on a timely basis, or at required or applicable quality standards, which would result in a further delay or cessation of current and potential future clinical trials and otherwise significantly further delay our ability to develop imetelstat, which would severely and adversely affect our business and business prospects, and might cause us to cease operations. In addition, our inability to establish a manufacturing supply chain capable of providing imetelstat for clinical trials and potential future commercial uses following the termination of Janssen's obligation to supply us with imetelstat would further delay or result in a cessation of potential future clinical trials and would further delay or preclude any applications for regulatory approval and therefore further delay or preclude our ability to earn revenue from the commercialization, if any, of imetelstat, which would severely and adversely affect our financial results, business and business prospects, and might cause us to cease operations.

If third parties that manufacture imetelstat fail to perform as needed, then the clinical and commercial supply of imetelstat will be limited, and we may be unable to conduct future clinical trials of imetelstat, including the Phase 3 portion of IMerge, or to commercialize imetelstat in the future.

Following the termination of Janssen's obligation to supply us with imetelstat, we expect to rely solely upon third-party contractors to perform certain process development or other technical and scientific work with respect to imetelstat, as well as to supply starting materials and manufacture drug substance and drug product. We currently have no arrangements with third parties for the manufacture of imetelstat, and the establishment of such arrangements could further delay, perhaps substantially, or preclude our ability to pursue imetelstat development on our own, increase our costs and otherwise negatively affect our financial results, business and business prospects. We may not be able to obtain third-party manufacturers for imetelstat on acceptable terms, or at all. We expect to rely on third-party contractors to produce and deliver sufficient quantities of imetelstat and other materials to support clinical trials on a timely basis and to comply with applicable regulatory requirements. We will not have direct control over these

third-party personnel or operations. Reliance on these third-party manufacturers is subject to numerous risks, including:

- being unable to identify suitable third-party manufacturers, because the number of potential manufacturers is limited;
- regulatory authorities may require significant activities to validate and qualify any replacement manufacturer, which could involve new testing and compliance inspections;
- being unable to contract with third-party manufacturers on acceptable terms, or at all;
- the inability of third-party manufacturers to timely formulate and manufacture imetelstat or to produce imetelstat in the quantities or of the quality required to meet clinical and commercial needs;
- decisions by third-party manufacturers to exit the contract manufacturing business during the time required to supply clinical trials or to successfully produce, store and distribute products;
- compliance by third-party manufacturers with current Good Manufacturing Practice, or cGMP, standards mandated by the FDA and state agencies and other government regulations corresponding to foreign regulatory authorities;
- breach or termination of manufacturing contracts;
- inadequate storage at contracted facilities resulting in theft or spoilage;
- capacity limitation and scheduling imetelstat manufacturing activities as a priority in contracted facilities; and
- natural disasters that affect contracted facilities.

Each of these risks could lead to delays or shortages in drug supply, or the inability to manufacture drug supply necessary for non-clinical and clinical activities, and commercialization. For example, manufacturing delays could adversely impact the completion of current clinical trials, such as the extension phase of IMbark and the Phase 2 portion of IMerge, or the commencement of potential future clinical trials, including the Phase 3 portion of IMerge, which could severely and adversely affect our financial results, business and business prospects, and the future of imetelstat, and might cause us to cease operations.

In addition, third-party contractors and/or any other contractors may need to make substantial investments to enable sufficient capacity increases and cost reductions, and to implement those regulatory and compliance standards necessary for successful Phase 3 clinical trials and commercial production of imetelstat. These third-party contractors may not be willing or able to achieve such capacity increases, cost reductions, or regulatory and compliance standards, and even if they do, such achievements may not be at commercially reasonable costs. Changing manufacturers may be prolonged and difficult due to inherent technical complexities and because the number of potential manufacturers is limited. It may be difficult or impossible for us to find a replacement manufacturer on acceptable terms, or at all.

It may not be possible to manufacture imetelstat at costs or scales necessary to conduct clinical trials or potential future commercialization activities.

Oligonucleotides are relatively large molecules produced using complex chemistry, and the cost of manufacturing an oligonucleotide like imetelstat is greater than the cost of making typical small-molecule drugs. Therefore, imetelstat for clinical use is more expensive to manufacture than most other treatments currently available today or that may be available in the future. Similarly, the cost of manufacturing imetelstat for commercial use will need to be significantly lower than current costs in order for imetelstat to become a commercially successful product. We may not be able to achieve sufficient scale increases or cost reductions necessary for successful commercial production of imetelstat. Failure to achieve necessary cost reductions could result in decreased sales, if any, for us, which would materially and adversely affect our financial results, business and business prospects, and the future of imetelstat, and might cause us to cease operations.

RISKS RELATED TO MANAGING OUR GROWTH AND OTHER BUSINESS OPERATIONS

We may be unable to successfully retain or recruit key personnel to support the development and potential future commercialization of imetelstat or to otherwise successfully manage our growth.

Our ability to successfully develop imetelstat in the future and to potentially commercialize imetelstat depends to a significant extent on the skills, experience and efforts of our executive officers and key members of our staff. In addition, we will need to hire a number of senior personnel to re-staff our internal drug development group, as well as to contract with subject matter experts in clinical science, biostatistics, clinical operations, pharmacovigilance, quality systems, manufacturing and regulatory affairs, to enable us to further develop and potentially commercialize imetelstat.

We face intense competition for qualified individuals from numerous pharmaceutical, biopharmaceutical and biotechnology companies, as well as academic and other research institutions, and competition in our geographic region is particularly intense. Termination of the Collaboration Agreement by Janssen, as well as the previous restructurings we implemented, and the uncertainties regarding our future business viability could have an adverse impact on our ability to retain and recruit qualified personnel or we may incur unanticipated inefficiencies caused by our reduced personnel resources. We may also face higher than expected personnel costs in order to attract new management or development personnel, or to maintain our current executive officers and staff. If we are unable to successfully retain, motivate and incentivize our existing personnel, or to attract, assimilate and retain other highly qualified management and senior development personnel in the future on acceptable terms, our ability to further develop imetelstat will be impaired, and our business and the price of our common stock would be adversely impacted.

As our operations potentially expand, we expect that we will need to manage new and additional relationships with various service providers, vendors, suppliers and other third parties, as well as additional office locations, for example, our planned office opening in northern New Jersey. Such potential growth and expansion will require members of our management to assume significant added responsibilities. Our performance in managing any such future growth, if ineffective, could negatively impact our business prospects. We may not successfully manage our anticipated imetelstat development efforts and potential future imetelstat clinical trials, including the Phase 3 portion of IMerge, effectively. If we fail to achieve key development goals, our abilities to grow as a company, and to further develop and commercialize imetelstat, could be prevented or hindered, and our business and business prospects would be severely harmed, which might cause us to cease operations.

We expect imetelstat to remain our sole product candidate for the foreseeable future. If we are unable to successfully develop or commercialize imetelstat, our business and business prospects would be severely harmed, which might cause us to cease operations.

We plan to focus our efforts on the further development of imetelstat in hematologic myeloid malignancies. Accordingly, we do not currently have any plans to engage in any efforts to discover new product candidates or to seek to acquire and/or in-license other oncology products, product candidates, programs or companies in order to diversify our business. Since we do not currently have a discovery function or capabilities, and do not plan to establish such capabilities or to seek to diversify our product candidate portfolio through acquisition and/or in-licensing activity, we will be wholly reliant upon the development of imetelstat, our sole product candidate, for the foreseeable future. If we are unable to successfully develop and commercialize imetelstat, our business and business prospects would be severely harmed, which might cause us to cease operations.

If we are unable to establish potential future collaborative arrangements for imetelstat, we may have to delay, alter or abandon our imetelstat development and commercialization plans.

We intend to develop imetelstat broadly for hematologic malignancies, and to potentially commercialize, market and sell imetelstat by ourselves in the United States. We plan to seek another collaborative partner or partners, at an appropriate time, to assist us in the potential development and commercialization of imetelstat outside the United States, and to provide funding for such activities. We face significant competition in seeking appropriate collaborative partners, and these potential collaborative arrangements are complex and time consuming to negotiate, document and implement. We may not be able to negotiate collaborative arrangements on acceptable terms, or at all. In this regard, collaborative arrangements with third parties may require us to relinquish material rights, including revenue from potential commercialization, on terms that are less attractive than under the Collaboration Agreement we had with Janssen, or to assume material ongoing development obligations that we would have to fund or otherwise support.

In any event, we are unable to predict when, if ever, we will enter into any collaborative arrangements because of the numerous risks and uncertainties associated with establishing collaborative arrangements. Moreover, as a result of the termination of the Collaboration Agreement and the significant uncertainty regarding the future imetelstat development program, potential collaborative partners may be less willing to enter into new collaborative arrangements with us, or may only be willing to do so on terms that are not favorable to us. As a result, we may not be successful in finding a new collaborative partner or partners on favorable terms, if at all. If we are unable to negotiate collaborative arrangements, we may have to:

- curtail the development of imetelstat,
- further delay, alter or abandon the imetelstat development program,
- further delay or abandon its potential commercialization,
- reduce the scope of potential future sales or marketing activities, or
- increase our expenditures and undertake development or commercialization activities at our own expense, which will require substantial additional capital than our current resources.

In order to advance the imetelstat program, including completing the Phase 3 portion of IMerge and potential clinical trials in other indications, as well as potential commercialization activities in the United States, we will need to raise substantial additional capital. In addition, if we elect to increase our expenditures to fund imetelstat development or commercialization activities outside the United States on our own, we will be required to substantially increase our personnel resources and we will need to obtain substantial further capital, which may not be available to us on acceptable terms, or at all. If we do not have sufficient funds, we will not be able to advance the imetelstat program, including completing the Phase 3 portion of IMerge or clinical trials in other indications, or to bring imetelstat to market and generate product revenues. Establishing the infrastructure necessary to further develop, commercialize, market and sell imetelstat worldwide will require substantial resources and may divert the attention of our management and key personnel and negatively impact our imetelstat development or commercialization efforts in the United States.

We currently have no products approved for commercial sale and we have not yet demonstrated an ability to obtain marketing approvals for any product candidates, which makes it difficult to assess our future viability.

We have never derived any revenue from the sales of any products. Our operations to date have been limited to organizing and staffing our company, acquiring, developing and securing our technology, undertaking non-clinical studies and early stage clinical trials of imetelstat and past product candidates that we have subsequently discontinued, and engaging in research and development under collaboration agreements. We have not yet demonstrated an ability to obtain regulatory approvals, formulate and manufacture commercial-scale products, or conduct sales and marketing activities necessary for successful product commercialization. Consequently, for these and other reasons discussed elsewhere in these risk factors, it is difficult to predict our future success and the viability of our business and the imetelstat program.

We may not be able to obtain or maintain sufficient insurance on commercially reasonable terms or with adequate coverage against potential liabilities in order to protect ourselves against product liability claims or claims related to clinical trial conduct.

Our business exposes us to potential product liability and other risks that are inherent in the testing, manufacturing and marketing of human therapeutic and diagnostic products. We may become subject to product liability claims or claims related to clinical trial conduct if the use of imetelstat is alleged to have injured patients, including any injuries alleged to arise from any hepatotoxicity or hemorrhagic event associated with the use of imetelstat. We currently have limited clinical trial liability insurance, and we may not be able to maintain this type of insurance for any clinical trials, including the Phase 3 portion of IMerge, or this type of insurance may become too expensive for us to afford because of the highly risky and uncertain nature of clinical trials generally and the high cost of insurance for our business activities. In addition, business liability and product liability insurance are becoming increasingly expensive, particularly for biotechnology and pharmaceutical companies, and the pool of insurers offering insurance coverage to biotechnology and pharmaceutical companies generally is becoming smaller, making it more difficult to obtain insurance for our business activities at a reasonable price, or at all. Being unable to obtain or

maintain product liability, clinical trial liability, or other insurance for our business activities in the future on acceptable terms or with adequate coverage against potential liabilities could have a material adverse effect on our business.

We have been, and may in the future be, involved in securities-related legal actions that are expensive and time consuming. Any securities-related legal actions, if resolved adversely, could harm our business, financial condition, or results of operations.

Securities-related class action lawsuits and/or derivative lawsuits have often been brought against companies, including biotechnology and biopharmaceutical companies, that experience volatility in the market price of their securities. This risk is especially relevant for us because we often experience significant stock price volatility in connection with our product development activities.

We and certain of our officers were named as defendants in two purported class action securities lawsuits filed in the United States District Court for the Northern District of California, or the California District Court, as well as a third securities lawsuit, not styled as a class action, which was transferred to the California District Court. These three cases, or the Class Action Lawsuits, were consolidated for all purposes and settled in July 2017. In connection with the settlement, in April 2017, we paid $250,000 and our insurance providers paid $6.0 million to a settlement escrow account to be paid to members of the settlement class, less payment of attorneys' fees and costs to plaintiff's counsel.

The termination of the Collaboration Agreement could also result in litigation arising out of any claims that our stockholders suffered financial losses. The market price of our common stock declined significantly after the announcement on September 27, 2018 of the termination of the Collaboration Agreement, and certain stockholders experienced significant financial losses. Therefore, it is possible that lawsuits will be filed naming us and/or our officers and directors as defendants with respect to the termination of the Collaboration Agreement by Janssen or other matters related to the Collaboration Agreement, future clinical trials of imetelstat, if any, including the Phase 3 portion of IMerge, or other business activities. Monitoring, initiating and defending against legal actions is time-consuming for our management, is likely to be expensive and may detract from our ability to fully focus our internal resources on our business activities. We could be forced to expend significant resources in the settlement or defense of any additional lawsuits, and we may not prevail in such lawsuits. Additionally, we may not be successful in having any such lawsuit dismissed or settled within the limits of our insurance coverage.

We have not established any reserve for any potential liability relating to any lawsuits. It is possible that we could, in the future, incur judgments or enter into settlements of claims for monetary damages. A decision adverse to our interests in any such lawsuit, or in similar or related litigation, could result in the payment of substantial damages, or possibly fines, and could have a material adverse effect on our business, our stock price, cash flow, results of operations and financial condition.

We may be subject to third-party litigation, and such litigation would be costly to defend or pursue and uncertain in its outcome.

Our business may bring us into conflict with our licensees, licensors, or others with whom we have contractual or other business relationships, or with our competitors or others whose interests differ from ours. We may experience employment-related disputes as we seek to expand our personnel resources. If we are unable to resolve those conflicts on terms that are satisfactory to all parties, we may become involved in litigation brought by or against us.

We may face litigation with Janssen arising from or related to the Collaboration Agreement and Janssen's termination of it. Possible disagreements with Janssen could include disagreements regarding the transition of the imetelstat program from Janssen back to us, or the ownership of proprietary rights arising from the work performed by Janssen under the Collaboration Agreement. We may become involved in performance or other disputes with the CRO we have retained to support our imetelstat clinical development activities, or with other third parties such as service providers, vendors, suppliers or consultants, which could result in a further delay or cessation of current and potential future clinical trials and otherwise significantly further delay our ability to develop imetelstat.

Lawsuits are subject to inherent uncertainties, and defense and disposition costs depend upon many unknown factors. Despite the availability of insurance, we may incur substantial legal fees and costs in connection with litigation. Lawsuits could result in judgments against us that require us to pay damages, enjoin us from certain

activities, or otherwise negatively affect our legal or contractual rights, which could have a significant adverse effect on our business. In addition, the inherent uncertainty of such litigation could lead to increased volatility in our stock price and a decrease in the value of our stockholders' investment in our common stock.

RISKS RELATED TO PROTECTING OUR INTELLECTUAL PROPERTY

Our success and the success of our planned future development of imetelstat will depend on our ability to protect our technologies and imetelstat through patents and other intellectual property rights.

Protection of our proprietary technology is critically important to our business. Our success will depend in part on our ability to obtain, maintain, enforce and extend our patents and maintain trade secrets, both in the United States and in other countries. Our patents may be challenged, invalidated or circumvented, and our patent rights may not provide proprietary protection or competitive advantages to us. In the event that we are unsuccessful in obtaining, maintaining, and enforcing our patents and other intellectual property rights or having our licensors maintain the intellectual property rights we have licensed, the value of our technologies and imetelstat will be adversely affected, and we may not be able to further develop or potentially commercialize imetelstat. Loss or impairment of our intellectual property related to imetelstat might further delay or halt ongoing or potential future clinical trials of imetelstat and any applications for regulatory approval, and therefore further delay or preclude any future development or commercialization of imetelstat by us. Further, if imetelstat is approved for commercial sale, such events could impair our ability to sell imetelstat and therefore result in decreased sales for us. Occurrence of any of these events would materially and adversely affect our financial results, business and business prospects, and the future of imetelstat, and might cause us to cease operations.

Changes in U.S. or foreign patent law or interpretations of such patent laws could diminish the value of our patents in general, thereby impairing our ability to protect our technologies and imetelstat.

The patent positions of pharmaceutical and biopharmaceutical companies, including ours, are highly uncertain and involve complex legal and technical questions. In particular, legal principles for biotechnology and pharmaceutical patents in the United States and in other countries are evolving, and the extent to which we will be able to obtain patent coverage to protect our technologies and imetelstat, or enforce or defend issued patents, is uncertain.

Since the publication of discoveries in scientific or patent literature tends to lag behind actual discoveries by at least several months and sometimes several years, the persons or entities that we name as inventors in our patents and patent applications may not have been the first to invent the inventions disclosed in the patent applications or patents, or the first to file patent applications for these inventions. As a result, we may not be able to obtain patents for discoveries that we otherwise would consider patentable and that we consider to be extremely significant to the future success of imetelstat. Thus, our ability to protect our patentable intellectual property depends, in part, on our ability to be the first to file patent applications with respect to our inventions or inventions that were developed by Janssen under the Collaboration Agreement and to which we have an exclusive license for the further development, commercialization and manufacture of imetelstat. Delay in the filing of a patent application for any purpose, including further development or refinement of an invention, may result in the risk of loss of patent rights.

A number of significant changes to U.S. patent law occurred when the Leahy-Smith America Invents Act, or the AIA, was signed into law on September 16, 2011. These include provisions that affect the way patent applications are examined and may affect patent litigation. Many of the substantive changes to patent law associated with the AIA, and in particular, the first to file provisions, became effective on March 16, 2013. For example, the AIA limits where a patentee may file a patent infringement suit. The AIA and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents.

U.S. court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. For example, on June 13, 2013, the U.S. Supreme Court, or the Court, issued a decision in *Association for Molecular Pathology v. Myriad Genetics, Inc.* holding that claims to isolated genomic DNA were not patentable subject matter, but claims to complementary DNA, or cDNA, molecules were patentable subject matter. On March 20, 2012, in *Mayo Collaborative Services, DBA Mayo Medical Laboratories, et al. v. Prometheus Laboratories, Inc.*, the Court held that several claims drawn to measuring drug metabolite levels from patient samples and correlating them to drug doses were not patentable subject matter. In addition, court rulings in cases such as *BRCA1- & BRCA2-Based Hereditary Cancer Test Patent Litig*. and *Promega Corp. v. Life Technologies Corp.* have also narrowed the scope of patent protection available in certain circumstances. In addition

to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events may have created uncertainty with respect to the value of certain patents we have previously obtained or in-licensed.

In addition, in June 2016, the electorate of the United Kingdom voted to exit the European Union, and in March 2017 the Government of the United Kingdom initiated the formal procedure of withdrawal from the European Union. While the exit of the United Kingdom from the European Union is planned, the exact timing of the withdrawal and the resulting effect of withdrawal will not be known for some time, which could lead to a period of considerable uncertainty relating to our ability to obtain and maintain Supplementary Protection Certificates of our products based on our United Kingdom patents and our ability to establish and maintain European trademarks in the United Kingdom.

In 2012, the European Union Patent Package, or EU Patent Package, regulations were passed with the goal of providing for a single pan-European Unity Patent, or UP, and a new European Unified Patent Court, or UPC, for litigation of European patents. Once established, the UPC would have jurisdiction over traditional European patents and new UPs in the United Kingdom and all Contracting Member States of the European Union. However, political activity in the United Kingdom and a legal challenge in Germany has delayed ratification of the EU Patent Package in these countries. There have been many delays in the implementation of the EU Patent Package, and further delays may occur. When the EU Patent Package is ratified and in effect, all European patents, including those issued prior to ratification, would by default automatically fall under the jurisdiction of the UPC and allow for the possibility of obtaining pan-European injunctions. Under the EU Patent Package as currently proposed, once the UPC is established, patent holders are permitted to "opt out" of the UPC on a patent-by-patent basis, although the time permitted for this opt-out is not yet known. Owners of traditional European Patent applications who receive notice of grant after the EU Patent Package is ratified could validate the patent nationally, and file an opt-out demand. The EU Patent Package may increase the uncertainties and costs surrounding the enforcement or defense of our issued European patents. The full impact on future European patent filing strategy and the enforcement or defense of our issued European patents in member states and/or the UPC is not known.

Depending on decisions by the U.S. federal courts, the U.S. Patent and Trademark Office, or the Patent Office, and similar authorities in foreign jurisdictions, the interpretation of laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents. Occurrence of these events and/or significant impairment of our imetelstat patent rights would severely and adversely affect our financial results, business and business prospects, and the future of imetelstat, which might cause us to cease operations.

Challenges to our owned or licensed patent rights would result in costly and time-consuming legal proceedings that could prevent or limit development of imetelstat.

Our patents or those patent rights we have licensed, including patent rights that we may seek with respect to inventions made by Janssen under the Collaboration Agreement, may be challenged through administrative or judicial proceedings, which could result in the loss of important patent rights. For example, where more than one party seeks U.S. patent protection for the same technology, the Patent Office may declare an interference proceeding in order to ascertain the party to which the patent should be issued. Patent interferences are typically complex, highly contested legal proceedings, subject to appeal. They are usually expensive and prolonged, and can cause significant delay in the issuance of patents. Our pending patent applications or our issued patents, or those we have licensed and may license from others, including Janssen, may be drawn into interference proceedings or be challenged through post-grant review procedures or litigation, any of which could delay or prevent the issuance of patents, or result in the loss of issued patent rights.

Under the AIA, interference proceedings between patent applications filed on or after March 16, 2013 have been replaced with other types of proceedings, including derivation proceedings. The AIA also includes post-grant review procedures subjecting U.S. patents to post-grant review procedures similar to European oppositions, such as *inter partes* review, or IPR, covered business method post-grant reviews and other post-grant reviews. This applies to all of our U.S. patents and those we have licensed and may license from others, including Janssen, even those issued before March 16, 2013. Because of a lower evidentiary standard necessary to invalidate a patent claim in Patent Office proceedings compared to the evidentiary standard in U.S. federal court, a third party could potentially provide evidence in a Patent Office proceeding sufficient for the Patent Office to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. Accordingly, a third

party could attempt to use the Patent Office procedures to invalidate patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action. U.S. patents owned or licensed by us may therefore be subject to post-grant review procedures, as well as other forms of review and re-examination. In addition, the IPR process under the AIA permits any person, whether they are accused of infringing the patent at issue or not, to challenge the validity of certain patents. As a result, entities associated with hedge funds have challenged valuable pharmaceutical patents through the IPR process. Significant impairment of our imetelstat patent rights would severely and adversely affect our financial results, business and business prospects, and the future of imetelstat, which might cause us to cease operations.

Certain jurisdictions, such as Europe, New Zealand and Australia, permit oppositions to be filed against granted patents or patents proposed to be granted. Because we may in the future seek to commercialize imetelstat internationally, securing both proprietary protection and freedom to operate outside of the United States is important to our business. Opposition proceedings require significant time and costs, and if we are unsuccessful or are unable to commit these types of resources to protect our imetelstat patent rights, we could lose our patent rights and we could be prevented or limited in the development and commercialization of imetelstat.

As more groups become engaged in scientific research and product development in the areas of telomerase biology and hematologic malignancies, the risk of our patents, or patents that we have in-licensed, being challenged through patent interferences, derivation proceedings, IPRs, post-grant proceedings, oppositions, re-examinations, litigation or other means will likely increase. For example, litigation may arise as a result of our decision to enforce our patent rights against third parties. Challenges to our patents through these procedures would be extremely expensive and time-consuming, even if the outcome was favorable to us. An adverse outcome in a patent dispute could severely harm our ability to further develop or commercialize imetelstat, or could otherwise have a material adverse effect on our business, and might cause us to cease operations, by:

- causing us to lose patent rights in the relevant jurisdiction(s);
- subjecting us to litigation, or otherwise preventing us from commercializing imetelstat in the relevant jurisdiction(s);
- requiring us to obtain licenses to the disputed patents;
- forcing us to cease using the disputed technology; or
- requiring us to develop or obtain alternative technologies.

We may be subject to infringement claims that are costly to defend, and such claims may limit our ability to use disputed technologies and prevent us from pursuing research, development, manufacturing or commercialization of imetelstat.

The commercial success of imetelstat will depend upon our ability to research, develop, manufacture, market and sell imetelstat without infringing or otherwise violating the intellectual property and other proprietary rights of third parties. There is considerable intellectual property litigation in the biotechnology and pharmaceutical industries, and many pharmaceutical companies, including potential competitors, have substantial patent portfolios. In the event our technologies infringe the rights of others or require the use of discoveries and technologies controlled by third parties, we may be prevented from pursuing research, development, manufacturing or commercialization of imetelstat, or may be required to obtain licenses to those patents or other proprietary rights or develop or obtain alternative technologies. For example, we are aware that certain third parties have or may be prosecuting patents and patent estates that may relate to imetelstat, and while we believe these patents will expire before imetelstat is commercialized and/or that these patents are invalid and/or would not be infringed by the manufacture, use or sale of imetelstat, it is possible that the owner(s) of these patents will assert claims against us in the future. If that were to occur, we would need to obtain unblocking licenses from such third parties, develop alternative non-infringing technologies, which we may not be able to do at an acceptable cost or on acceptable terms, or at all, or cease the development of imetelstat. In addition, while Janssen has terminated the Collaboration Agreement, we are still subject to indemnification obligations to Janssen under the Collaboration Agreement, including with respect to claims of third party patent infringement.

Since we cannot be aware of all intellectual property rights potentially relating to imetelstat and its uses, we do not know with certainty that imetelstat, or the intended commercialization thereof, does not and will not infringe or otherwise violate any third party's intellectual property. Any infringement claims against us would likely be expensive to resolve, and the cost of any unblocking license that we could be required to obtain is unpredictable and could be significant. If we are unable to resolve an infringement claim successfully, we could be subject to an injunction that would prevent us from commercializing imetelstat and could also require us to pay substantial damages. In addition to infringement claims, in the future we may also be subject to other claims relating to intellectual property, such as claims that we have misappropriated the trade secrets of third parties. Provided that we are successful in continuing the development of imetelstat, we expect to see more efforts by others to obtain patents that are positioned to cover imetelstat. Our success therefore depends significantly on our ability to operate without infringing patents and the proprietary rights of others.

We may become aware of discoveries and technologies controlled by third parties that are advantageous or necessary to further develop or manufacture imetelstat. For example, as we transition the imetelstat program from Janssen to us, we may learn of changes to the imetelstat manufacturing process made by Janssen which would require us to obtain licenses to third party intellectual property rights. Under such circumstances, we may initiate negotiations for licenses to other technologies as the need or opportunity arises. We may not be able to obtain a license to a technology required for the research, development, manufacture or commercialization of imetelstat on commercially favorable terms, or at all, or such licenses may be terminated on certain grounds, including as a result of our failure to comply with the obligations under such licenses. If we do not obtain a necessary license or if such a license is terminated, we may need to redesign such technologies or obtain rights to alternative technologies, which may not be possible, and even if possible, could cause further delays in the development efforts for imetelstat and could increase the development and/or production costs of imetelstat. In cases where we are unable to license necessary technologies, we could be subject to litigation and prevented from researching, developing, manufacturing or commercializing imetelstat which would materially and adversely impact our business. Failure by us to obtain rights to alternative technologies or a license to any technology that may be required to research, develop, manufacture or commercialize imetelstat would further delay potential future clinical trials of imetelstat and any applications for regulatory approval, impair our ability to sell imetelstat and therefore result in decreased sales of imetelstat for us. Occurrence of any of these events would materially and adversely affect our business, and might cause us to cease operations.

We may become involved in disputes with past or future collaborator(s), including Janssen, over intellectual property inventorship or ownership, and publications by us, or by investigators, scientific consultants, research collaborators or others could impair our ability to obtain patent protection or protect our proprietary information, which, in either case, could have a significant impact on our business.

Inventions discovered under research, material transfer or other collaborative agreements, including our Collaboration Agreement with Janssen which was terminated effective September 28, 2018, may become jointly owned by us and the other party to such agreements in some cases, and may be the exclusive property of either party in other cases. Under some circumstances, it may be difficult to determine who invents and owns a particular invention, or whether it is jointly owned, and disputes can arise regarding inventorship and ownership of those inventions. These disputes could be costly and time-consuming, and an unfavorable outcome could have a significant adverse effect on our business if we were not able to protect our license rights to these inventions. In addition, clinical trial investigators, scientific consultants and research collaborators generally have contractual rights to publish data and other proprietary information, subject to review by the trial sponsor. Publications by us, or by investigators, scientific consultants, previous employees, research collaborators or others, either with permission or in contravention of the terms of their agreements with us or with Janssen or otherwise, may impair our ability to obtain patent protection or protect proprietary information which would have a material adverse effect on our business, and might cause us to cease operations.

Much of the information and know-how that is critical to our business is not patentable, and we may not be able to prevent others from obtaining this information and establishing competitive enterprises.

We sometimes rely on trade secrets to protect our proprietary technology, especially in circumstances in which we believe patent protection is not appropriate or available. We attempt to protect our proprietary technology in part by confidentiality agreements with our employees, consultants, collaborators and contractors. We cannot provide assurance that these agreements will not be breached, that we would have adequate remedies for any breach, or that our trade secrets will not otherwise become known or be independently discovered by competitors, any of which would harm our business significantly.

In May 2016, the Defend Trade Secrets Act of 2016, or the DTSA, was enacted, providing a federal cause of action for misappropriation of trade secrets. Under the DTSA, an employer may not collect enhanced damages or attorney fees from an employee or contractor in a trade secret dispute brought under the DTSA, unless certain advanced provisions are observed. We cannot provide assurance that our existing agreements with employees and contractors contain notice provisions that would enable us to seek enhanced damages or attorneys' fees in the event of any dispute for misappropriation of trade secrets brought under the DTSA.

Significant disruptions of information technology systems, including cloud-based systems, or breaches of data security could adversely affect our business.

Our business is increasingly dependent on critical, complex and interdependent information technology systems, including cloud-based systems, to support business processes as well as internal and external communications. Our computer and information technology systems, and those of our collaborators, service providers and contractors, are potentially vulnerable to breakdown, malicious intrusion, malware, computer viruses, natural disasters, terrorism, war, and telecommunication and electrical failures that may result in damage to or the impairment of key business processes, or the loss or corruption of confidential information, including intellectual property, proprietary business information and personal information. Such disruptions and breaches of security could have a material adverse effect on our business, financial condition and results of operations. The costs to us to mitigate network security problems, bugs, viruses, worms, malicious software programs and security vulnerabilities could be significant, and while we have implemented security measures to protect our data security and information technology systems, our efforts to address these problems may not be successful, and these problems could result in unexpected interruptions, delays, cessation of service and other harm to our business and our competitive position. In addition, we will rely on our collaborators, service providers and contractors to establish and maintain appropriate information technology systems and data security protections. However, except for contractual duties and obligations, we have limited ability to control their actions related to such matters. If such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our imetelstat development program. For example, the loss of clinical study data from completed, ongoing or planned clinical trials could result in delays in potential regulatory approval efforts and significantly increase our costs to recover or reproduce the data.

In addition, our computer and information technology systems, as well as those of our collaborators, service providers and contractors, are potentially vulnerable to data security breaches, whether by employees, contractors, consultants, malware, phishing attacks, or other cyber-attacks, that may expose confidential information, intellectual property, proprietary business information or personal information to unauthorized persons. If a data security breach affects our systems or those of third parties upon which we rely, corrupts our data or results in the unauthorized disclosure or release of personally identifiable information by our collaborators, service providers, contractors or us, our reputation could be materially damaged and we could be subject to significant fines, increased costs or loss of revenue. In addition, such a breach may require notification to governmental agencies, supervisory bodies, credit reporting agencies, the media or individuals pursuant to various federal, state and foreign data protection, privacy and security laws, regulations and guidelines, if applicable. These may include state breach notification laws, and the EU General Data Protection Regulation (EU) 2016/679, or GDPR. Accordingly, a data security breach or privacy violation that leads to unauthorized access to, disclosure or modification of personal information (including protected health information), that prevents access to personal information or materially compromises the privacy, security, or confidentiality of the personal information, could result in fines, increased costs or loss of revenue as a result of:

- harm to our reputation;
- fines or penalties imposed on us by regulatory authorities;
- additional compliance obligations or enforcement measures under federal, state or foreign laws;
- remediation and corrective action we undertake as required by law or as otherwise necessary;
- litigation and potential civil or criminal liability; and
- requirements to verify the accuracy of affected data.

If we are unable to prevent such data security breaches or privacy violations or implement satisfactory remedial measures, our operations could be disrupted, and we may suffer loss of reputation, financial loss and other regulatory penalties because of lost or misappropriated information, including sensitive patient data. In addition, these breaches and other inappropriate access can be difficult to detect, and any delay in identifying them may lead to increased harm of the type described above. Moreover, the prevalent use of mobile devices that access confidential information increases the risk of data security breaches, which could lead to the loss of confidential information, trade secrets or other intellectual property. While we have implemented security measures to protect our computer and information technology systems, because the techniques used to obtain unauthorized access, disable or degrade service, or sabotage systems change frequently, become more sophisticated, and often are not recognized until launched against a target, we or our collaborators, service providers or contractors may be unable to anticipate these techniques or to implement adequate preventative measures. In addition, failure to maintain effective internal accounting controls related to data security breaches and cybersecurity in general could impact our ability to produce timely and accurate financial statements and could subject us to regulatory scrutiny.

Changes in and failures to comply with U.S. and foreign privacy and data protection laws, regulations and standards may adversely affect our business, operations and financial performance.

We are subject to or affected by numerous federal, state and foreign laws and regulations, as well as regulatory guidance, governing the collection, use, disclosure, retention, and security of personal data, such as information that we collect about patients and healthcare providers in connection with clinical trials in the United States and abroad. The global data protection landscape is rapidly evolving, and implementation standards and enforcement practices are likely to remain uncertain for the foreseeable future. This evolution may create uncertainty in our business, affect our or our collaborators', service providers' and contractors' ability to operate in certain jurisdictions or to collect, store, transfer use and share personal information, necessitate the acceptance of more onerous obligations in our contracts, result in liability or impose additional costs on us. The cost of compliance with these laws, regulations and standards is high and is likely to increase in the future. Any failure or perceived failure by us or our collaborators, service providers and contractors to comply with federal, state or foreign laws or regulation, our internal policies and procedures or our contracts governing processing of personal information could result in negative publicity, diversion of management time and effort and proceedings against us by governmental entities or others. In many jurisdictions, enforcement actions and consequences for noncompliance are rising.

In the United States, California enacted the California Consumer Privacy Act (CCPA) on June 28, 2018, which takes effect on January 1, 2020. The CCPA gives California residents expanded rights to access and delete their personal information, opt out of certain personal information sharing, and receive detailed information about how their personal information is used. The CCPA provides for civil penalties for violations, as well as a private right of action for data breaches that is expected to increase data breach litigation. The CCPA may increase our compliance costs and potential liability. Some observers have noted that the CCPA could mark the beginning of a trend toward more stringent privacy legislation in the United States, which could increase our potential liability and adversely affect our business.

Our operations abroad may also be subject to increased scrutiny or attention from data protection authorities. Many countries in these regions have established or are in the process of establishing privacy and data security legal frameworks with which we, our collaborators, service providers and contractors must comply. For example, the EU has adopted the GDPR, which went into effect in May 2018 and introduces strict requirements for processing the personal information of EU subjects, including clinical trial data. The GDPR has and will continue to increase compliance burdens on us, including by mandating potentially burdensome documentation requirements and granting certain rights to individuals to control how we collect, use, disclose, retain and process information about them. The processing of sensitive personal data, such as physical health condition, may impose heightened compliance burdens under the GDPR and is a topic of active interest among foreign regulators. In addition, the GDPR provides for more robust regulatory enforcement and fines of up to €20 million or 4% of the annual global revenue of the noncompliant company, whichever is greater. As we expand into other foreign countries and jurisdictions, we may be subject to additional laws and regulations that may affect how we conduct business.

RISKS RELATED TO OUR FINANCIAL POSITION AND NEED FOR ADDITIONAL FINANCING

Our failure to obtain additional capital when needed could force us to further delay, reduce or eliminate development of imetelstat, including the Phase 3 portion of IMerge, or our potential future imetelstat commercialization efforts, which would severely and adversely affect our financial results, business and business prospects, and might cause us to cease operations.

Successful drug development and commercialization requires significant amounts of capital. We will require substantial additional capital in order to further advance the imetelstat program, including conducting the research and development and clinical and regulatory activities necessary to bring imetelstat to market, such as completion of the Phase 3 portion of IMerge and potential clinical trials in other indications, and to establish sales and marketing capabilities to commercialize imetelstat in the United States on our own, if regulatory approval is granted. Because the outcome of any clinical activities and/or regulatory approval process is highly uncertain, we cannot reasonably estimate whether any development activities we may undertake will succeed, and we may never recoup our investment in any imetelstat development, which would adversely affect our financial condition and our business and business prospects, and might cause us to cease operations. Our future capital requirements are difficult to forecast and will depend on many factors, including:

- the accuracy of the assumptions underlying our estimates for our capital needs;
- the progress, timing, magnitude, scope and costs of clinical development, manufacturing and commercialization of imetelstat, including the number of indications being pursued, subject to clearances and approvals by the FDA and other regulatory authorities;
- the scope, progress, duration, results and costs of current and future clinical trials, including the Phase 3 portion of IMerge, as well as non-clinical studies and assessments, of imetelstat;
- the costs, timing and outcomes of regulatory reviews or other regulatory actions related to imetelstat, including obtaining regulatory clearances and approvals in the United States and in other countries;
- the costs of preparing, filing and prosecuting patent applications and maintaining, enforcing and defending intellectual property-related claims;
- the costs of manufacturing imetelstat, including our ability to meaningfully reduce those manufacturing costs;
- the costs of multiple third-party vendors and service providers, including our CRO, to support the development, manufacturing and commercialization of imetelstat;
- our ability to establish, enforce and maintain collaborative or other strategic arrangements for research, development, clinical testing, manufacturing, commercialization and marketing of imetelstat;
- our ability to successfully market and sell imetelstat, if imetelstat receives future regulatory approval or clearance, in the United States and other countries;
- our need to hire additional qualified employees and consultants to support the development and commercialization of imetelstat;
- the costs and timing of building a U.S. sales force to market and sell imetelstat, should it receive regulatory clearance;
- the sales price for imetelstat;
- the availability of coverage and adequate third-party reimbursement for imetelstat;
- the extent and scope of our general and administrative expenses, including expenses associated with potential future litigation; and
- the costs of maintaining and operating facilities in California and New Jersey, including higher expenses for travel, telecommunications and administrative oversight.

As a result of the termination of the Collaboration Agreement effective September 28, 2018, we are responsible for funding all clinical development, manufacturing, intellectual property maintenance and commercial activities for imetelstat. In order to further advance the imetelstat program, including completion of the Phase 3 portion of IMerge and potential clinical trials in other indications, we will need to raise substantial additional capital or establish additional collaborative arrangements with third-party collaborative partners, which may not be possible. In addition, as a result of the termination of the Collaboration Agreement, we will not receive any further milestone payments or royalties from Janssen for the development or sale of imetelstat, including any clinical development milestones. If we are unable to raise additional capital or establish alternative collaborative arrangements with third-party collaborative partners for imetelstat, the development of imetelstat may be further delayed, altered or abandoned, which might cause us to cease operations. Additional financing through public or private equity financings, including pursuant to our 2018 Sales Agreement with B. Riley FBR, capital lease transactions or other financing sources may not be available on acceptable terms, or at all. We may raise equity capital at a stock price or on other terms that could result in substantial dilution of ownership for our stockholders. The receptivity of the public and private equity markets to proposed financings is substantially affected by the general economic, market and political climate and by other factors which are unpredictable and over which we have no control. In this regard, continued volatility and instability in the global financial markets and political climate could adversely affect our ability to raise additional funds through financings and the terms upon which we may raise those funds.

In addition, we may seek additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interests of our stockholders may be diluted, and the terms may include liquidation or other preferences that materially and adversely affect the rights of our stockholders. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through alliance, collaboration or licensing arrangements with third parties, we may have to relinquish valuable rights to imetelstat or our technologies or grant licenses on terms that are not favorable to us.

We cannot assure you that our existing capital resources, future interest income, and potential future sales of our common stock, including under our 2018 Sales Agreement with B. Riley FBR, will be sufficient to fund our operating plans. We will need additional funds to meet operational needs and capital requirements to advance the imetelstat program in clinical development and potential commercialization, and our need for additional funds may arise sooner than planned. If adequate funds are not available on a timely basis, if at all, we may be unable to pursue further development or potential commercialization of imetelstat, which could adversely affect our business.

We currently have no source of product revenue and may never become consistently profitable.

Although we were profitable in 2015 due to the recognition of revenue in connection with the upfront payment from Janssen under the Collaboration Agreement, we have otherwise never been profitable and have incurred operating losses every year since our operations began in 1990. We will not receive any future milestone-based or royalty payments from Janssen relating to imetelstat, nor will Janssen share the cost of ongoing or future clinical trials of imetelstat or the costs for patents that were licensed to them under the terminated Collaboration Agreement, after September 28, 2018. We expect to incur significant additional operating losses and, as we assume responsibility for imetelstat clinical development activities, our operating losses are likely to substantially increase. As of December 31, 2018, our accumulated deficit was approximately $1.01 billion. Losses have resulted principally from costs incurred in connection with our research and development activities and from general and administrative costs associated with our operations.

Substantially all of our revenues to date have been payments under collaborative agreements and milestones, royalties and other revenues from our licensing arrangements. With the termination of the Collaboration Agreement effective September 28, 2018, we have no ongoing collaborative agreements related to imetelstat. Any revenues generated from our remaining licensing agreements related to our telomerase technology are expected to be minimal, and will be insufficient to sustain our operations. Our telomerase-related licensing revenues declined significantly in 2018 due to the expiration of the patents underlying such technology, and are expected to be eliminated later in 2019. We have no current plans to enter into any new corporate collaboration, partnership or license agreements that result in revenues, and our remaining telomerase-related license agreements may be terminated by the other parties to such licenses, or expire with the underlying patents.

We also expect to experience increased negative cash flow for the foreseeable future as we fund our operations and assume full payment responsibility for imetelstat clinical development activities. This will result in decreases in our working capital, total assets and stockholders' equity. Further, we may be unable to replenish our working capital by future financings. We will need to generate significant revenues to achieve consistent future profitability. We may never achieve consistent future profitability. Even if we do become profitable in the future, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to achieve consistent future profitability could negatively impact the market price of our common stock and our ability to sustain operations.

The comprehensive U.S. tax reform bill passed in 2017 could adversely affect our business and financial condition.

On December 22, 2017, President Trump signed into law legislation, known as the Tax Cuts and Jobs Act of 2017, that significantly revised the Internal Revenue Code of 1986, as amended, or the Code. The legislation, among other things, contained significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%; reduction in the percentage of allowable expenses eligible for orphan drug credit purposes; limitation of the deduction for net operating losses to 80% of current year taxable income and elimination of net operating loss carrybacks; immediate deductions for certain new investments instead of deductions for depreciation expense over time; and modifying or repealing many business deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall long-term impact of the federal tax law changes are uncertain and our business and financial condition could be adversely affected. In addition, it is uncertain if and to what extent various states will conform to the federal tax law changes. The impact of this tax reform on holders of our common stock is also uncertain and could be adverse. We urge our stockholders to consult with their legal and tax advisors with respect to this legislation and the potential tax consequences of investing in or holding our common stock.

Our ability to use our net operating loss carryforwards and certain other tax attributes may be limited.

Our net operating loss carryforwards could expire unused and be unavailable to offset future income tax liabilities. Under the 2017 federal income tax law changes, federal net operating losses incurred in 2018 and in future years may be carried forward indefinitely, but the deductibility of such federal net operating losses is limited. It is uncertain if and to what extent various states will conform to the federal tax law changes. In addition, under Section 382 of the Code, and corresponding provisions of state law, if a corporation undergoes an "ownership change," generally defined as a greater than 50% change (by value) in its equity ownership over a three-year period, the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes (such as research tax credits) to offset its post-change taxable income or taxes may be limited. Changes in our stock ownership, some of which are outside of our control, may have resulted or could in the future result in an ownership change. If a limitation were to apply, utilization of a portion of our domestic net operating loss and tax credit carryforwards could be limited in future periods. In addition, a portion of the carryforwards may expire before being available to reduce future income tax liabilities which could adversely impact our financial position.

RISKS RELATED TO OUR COMMON STOCK AND FINANCIAL REPORTING

Historically, our stock price has been extremely volatile.

Historically, our stock price has been extremely volatile. Between January 1, 2009 and December 31, 2018, our stock has traded as high as $8.73 per share and as low as $0.86 per share. Between January 1, 2016 and December 31, 2018, the price has ranged between a high of $6.99 per share and a low of $0.95 per share. The significant market price fluctuations of our common stock have been due to and may in the future be influenced by a variety of factors, including:

- termination of the Collaboration Agreement by Janssen in September 2018;
- announcements regarding the research and development of imetelstat, or results of, further delays in, discontinuation of, or further modifications or refinements to any clinical trials of imetelstat for any reason, including as a result of the failure to successfully transition the imetelstat program to us by Janssen, or our inability, for any reason, to successfully continue the development of imetelstat after any such transfer;
- preliminary, interim or final clinical trial data reported with respect to current or potential future clinical trials of imetelstat, and investor perceptions thereof;

- not receiving timely regulatory clearances or approvals in any jurisdiction, whether within or outside of the United States, including, if we do not obtain regulatory clearance to commence, conduct or continue clinical trials of imetelstat in MF, MDS or any additional hematologic myeloid malignancies in a timely manner or at all, or to amend any clinical trial protocol with respect to the anticipated conduct of the Phase 3 portion of IMerge or any potential future clinical trials of imetelstat;
- announcements regarding the safety of imetelstat and partial or full clinical holds placed on the imetelstat IND by the FDA or other regulatory authorities, or other regulatory developments related to imetelstat;
- the experimental nature of imetelstat;
- the terms and timing of any future collaborative arrangements for the development and potential commercialization of imetelstat that we may establish;
- the demand in the market for our common stock;
- announcements of technological innovations, new commercial products, or clinical progress or lack thereof by us, potential future collaborative partners or our competitors;
- fluctuations in our operating results;
- increased or continuing operating losses as a result of our sole responsibility for the development and potential future commercialization of imetelstat or otherwise;
- general domestic and international market conditions or market conditions relating to the biopharmaceutical and pharmaceutical industries;
- announcements concerning imetelstat proprietary rights;
- comments by securities analysts or other third parties, including blogs, articles and other media;
- large stockholders exiting their position in our common stock or an increase in the short interest in our common stock;
- announcements of or developments concerning potential future litigation, including any securities class action litigation initiated as a result of the termination of the Collaboration Agreement;
- the issuance of common stock to partners, vendors or investors to raise additional capital; and
- the occurrence of any other risks and uncertainties discussed under the heading “Risk Factors.”

Stock prices and trading volumes for many biopharmaceutical companies fluctuate widely for a number of reasons, including factors which may be unrelated to their businesses or results of operations, such as media coverage, statements made on message boards and social media forums, legislative and regulatory measures and the activities of various interest groups or organizations. In addition to the risk factors described in this section, overall market volatility, as well as general domestic or international economic, market and political conditions, could materially and adversely affect the market price of our common stock and the return on your investment.

In addition, as further discussed in the Risk Factor above titled *“We have been, and may in the future be, involved in securities-related legal actions that are expensive and time consuming. Any securities-related legal actions, if resolved adversely, could harm our business, financial condition, or results of operations”,* class action litigation has often been instituted against companies, including us, whose securities have experienced periods of volatility in market price. Any such litigation brought against us in the future could result in substantial costs, which would hurt our financial condition and results of operations and divert management’s attention and resources, which could result in further delays of potential future clinical trials or commercialization efforts.

We may fail to continue to meet the listing standards of Nasdaq, and as a result our common stock may be delisted, which could have a material adverse effect on the liquidity of our common stock.

Our common stock is currently traded on the Nasdaq Global Select Market. The Nasdaq Stock Market LLC has requirements that a company must meet in order to remain listed on Nasdaq. In particular, Nasdaq rules require us to maintain a minimum closing bid price of $1.00 per share of our common stock. On December 21, 2018, the closing price of our common stock was $0.98 per share, and while the closing price of our common stock rose to $1.02 per share on December 26, 2018, and has subsequently remained at or above the minimum closing bid price of $1.00 per share from December 26, 2018 through the date of filing of this Annual Report on Form 10-K, it may in the future fall below the closing minimum bid price of $1.00 per share. If the closing bid price of our common stock were to fall below $1.00 per share for 30 consecutive trading days, or we do not meet other listing requirements, we would fail to be in compliance with Nasdaq's listing standards. There can be no assurance that we will continue to meet the minimum bid price requirement, or any other requirement in the future. If we fail to meet the minimum bid price requirement, The Nasdaq Stock Market LLC may initiate the delisting process with a notification letter. If we were to receive such a notification, we would be afforded a grace period of 180 calendar days to regain compliance with the minimum bid price requirement. In order to regain compliance, shares of our common stock would need to maintain a minimum closing bid price of at least $1.00 per share for a minimum of 10 consecutive trading days. In addition, we may be unable to meet other applicable Nasdaq listing requirements, including maintaining minimum levels of stockholders' equity or market values of our common stock, in which case our common stock could be delisted. If our common stock were to be delisted, the liquidity of our common stock would be adversely affected, and the market price of our common stock could decrease.

The sale of a substantial number of shares may adversely affect the market price of our common stock.

As of December 31, 2018, we had 300,000,000 shares of common stock authorized for issuance and 186,392,682 shares of common stock outstanding. In addition, we had reserved 40,665,152 shares of our common stock for future issuance pursuant to our option and equity incentive plans and outstanding warrants as of December 31, 2018. In addition, under the universal shelf registration statement filed by us in May 2018 and declared effective by the SEC in July 2018, we may sell any combination of common stock, preferred stock, debt securities and warrants in one or more offerings, up to a cumulative value of $250 million.

Future sales of our common stock or the perception that such sales could occur, or the issuance of common stock to fund our operations and imetelstat development, including pursuant to our 2018 Sales Agreement with B. Riley FBR, could cause immediate dilution and adversely affect the market price of our common stock. The sale or issuance of our securities, as well as the existence of outstanding options and shares of common stock reserved for issuance under our option and equity incentive plans and outstanding warrants, also may adversely affect the terms upon which we are able to obtain additional capital through the sale of equity securities, which could negatively affect the market price of our common stock and the return on your investment.

Our undesignated preferred stock may inhibit potential acquisition bids; this may adversely affect the market price of our common stock and the voting rights of holders of our common stock.

Our certificate of incorporation provides our board of directors with the authority to issue up to 3,000,000 shares of undesignated preferred stock and to determine or alter the rights, preferences, privileges and restrictions granted to or imported upon these shares without further vote or action by our stockholders. The issuance of shares of preferred stock may delay or prevent a change in control transaction without further action by our stockholders. As a result, the market price of our common stock may be adversely affected.

In addition, if in the future, we issue preferred stock that has preference over our common stock with respect to the payment of dividends or upon our liquidation, dissolution or winding up, or if we issue preferred stock with voting rights that dilute the voting power of our common stock, the rights of holders of our common stock or the market price of our common stock could be adversely affected.

Provisions in our charter, bylaws and Delaware law may inhibit potential acquisition bids for us, which may prevent holders of our common stock from benefiting from what they believe may be the positive aspects of acquisitions and takeovers.

Provisions of our charter documents and bylaws may make it substantially more difficult for a third party to acquire control of us and may prevent changes in our management, including provisions that:

- prevent stockholders from taking actions by written consent;
- divide the board of directors into separate classes with terms of office that are structured to prevent all of the directors from being elected in any one year; and
- set forth procedures for nominating directors and submitting proposals for consideration at stockholders' meetings.

Provisions of Delaware law may also inhibit potential acquisition bids for us or prevent us from engaging in business combinations. In addition, we have individual severance agreements with our executive officers and a company-wide severance plan, either of which could require a potential acquirer to pay a higher price. Either collectively or individually, these provisions may prevent holders of our common stock from benefiting from what they may believe are the positive aspects of acquisitions and takeovers, including the potential realization of a higher rate of return on their investment from these types of transactions.

We do not intend to pay cash dividends on our common stock in the foreseeable future.

We do not anticipate paying cash dividends on our common stock in the foreseeable future. Any payment of cash dividends will depend upon our financial condition, results of operations, capital requirements and other factors and will be at the discretion of our board of directors.

Failure to achieve and maintain effective internal controls in accordance with Section 404 of the Sarbanes-Oxley Act of 2002 could have a material adverse effect on our business and stock price.

Section 404 of the Sarbanes-Oxley Act of 2002, or Section 404, requires that we establish and maintain an adequate internal control structure and procedures for financial reporting. Our annual reports on Form 10-K must contain an annual assessment by management of the effectiveness of our internal control over financial reporting and must include disclosure of any material weaknesses in internal control over financial reporting that we have identified. In addition, our independent registered public accounting firm must provide an opinion annually on the effectiveness of our internal control over financial reporting.

The requirements of Section 404 are ongoing and also apply to future years. We expect that our internal control over financial reporting will continue to evolve as our business develops. Although we are committed to continue to improve our internal control processes and we will continue to diligently and vigorously review our internal control over financial reporting in order to ensure compliance with Section 404 requirements, any control system, regardless of how well designed, operated and evaluated, can provide only reasonable, not absolute, assurance that its objectives will be met. Therefore, we cannot be certain that material weaknesses or significant deficiencies will not exist or otherwise be discovered in the future. If material weaknesses or other significant deficiencies occur, such weaknesses or deficiencies could result in misstatements of our results of operations, restatements of our financial statements, a decline in our stock price, or other material adverse effects on our business, reputation, results of operations, financial condition or liquidity.

RISKS RELATED TO COMPETITIVE FACTORS

Competitors may develop products, product candidates or technologies that are superior to or more cost-effective than ours, which may significantly impact the development and commercial viability of imetelstat, which would severely and adversely affect our financial results, business and business prospects, and the future of imetelstat, and might cause us to cease operations.

The pharmaceutical and biotechnology industries are intensely competitive. Other pharmaceutical and biotechnology companies and research organizations currently engage in or have in the past engaged in efforts related to the biological mechanisms related to imetelstat, the study of telomeres, telomerase, or our proprietary oligonucleotide chemistry, and the research and development of therapies for the treatment of hematologic myeloid malignancies. In addition, other products and therapies that could directly compete with imetelstat currently exist or are being developed by pharmaceutical and biopharmaceutical companies and by academic institutions, government agencies and other public and private research organizations.

If approved for commercial sale for the treatment of lower risk MDS, imetelstat would compete against a number of treatment options, including erythropoiesis stimulating agents and other hematopoietic growth factors; immunomodulators, such as lenalidomide by Celgene Corporation, or Celegene; hypomethylating agents, such as azacitidine by Celgene and decitabine by Janssen; in addition to investigational treatments that may be further along in development than imetelstat, such as oral versions of azacitidine; histone deacetylase inhibitors; TGF-beta superfamily inhibitors, such as luspatercept by Acceleron Pharma, Inc., or Acceleron, in collaboration with Celgene; PI3 Kinase inhibitors; proteasome inhibitors; aminopeptidase inhibitors, such as tosedostat by CTI Biopharma Corporation, or CTI Biopharma; TLR2-specific antibodies; TPO agonists, such as romiplostim by Amgen Inc.; anti-CD33 antibodies; anti-CD38 antibodies, such as daratumumab by Genmab A/S in collaboration with Janssen; anti-CD123 antibodies, such as talacotuzumab by Janssen; antagonists of Toll-like receptor signaling; retinoic acid receptor alpha agonists, such as SY-1425 by Syros Pharmaceuticals; hypoxia-inducible factor prolyl hydroxylase inhibitors, such as roxadustat by FibroGen, Inc.; Fas ligand inhibitors; immune checkpoint regulators; and JAK-STAT pathway inhibitors.

If approved for commercial sale for the treatment of MF, imetelstat would compete against Incyte Corporation's ruxolitinib, or Jakafi®, which is orally administered. In clinical trials, Jakafi® reduced spleen size, abdominal discomfort, early satiety, bone pain, night sweats and itching in MF patients. Recently, there have also been reports of overall survival benefit as well as improvement in bone marrow fibrosis from Jakafi® treatment. Other treatment modalities for MF include hydroxyurea for the management of splenomegaly, leukocytosis, thrombocytosis and constitutional symptoms; splenectomy and splenic irradiation for the management of splenomegaly and co-existing cytopenias, or low blood cell counts; chemotherapy and pegylated interferon. Drugs for the treatment of MF-associated anemia include erythropoiesis stimulating agents, androgens, danazol, corticosteroids, thalidomide and lenalidomide. There are other investigational treatments for MF further along in development than imetelstat, such as pacritinib by CTI Biopharma, momelotinib by Sierra Oncology, and fedratinib by Celgene, which have reported results from Phase 3 clinical trials. Other investigational treatments for MF include inhibitors of the JAK-STAT pathway, such as NS-018 by NS Pharma, Inc.; histone deacetylase inhibitors; interleukin-3 receptor targeted agents; inhibitors of heat shock protein 90; hypomethylating agents; PI3 Kinase and mTOR inhibitors; anti-fibrosis antibodies, such as PRM-151 from Promedior, Inc.; hedgehog and SMO inhibitors; PIM kinase inhibitors; IAP inhibitors; anti-LOX2 inhibitors; recombinant pentraxin 2 protein; KIP-1 activators; TGF-beta superfamily inhibitors, such as sotatercept and luspatercept by Acceleron, in collaboration with Celgene; FLT inhibitors; BET inhibitors, such as CPI-0610 by Constellation Pharmaceuticals, Inc.; SMAC mimetics, such as LCL161 by Novartis Pharmaceuticals Corporation and other tyrosine kinase inhibitors.

Smaller companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. We anticipate increased competition in the future as new companies explore treatments for hematologic myeloid malignancies, which may significantly impact the commercial viability of imetelstat. Academic institutions, government agencies and other public and private research organizations may also conduct research, seek patent protection and establish collaborative arrangements for research, clinical development and marketing of products similar to imetelstat. These companies and institutions compete with us in recruiting and retaining qualified development and management personnel as well as in acquiring technologies complementary to the imetelstat program.

In addition to the above factors, imetelstat will face competition based on:

- product efficacy and safety;
- convenience of product administration;
- cost of manufacturing;
- the timing and scope of regulatory consents;
- status of coverage and level of reimbursement;
- price; and
- patent position, including potentially dominant patent positions of others.

As a result of the foregoing, competitors may develop more commercially desirable or affordable products than imetelstat, or achieve earlier patent protection or product commercialization than we may be able to achieve with imetelstat. Competitors have developed, or are in the process of developing, technologies that are, or in the future may be, competitive to imetelstat. Some of these products may have an entirely different approach or means of accomplishing therapeutic effects similar or superior to those that may be demonstrated by imetelstat. Competitors may develop products that are safer, more effective, or less costly than imetelstat, or more convenient to administer to patients and, therefore, present a serious competitive threat to imetelstat. In addition, competitors may price their products below what we may determine to be an acceptable price for imetelstat, may receive better third-party payor coverage and/or reimbursement, or may be more cost-effective than imetelstat. Such competitive products or activities by competitors may render imetelstat obsolete, which may cause us to cease any further development or future commercialization of imetelstat, which would severely and adversely affect our financial results, business and business prospects, and the future of imetelstat, and might cause us to cease operations.

To be commercially successful, imetelstat must be accepted by the health care community, which can be very slow to adopt or unreceptive to new technologies and products.

If approved for marketing, imetelstat may not achieve market acceptance since hospitals, physicians, patients or the medical community in general may decide not to accept and utilize imetelstat. If approved for commercial sale, imetelstat will compete with a number of conventional and widely accepted drugs and therapies manufactured and marketed by major pharmaceutical companies. The degree of market acceptance of imetelstat will depend on a number of factors, including:

- the clinical indications for which imetelstat is approved;
- the country and/or regions within which imetelstat is approved;
- the establishment and demonstration to the medical community of the clinical efficacy and safety of imetelstat;
- the ability to demonstrate that imetelstat is superior to alternatives on the market at the time;
- the ability to establish in the medical community the potential advantages of imetelstat over alternative treatment methods, including with respect to efficacy, safety, cost or route of administration;
- the label and promotional claims allowed by the FDA or other regulatory authorities for imetelstat, if any;
- the timing of market introduction of imetelstat as well as competitive products;
- the effectiveness of sales, marketing and distribution support for imetelstat;
- the pricing of imetelstat;
- the availability of coverage and adequate reimbursement by government and third-party payors; and
- the willingness of patients to pay out-of-pocket in the absence of coverage by third-party payors, including governmental authorities.

The established use of conventional products competitive with imetelstat may limit or preclude the potential for imetelstat to receive market acceptance upon any commercialization. We may be unable to demonstrate any pharmacoeconomic advantage for imetelstat compared to established or standard-of-care therapies, or newly developed therapies, for hematologic myeloid malignancies. Third-party payors may decide that any potential improvement that imetelstat may provide to clinical outcomes in hematologic myeloid malignancies is not adequate to justify the costs of treatment with imetelstat. If the health care community does not accept imetelstat for any of the foregoing reasons, or for any other reason, our ability to further develop or commercialize imetelstat may be negatively impacted or precluded altogether, which would seriously and adversely affect our business and business prospects, and might cause us to cease operations.

If acceptable prices or adequate reimbursement for imetelstat is not obtained, the use of imetelstat could be severely limited.

The ability to successfully commercialize imetelstat will depend significantly on obtaining acceptable prices and the availability of coverage and adequate reimbursement to the patient from third-party payors. Government payors, such as the Medicare and Medicaid programs, and other third-party payors, such as private health insurers and health maintenance organizations, determine which medications they will cover and the reimbursement levels. Assuming we obtain coverage for imetelstat by a third-party payor, the resulting reimbursement payment rates may not be adequate or may require co-payments that patients find unacceptably high. If imetelstat is approved for commercial sale, patients are unlikely to use it unless coverage is provided, and reimbursement is adequate to cover all or a significant portion of its cost. Therefore, coverage and adequate reimbursement will be critical to new product acceptance.

Government authorities and other third-party payors are developing increasingly sophisticated methods of controlling healthcare costs, such as by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices as a condition of coverage, are using restrictive formularies and preferred drug lists to leverage greater discounts in competitive classes, and are challenging the prices charged for medical products. Further, no uniform policy requirement for coverage and reimbursement for drug products exists among third-party payors in the United States. Therefore, coverage and reimbursement for drug products can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of imetelstat to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance.

We cannot be sure that coverage and reimbursement will be available for imetelstat, if approved for commercial sale, and, if reimbursement is available, what the level of reimbursement will be. There may also be significant delays in obtaining coverage and reimbursement for newly approved drugs, and coverage may be more limited than the purposes for which the drug is approved by the FDA or comparable foreign regulatory authorities. Coverage and reimbursement may impact the demand for, or the price of, any product candidate for which marketing approval is obtained. If coverage and reimbursement are not available or reimbursement is available only to limited levels, we may not successfully commercialize imetelstat, even if marketing approval is obtained, which would negatively impact our business and business prospects.

The adoption of health policy changes and health care reform in the United States may adversely affect our business and financial results.

In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, collectively known as the Affordable Care Act, or ACA, became law and substantially changed the way healthcare is funded by both governmental and private insurers, and significantly impacted the pharmaceutical industry. The ACA contains a number of provisions that may have a significant impact on our business.

While the Supreme Court upheld the constitutionality of most elements of the ACA in June 2012 and upheld the ACA against challenges to nationwide tax subsidies in July 2015, other judicial and Congressional challenges against the ACA have been brought, and are likely to be brought in the future. Since January 2017, President Trump has signed two executive orders and other directives designed to delay, circumvent, or loosen certain requirements mandated by the ACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the ACA. While Congress has not passed comprehensive repeal legislation, two bills affecting the implementation of certain taxes under the ACA have been signed into law. The Tax Cuts and Jobs Act of 2017, or Tax Act, includes a provision which repealed, effective January 1, 2019, the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate". On January 22, 2018, President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain ACA-mandated fees. The Bipartisan Budget Act of 2018, among other things, amended the ACA, effective January 1, 2019, to close the coverage gap in most Medicare Part D drug plans, commonly referred to as the "donut hole". In July 2018, CMS published a final rule permitting further collections and payments to and from certain ACA qualified health plans and health insurance issuers under the ACA risk adjustment program in response to the outcome of federal district court

litigation regarding the method CMS uses to determine this risk adjustment. On December 14, 2018, a Texas U.S. District Court Judge ruled that the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress as part of the Tax Act. While the Texas U.S. District Court Judge, as well as the Trump administration and CMS, have stated that the ruling will have no immediate effect pending appeal of the decision, it is unclear how this decision, subsequent appeals, and other efforts to repeal and replace the ACA will impact the ACA and our business.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. For example, in August 2011, the Budget Control Act of 2011 was enacted, which, among other things, created the Joint Select Committee on Deficit Reduction to recommend to Congress proposals in spending reductions. The Joint Select Committee on Deficit Reduction did not achieve a targeted deficit reduction of at least $1.2 trillion for fiscal years 2012 through 2021, triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, which went into effect beginning on April 1, 2013 and, due to subsequent legislative amendments to the statute, including the Bipartisan Budget Act of 2018, will stay in effect through 2027 unless additional Congressional action is taken. Further, the American Taxpayer Relief Act of 2012, signed into law in January 2013, among other things, also reduced Medicare payments to certain providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

In the future, we anticipate additional proposals relating to the reform of the U.S. healthcare system, some of which could further limit the prices, or the amounts of reimbursement available for imetelstat. There has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices in light of the rising cost of prescription drugs and biologics. Specifically, there have been several recent U.S. Congressional inquiries and federal and state legislative activity designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the price of drugs under Medicare, and reform government program reimbursement methodologies for drugs, some of which are included in the Trump administration's budget proposal for fiscal year 2019. Additionally, the Trump administration released a "Blueprint" that contains additional proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. On January 31, 2019, the U.S. Department of Health and Human Services, Office of Inspector General, proposed modifications to federal Anti-Kickback Statute safe harbors which, among other things, will affect rebates paid by manufacturers to Medicare Part D plans, the purpose of which is to further reduce the cost of drug products to consumers. While a number of these and other proposed measures may require authorization through additional legislation to become effective, Congress and the Trump Administration have each indicated that they will continue to seek new legislative and/or administrative measures to control drug costs. If future legislation were to impose direct governmental price controls and access restrictions, it could have a significant adverse impact on our business and financial results. Managed care organizations, as well as Medicaid and other government agencies, continue to seek price discounts. At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biologic product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, to encourage importation from other countries and bulk purchasing. Due to the volatility in the current economic and market dynamics, we are unable to predict the impact of any unforeseen or unknown legislative, regulatory, payor or policy actions, which may include cost containment and healthcare reform measures. Such policy actions could have a material adverse impact on future worldwide sales of imetelstat, if approved.

Cost control initiatives also could decrease the price that we may receive for imetelstat in the future. If imetelstat is not considered cost-effective or adequate third-party reimbursement for the users of imetelstat cannot be obtained, then we may be unable to maintain price levels sufficient to realize an appropriate return on our investment in imetelstat. Any of these events would severely and adversely affect our financial results, business and business prospects, and might cause us to cease operations.

If we fail to comply with federal, state and foreign healthcare laws, including fraud and abuse, transparency, and health information privacy and security laws, we could face substantial penalties and our business, results of operations, financial condition and prospects could be adversely affected.

Our business operations and current and future arrangements with investigators, healthcare professionals, consultants, third-party payors and customers, may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations. These laws may constrain the business or financial arrangements and relationships through which we conduct our operations, including how we research, market, sell and distribute any product of ours for which marketing approval is obtained. Such laws include:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons and entities, including prescription drug manufacturers (or a party acting on its behalf), from knowingly and willfully, directly or indirectly, soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, order, lease or recommendation of, any good, facility, item or service for which payment may be made under a federal healthcare program such as Medicare and Medicaid. The term "remuneration" has been broadly interpreted to include anything of value. Several courts have interpreted the statute's intent requirement to mean that if any one purpose of an arrangement involving remuneration is to induce referrals of federal healthcare covered business, the federal Anti-Kickback Statute has been violated. The ACA, among other things, amended the intent requirement of the federal Anti-Kickback Statute such that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate, in order to commit a violation;
- the federal civil and criminal false claims and civil monetary penalties laws, including the federal civil False Claims Act and its qui tam or whistleblower provisions which permit a private individual to bring an action on behalf of the government to enforce the civil False Claims Act, prohibit, among other things, knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government. Entities can be held liable under these laws if they are deemed to "cause" the submission of false or fraudulent claims by, for example, providing inaccurate billing or coding information to customers, promoting a product off-label, or for providing medically unnecessary services or items. In addition, a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal civil False Claims Act;
- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which imposes criminal and civil liability for, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, including private third-party payors, knowingly and willfully embezzling or stealing from a healthcare benefit program, willfully obstructing a criminal investigation of a healthcare offense, and knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false or fraudulent statements in connection with the delivery of or payment for healthcare benefits, items or services;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and their implementing regulations, which imposes obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security, transmission and breach reporting of individually identifiable health information, upon entities subject to the law, such as health plans, healthcare clearinghouses and certain healthcare providers, known as covered entities, and their respective business associates that perform services for them that involve individually identifiable health information. HITECH also created new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in U.S. federal courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions;

- the federal Physician Payments Sunshine Act, which requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program, with specific exceptions, to report annually to the Centers for Medicare & Medicaid Services, or CMS, information related to payments or other transfers of value made to physicians and teaching hospitals, and applicable manufacturers and applicable group purchasing organizations to report annually to CMS ownership and investment interests held by physicians and their immediate family members; and
- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, which may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government; state laws that require drug manufacturers to report information related to payments and other transfers of value to physicians, other healthcare providers, and healthcare entities, or marketing expenditures; state laws that require the reporting of information related to drug pricing; state and local laws that require the registration of pharmaceutical sales representatives; and state and foreign laws governing the privacy and security of health information, including the GDPR, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Efforts to ensure that our current and future business arrangements will comply with applicable healthcare, privacy and data security laws and regulations will involve substantial costs. For example, the GDPR, which became effective on May 25, 2018, imposes several requirements relating to the consent of the individuals to whom the personal data relates, the information provided to the individuals, the security and confidentiality of the personal data, data breach notification and the use of third party processors in connection with the processing of personal data. The GDPR also imposes strict rules on the transfer of personal data out of the EU, provides an enforcement authority and authorizes the imposition of large penalties for noncompliance, including the potential for fines of up to €20 million or 4% of the annual global revenues of the noncompliant company, whichever is greater. The GDPR has increased our responsibility and potential liability in relation to personal data that we process or control compared to prior EU law, including in clinical trials, and we may be required to put in place additional mechanisms to ensure compliance with the GDPR, which could divert management's attention and increase our cost of doing business. Likewise, we expect that there will continue to be new proposed laws, regulations and industry standards relating to privacy and data protection in the United States, the EU and other jurisdictions, such as the California Consumer Privacy Act of 2018, which has been characterized as the first "GDPR-like" privacy statute to be enacted in the United States because it mirrors a number of the key provisions in the GDPR, that will go into effect beginning January 1, 2020, and we cannot determine the impact such laws, regulations and standards will have on our business. In any event, it is possible that governmental authorities will conclude that our business practices do not comply with current or future statutes, regulations, agency guidance or case law involving applicable healthcare or privacy laws, including the GDPR, in light of the lack of applicable precedent and regulations.

Federal and state enforcement bodies have recently increased their scrutiny of interactions between healthcare companies and healthcare providers, which has led to a number of investigations, prosecutions, convictions and settlements in the healthcare industry. If our operations are found to be in violation of any of these or any other healthcare and privacy-related regulatory laws that may apply to us, we may be subject to significant penalties, including the imposition of significant civil, criminal and administrative penalties, damages, monetary fines, disgorgement, imprisonment, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, reputational harm, diminished profits and future earnings, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations. Defending against any such actions can be costly, time-consuming and may require significant financial and personnel resources. Therefore, even if we are successful in defending against any such actions that may be brought against us, our business may be impaired.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

In September 2017, we amended the lease agreement for our premises at 149 Commonwealth Drive, Menlo Park, California, to extend the lease term from February 2018 through January 2020. During the term of the amended lease, we will continue to occupy approximately 14,500 square feet of office space. Our amended lease at 149 Commonwealth Drive includes an option to extend the lease for one additional period of two years. In addition, we plan to open an office in northern New Jersey to facilitate the expansion of our clinical development team and to provide support for future global clinical trials. Other corporate functions also expected to be managed from the New Jersey office include business development and, assuming imetelstat is approved, future commercial operations.

ITEM 3. LEGAL PROCEEDINGS

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

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

Market Information

Our common stock is quoted on the Nasdaq Global Select Market under the symbol GERN. As of March 1, 2019, there were approximately 542 stockholders of record of our common stock. This number does not include "street name" or beneficial holders, whose shares are held of record by banks, brokers and other financial institutions.

Dividend Policy

We have never paid cash dividends on our capital stock and do not anticipate paying cash dividends in the foreseeable future, but intend to retain our capital resources for reinvestment in our business. Any future determination to pay cash dividends will be at the discretion of the board of directors and will be dependent upon our financial condition, results of operations, capital requirements and other factors our board of directors deems relevant.

Recent Sales of Unregistered Securities

During the year ended December 31, 2018, there were no unregistered sales of equity securities by us.

ITEM 6. SELECTED FINANCIAL DATA

We are a smaller reporting company as defined by Rule 12b-2 of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and are not required to provide the information specified under this item.

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

The following discussion should be read in conjunction with the section entitled "Business" in Part I, Item 1 and the audited financial statements and notes thereto included in Part II, Item 8 of this annual report on Form 10-K. The information provided should be reviewed in the context of the sections entitled "Risks Related to the Development of Imetelstat", "Risks Related to Transition of the Imetelstat Program from Janssen to Geron" and "Risks Related to Regulatory Approval and Commercialization of Imetelstat" in Part I, Item 1A entitled "Risk Factors" and elsewhere in this annual report on Form 10-K.

Business Overview

We are a late-stage clinical biopharmaceutical company that is focused on the development and commercialization of innovative therapeutics for hematologic myeloid malignancies. We have global rights to imetelstat, a first-in-class telomerase inhibitor, that was discovered and developed at Geron. We believe clinical data from two Phase 2 clinical trials of imetelstat (IMerge and IMbark, discussed below) conducted by Janssen Biotech, Inc., or Janssen, support further development of imetelstat in hematologic myeloid malignancies. We are working with Janssen to transition the imetelstat program to us. See further discussion below regarding our past and current relationship with Janssen.

We plan to open patient screening and enrollment by mid-year of 2019 in a Phase 3 clinical trial (Part 2 of IMerge) to evaluate imetelstat in transfusion dependent patients with Low or Intermediate-1 risk myelodysplastic syndromes, or MDS, who have relapsed after or are refractory to prior treatment with an erythropoiesis stimulating agent, or ESA, have not received prior treatment with either a hypomethylating agent or lenalidomide and do not have a deletion 5q chromosomal abnormality. This target population of lower risk MDS patients depend on serial red blood cell transfusions to manage symptoms of anemia and fatigue. However, dependency on transfusions is associated with poor survival, because of toxicity due to iron overload, as well as potential infections and allergic reactions. The ultimate goal for most trials of investigational agents in lower risk MDS is to enable patients to become transfusion independent for as long as possible. In December 2018, we reported results from the Phase 2 portion of IMerge in which 37% of patients experienced red blood cell transfusion independence for at least 8 consecutive weeks, or an

8-week RBC-TI rate. Importantly, this 8-week RBC-TI rate was observed in patients with high transfusion burdens, an indicator of a more difficult to treat population. Patients enrolled into the Phase 2 portion of IMerge had a baseline median red blood cell transfusion buren of eight units per eight weeks with a range of four to 14 units. Our results compare favorably to currently used treatments in a similar patient population, such as hypomethylating agents, or HMAs, which have a reported 8-week RBC-TI rate of 17% or lenalidomide, which has a reported 8-week RBC-TI rate of 27%. In addition, among the patients who achieved durable transfusion independence in our trial, as reflected by achieving a 24-week RBC-TI, all showed a hemoglobin rise of ≥3.0 g/dL compared to baseline during the transfusion-free interval. We believe these data suggest potential disease-modifying activity of imetelstat treatment.

Regarding our myelofibrosis, or MF, program, we reported data in December 2018 from the IMbark Phase 2 clinical trial, including the median overall survival of 29.9 months observed in the trial in comparison to the median overall survival of 14 – 16 months for patients previously treated with janus kinase, or JAK, inhibitors. We plan to discuss the IMbark data with experts in MF, as well as regulatory authorities, to consider how these results compare with other therapies currently available to MF patients, and to gain a better understanding of the potential significance of these results to patients and physicians. Because IMbark is the first clinical trial to apply rigorous, objective eligibility criteria to define patients considered relapsed or refractory to JAK inhibitors, we believe feedback from these discussions could provide important information on the feasibility, scope and design, including possible outcome measures, of any potential future clinical trials for imetelstat in Intermediate-2 or High-risk MF patients who have relapsed after or are refractory to prior treatment with a JAK inhibitor. We expect to outline our decision whether to continue late-stage development of imetelstat in MF by the end of the third quarter of 2019. This decision will be influenced by our assessment of what would be required to achieve clinical and regulatory success in MF, including the cost and duration of any potential clinical trials.

We have engaged Parexel as our CRO to support imetelstat clinical development activities. Parexel will provide contract research services related to clinical trials conducted by us, in accordance with the terms of the Master Services Agreement, or the MSA, that we entered into with Parexel on January 30, 2019, and related work orders. We may terminate the MSA and/or any work order without cause on prior written notice to Parexel. Contemporaneously with entering the MSA, we entered into a first work order with Parexel, under which Parexel will provide services related to IMerge. Under the first work order, we will pay Parexel service fees and pass-through expenses estimated to be approximately $33 million in the aggregate for Parexel's services related to IMerge. We may amend the first work order or enter future work orders with Parexel related to MF or future clinical trials or services.

Status of Former Collaboration Agreement with Janssen

On November 13, 2014, we entered into a collaboration and license agreement, or the Collaboration Agreement, pursuant to which we granted Janssen the exclusive rights to develop and commercialize imetelstat worldwide for all indications in oncology, including hematologic myeloid malignancies, and all other human therapeutic uses. Janssen terminated the Collaboration Agreement effective September 28, 2018. Upon the effective date of termination, we regained the global rights to the imetelstat program. As a result of the termination of the Collaboration Agreement, we will not receive any further milestone payments or royalties from Janssen for the development or commercialization of imetelstat, including any clinical development or sales milestones, and Janssen has no further obligations to us or any third parties, such as clinical sites or vendors, to fund any of the ongoing or any potential future imetelstat clinical trials.

Under the termination provisions of the Collaboration Agreement, Janssen is required to provide certain operational support for the imetelstat program during transition of the program to us. Each company is responsible for its own costs incurred related to transition activities unless otherwise specified in the Collaboration Agreement. We expect the transition process to be completed by September 2019 to enable the orderly transfer of all ongoing clinical, regulatory, medical affairs and non-clinical activities to us, including transfer of the sponsorship of ongoing imetelstat clinical trials from Janssen to us. In addition, following the effective date of termination of the Collaboration Agreement, we expect Janssen to supply imetelstat to us for up to 24 months during a transition period for clinical manufacturing and such supply will be charged to us at Janssen's cost plus a premium.

Until the sponsorship responsibilities for imetelstat transfer from Janssen to us, including the U.S. Investigational New Drug, or IND, application, and all foreign regulatory applications, Janssen will continue conducting IMbark and the Phase 2 portion of IMerge. Patients currently enrolled in IMbark and the Phase 2 portion of

IMerge will continue to receive treatment and follow-up under the respective trial protocols. After September 28, 2018, the effective termination date of the Collaboration Agreement, our responsibility for imetelstat development costs, including ongoing conduct of the extension phase of IMbark and the Phase 2 portion of IMerge, and costs for the prosecution of patents that were licensed to Janssen under the Collaboration Agreement increased from 50% to 100%.

For a further discussion of the Collaboration Agreement, see Note 4 on License Agreements in Notes to Financial Statements of this Form 10-K. Information about the transition of the imetelstat program from Janssen to us should be reviewed in the context of the section entitled "Risks Related to Transition of the Imetelstat Program from Janssen to Geron" included in Item 1A, "Risk Factors" of this Form 10-K.

Financial Overview

We had approximately $182.1 million in cash, cash equivalents, restricted cash and current and noncurrent marketable securities as of December 31, 2018. We will require substantial additional capital in order to further advance the imetelstat program, including conducting the research and development and clinical and regulatory activities necessary to bring imetelstat to market, such as completing the Phase 3 portion of IMerge and potential clinical trials in other indications, and establishing sales and marketing capabilities to commercialize imetelstat in the United States on our own, if regulatory approval is granted. If approved for marketing by regulatory authorities, we plan to seek potential commercialization partners for territories outside of the United States. While we reported a small profit for the year ended December 31, 2015 due to our recognition of revenue in connection with the upfront payment from Janssen under the Collaboration Agreement, until 2015 we had never been profitable, and have not reported any profit since. We have incurred significant net losses since our inception in 1990, resulting principally from costs incurred in connection with our research and development activities and from general and administrative costs associated with our operations. As of December 31, 2018, we had an accumulated deficit of $1.01 billion. Since our inception, we primarily have financed our operations through the sale of equity securities, interest income on our marketable securities and payments we received under our collaborative and licensing arrangements.

Substantially all of our revenues to date have been payments under collaborative agreements, and milestones, royalties and other revenues from our licensing arrangements. We currently have no source of product revenue. The significance of future losses, future revenues and any potential future profitability will depend primarily on the clinical and commercial success of imetelstat. In any event, imetelstat will require significant additional clinical testing prior to possible regulatory approval in the United States and other countries. In addition, as a result of the termination of the Collaboration Agreement, we expect research and development expenses, general and administrative expenses, and losses to substantially increase in future periods as we assume sole responsibility for the imetelstat development program. We do not expect imetelstat to be commercially available for many years, if at all.

Critical Accounting Policies and Estimates

Our financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses. Note 1 of Notes to Financial Statements describes the significant accounting policies used in the preparation of our financial statements. Certain of these significant accounting policies are considered to be critical accounting policies, as defined below.

A critical accounting policy is defined as one that is both material to the presentation of our financial statements and requires management to make difficult, subjective or complex judgments that could have a material effect on our financial condition and results of operations. Specifically, critical accounting estimates have the following attributes: (i) we are required to make assumptions about matters that are highly uncertain at the time of the estimate; and (ii) different estimates we could reasonably have used, or changes in the estimate that are reasonably likely to occur, would have a material effect on our financial condition or results of operations.

Estimates and assumptions about future events and their effects cannot be determined with certainty. We base our estimates on historical experience and on various other assumptions believed to be applicable and reasonable under the circumstances. These estimates may change as new events occur, as additional information is obtained and as our operating environment changes. These changes historically have been minor and have been included in the financial statements as soon as they became known. Based on a critical assessment of our accounting policies and the

underlying judgments and uncertainties affecting the application of those policies, management believes that our financial statements are stated fairly in accordance with accounting principles generally accepted in the United States, and meaningfully present our financial condition and results of operations.

We believe the following critical accounting policies reflect our more significant estimates and assumptions used in the preparation of our financial statements:

Fair Value of Financial Instruments

We categorize financial instruments recorded at fair value on our balance sheets based upon the level of judgment associated with inputs used to measure their fair value. The categories are as follows:

Level 1—Inputs are unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date. An active market for the asset or liability is a market in which transactions for the asset or liability occur with sufficient frequency and volume to provide pricing information on an ongoing basis.

Level 2—Inputs (other than quoted market prices included in Level 1) are either directly or indirectly observable for the asset or liability through correlation with market data at the measurement date and for the duration of the instrument's anticipated life.

Level 3—Inputs reflect management's best estimate of what market participants would use in pricing the asset or liability at the measurement date. Consideration is given to the risk inherent in the valuation technique and the risk inherent in the inputs to the model.

A financial instrument's categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement. Following is a description of the valuation methodologies used for financial instruments measured at fair value on our balance sheets, including the category for such financial instruments.

Financial instruments classified as Level 1 include money market funds and certificates of deposit, representing approximately 4% of our total financial instruments classified as assets measured at fair value as of December 31, 2018. Financial instruments classified as Level 2 include commercial paper, corporate notes and equity investments, representing approximately 96% of our total financial instruments classified as assets measured at fair value as of December 31, 2018. The price for each security at the measurement date is derived from various sources. Periodically, we assess the reasonableness of these sourced prices by comparing them to the prices provided by our portfolio managers from broker quotes as well as reviewing the pricing methodologies used by our portfolio managers. Historically, we have not experienced significant deviation between the sourced prices and our portfolio managers' prices.

For a further discussion regarding fair value measurements, see Note 2 on Fair Value Measurements in Notes to Financial Statements of this annual report on Form 10-K.

Revenue Recognition

On January 1, 2018, we adopted the provisions of Accounting Standards Codification Topic 606, *Revenue from Contracts with Customers*, or Topic 606, using the modified retrospective transition method as discussed in the subsection entitled, "New Accounting Pronouncements – Recently Adopted", in Note 1 of Notes to Financial Statements of this Form 10-K. Financial results for the reporting periods beginning after January 1, 2018 are presented under Topic 606, while prior period amounts have not been adjusted and continue to be reported in accordance with our historical accounting under Accounting Standards Codification Topic 605, *Revenue Recognition*, or Topic 605, and therefore, there is a lack of comparability to the prior periods presented. In connection with the adoption of Topic 606, we recognized a cumulative-effect adjustment to our opening balance of accumulated deficit and an increase to interest and other receivables as of January 1, 2018 for projected sales-based royalties on product sales occurring in 2017 for which payments had not yet been received as of December 31, 2017. Such royalties were recognized as revenue in prior periods when payments were received from our licensees.

In determining the appropriate amount and timing of revenue to be recognized under Topic 606, we perform the following five steps: (i) identify the contract(s) with our customer; (ii) identify the promised goods or services in the agreement and determine whether they are performance obligations, including whether they are distinct in the context of the agreement; (iii) measure the transaction price, including the constraint on variable consideration; (iv) allocate the transaction price to the performance obligations based on stand-alone selling prices; and (v) recognize revenue when (or as) we satisfy each performance obligation. Significant management judgment is required to determine the level of effort required and the period over which completion of the performance obligations is expected under an agreement. If reasonable estimates regarding when performance obligations are either complete or substantially complete cannot be made, then revenue recognition is deferred until a reasonable estimate can be made. Revenue is then recognized over the remaining estimated period of performance using the cumulative catch-up method. Amounts expected to be recognized as revenue within the 12 months following the balance sheet date are classified as current deferred revenue. Amounts not expected to be recognized as revenue within the 12 months following the balance sheet date are classified as noncurrent deferred revenue.

We allocate the total transaction price to each performance obligation based on the estimated relative stand-alone selling prices of the promised goods or services underlying each performance obligation. Estimated selling prices for license rights are calculated using an income approach model and include the following key assumptions, judgments and estimates: the development timeline, revenue forecast, commercialization expenses, discount rate and probabilities of technical and regulatory success.

Our revenues historically have consisted of collaboration revenue and license fees and royalties. Collaboration revenue primarily represented amounts earned under the Collaboration Agreement with Janssen for the imetelstat program. Effective September 28, 2018, the Collaboration Agreement with Janssen was terminated. As a result, we will not receive any further milestone payments or royalties from Janssen for the development or commercialization of imetelstat. License fees and royalty revenue primarily represents amounts earned under agreements that out-license our technology to various oncology, diagnostics, research tools and biologics production companies. Economic terms in these agreements may include non-refundable upfront license payments in cash or equity securities, annual license maintenance fees, cost sharing arrangements, milestone payments, royalties on future sales of products, or any combination of these items. Non-refundable upfront fees, annual license maintenance fees and funding of research and development activities are considered fixed, while milestone payments and royalties are identified as variable consideration.

Licenses of Intellectual Property. If we determine the license to intellectual property is distinct from the other performance obligations identified in the agreement and the licensee can use and benefit from the license, we recognize revenue from non-refundable upfront fees allocated to the license upon the completion of the transfer of the license to the licensee. For such licenses, we recognize revenue from annual license maintenance fees upon the start of the new license period. For licenses that are bundled with other performance obligations, we assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress for purposes of recognizing revenue from non-refundable upfront fees or annual license maintenance fees. At each reporting period, we reassess the progress and, if necessary, adjust the measure of performance and related revenue recognition.

Milestone Payments. At the inception of each agreement that includes milestone payments, we evaluate whether the milestones are considered probable of being achieved and estimate the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the value of the associated milestone is included in the transaction price. For milestones that we do not deem to be probable of being achieved, the associated milestone payments are fully constrained and the value of the milestone is excluded from the transaction price with no revenue being recognized. Milestone payments that are not within our control, such as regulatory-related accomplishments, are not considered probable of being achieved until those accomplishments have been communicated by the relevant regulatory authority. Once the assessment of probability of achievement becomes probable, we recognize revenue for the milestone payment. At each reporting period, we assess the probability of achievement of each milestone under our current agreements.

Royalties. For agreements with sales-based royalties, including milestone payments based on the level of sales, where the license is deemed to be the predominant item to which the royalties relate, we recognize revenue at the later of: (a) when the related sales occur, or (b) when the performance obligation, to which some or all of the royalty has been allocated, has been satisfied (or partially satisfied). At each reporting period, we estimate the sales incurred by each licensee based on historical experience and accrue the associated royalty amount.

Cost Sharing Arrangements. Research and development and other expenses being shared by both parties under an agreement are recorded as earned or owed based on the performance obligations by both parties under the respective agreement. For arrangements in which we and our collaboration partner in the agreement are exposed to significant risks and rewards that depend on the commercial success of the activity, we recognize payments between the parties on a net basis and record such amounts as a reduction or addition to research and development expense. For arrangements in which we have agreed to perform certain research and development services for our collaboration partner and are not exposed to significant risks and rewards that depend on the commercial success of the activity, we recognize the respective cost reimbursements as revenue under the collaborative agreement over time in a manner proportionate to the costs we incurred to perform the services using the input method.

Revenue recognition for licenses and collaboration agreements requires significant judgment. Our assessments and estimates are based on contractual terms, historical experience and general industry practice. Revisions in these values or estimations have the effect of increasing or decreasing license fee or collaboration revenue in the period of revision. As of December 31, 2018, we have not made any revisions to revenue recognition estimates.

Clinical Trial Accruals

For the clinical development activities being conducted by Janssen under the former Collaboration Agreement, we monitor patient enrollment levels and related activities to the extent possible through discussions with Janssen personnel and base our estimates of clinical trial costs on the best information available at the time. However, additional information may become available to us which would allow us to make a more accurate estimate in future periods. In this event, we may be required to record adjustments to research and development expenses in future periods when the actual level of activity becomes more certain.

Valuation of Stock-Based Compensation

We measure and recognize compensation expense for all share-based payment awards to our employees and directors, including service-based and performance-based stock options, restricted stock awards and employee stock purchases related to our Employee Stock Purchase Plan, or ESPP, based on estimated grant-date fair values for these instruments. The grant-date fair value of share-based payment awards is amortized over the vesting period of the awards using a straight-line method and reduced for estimated forfeitures. For performance-based stock options with vesting conditioned on the achievement of certain strategic milestones, stock-based compensation expense is recognized over the period from the date the performance condition is determined to be probable of occurring through the date the applicable condition is expected to be met and is reduced for estimated forfeitures, as applicable. If the performance condition is not considered probable of being achieved, no stock-based compensation expense is recognized until such time as the performance condition is considered probable of being met, if at all. If that assessment of the probability of the performance condition being met changes, the impact of the change in estimate would be recognized in the period of the change. We use the Black Scholes option-pricing model to estimate the grant-date fair value of our service-based and performance-based stock options and employee stock purchases. The grant-date fair value for service-based restricted stock awards is determined using the fair value of our common stock on the date of grant.

Option-pricing model assumptions, such as expected volatility, expected term and risk-free interest rate, impact the fair value estimate. Expected volatilities are based on historical volatilities of our stock since traded options on our common stock do not correspond to option terms and trading volume of options is limited. The expected term of options represents the period of time that options granted are expected to be outstanding. In deriving this assumption, we review actual historical exercise and post-vesting cancellation data and the remaining outstanding options not yet exercised or cancelled. For performance-based stock options, we also assess the projected timing of potential achievement of the milestones. The expected term of employees' purchase rights under our ESPP is equal to the purchase period. The risk-free interest rate is based on the U.S. Zero Coupon Treasury Strip Yields for the expected

term in effect on the date of grant. Forfeiture rates are estimated based on historical data and are adjusted, if necessary, over the requisite service period based on the extent to which actual forfeitures differ, or are expected to differ, from their estimate.

We evaluate the assumptions used in estimating grant-date fair values of our share-based payment awards by reviewing current trends in comparison to historical data on an annual basis. We have not revised the methods by which we derive assumptions in order to estimate grant-date fair values of our share-based payment awards. If factors change and we employ different assumptions in future periods, the stock-based compensation expense that we record for share-based payment awards to employees and directors may differ significantly from what we have recorded in the current period.

For our non-employee stock-based awards, the measurement date on which the fair value of the stock-based award is calculated is equal to the earlier of: (i) the date at which a commitment for performance by the counterparty to earn the equity instrument is reached or (ii) the date at which the counterparty's performance is complete.

Results of Operations

Our results of operations have fluctuated from period to period and may continue to fluctuate in the future, especially in light of the termination of the Collaboration Agreement with Janssen effective September 28, 2018. Results of operations for any period may be unrelated to results of operations for any other period. Thus, historical results should not be viewed as indicative of future operating results. For example, in 2015 we reported net income for the first time due to recognition of revenue in connection with the upfront payment from Janssen under the Collaboration Agreement. Effective September 28, 2018, the Collaboration Agreement with Janssen was terminated. As a result, we will not receive any further milestone payments or royalties from Janssen for the development or commercialization of imetelstat. In addition, we expect to incur increasing operating losses in the future as we assume clinical development activities for imetelstat on our own to enable potential commercialization of imetelstat in the United States and other countries. We are subject to risks common to companies in our industry and at our stage of development, including, but not limited to, risks inherent in research and development efforts, including the transition of the imetelstat program from Janssen to us, the development, manufacture, regulatory approval for and commercialization of, imetelstat, uncertainty of non-clinical and clinical trial results or regulatory approvals or clearances, the future development of imetelstat by us, including any future efficacy or safety results that may cause the benefit-risk profile of imetelstat to become unacceptable, our need for future capital, enforcement of our patent and proprietary rights, reliance upon our consultants, licensees, investigators and other third parties, and potential competition. In order for imetelstat to be commercialized, we must conduct non-clinical tests and clinical trials to demonstrate the safety and efficacy of imetelstat, obtain regulatory approvals or clearances and enter into manufacturing, distribution and marketing arrangements, as well as obtain market acceptance. We do not expect to receive revenue based on sales of imetelstat for many years, if at all.

Revenues

We have entered into several license or collaboration agreements with companies involved with oncology, diagnostics, research tools and biologics production, whereby we have granted certain rights to our non-imetelstat related technologies. In connection with these agreements, we are eligible to receive license fees, option fees, milestone payments and royalties on future sales of products, or any combination thereof. As discussed above, we adopted Topic 606 using the modified retrospective transition method on January 1, 2018. As a result, prior period amounts have not been adjusted and continue to be reported in accordance with our historical accounting under Topic 605 and therefore, there is a lack of comparability to the prior periods presented. However, we do not expect the application of Topic 606 to have a material impact on our financial results on an ongoing basis in comparison to the results that would have been realized if we had continued to apply Topic 605.

We recognized license fee revenues of $641,000, $667,000 and $5.6 million in 2018, 2017 and 2016, respectively, related to our various agreements. The decrease in license fee revenues in 2018 compared to 2017 primarily reflects a reduction in the number of active license agreements in 2018 for research licenses related to our human telomerase reverse transcriptase, of hTERT, technology. The decrease in license fee revenues in 2017 compared to 2016 primarily reflects the full recognition of an upfront payment of $5 million from Janssen Pharmaceuticals, Inc., or Janssen Pharmaceuticals, under a license agreement that was executed in September 2016, or the License Agreement, related to license rights to commercialize products based on specialized oligonucleotide backbone chemistry and novel amidates for RNAi for the prevention, treatment and/or diagnosis of any and all human

disorders, excluding cancers originating from the blood or bone marrow, and products whose predominant or primary mechanism of action is telomerase inhibition. See further discussion of revenue recognition under and description of the terms of the License Agreement in Note 4 on License Agreements in Notes to Financial Statements of this annual report on Form 10-K.

We recognized royalty revenues of $425,000, $398,000 and $537,000 in 2018, 2017 and 2016, respectively, on product sales of telomerase detection and telomere measurement kits to the research-use-only market and cell-based research products. The increase in royalty revenues in 2018 compared to 2017 primarily reflects a change in the method that revenue is being recognized for royalties upon the adoption of Topic 606 as of January 1, 2018. Under Topic 606, we estimate sales-based royalties earned on product sales by our licensees in each reporting period and accrue the associated royalty amount. In prior periods, revenue from royalties was being recognized when payments were received from our licensees. The decrease in royalty revenues in 2017 compared to 2016 primarily reflects lower product sales by our licensees.

In 2018, the majority of our revenues were from license fees and royalties under licenses granted to several biotechnology and pharmaceutical companies to use telomerase immortalized cells in drug discovery research and for drug discovery applications. Two customers accounted for approximately 59% and 39% of our 2018 and 2017 revenues, respectively. The upfront payment from Janssen Pharmaceuticals represented approximately 81% of our 2016 revenues.

Future license fee and royalty revenues are dependent on additional agreements being signed, if any, current agreements being maintained and the underlying patent rights for the licenses remaining active. We expect license fee and royalty revenues under our license agreements related to our hTERT technology to be lower in 2019 than in previous years, and to be eliminated by the end of 2019, due to upcoming patent expirations on such technology. In addition, due to the termination of the Collaboration Agreement effective September 28, 2018, we will not receive any further milestone payments or royalties from Janssen for the development or commercialization of imetelstat. Current revenues may not be predictive of future revenues.

Research and Development Expenses

During the years ended December 31, 2018, 2017 and 2016, imetelstat was the sole research and development program we supported. For the imetelstat research and development program, we incur direct external, personnel related and other research and development costs. For the years ended December 31, 2018, 2017 and 2016, direct external expenses primarily consisted of our proportionate share of research and development costs incurred by Janssen under the Collaboration Agreement. Personnel related expenses primarily consist of salaries and wages, stock-based compensation, payroll taxes and benefits for Geron employees involved with ongoing research and development efforts. Other research and development expenses primarily consist of research related overhead associated with allocated expenses for rent and maintenance of facilities and other supplies.

Research and development expenses were $13.4 million, $11.0 million and $18.0 million for the years ended December 31, 2018, 2017 and 2016, respectively. The increase in research and development expenses in 2018 compared to 2017 primarily reflects higher direct external costs for our share of clinical development expenses under the former collaboration with Janssen where our share of such costs increased from 50% to 100% as of the termination date of the Collaboration Agreement, higher direct external costs for contract research services and consulting expenses and increased personnel related expenses. The decrease in research and development expenses in 2017 compared to 2016 primarily reflects lower direct external costs for our proportionate share of clinical development expenses under the collaboration with Janssen and reduced personnel related expenses.

Research and development expenses for the years ended December 31, 2018, 2017 and 2016 were as follows:

	Year Ended December 31,		
(In thousands)	2018	2017	2016
Direct external research and development expenses:			
Clinical program: Imetelstat	$ 10,353	$ 8,437	$ 14,695
Personnel related expenses	2,429	2,063	2,729
All other research and development expenses	650	533	623
Total	$ 13,432	$ 11,033	$ 18,047

Since cost sharing between Janssen and us for imetelstat clinical development ceased on September 28, 2018, the effective date of termination of the Collaboration Agreement, we expect research and development expenses to substantially increase in future periods as we assume sole responsibility for the imetelstat development program, including any ongoing or potential future clinical trials, engage third parties, such as Parexel International (IRL) Limited, or Parexel, our CRO, and other service providers to conduct clinical trials of imetelstat, and hire additional senior personnel to oversee the program. Under the terms of the Collaboration Agreement, Janssen is required to provide operational support for the imetelstat program, including continuing to conduct ongoing imetelstat clinical trials, during transition of the program to us. We reimburse Janssen for 100% of the costs for such operational support. However, costs associated with transition activities, such as transfer of the sponsorship of ongoing imetelstat clinical trials, moving databases and related systems and transmitting regulatory files, are being incurred by each company, unless otherwise specified in the Collaboration Agreement. We expect the transition process to be completed by September 2019. In addition, following the effective date of termination of the Collaboration Agreement, we expect Janssen to supply imetelstat to us for up to 24 months during a transition period for clinical manufacturing and such supply will be charged to us at Janssen's cost plus a premium.

At this time, we cannot provide reliable estimates of how much time or investment will be necessary to advance imetelstat toward commercialization. For a more complete discussion of the risks and uncertainties associated with the development of imetelstat, see the sub-sections entitled "Risks Related to the Development of Imetelstat" and "Risks Related to Regulatory Approval and Commercialization of Imetelstat" in Part I, Item 1A entitled "Risk Factors" and elsewhere in this annual report on Form 10-K.

General and Administrative Expenses

General and administrative expenses were $18.7 million, $19.3 million and $18.8 million for the years ended December 31, 2018, 2017 and 2016, respectively. The decrease in general and administrative expenses in 2018 compared to 2017 primarily reflects the net result of reduced personnel related expenses, including lower stock-based compensation expense, partially offset by higher consulting expenses and patent prosecution expenses. The increase in general and administrative expenses in 2017 compared to 2016 primarily reflects higher non-cash stock-based compensation expense, an increased allocation of facilities and other overhead costs to general and administrative activities and higher consulting costs, partially offset by lower legal costs. We expect general and administrative expenses to substantially increase in the future since the cost sharing between Janssen and us for patent prosecution expenses related to the imetelstat program ceased upon termination of the Collaboration Agreement and we expect to hire additional personnel to support our research and development activities for imetelstat.

Interest and Other Income

Interest and other income was $3.3 million, $1.4 million and $1.2 million for the years ended December 31, 2018, 2017 and 2016, respectively. The increase in interest and other income in 2018 compared to 2017 primarily reflects higher yields on our marketable securities portfolio and the increase in the size of our marketable securities portfolio in 2018 resulting from the receipt of net cash proceeds from issuances of common stock pursuant to our At Market Issuance Sales Agreement, or the 2015 Sales Agreement, with MLV & Co. LLC, or MLV, and our At Market Issuance Sales Agreement, or the 2018 Sales Agreement, with B. Riley FBR, Inc., or B. Riley FBR. The increase in interest income in 2017 compared to 2016 primarily reflects higher yields on our marketable securities portfolio. Interest earned in future periods will depend on the size of our marketable securities portfolio and prevailing interest rates.

Gain on Settlement

In July 2018, we and the other former shareholders of ViaGen, Inc., or ViaGen, filed an arbitration claim against Trans Ova Genetics, L.C., or Trans Ova, for alleged violations under a Share Purchase Agreement, or SPA, including failure to make payments under certain conditions. In December 2018, we and the other former shareholders of ViaGen agreed to settle the dispute for a one-time payment of $3.7 million, of which we received $1.5 million, which represents our 40% share of the settlement amount. With this settlement, Trans Ova has been released from any further obligations under the SPA, including any future payments. No comparable amounts were incurred in 2017 or 2016.

Change in Fair Value of Equity Investment

With the adoption of ASU 2016-01 on January 1, 2018, as described in the sub-section entitled, "New Accounting Pronouncements – Recently Adopted" in Note 1 on Organization and Summary of Significant Accounting Policies in Notes to Financial Statements of this annual report on Form 10-K, we remeasure the fair value of our equity investment in Sienna Cancer Diagnostics Limited, or Sienna, at each reporting date and any resulting change in fair value based on observable price changes is included in our statements of operations. For the year ended December 31, 2018, the overall decrease in the fair value of our equity investment in Sienna resulting from observable price changes in Sienna's stock was $541,000. No comparable amounts were incurred in 2017 or 2016. The fair value of our equity investment in Sienna fluctuates based on changes in Sienna's stock price and is therefore subject to volatility that could adversely affect our future operating results.

Other Expense

Other expense was $154,000, $77,000 and $83,000 for the years ended December 31, 2018, 2017 and 2016, respectively. Other expense reflects the effect of foreign currency translation on our equity investment in Sienna and bank charges related to our cash operating accounts and marketable securities portfolio. Other expense for the year ended December 31, 2018 included losses of $63,000 related to foreign currency translation for our equity investment in Sienna. No comparable amounts were incurred in 2017 or 2016. The fair value of our equity investment in Sienna fluctuates based on changes in the exchange rate between the U.S. dollar and Australian dollar and is therefore subject to volatility that could adversely affect our future operating results.

Liquidity and Capital Resources

As of December 31, 2018, we had cash, restricted cash, cash equivalents and marketable securities of $182.1 million, compared to $109.2 million at December 31, 2017. The net increase in cash, restricted cash, cash equivalents, and current and noncurrent marketable securities in 2018 was the net result of the receipt of net cash proceeds of approximately $86.0 million from sales of our common stock under the 2015 Sales Agreement and the 2018 Sales Agreement and cash proceeds of $6.9 million from the exercise of outstanding stock options, partially offset by cash being used for operations. We estimate that our existing capital resources and future interest income will be sufficient to fund our current level of operations through at least the next 12 months. However, we expect to experience negative cash flow for the foreseeable future as a result of the termination of the Collaboration Agreement with Janssen and as we assume responsibility for the development of the imetelstat program on our own.

We have an investment policy to invest our cash in liquid, investment grade securities, such as interest-bearing money market funds, certificates of deposit, municipal securities, U.S. government and agency securities, corporate notes and commercial paper. Our investment portfolio does not contain securities with exposure to sub-prime mortgages, collateralized debt obligations, asset-backed securities or auction rate securities and, to date, we have not recognized any other-than-temporary impairment charges on our marketable securities or any significant changes in aggregate fair value that would impact our cash resources or liquidity. To date, we have not experienced lack of access to our invested cash and cash equivalents; however, access to our invested cash and cash equivalents may be impacted by adverse conditions in the financial and credit markets.

In August 2015, we entered into the 2015 Sales Agreement with MLV, under which we could elect to issue and sell shares of our common stock having an aggregate offering price of up to $50 million. Pursuant to the 2015 Sales Agreement, common stock was sold at market prices prevailing at the time of sale through MLV as our sales agent. We paid MLV an aggregate commission rate equal to up to 3.0% of the gross proceeds of the sales price per share for common stock sold through MLV under the 2015 Sales Agreement. From January 2018 through April 2018, we sold an aggregate of 13,195,106 shares of our common stock under the 2015 Sales Agreement, resulting in net cash proceeds to us of approximately $47.7 million after deducting sales commissions and offering expenses payable by us. Under the 2015 Sales Agreement, we sold a cumulative total of 13,809,336 shares of our common stock resulting in net cash proceeds to us of approximately $48.7 million after deducting sales commissions and offering expenses payable by us. No further shares of common stock may be sold under the 2015 Sales Agreement.

In May 2018, we entered into the 2018 Sales Agreement with B. Riley FBR, pursuant to which we may elect to issue and sell shares of our common stock having an aggregate offering price of up to $100 million in such quantities and on such minimum price terms as we set from time to time through B. Riley FBR as our sales agent. Pursuant to the 2018 Sales Agreement, B. Riley FBR sells our common stock at market prices prevailing at the time of sale for which B. Riley FBR receives an aggregate commission rate equal to up to 3.0% of the gross proceeds. From May 2018 through July 2018, we sold an aggregate of 10,083,079 shares of our common stock under the 2018 Sales Agreement, resulting in net cash proceeds to us of approximately $38.4 million after deducting sales commissions and offering expenses payable by us. As of December 31, 2018, approximately $60.5 million of our common stock remained available for issuance under the 2018 Sales Agreement. The 2018 Sales Agreement will expire upon the earlier of the remaining common stock being sold or May 2021.

We will require substantial additional capital in order to further advance the imetelstat program, including conducting the research and development and clinical and regulatory activities necessary to bring imetelstat to market, such as completion of the Phase 3 portion of IMerge and potential clinical trials in other indications, and to establish sales and marketing capabilities to commercialize imetelstat in the United States on our own, if regulatory approval is granted. Because the outcome of any clinical activities and/or regulatory approval process is highly uncertain, we cannot reasonably estimate whether any development activities we may undertake will succeed, and we may never recoup our investment in any imetelstat development, which would adversely affect our financial condition and our business and business prospects, and might cause us to cease operations. Our future capital requirements are difficult to forecast and will depend on many factors, including:

- the accuracy of the assumptions underlying our estimates for our capital needs;
- the progress, timing, magnitude, scope and costs of clinical development, manufacturing and commercialization of imetelstat, including the number of indications being pursued, subject to clearances and approvals by the FDA and other regulatory authorities;
- the scope, progress, duration, results and costs of current and future clinical trials, including the Phase 3 portion of IMerge, as well as non-clinical studies and assessments, of imetelstat;
- the costs, timing and outcomes of regulatory reviews or other regulatory actions related to imetelstat, including obtaining regulatory clearances and approvals in the United States and in other countries;
- the costs of preparing, filing and prosecuting patent applications and maintaining, enforcing and defending intellectual property-related claims;
- the costs of manufacturing imetelstat, including our ability to meaningfully reduce those manufacturing costs;
- the costs of multiple third-party vendors and service providers, including our CRO, to support the development, manufacturing and commercialization of imetelstat;
- our ability to establish, enforce and maintain collaborative or other strategic arrangements for research, development, clinical testing, manufacturing, commercialization and marketing of imetelstat;
- our ability to successfully market and sell imetelstat, if imetelstat receives future regulatory approval or clearance, in the United States and other countries;
- our need to hire additional qualified employees and consultants to support the development and commercialization of imetelstat;

- the costs and timing of building a U.S. sales force to market and sell imetelstat, should it receive regulatory clearance;
- the sales price for imetelstat;
- the availability of coverage and adequate third-party reimbursement for imetelstat;
- the extent and scope of our general and administrative expenses, including expenses associated with potential future litigation; and
- the costs of maintaining and operating facilities in California and New Jersey, including higher expenses for travel, telecommunications and administrative oversight.

As a result of the termination of the Collaboration Agreement effective September 28, 2018, we are responsible for funding all clinical development, manufacturing, intellectual property maintenance and commercial activities for imetelstat. In order to further advance the imetelstat program, including completion of the Phase 3 portion of IMerge and potential clinical trials in other indications, we will need to raise substantial additional capital or establish additional collaborative arrangements with third-party collaborative partners, which may not be possible. In addition, as a result of the termination of the Collaboration Agreement, we will not receive any further milestone payments or royalties from Janssen for the development or sale of imetelstat, including any clinical development milestones. If we are unable to raise additional capital or establish alternative collaborative arrangements with third-party collaborative partners for imetelstat, the development of imetelstat may be further delayed, altered or abandoned, which might cause us to cease operations. Additional financing through public or private equity financings, including pursuant to our 2018 Sales Agreement with B. Riley FBR, capital lease transactions or other financing sources may not be available on acceptable terms, or at all. We may raise equity capital at a stock price or on other terms that could result in substantial dilution of ownership for our stockholders. The receptivity of the public and private equity markets to proposed financings is substantially affected by the general economic, market and political climate and by other factors which are unpredictable and over which we have no control. In this regard, continued volatility and instability in the global financial markets and political climate could adversely affect our ability to raise additional funds through financings and the terms upon which we may raise those funds.

In addition, we may seek additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interests of our stockholders may be diluted, and the terms may include liquidation or other preferences that materially and adversely affect the rights of our stockholders. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through alliance, collaborative or licensing arrangements with third parties, we may have to relinquish valuable rights to imetelstat or our technologies or grant licenses on terms that are not favorable to us.

We cannot assure you that our existing capital resources, future interest income, and potential future sales of our common stock, including under our 2018 Sales Agreement with B. Riley FBR, will be sufficient to fund our operating plans. We will need additional funds to meet operational needs and capital requirements to advance the imetelstat program in clinical development and potential commercialization, and our need for additional funds may arise sooner than planned. If adequate funds are not available on a timely basis, if at all, we may be unable to pursue further development or potential commercialization of imetelstat, which could adversely affect our business.

Cash Flows from Operating Activities

Net cash used in operations was $21.0 million, $20.6 million and $18.4 million in 2018, 2017 and 2016, respectively. The increase in net cash used in operations in 2018 compared to 2017 primarily reflects the net result of higher costs associated with business development activities, partially offset by lower payments to Janssen in 2018 under the cost sharing arrangement for imetelstat clinical development. The increase in net cash used in operations in 2017 compared to 2016 primarily reflects the net result of the receipt of the $5 million upfront payment from Janssen Pharmaceuticals under the License Agreement in 2016, partially offset by lower payments to Janssen in 2017 under the cost-sharing arrangement for imetelstat clinical development.

Cash Flows from Investing Activities

Net cash used in investing activities in 2018 was $77.7 million. Net cash provided by investing activities in 2017 and 2016 was $23.0 million and $8.8 million, respectively. The increase in net cash used in investing activities in 2018 compared to 2017 primarily reflects a higher rate of purchases than maturities of marketable securities in 2018 resulting from the investment of net cash proceeds from the sales of our common stock pursuant to the 2015 Sales Agreement with MLV and the 2018 Sales Agreement with B. Riley FBR. The increase in net cash provided by investing activities in 2017 compared to 2016 primarily reflects a higher rate of maturities than purchases of marketable securities in 2017.

For the three years ended December 31, 2018, we purchased approximately $73,000 in property and equipment, none of which was financed through equipment financing arrangements.

Cash Flows from Financing Activities

Net cash provided by financing activities in 2018, 2017 and 2016 was $93.0 million, $1.1 million and $1.2 million, respectively. The increase in net cash provided by financing activities in 2018 compared to 2017 primarily reflects the receipt of net cash proceeds from the sales of our common stock under the 2015 Sales Agreement with MLV and the 2018 Sales Agreement with B. Riley FBR and cash proceeds from the exercise of stock options under our equity plans. The decrease in net cash provided by financing activities in 2017 compared to 2016 primarily reflects the net result of the receipt of higher cash proceeds in 2016 from the exercise of outstanding stock options under our equity plans, partially offset by the receipt of net cash proceeds in 2017 from the sales of our common stock pursuant to the 2015 Sales Agreement with MLV. See Note 7 on Stockholders' Equity for additional information about the 2015 Sales Agreement with MLV and the 2018 Sales Agreement with B. Riley FBR.

Significant Cash and Contractual Obligations

As of December 31, 2018, our contractual obligations for the next five years and thereafter were as follows:

	Payments Due by Period				
Contractual Obligations (1)	Total	Less Than 1 Year	1-3 Years	4 - 5 Years	After 5 Years
			(In thousands)		
Equipment lease	$ 22	$ 11	$ 11	$ —	$ —
Operating lease(2)	757	699	58	—	—
License fees(3)	185	50	30	30	75
Total contractual cash obligations	$ 964	$ 760	$ 99	$ 30	$ 75

(1) This table does not include payments under our severance plan if there were a change in control of Geron or severance payments to employees in the event of an involuntary termination. In addition, this table does not include any royalty obligations under our license agreements as the timing and likelihood of such payments are not known.

(2) In September 2017, we amended the lease agreement for our premises at 149 Commonwealth Drive, Menlo Park, California, to extend the lease term from February 2018 through January 2020. Our amended lease at 149 Commonwealth Drive includes an option to extend the lease for one additional period of two years. Operating lease obligations in the table above do not assume the exercise by us of the option to extend the lease or any right of termination.

(3) License fees are comprised of minimum annual license payments under our existing license agreements with several universities and companies for the right to use intellectual property related to technologies that we have in-licensed.

Off-Balance Sheet Arrangements

We have not engaged in any off-balance sheet arrangements, including the use of structured finance, special purpose entities or variable interest entities.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are a smaller reporting company as defined by Rule 12b-2 of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and are not required to provide the information specified under this item.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The following financial statements and the related notes thereto, of Geron Corporation and the Report of Independent Registered Public Accounting Firm, Ernst & Young LLP, are filed as a part of this annual report on Form 10-K.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Geron Corporation

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Geron Corporation (the Company) as of December 31, 2018 and 2017, the related statements of operations, comprehensive loss, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control-Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), and our report dated March 7, 2019 expressed an unqualified opinion thereon.

Adoption of ASU No. 2016-01

As discussed in Note 1 to the financial statements, the Company changed its method of accounting for certain equity investments due to the adoption of ASU No. 2016-01, *Recognition and Measurement of Financial Assets and Financial Liabilities*, and the amendment in ASU 2018-03 effective January 1, 2018.

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

/s/ Ernst & Young LLP

We have served as the Company's auditor since 1992.
Redwood City, California
March 7, 2019

GERON CORPORATION

BALANCE SHEETS

	December 31, 2018	December 31, 2017
	(In thousands, except share and per share data)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 10,575	$ 16,335
Restricted cash	269	268
Marketable securities	152,714	78,351
Interest and other receivables	1,168	436
Prepaid assets	1,332	580
Total current assets	166,058	95,970
Noncurrent marketable securities	18,582	14,241
Property and equipment, net	59	102
Other assets	585	—
	$ 185,284	$ 110,313
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 982	$ 503
Accrued compensation and benefits	2,642	3,385
Amount due to Janssen Biotech, Inc.	2,610	1,702
Accrued liabilities	1,317	926
Total current liabilities	7,551	6,516
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.001 par value; 3,000,000 shares authorized; no shares issued and outstanding at December 31, 2018 and 2017	—	—
Common stock, $0.001 par value; 300,000,000 shares authorized; 186,392,682 and 159,877,239 shares issued and outstanding at December 31, 2018 and 2017, respectively	186	160
Additional paid-in capital	1,189,194	1,089,684
Accumulated deficit	(1,011,464)	(985,840)
Accumulated other comprehensive loss	(183)	(207)
Total stockholders' equity	177,733	103,797
	$ 185,284	$ 110,313

See accompanying notes.

GERON CORPORATION

STATEMENTS OF OPERATIONS

	Year Ended December 31,		
	2018	2017	2016
	(In thousands, except share and per share data)		
Revenues:			
License fees and royalties	$ 1,066	$ 1,065	$ 6,162
Operating expenses:			
Research and development	13,432	11,033	18,047
General and administrative	18,707	19,287	18,761
Total operating expenses	32,139	30,320	36,808
Loss from operations	(31,073)	(29,255)	(30,646)
Interest and other income	3,291	1,416	1,192
Gain on settlement	1,460	—	—
Change in fair value of equity investment	(541)	—	—
Other expense	(154)	(77)	(83)
Net loss	$ (27,017)	$ (27,916)	$ (29,537)
Basic and diluted net loss per share	$ (0.15)	$ (0.18)	$ (0.19)
Shares used in computing basic and diluted net loss per share	176,504,996	159,224,986	159,045,644

See accompanying notes.

GERON CORPORATION

STATEMENTS OF COMPREHENSIVE LOSS

	Year Ended December 31,		
	2018	2017	2016
	(In thousands)		
Net loss	$ (27,017)	$ (27,916)	$ (29,537)
Net unrealized gain (loss) on marketable securities	24	(154)	160
Comprehensive loss	$ (26,993)	$ (28,070)	$ (29,377)

See accompanying notes.

GERON CORPORATION

STATEMENTS OF STOCKHOLDERS' EQUITY

	Common Stock		Additional Paid-In	Accumulated	Accumulated Other Comprehensive	Total Stockholders'
	Shares	Amount	Capital	Deficit	Loss	Equity
	(In thousands, except share data)					
Balances at December 31, 2015	158,781,359	$ 159	$ 1,070,567	$ (928,387)	$ (213)	$ 142,126
Net loss	—	—	—	(29,537)	—	(29,537)
Other comprehensive income	—	—	—	—	160	160
Stock-based compensation related to issuance of common stock and options in exchange for services	21,541	—	156	—	—	156
Issuances of common stock under equity plans	355,736	—	1,169	—	—	1,169
Stock-based compensation for equity-based awards to employees and directors	—	—	8,245	—	—	8,245
401(k) contribution	—	—	61	—	—	61
Balances at December 31, 2016	159,158,636	159	1,080,198	(957,924)	(53)	122,380
Net loss	—	—	—	(27,916)	—	(27,916)
Other comprehensive loss	—	—	—	—	(154)	(154)
Issuance of common stock in connection with at market offering, net of issuance costs of $114	614,230	1	1,059	—	—	1,060
Stock-based compensation related to issuance of common stock and options in exchange for services	72,066	—	200	—	—	200
Issuances of common stock under equity plans	32,307	—	51	—	—	51
Stock-based compensation for equity-based awards to employees and directors	—	—	8,144	—	—	8,144
401(k) contribution	—	—	32	—	—	32
Balances at December 31, 2017	159,877,239	160	1,089,684	(985,840)	(207)	103,797
Cumulative effect of accounting principle change	—	—	—	1,393	—	1,393
Net loss	—	—	—	(27,017)	—	(27,017)
Other comprehensive income	—	—	—	—	24	24
Issuance of common stock in connection with at market offering, net of issuance costs of $2,282	23,278,185	23	85,994	—	—	86,017
Stock-based compensation related to issuance of common stock and options in exchange for services	73,980	—	191	—	—	191
Issuances of common stock under equity plans	3,163,278	3	6,948	—	—	6,951
Stock-based compensation for equity-based awards to employees and directors	—	—	6,368	—	—	6,368
401(k) contribution	—	—	9	—	—	9
Balances at December 31, 2018	186,392,682	$ 186	$ 1,189,194	$(1,011,464)	$ (183)	$ 177,733

See accompanying notes.

GERON CORPORATION

STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
	2018	2017	2016
	(In thousands)		
Cash flows from operating activities:			
Net loss	$ (27,017)	$ (27,916)	$ (29,537)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	59	76	81
Loss (gain) on retirement/sales of property and equipment	—	5	(16)
Accretion and amortization on investments, net	(978)	273	552
Change in fair value of equity investment, including foreign currency translation	604	—	—
Stock-based compensation for services by non-employees	191	200	156
Stock-based compensation for employees and directors	6,368	8,144	8,245
Amortization related to 401(k) contributions	9	32	61
Changes in assets and liabilities:			
Interest and other receivables	(528)	39	731
Prepaid assets	(752)	(56)	123
Accounts payable	479	278	65
Accrued compensation and benefits	(743)	542	(183)
Amount due to Janssen Biotech, Inc.	908	(1,665)	1,039
Accrued liabilities	391	(508)	314
Net cash used in operating activities	(21,009)	(20,556)	(18,369)
Cash flows from investing activities:			
Purchases of property and equipment	(16)	—	(57)
Proceeds from sales of property and equipment	—	—	16
Purchases of marketable securities	(188,365)	(100,006)	(129,250)
Proceeds from maturities of marketable securities	110,663	122,976	138,054
Net cash (used in) provided by investing activities	(77,718)	22,970	8,763
Cash flows from financing activities:			
Proceeds from issuances of common stock under equity plans	6,951	51	1,169
Proceeds from issuances of common stock from financings	86,017	1,060	—
Net cash provided by financing activities	92,968	1,111	1,169
Net (decrease) increase in cash, cash equivalents and restricted cash	(5,759)	3,525	(8,437)
Cash, cash equivalents and restricted cash at the beginning of the period	16,603	13,078	21,515
Cash, cash equivalents and restricted cash at the end of the period	$ 10,844	$ 16,603	$ 13,078

See accompanying notes.

1. ORGANIZATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Organization

Geron Corporation, or we or Geron, was incorporated in the State of Delaware on November 28, 1990. We are a late-stage clinical biopharmaceutical company that is focused on the development and commercialization of innovative therapeutics for hematologic myeloid malignancies. We have global rights to imetelstat, a first-in-class telomerase inhibitor, that was discovered and developed at Geron. Principal activities to date have included obtaining financing, securing operating facilities and conducting research and development. In November 2014, we entered into an exclusive collaboration and license agreement, or the Collaboration Agreement, with Janssen Biotech, Inc., or Janssen, to develop and commercialize imetelstat worldwide for all indications in oncology, including hematologic myeloid malignancies, and all other human therapeutic uses. Janssen terminated the Collaboration Agreement effective September 28, 2018. Upon the effective date of termination, we regained the global rights to the imetelstat program. Under the termination provisions of the Collaboration Agreement, Janssen is required to provide certain operational support for the imetelstat program during transition of the program to us. The transition process is expected to occur through September 2019. Each company is responsible for costs incurred related to transition activities unless otherwise specified in the Collaboration Agreement. See Note 4 on License Agreements for additional information on the former Collaboration Agreement with Janssen.

Prior Period Reclassifications

With the adoption of Accounting Standards Update, or ASU, No. 2016-18, Statement of Cash Flows (Topic 230) Restricted Cash, or ASU No. 2016-18, the prior period presentation of cash and cash equivalents in the statements of cash flows has been updated to conform with current period presentation. See "New Accounting Pronouncements – Recently Adopted" in this Note 1 for further discussion of the adoption of ASU No. 2016-18. In addition, the prior period presentation of certain cash flows from financing activities in the statements of cash flows has been updated to conform with current period presentation.

Net Loss Per Share

Basic net income (loss) per share is calculated by dividing net income (loss) by the weighted-average number of shares of common stock outstanding during the periods presented, without consideration for potential common shares. Diluted net income per share would be calculated by adjusting the weighted-average number of shares of common stock outstanding for the dilutive effect of potential common shares outstanding for the periods presented, as determined using the treasury-stock method. Potential dilutive securities consist of outstanding stock options and a warrant to purchase our common stock. Diluted net loss per share excludes potential dilutive securities outstanding for all periods presented as their effect would be anti-dilutive. Accordingly, basic and diluted net loss per share is the same for all periods presented in the accompanying statements of operations. Since we incurred a net loss for 2018, 2017 and 2016, the diluted net loss per share calculation excludes potential dilutive securities of 27,823,845, 22,946,422 and 19,663,180, respectively, related to outstanding stock options and warrants as their effect would have been anti-dilutive.

Use of Estimates

The accompanying financial statements have been prepared in accordance with U.S. generally accepted accounting principles, or GAAP. The preparation of financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. On an ongoing basis, we evaluate our estimates, including those related to accrued liabilities, revenue recognition, fair value of marketable securities and equity investments, income taxes, and stock-based compensation. We base our estimates on historical experience and on various other market specific and relevant assumptions that we believe to be reasonable under the circumstances. Actual results could differ from those estimates.

Fair Value of Financial Instruments

Cash Equivalents and Marketable Securities

We consider all highly liquid investments with an original maturity of three months or less to be cash equivalents. We are subject to credit risk related to our cash equivalents and marketable securities. Our marketable debt securities include U.S. government-sponsored enterprise securities, commercial paper and corporate notes.

We classify our marketable debt securities as available-for-sale. We record available-for-sale debt securities at fair value with unrealized gains and losses reported in accumulated other comprehensive income (loss) in stockholders' equity. Realized gains and losses are included in interest and other income and are derived using the specific identification method for determining the cost of securities sold and have been insignificant to date. Dividend and interest income are recognized when earned and included in interest and other income in our statements of operations. We recognize a charge when the declines in the fair values below the amortized cost bases of our available-for-sale securities are judged to be other-than-temporary. We consider various factors in determining whether to recognize an other-than-temporary charge, including whether we intend to sell the security or whether it is more likely than not that we would be required to sell the security before recovery of the amortized cost basis. Declines in market value judged as other-than-temporary result in a charge to interest and other income. We have not recorded any other-than-temporary impairment charges on our available-for-sale securities for the years ended December 31, 2018, 2017 and 2016. See Note 2 on Fair Value Measurements.

Equity Investments

With the adoption of ASU No. 2016-01, *Financial Instruments - Overall: Recognition and Measurement of Financial Assets and Financial Liabilities*, or ASU 2016-01, beginning January 1, 2018, we measure our investment in equity securities at fair value at each reporting period. Changes in fair value resulting from observable price changes are included in change in fair value of equity investment and changes in fair value resulting from foreign currency translation are included in other expense in our statements of operations. See "New Accounting Pronouncements – Recently Adopted" in this Note 1 for additional information on the adoption of ASU 2016-01.

Revenue Recognition

Beginning January 1, 2018, we recognize revenue in accordance with the provisions of Accounting Standards Codification Topic 606, *Revenue from Contracts with Customers*, or Topic 606. In determining the appropriate amount and timing of revenue to be recognized under this guidance, we perform the following five steps: (i) identify the contract(s) with our customer; (ii) identify the promised goods or services in the agreement and determine whether they are performance obligations, including whether they are distinct in the context of the agreement; (iii) measure the transaction price, including the constraint on variable consideration; (iv) allocate the transaction price to the performance obligations based on stand-alone selling prices; and (v) recognize revenue when (or as) we satisfy each performance obligation. See "New Accounting Pronouncements – Recently Adopted" in this Note 1 for further discussion of the adoption of Topic 606.

A performance obligation is a promise in an agreement to transfer a distinct good or service to the customer and is the unit of account in Topic 606. Significant management judgment is required to determine the level of effort required and the period over which completion of the performance obligations is expected under an agreement. If reasonable estimates regarding when performance obligations are either complete or substantially complete cannot be made, then revenue recognition is deferred until a reasonable estimate can be made. Revenue is then recognized over the remaining estimated period of performance using the cumulative catch-up method.

We allocate the total transaction price to each performance obligation based on the estimated relative stand-alone selling prices of the promised goods or services underlying each performance obligation. Estimated selling prices for license rights are calculated using an income approach model and include the following key assumptions, judgments and estimates: the development timeline, revenue forecast, commercialization expenses, discount rate and probabilities of technical and regulatory success.

Following is a description of the principal activities from which we generate revenue. License fees and royalty revenue primarily represent amounts earned under agreements that out-license our technology to various companies.

License and/or Collaboration Agreements

We have entered into several license agreements with various oncology, diagnostics, research tools and biologics production companies. Economic terms in these agreements may include non-refundable upfront license payments in cash or equity securities, annual license maintenance fees, cost sharing arrangements, milestone payments, royalties on future sales of products, or any combination of these items. Non-refundable upfront fees, annual license maintenance fees and funding of research and development activities are considered fixed, while milestone payments and royalties are identified as variable consideration.

Licenses of Intellectual Property. If we determine the license to intellectual property is distinct from the other performance obligations identified in the agreement and the licensee can use and benefit from the license, we recognize revenue from non-refundable upfront fees allocated to the license upon the completion of the transfer of the license to the licensee. For such licenses, we recognize revenue from annual license maintenance fees upon the start of the new license period. For licenses that are bundled with other performance obligations, we assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress for purposes of recognizing revenue from non-refundable upfront fees or annual license maintenance fees. At each reporting period, we reassess the progress and, if necessary, adjust the measure of performance and related revenue recognition.

Milestone Payments. At the inception of each agreement that includes milestone payments, we evaluate whether the milestones are considered probable of being achieved and estimate the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the value of the associated milestone is included in the transaction price. For milestones that we do not deem to be probable of being achieved, the associated milestone payments are fully constrained and the value of the milestone is excluded from the transaction price with no revenue being recognized. Milestone payments that are not within our control, such as regulatory-related accomplishments, are not considered probable of being achieved until those accomplishments have been communicated by the relevant regulatory authority. Once the assessment of probability of achievement becomes probable, we recognize revenue for the milestone payment. At each reporting period, we assess the probability of achievement of each milestone under our current agreements.

Royalties. For agreements with sales-based royalties, including milestone payments based on the level of sales, where the license is deemed to be the predominant item to which the royalties relate, we recognize revenue at the later of (a) when the related sales occur, or (b) when the performance obligation, to which some or all of the royalty has been allocated, has been satisfied (or partially satisfied). At each reporting period, we estimate the sales incurred by each licensee based on historical experience and accrue the associated royalty amount.

Cost Sharing Arrangements. Research and development and other expenses being shared by both parties under an agreement are recorded as earned or owed based on the performance obligations by both parties under the respective agreement. For arrangements in which we and our collaboration partner in the agreement are exposed to significant risks and rewards that depend on the commercial success of the activity, we recognize payments between the parties on a net basis and record such amounts as a reduction or addition to research and development expense. For arrangements in which we have agreed to perform certain research and development services for our collaboration partner and are not exposed to significant risks and rewards that depend on the commercial success of the activity, we recognize the respective cost reimbursements as revenue under the collaborative agreement over time in a manner proportionate to the costs we incurred to perform the services using the input method.

Restricted Cash

Restricted cash consists of funds maintained in a separate certificate of deposit account for credit card purchases.

Research and Development Expenses

Research and development expenses consist of expenses incurred in identifying, developing and testing product candidates resulting from our independent efforts as well as efforts associated with collaborations. These expenses include, but are not limited to, in-process research and development acquired in an asset acquisition and deemed to have no alternative future use, payroll and personnel expense, lab supplies, non-clinical studies, clinical trials, including support for investigator-sponsored clinical trials, raw materials to manufacture clinical trial drugs, manufacturing costs for research and clinical trial materials, sponsored research at other labs, consulting, costs to maintain technology licenses, our proportionate share of research and development costs under cost-sharing arrangements with collaboration partners and research-related overhead. Research and development costs are expensed as incurred, including costs incurred under our collaboration and/or license agreements.

Until the sponsorship responsibilities for imetelstat transfer from Janssen to us, including the U.S. Investigational New Drug, or IND, application and all foreign regulatory applications, Janssen will continue conducting ongoing clinical trials of imetelstat during the transition of the program to us. For the clinical development activities being conducted by Janssen under the Collaboration Agreement, which was terminated effective September 28, 2018, we monitor patient enrollment levels and related activities to the extent possible through discussions with Janssen personnel and base our estimates of clinical trial costs on the best information available at the time. However, additional information may become available to us which would allow us to make a more accurate estimate in future periods. In this event, we may be required to record adjustments to research and development expenses in future periods when the actual level of activity becomes more certain.

Depreciation and Amortization

We record property and equipment at cost and calculate depreciation using the straight-line method over the estimated useful lives of the assets, generally four years. Leasehold improvements are amortized over the shorter of the estimated useful life or remaining term of the lease.

Stock-Based Compensation

We maintain various stock incentive plans under which stock options and restricted stock awards are granted to employees, directors and consultants. We also have an employee stock purchase plan for all eligible employees. We recognize stock-based compensation expense based on the grant-date fair values of service-based instruments on a straight-line basis over the requisite service period, which is generally the vesting period. For performance-based stock options with vesting based on the achievement of certain strategic milestones, stock-based compensation expense is recognized over the period from the date the performance condition is determined to be probable of occurring through the date the applicable condition is expected to be met and is reduced for estimated forfeitures, as applicable. If the performance condition is not considered probable of being achieved, no stock-based compensation expense is recognized until such time as the performance condition is considered probable of being met, if at all. If that assessment of the probability of the performance condition being met changes, the impact of the change in estimate would be recognized in the period of the change. The determination of grant-date fair values for our service-based and performance-based stock options and employee stock purchases using the Black Scholes option-pricing model is affected by our stock price as well as assumptions regarding a number of complex and subjective variables. The grant-date fair value for service-based restricted stock awards is determined using the fair value of our common stock on the date of grant.

For our non-employee stock-based awards, the measurement date on which the fair value of the stock-based award is calculated is equal to the earlier of: (i) the date at which a commitment for performance by the counterparty to earn the equity instrument is reached or (ii) the date at which the counterparty's performance is complete. We recognize stock-based compensation expense for the fair value of the vested portion of non-employee stock-based awards in our statements of operations. For additional information, see Note 7 on Stockholders' Equity.

Accumulated Other Comprehensive Loss

Accumulated other comprehensive loss includes certain changes in stockholders' equity which are excluded from net income (loss). Accumulated other comprehensive loss on our balance sheets as of December 31, 2018 and 2017 is solely comprised of net unrealized gains and losses on marketable securities.

Income Taxes

We maintain deferred tax assets and liabilities that reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes and are subject to tests of recoverability. Our deferred tax assets include net operating loss carryforwards, research credits and capitalized research and development. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. Our net deferred tax asset has been fully offset by a valuation allowance because of our history of losses. Any potential accrued interest and penalties related to unrecognized tax benefits would be recorded as income tax expense.

Concentrations of Customers and Suppliers

The majority of our revenues was earned in the United States. Two customers accounted for approximately 59% and 39% of our 2018 and 2017 revenues, respectively. Approximately 81% of our 2016 revenues represented an upfront payment from Janssen Pharmaceuticals, Inc., or Janssen Pharmaceuticals, in connection with a license agreement signed in September 2016, or the License Agreement.

Segment Information

Our executive management team represents our chief decision maker. We view our operations as a single segment, the development of therapeutic products for oncology. As a result, the financial information disclosed herein materially represents all of the financial information related to our principal operating segment.

Recent Accounting Pronouncements

New Accounting Pronouncements – Recently Adopted

In May 2014, the Financial Accounting Standards Board, or FASB, issued ASU No. 2014-09, which amends the guidance for accounting for revenue from contracts with customers. This ASU superseded the revenue recognition requirements in Accounting Standards Codification Topic 605, *Revenue Recognition*, or Topic 605, and created Topic 606.

We adopted Topic 606 on January 1, 2018 using the modified retrospective transition method for those agreements which were not completed as of January 1, 2018. Financial results for the reporting periods beginning after January 1, 2018 are presented under Topic 606, while prior period amounts have not been adjusted and continue to be reported in accordance with our historical accounting under Topic 605.

In connection with the adoption of Topic 606, we recognized a cumulative-effect adjustment to our opening balance of accumulated deficit and an increase to interest and other receivables of $204,000 as of January 1, 2018 for projected sales-based royalties on product sales occurring in 2017 for which payments had not yet been received as of December 31, 2017. Such royalties were recognized as revenue in prior periods when payments were received from our licensees. In accordance with Topic 606-10-50-14a, we have elected to exclude providing further information about our sales-based royalties.

The adoption of Topic 606 did not result in any changes to the estimated transaction price or the performance obligations for current agreements or the amounts allocated to satisfied performance obligations. We do not have any deferred revenue associated with unsatisfied performance obligations. Since we view our operations as a single segment and all of our revenues are recognized at a point in time from similar license agreements, disaggregated revenue disclosures would not materially provide additional information. In 2018, the application of Topic 606 did not have a material impact on our financial results in comparison to results that would have been realized if we had continued to apply Topic 605. Additionally, we do not expect the application of Topic 606 to have a material impact on our financial results on an ongoing basis in comparison to results that would have been realized if we had continued to apply Topic 605.

In January 2016, the FASB issued ASU 2016-01 which requires equity investments to be measured at fair value with changes in fair value recognized in the statements of operations. To further clarify ASU 2016-01, the FASB issued ASU No. 2018-03, *Technical Corrections and Improvements to Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*, or ASU 2018-03, in February 2018. ASU 2018-03 requires application of a prospective transition approach only for those equity investments for which the new measurement alternative is being applied. We adopted ASU 2016-01 and ASU 2018-03 on January 1, 2018 using the modified retrospective transition method and recognized a cumulative-effect adjustment to our opening balance of accumulated deficit and other assets for the fair value of our equity investment in Sienna Cancer Diagnostics Limited, or Sienna. In accordance with ASU 2016-01, we remeasured the fair value of our equity investment in Sienna at each reporting date in 2018 and included the change in fair value resulting from observable price changes in change in fair value of equity investment and the change in fair value resulting from foreign currency translation in other expense in our statements of operations. See Note 2 on Fair Value Measurements for additional information on our equity investment in Sienna.

The cumulative-effect adjustments to our January 1, 2018 balance sheet for the adoption of Topic 606 and ASU 2016-01 and ASU 2018-03 were as follows (in thousands):

Balance Sheet	Balance at December 31, 2017	Adjustments Due to Topic 606	Adjustments Due to ASU 2016-01 and ASU 2018-03	Balance at January 1, 2018
Assets:				
Interest and other receivables	$ 436	$ 204	$ —	$ 640
Other assets	$ —	$ —	$ 1,189	$ 1,189
Stockholders' Equity:				
Accumulated deficit	$ (985,840)	$ 204	$ 1,189	$ (984,447)

As of January 1, 2018, we also adopted ASU No. 2016-15, *Classification of Certain Cash Receipts and Cash Payments*, ASU No. 2016-18, *Statement of Cash Flows (Topic 230) Restricted Cash*, and ASU No. 2017-09, *Compensation — Stock Compensation: Scope of Modification Accounting*. With the adoption of ASU No. 2016-18, changes in the total of cash, cash equivalents and restricted cash are presented in our statements of cash flows. The adoption of these new standards did not have a material impact on our financial statements and related disclosures.

New Accounting Pronouncements – Issued But Not Yet Adopted

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*, or ASU 2016-02. ASU 2016-02 requires an entity to recognize a right-of-use asset and lease liability for all lease arrangements with terms of more than 12 months, measured at the present value of the lease payments. Recognition, measurement and presentation of expenses will depend on classification as a finance or operating lease. Certain quantitative and qualitative disclosures about leasing arrangements also are required. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. Early adoption is permitted. The updated guidance requires a modified retrospective adoption. In July 2018, the FASB issued ASU 2018-11, *Leases (Topic 842): Targeted Improvements*, or ASU 2018-11. In issuing ASU 2018-11, the FASB decided to provide another transition method in addition to the existing transition method by allowing entities to initially apply the new leases standard at the adoption date and recognize a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. We adopted ASU 2016-02 on January 1, 2019 using the modified retrospective method as allowed under ASU 2018-11 by recording a cumulative-effect adjustment to the opening balance of retained earnings on January 1, 2019. In evaluating the impact of adopting the new lease guidance, we have determined that our current operating lease for our office space will require us to record an asset and an obligation for the arrangement of approximately $719,000 upon adoption of ASU 2016-02. We have also evaluated other rental and equipment service contracts and believe such agreements do not contain any embedded lease arrangements. We will elect the practical expedients upon transition that will retain the lease classification and initial direct costs for any leases that existed prior to the adoption of these standards.

In June 2016, the FASB issued ASU 2016-13, *Measurement of Credit Losses on Financial Instruments*, or ASU 2016-13. The main objective of ASU 2016-13 is to provide financial statement users with more decision-useful information about an entity's expected credit losses on financial instruments and other commitments to extend credit at each reporting date. To achieve this objective, the amendments in this update replace the incurred loss impairment methodology currently used today with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to develop credit loss estimates. Subsequent to issuing ASU 2016-13, the FASB issued ASU 2018-19, *Codification Improvements to Topic 326, Financial Instruments - Credit Losses*, for the purpose of clarifying certain aspects of ASU 2016-13. ASU 2018-19 has the same effective date and transition requirements as ASU 2016-13. ASU 2016-13 will be effective for fiscal years beginning after December 15, 2019, using a modified retrospective approach. Early adoption is permitted. We do not expect the adoption of this standard to have a material impact on our financial statements.

In June 2018, the FASB issued ASU 2018-07, *Improvements to Nonemployee Share-Based Payment Accounting*, or ASU 2018-07, to simplify the accounting for share-based payments to nonemployees by aligning it with the accounting for share-based payments to employees, with certain exceptions. The new guidance applies to nonemployee awards issued in exchange for goods or services used or consumed in an entity's own operations. There are no new disclosure requirements. The new guidance is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. Early adoption is permitted, including in an interim period for which financial statements have not been issued. We adopted ASU 2018-07 on January 1, 2019. Since all of our share-based payments to nonemployees were fully vested as of the adoption date, we do not anticipate that the adoption of ASU 2018-07 will have a material impact on our financial statements.

In August 2018, the FASB issued ASU 2018-13, *Disclosure Framework — Changes to the Disclosure Requirements for Fair Value Measurement,* which modifies the disclosure requirements on fair value measurements. The new standard is effective for fiscal years beginning after December 15, 2019, and early adoption is permitted. We plan to adopt ASU 2018-13 as of January 1, 2020. While we continue to assess the potential impact of this standard, we do not expect the adoption of this standard to have a material impact on our financial statements.

In August 2018, the Securities and Exchange Commission issued Release No. 33-10532 that amends and clarifies certain financial reporting requirements. The principal change to our financial reporting will be the inclusion of the annual disclosure requirement of changes in stockholders' equity in Rule 3-04 of Regulation S-X to interim periods. We will adopt this new rule beginning with our financial reporting for the quarter ending March 31, 2019. Upon adoption, we will include a Statement of Stockholders' Equity with each quarterly filing on Form 10-Q.

In November 2018, the FASB issued ASU 2018-18, *Collaborative Arrangements (Topic 808): Clarifying the Interaction Between Topic 808 and Topic 606*. The amended guidance precludes presenting consideration from a transaction in a collaborative arrangement as revenue from contracts with customers if the counterparty is not a customer for that transaction. The new guidance is effective for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. Early adoption is permitted. We plan to adopt ASU 2018-18 as of January 1, 2020. We do not expect the adoption of ASU 2018-18 to have a material impact on our financial statements given the termination of the Collaboration Agreement in September 2018.

2. FAIR VALUE MEASUREMENTS

Cash Equivalents and Marketable Securities

Cash equivalents, restricted cash and marketable securities by security type at December 31, 2018 were as follows:

(In thousands)	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Included in cash and cash equivalents:				
Money market funds	$ 7,003	$ —	$ —	$ 7,003
Restricted cash:				
Certificate of deposit	$ 269	$ —	$ —	$ 269
Marketable securities:				
Commercial paper (due in less than one year)	$ 57,594	$ 22	$ (29)	$ 57,587
Corporate notes (due in less than one year)	95,238	7	(118)	95,127
Corporate notes (due in one to two years)	18,647	—	(65)	18,582
	$ 171,479	$ 29	$ (212)	$ 171,296

Cash equivalents, restricted cash and marketable securities by security type at December 31, 2017 were as follows:

(In thousands)	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Included in cash and cash equivalents:				
Money market funds	$ 11,030	$ —	$ —	$ 11,030
Commercial paper	2,242	—	—	2,242
Corporate notes	1,750	—	(1)	1,749
	$ 15,022	$ —	$ (1)	$ 15,021
Restricted cash:				
Certificate of deposit	$ 268	$ —	$ —	$ 268
Marketable securities:				
Government-sponsored enterprise securities (due in less than one year)	$ 12,500	$ —	$ (40)	$ 12,460
Commercial paper (due in less than one year)	10,928	4	(1)	10,931
Corporate notes (due in less than one year)	55,067	—	(107)	54,960
Corporate notes (due in one to two years)	14,303	—	(62)	14,241
	$ 92,798	$ 4	$ (210)	$ 92,592

Cash equivalents and marketable securities with unrealized losses that have been in a continuous unrealized loss position for less than 12 months and 12 months or longer at December 31, 2018 and 2017 were as follows:

	Less Than 12 Months		12 Months or Greater		Total	
(In thousands)	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses
As of December 31, 2018:						
Commercial paper (due in less than one year)	$ 22,628	$ (29)	$ —	$ —	$ 22,628	$ (29)
Corporate notes (due in less than one year)	66,557	(82)	14,221	(36)	80,778	(118)
Corporate notes (due in one to two years)	18,582	(65)	—	—	18,582	(65)
	$ 107,767	$ (176)	$ 14,221	$ (36)	$ 121,988	$ (212)
As of December 31, 2017:						
Government-sponsored enterprise securities (due in less than one year)	$ —	$ —	$ 12,460	$ (40)	$ 12,460	$ (40)
Commercial paper (due in less than one year)	7,717	(1)	—	—	7,717	(1)
Corporate notes (due in less than one year)	55,210	(106)	1,499	(2)	56,709	(108)
Corporate notes (due in one to two years)	14,241	(62)	—	—	14,241	(62)
	$ 77,168	$ (169)	$ 13,959	$ (42)	$ 91,127	$ (211)

The gross unrealized losses related to government-sponsored enterprise securities, commercial paper and corporate notes as of December 31, 2018 and 2017 were due to changes in interest rates. We determined that the gross unrealized losses on our cash equivalents and marketable securities as of December 31, 2018 and 2017 were temporary in nature. We review our investments quarterly to identify and evaluate whether any investments have indications of possible impairment. Factors considered in determining whether a loss is temporary include the length of time and extent to which the fair value has been less than the cost basis and whether we intend to sell the security or whether it is more likely than not that we would be required to sell the security before recovery of the amortized cost basis. We currently do not intend to sell these securities before recovery of their amortized cost bases.

Fair Value on a Recurring Basis

We categorize financial instruments recorded at fair value on our balance sheets based upon the level of judgment associated with inputs used to measure their fair value. The categories are as follows:

Level 1 — Inputs are unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date. An active market for the asset or liability is a market in which transactions for the asset or liability occur with sufficient frequency and volume to provide pricing information on an ongoing basis.

Level 2 — Inputs (other than quoted market prices included in Level 1) are either directly or indirectly observable for the asset or liability through correlation with market data at the measurement date and for the duration of the instrument's anticipated life.

Level 3 — Inputs reflect management's best estimate of what market participants would use in pricing the asset or liability at the measurement date. Consideration is given to the risk inherent in the valuation technique and the risk inherent in the inputs to the model.

A financial instrument's categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement. Below is a description of the valuation methodologies used for financial instruments measured at fair value on our balance sheets, including the category for such financial instruments.

Money market funds are categorized as Level 1 within the fair value hierarchy as their fair values are based on quoted prices available in active markets. U.S. government-sponsored enterprise securities, commercial paper, corporate notes and equity investments are categorized as Level 2 within the fair value hierarchy as their fair values are estimated by using pricing models, quoted prices of securities with similar characteristics or discounted cash flows.

The following table presents information about our financial instruments that are measured at fair value on a recurring basis as of December 31, 2018 and 2017 and indicates the fair value category assigned.

	Fair Value Measurements at Reporting Date Using			
(In thousands)	Quoted Prices in Active Markets for Identical Assets Level 1	Significant Other Observable Inputs Level 2	Significant Unobservable Inputs Level 3	Total
As of December 31, 2018:				
Money market funds(1)	$ 7,003	$ —	$ —	$ 7,003
Commercial paper(2)	—	57,587	—	57,587
Corporate notes(2)(3)	—	113,709	—	113,709
Equity investment(4)	—	585	—	585
Total	$ 7,003	$ 171,881	$ —	$ 178,884
As of December 31, 2017:				
Money market funds(1)	$ 11,030	$ —	$ —	$ 11,030
Government-sponsored enterprise securities(2)	—	12,460	—	12,460
Commercial paper(1)(2)	—	13,173	—	13,173
Corporate notes(1)(2)(3)	—	70,950	—	70,950
Total	$ 11,030	$ 96,583	$ —	$ 107,613

(1) Included in cash and cash equivalents on our balance sheets.

(2) Included in current portion of marketable securities on our balance sheets.

(3) Included in noncurrent portion of marketable securities on our balance sheets.

(4) Included in other assets on our balance sheets. See “Equity Investment” in this Note 2 for further discussion of this equity investment.

Equity Investment

In December 2007, we received 13,842,625 ordinary shares in Sienna in connection with a license we granted to them for our human telomerase reverse transcriptase, or hTERT, technology for use in human diagnostics. Upon receipt, the shares were recorded at a zero cost basis under the cost method of accounting. On August 3, 2017, Sienna became a publicly traded company on the Australian Securities Exchange Limited, or ASX, under the ticker symbol SDX. In connection with Sienna’s initial public offering under Australian securities regulations, we signed a 24-month trading restriction from the effective date of Sienna’s listing on the ASX. Due to this trading restriction, under the cost method of accounting, we maintained a zero cost basis for our shares in Sienna as of December 31, 2017. With the adoption of ASU 2016-01 and ASU 2018-03 on January 1, 2018, as described in Note 1 on Organization and Summary of Significant Accounting Policies, our equity investment in Sienna must be reported at fair value and therefore, we recorded a cumulative-effect adjustment of $1,189,000 on our balance sheet for the fair value of our shares in Sienna, as measured using the closing stock price reported on the ASX and converted to U.S. dollars as of January 1, 2018. In accordance with ASU 2016-01, we remeasure the fair value of our shares in Sienna at the end of each reporting period, and as of December 31, 2018, the fair value of our shares in Sienna was $585,000, resulting in a decrease in fair value of $604,000 for the year ended December 31, 2018, including a loss of $63,000 related to foreign currency translation.

Credit Risk

We currently place our cash, restricted cash, cash equivalents and marketable securities with four financial institutions in the United States. Generally, these deposits may be redeemed upon demand and therefore, bear minimal risk. Deposits with banks may exceed the amount of insurance provided on such deposits. Financial instruments that potentially subject us to concentrations of credit risk consist primarily of cash equivalents and marketable securities. Cash equivalents and marketable securities currently consist of money market funds, commercial paper and corporate notes. Our investment policy, approved by the audit committee of our board of directors, limits the amount we may invest in any one type of investment issuer, thereby reducing credit risk concentrations.

3. PROPERTY AND EQUIPMENT

Property and equipment, stated at cost, is comprised of the following:

	December 31,	
(In thousands)	2018	2017
Furniture and computer equipment	$ 727	$ 711
Leasehold improvements	111	111
	838	822
Less accumulated depreciation and amortization	(779)	(720)
	$ 59	$ 102

4. LICENSE AGREEMENTS

Janssen Biotech, Inc. Collaboration and License Agreement

On November 13, 2014, we and Janssen entered into the Collaboration Agreement under which we granted to Janssen exclusive worldwide rights to develop and commercialize imetelstat for all human therapeutic uses, including hematologic myeloid malignancies. Upon the effectiveness of the Collaboration Agreement, we received $35,000,000 from Janssen as an upfront payment, which we classified as deferred revenue upon receipt.

Under the Collaboration Agreement, Janssen was wholly responsible for the development, manufacturing, seeking regulatory approval for and commercialization of, imetelstat worldwide. Janssen has been conducting two clinical trials of imetelstat: a Phase 2 trial in myelofibrosis, referred to as IMbark, and a Phase 2/3 trial in myelodysplastic syndromes, referred to as IMerge. Development costs for IMbark and IMerge were shared between us and Janssen on a 50/50 basis. Additionally, under the terms of the Collaboration Agreement, we remained responsible for prosecuting, at Janssen's direction, the patents licensed to Janssen at the time we entered into the Collaboration Agreement, with costs shared between us and Janssen on a 50/50 basis. The cost-sharing arrangement with Janssen began in January 2015.

Janssen terminated the Collaboration Agreement effective September 28, 2018. Upon the effective date of termination, we regained the global rights to the imetelstat program and plan to continue development of imetelstat on our own. As a result of the termination of the Collaboration Agreement, we will not receive any further milestone payments or royalties from Janssen for the development or commercialization of imetelstat, including any clinical development or sales milestones, and Janssen has no further obligations to us or any third parties, such as clinical sites or vendors, to fund any potential future imetelstat clinical trials. Under the termination provisions of the Collaboration Agreement, Janssen is required to provide certain operational support for the imetelstat program during transition of the program to us. The transition process is expected to occur through September 2019 to enable the orderly transfer of all ongoing clinical, regulatory, medical affairs and non-clinical activities to us, including the transfer of the sponsorship of ongoing imetelstat clinical trials from Janssen to us. Each company is responsible for costs incurred related to transition activities unless otherwise specified in the Collaboration Agreement. In addition, Janssen is expected to supply imetelstat to us for up to 24 months during a transition period for clinical manufacturing and such supply will be charged to us at Janssen's cost plus a premium. Until the sponsorship responsibilities for imetelstat transfer from Janssen to us, including the U.S. Investigational New Drug, or IND, application and all foreign regulatory applications, Janssen will continue conducting ongoing clinical trials of imetelstat. After September 28, 2018, the effective termination date of the Collaboration Agreement, our responsibility for imetelstat development costs, including continuing conduct of ongoing clinical trials of imetelstat, and costs for the prosecution of patents that were licensed to Janssen under the Collaboration Agreement increased from 50% to 100%. As of December 31, 2018, the amount due to Janssen of $2,610,000 on our balance sheet primarily represents the amount owed to Janssen for operational support of the imetelstat program for the three months ended December 31, 2018.

Janssen Pharmaceuticals, Inc. License Agreement

On September 15, 2016, we entered into the License Agreement with Janssen Pharmaceuticals whereby we granted to Janssen Pharmaceuticals an exclusive worldwide license, or the Exclusive License, under our proprietary patents for the research, development and commercialization of products based on specialized oligonucleotide backbone chemistry and novel amidates for ribonucleic acid interference, or RNAi, for the prevention, treatment and/or diagnosis of any and all human disorders, excluding cancers originating from the blood or bone marrow, and products whose predominant or primary mechanism of action is telomerase inhibition.

In addition to the Exclusive License, we granted to Janssen Pharmaceuticals a non-exclusive worldwide license, or the Non-Exclusive License, under our patents covering the synthesis of monomers, which are the building blocks of oligonucleotides, and certain know-how necessary for the research, development and commercialization of products under the Exclusive License.

Under the terms of the License Agreement, Janssen Pharmaceuticals, at its sole expense, is required to use reasonable efforts to perform research, development and commercialization activities to obtain at least one licensed product to be researched, developed and commercialized under the License Agreement. We remain responsible for prosecuting the patent rights under the Exclusive License, with reasonable input provided by Janssen Pharmaceuticals, and the costs for such prosecution will be shared between us and Janssen Pharmaceuticals on a 50/50 basis.

Under the terms of the License Agreement, we received $5,000,000 from Janssen Pharmaceuticals as a non-refundable upfront payment. We are also eligible to receive additional potential payments of up to an aggregate maximum total of $75,000,000 for the achievement of certain development and regulatory milestones and tiered royalties in the low single digit percentage range on worldwide net sales of each licensed product commercialized under the License Agreement in any countries where there are valid claims under the patent rights licensed to Janssen Pharmaceuticals.

The License Agreement will remain in effect until the expiration of the last-to-expire patent, unless terminated earlier. Janssen Pharmaceuticals may also terminate the License Agreement at will upon prior written notice to us. In the event of an early termination of the License Agreement, all licenses to Janssen Pharmaceuticals would terminate.

The license rights granted to Janssen Pharmaceuticals are the only performance obligation for us under the License Agreement. In addition, we concluded that Janssen Pharmaceuticals can use and benefit from the license rights without any further performance from us due to their specific knowledge of oligonucleotide chemistry, and sufficient capital to independently research, develop and commercialize products under the License Agreement on a global basis. Accordingly, we fully recognized the $5,000,000 upfront payment from Janssen Pharmaceuticals as license fee revenue on our statements of operations in the third quarter of 2016 upon the completion of the transfer of the license rights to Janssen Pharmaceuticals.

We have determined that each of the additional potential development and regulatory milestone payments to us under the License Agreement represent fully constrained variable consideration under Topic 606 as achievement of these milestones has not been deemed probable as of December 31, 2018. Consequently, we will recognize revenue for each of these payments in their entirety once the assessment of probability of achievement of the related milestone becomes probable. Royalties on potential future product sales under the License Agreement will be recognized as revenue when the related sales occur.

5. ACCRUED LIABILITIES

Accrued liabilities consisted of the following:

	December 31,	
(In thousands)	2018	2017
Professional legal and accounting fees	$ 327	$ 272
Clinical trial costs	529	516
Other	461	138
	$ 1,317	$ 926

6. COMMITMENTS AND CONTINGENCIES

Indemnifications to Officers and Directors

Our corporate bylaws require that we indemnify our directors, as well as those who act as directors and officers of other entities at our request, against expenses, judgments, fines, settlements and other amounts actually and reasonably incurred in connection with any proceedings arising out of their services to Geron. In addition, we have entered into separate indemnification agreements with each of our directors and officers which provide for indemnification of these directors and officers under similar circumstances and under additional circumstances. The indemnification obligations are more fully described in our bylaws and the indemnification agreements. We purchase standard insurance to cover claims or a portion of the claims made against our directors and officers. Since a maximum obligation is not explicitly stated in our bylaws or in our indemnification agreements and will depend on the facts and circumstances that arise out of any future claims, the overall maximum amount of the obligations cannot be reasonably estimated.

Operating Lease Commitment

On September 21, 2017, we amended the lease agreement for our premises at 149 Commonwealth Drive, Menlo Park, California, to extend the lease term from February 2018 through January 2020. As of December 31, 2018, operating lease obligations under the amended lease agreement include aggregate future minimum payments of approximately $757,000, of which payments of approximately $699,000 and $58,000 are due in 2019 and 2020, respectively. Rent expense under our operating leases was approximately $703,000, $691,000 and $708,000 for the years ended December 31, 2018, 2017 and 2016, respectively.

Severance Plan

We have an Amended and Restated Severance Plan, or Severance Plan, that applies to all employees that are not subject to performance improvement plans, and provides for, among other benefits: (i) a severance payment upon a Change of Control Triggering Event and Separation from Service and (ii) a severance payment for each non-executive employee upon a Non-Change of Control Triggering Event and Separation from Service. As defined in the Severance Plan, a Change of Control Triggering Event and Separation from Service requires a “double trigger” where: (i) an employee is terminated by us without cause in connection with a change of control or within 12 months following a change of control provided, however, that if an employee is terminated by us in connection with a change of control but immediately accepts employment with our successor or acquirer, the employee will not be eligible for the benefits outlined in the Severance Plan, (ii) an employee resigns because in connection with a change of control, the offered terms of employment (new or continuing) by us or our successor or acquirer within 30 days after the change of control results in a material change in the terms of employment, or (iii) after accepting (or continuing) employment with us after a change of control, an employee resigns within 12 months following a change of control due to a material change in the terms of employment. Under the Severance Plan, a Non-Change of Control Triggering Event and Separation from Service is defined as an event where a non-executive employee is terminated by us without cause. Severance payments range from two to 18 months of base salary, depending on the employee’s position with us, payable in a lump sum payment. The Severance Plan also provides that the provisions of employment agreements entered into between us and executive or non-executive employees supersede the provisions of the Severance Plan. As of December 31, 2018, all our executive officers have employment agreements with provisions that may provide greater severance benefits than those in the Severance Plan.

Gain on Settlement

From November 2010 to September 2012, we owned 40% of ViaGen, Inc., or ViaGen, a company with in-house breeding services and expertise in advanced reproductive technologies for animal cloning. In September 2012, we and the other shareholders of ViaGen executed a Share Purchase Agreement, or SPA, and sold our equity interests to Trans Ova Genetics, L.C., or Trans Ova. Under the SPA, we and the other ViaGen shareholders would receive potential payments aggregating up to $6,000,000 upon Trans Ova reaching certain commercial milestones. We and the other ViaGen shareholders were also eligible to receive potential proceeds upon the sale by Trans Ova of a non-marketable equity investment originally held by ViaGen. Payments under the SPA would be shared amongst the ViaGen shareholders according to their original equity interests in ViaGen prior to the sale to Trans Ova.

In July 2018, we and the other former shareholders of ViaGen filed an arbitration claim against Trans Ova for alleged violations under the SPA, including failure to make payments under certain conditions. In December 2018, we and the other former shareholders of ViaGen agreed to settle the dispute for a one-time payment of $3,650,000, of which we received $1,460,000, which represents our 40% share of the settlement amount. With this settlement, Trans Ova has been released from any further obligations under the SPA, including any future payments.

7. STOCKHOLDERS' EQUITY

Sales Agreements

On August 28, 2015, we entered into an At Market Issuance Sales Agreement, or the 2015 Sales Agreement, with MLV & Co. LLC, or MLV, under which we could elect to issue and sell shares of our common stock having an aggregate offering price of up to $50,000,000. Pursuant to the 2015 Sales Agreement, common stock was sold at market prices prevailing at the time of sale through MLV as our sales agent. We paid MLV an aggregate commission rate equal to up to 3.0% of the gross proceeds of the sales price per share for common stock sold through MLV under the 2015 Sales Agreement. In December 2017, we sold an aggregate of 614,230 shares of our common stock pursuant to the 2015 Sales Agreement, resulting in net cash proceeds to us of approximately $1,060,000 after deducting sales commissions and offering expenses payable by us. From January 2018 through April 2018, we completed the sale of the remaining common stock subject to the 2015 Sales Agreement and issued an aggregate of 13,195,106 shares of our common stock, resulting in net cash proceeds to us of approximately $47,651,000 after deducting sales commissions and offering expenses payable by us. No further shares of common stock may be sold under the 2015 Sales Agreement.

On May 18, 2018, we entered into an At Market Issuance Sales Agreement, or the 2018 Sales Agreement, with B. Riley FBR, Inc., or B. Riley FBR, pursuant to which we may elect to issue and sell shares of our common stock having an aggregate offering price of up to $100,000,000 in such quantities and on such minimum price terms as we set from time to time through B. Riley FBR as our sales agent. We pay B. Riley FBR an aggregate commission rate equal to up to 3.0% of the gross proceeds of the sales price per share for common stock sold through B. Riley FBR under the 2018 Sales Agreement. From May 2018 through July 2018, we sold an aggregate of 10,083,079 shares of our common stock pursuant to the 2018 Sales Agreement, resulting in net cash proceeds to us of approximately $38,366,000 after deducting sales commissions and offering expenses payable by us. The 2018 Sales Agreement will expire upon the earlier of: (a) the sale of all common stock subject to the 2018 Sales Agreement and (b) May 18, 2021.

Warrant

In connection with each disbursement under a previous loan agreement with the California Institute for Regenerative Medicine, or CIRM, we were obligated to issue to CIRM a warrant to purchase Geron common stock. Such warrants and the underlying common stock were unregistered. We have no further obligations to issue any additional warrants to CIRM. As of December 31, 2018, a warrant to purchase 537,893 shares of our common stock remained outstanding. The warrant was issued to CIRM in August 2011 at an exercise price of $3.98 per share and expires in August 2021.

Equity Plans

2002 Equity Incentive Plan

The 2002 Equity Incentive Plan, or 2002 Plan, expired in May 2012. Upon the adoption of the 2011 Incentive Award Plan in May 2011 (see below), no further grants of options or stock purchase rights were made from the 2002 Plan. Options granted under the 2002 Plan expire no later than ten years from the date of grant. Option exercise prices were equal to 100% of the fair market value of the underlying common stock on the date of grant. Service-based stock options under the 2002 Plan generally vested over a period of four years from the date of the option grant. Other stock awards (restricted stock awards and restricted stock units) had variable vesting schedules which were determined by our board of directors on the date of grant. All outstanding awards granted under the 2002 Plan remain subject to the terms of the 2002 Plan and the individual award agreements thereunder.

2011 Incentive Award Plan

In May 2011, our stockholders approved the adoption of the 2011 Incentive Award Plan, or 2011 Plan. The 2011 Plan provided for grants of either incentive stock options or nonstatutory stock options and stock purchase rights to employees (including officers and employee directors) and consultants (including non-employee directors). Upon the adoption of the 2018 Equity Incentive Plan in May 2018 (see below), no further grants of options or stock purchase rights were made from the 2011 Plan. Options granted under the 2011 Plan expire no later than ten years from the date of grant. Option exercise prices were equal to the fair market value of the underlying common stock on the date of grant.

Service-based stock options under the 2011 Plan generally vested over a period of four years from the date of the option grant. Other stock awards (restricted stock awards and restricted stock units) had variable vesting schedules which were determined by our board of directors on the date of grant. All outstanding awards granted under the 2011 Plan remain subject to the terms of the 2011 Plan and the individual award agreements thereunder.

Under certain circumstances, options may be exercised prior to vesting, subject to our right to repurchase the shares underlying such option at the exercise price paid per share. Our repurchase rights would generally terminate on a vesting schedule identical to the vesting schedule of the exercised option. During 2018, we have not repurchased any shares under the 2011 Plan. As of December 31, 2018, we have no shares outstanding subject to repurchase under the 2011 Plan.

2018 Equity Incentive Plan

On May 15, 2018, our stockholders approved the adoption of the 2018 Equity Incentive Plan, or 2018 Plan, as the successor to the 2011 Plan. The 2018 Plan provides for the grant of incentive stock options, nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, other stock awards, and performance awards that may be settled in cash, stock, or other property. Eligible participants under the 2018 Plan include our employees, consultants and directors. The number of shares reserved for issuance under the 2018 Plan (subject to adjustment for certain changes in capitalization) is equal to the sum of (i) the unallocated shares of common stock remaining available for grant under the 2011 Plan as of May 15, 2018, (ii) 10,000,000 newly reserved shares of common stock and (iii) the number of shares subject to awards granted under the 2002 Plan, and the 2011 Plan as such shares become available from time to time, referred to as the Prior Plans' Returning Shares. Such Prior Plans' Returning Shares become available for issuance under the 2018 Plan if outstanding stock awards granted under the 2002 Plan and the 2011 Plan, after May 15, 2018, expire or terminate for any reason prior to exercise or settlement or are forfeited, cancelled or otherwise returned to us because of the failure to meet a contingency or condition required for the vesting of such shares, or, subject to certain exceptions, are reacquired or withheld (or not issued) by us to satisfy a tax withholding obligation in connection with a stock award.

Options granted under the 2018 Plan expire no later than ten years from the date of grant. Option exercise prices shall be equal to the fair market value of the underlying common stock on the date of grant. If, at the time we grant an option, the optionee directly or by attribution owns stock possessing more than 10% of the total combined voting power of all classes of our stock, the option exercise price shall be at least 110% of the fair market value of the underlying common stock and shall not be exercisable more than five years after the date of grant.

We grant service-based and performance-based stock options to employees under the 2018 Plan. Service-based options generally vest over a period of four years from the date of the option grant. Performance-based options vest upon the achievement of specified milestones. Other stock awards (restricted stock awards and restricted stock units) have variable vesting schedules as determined by our board of directors on the date of grant.

Under certain circumstances, options may be exercised prior to vesting, subject to our right to repurchase the shares underlying such option at the exercise price paid per share. Our repurchase rights would generally terminate on a vesting schedule identical to the vesting schedule of the exercised option. During 2018, we have not repurchased any shares under the 2018 Plan. As of December 31, 2018, we have no shares outstanding subject to repurchase under the 2018 Plan.

As of December 31, 2018, our Non-Employee Director Compensation Policy adopted by our board of directors in March 2014 and amended by our board of directors in February 2015, May 2015, February 2016, January 2018, May 2018, October 2018 and January 2019 provides for the automatic grant to non-employee directors of the following types of equity awards under the 2018 Plan:

First Director Option. Each person who becomes a non-employee director, whether by election by our stockholders or by appointment by our board of directors to fill a vacancy, will automatically be granted an option to purchase 120,000 shares of common stock, or First Director Option, on the date such person first becomes a non-employee director. The First Director Option vests annually over three years upon each anniversary date of appointment to our board of directors.

Subsequent Director Option. Each non-employee director (other than any director receiving a First Director Option on the date of the annual meeting) will automatically be granted a subsequent option to purchase 70,000 shares of common stock, a Subsequent Director Option, on the date of the annual meeting of stockholders in each year during such director's service on our board of directors. The Subsequent Director Option vests in full on the earlier of: (i) the date of the next annual meeting of our stockholders or (ii) the first anniversary of the date of grant.

2006 Directors' Stock Option Plan

The 2006 Directors' Stock Option Plan, or 2006 Directors Plan, was terminated by our board of directors and replaced by the 2011 Plan in March 2014. No further grants of options were made from the 2006 Directors Plan upon the 2006 Directors Plan's termination. All outstanding awards granted under the 2006 Directors Plan remain subject to the terms of the 2006 Directors Plan and the individual award agreements thereunder.

The options granted to non-employee directors under the 2006 Directors Plan were nonstatutory stock options, and they expire no later than ten years from the date of grant. The option exercise price was equal to the fair market value of the underlying common stock on the date of grant. The First Director Option granted to non-employee directors under the 2006 Directors Plan vested annually over three years upon each anniversary date of appointment to the board of directors. The Subsequent Director Option granted to non-employee directors on the date of the annual meeting of stockholders in each year during such director's service on our board of directors under the 2006 Directors Plan vested one year from the date of grant.

2018 Inducement Award Plan

In December 2018, our board of directors approved the adoption of the 2018 Inducement Award Plan, or the Inducement Plan, pursuant to which we reserved 3,000,000 shares of Geron common stock (subject to customary adjustments in the event of a change in capital structure) to be used exclusively for grants of inducement awards to individuals who were not previously Geron employees or directors, other than following a bona fide period of non-employment. The Inducement Plan provides for the grant of nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock units and other stock awards, and all awards under the Inducement Plan are intended to meet the standards under Rule 5635(c)(4) of the Nasdaq Listing Rules. The terms and conditions of the Inducement Plan and the inducement awards to be granted thereunder are substantially similar to the 2018 Plan. As of December 31, 2018, we had not granted any awards under the Inducement Plan.

Directors' Market Value Stock Purchase Plan

In October 2018, our board of directors adopted a Directors' Market Value Stock Purchase Plan, or the Directors Market Plan. A total of 1,000,000 shares of Geron common stock has been reserved for the Directors Market Plan. Under the Directors Market Plan, non-employee directors may purchase shares of Geron common stock at the prevailing market price on the purchase date with cash compensation payable to them for their services as a board member. As stated in Geron's Non-Employee Director Compensation Policy, each non-employee director receives annual cash compensation, payable quarterly in arrears, for their services on the board and various committees of the board. As provided in the Non-Employee Director Compensation Policy, a non-employee director may elect to receive fully vested shares of common stock in lieu of cash and such shares shall be issuable from the Directors Market Plan. As of December 31, 2018, we have not issued any shares under the Directors Market Plan.

Aggregate option and award activity for the 2002 Plan, 2011 Plan, 2018 Plan, 2006 Directors Plan, Inducement Plan and Directors Market Plan is as follows:

		Outstanding Options			
	Shares Available For Grant	Number of Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Life (In years)	Aggregate Intrinsic Value (In thousands)
Balance at December 31, 2017	6,202,727	22,408,529	$ 2.96		
Additional shares authorized	14,000,000	—	$ —		
Options granted	(9,265,000)	9,265,000 (1)	$ 2.07		
Awards granted	(139,652)	—	$ —		
Options exercised	—	(3,144,878)	$ 2.20		
Options cancelled/forfeited/expired	1,166,324	(1,242,699)	$ 3.48		
Balance at December 31, 2018	11,964,399	27,285,952 (1)	$ 2.72	6.71	$ —
Options exercisable at December 31, 2018		16,464,746	$ 3.13	5.10	$ —
Options fully vested and expected to vest at December 31, 2018		26,293,625	$ 2.75	6.61	$ —

(1) Includes 4,500,000 performance-based stock options that have not achieved certain strategic milestones.

The aggregate intrinsic value in the preceding table represents the total intrinsic value, based on Geron's closing stock price of $1.00 per share as of December 31, 2018, which would have been received by the option holders had all the option holders exercised their options as of that date.

We have not granted any options with an exercise price below or greater than the fair market value of our common stock on the date of grant in 2018, 2017 or 2016. As of December 31, 2018, 2017 and 2016, there were 16,464,746, 17,249,032 and 14,074,457 exercisable options outstanding at weighted average exercise prices per share of $3.13, $3.03 and $2.99, respectively.

The total pretax intrinsic value of stock options exercised during 2018, 2017 and 2016 was $8,812,000, $15,000 and $595,000, respectively. Cash received from the exercise of options in 2018, 2017 and 2016 totaled approximately $6,929,000, $18,000 and $493,000, respectively.

Information about stock options outstanding as of December 31, 2018 is as follows:

	Options Outstanding			
Exercise Price Range	Number of Shares		Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Life (In years)
$1.10 - $1.72	10,290,050		$ 1.61	7.04
$1.73 - $2.45	7,144,384		$ 2.27	7.65
$2.54 - $5.01	8,055,105		$ 3.95	6.06
$5.09 - $7.31	1,796,413		$ 5.33	4.03
$1.10 - $7.31	27,285,952	(1)	$ 2.72	6.71

(1) Includes 4,500,000 performance-based stock options that have not achieved certain strategic milestones.

Aggregate restricted stock activity for the 2011 Plan and the 2018 Plan is as follows:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share	Weighted Average Remaining Contractual Term (In years)
Non-vested restricted stock at December 31, 2017	—	$ —	—
Granted	73,980	$ 1.91	
Vested	(73,980)	$ 1.91	
Non-vested restricted stock at December 31, 2018	—	$ —	—

The weighted average grant date fair value of restricted stock granted during the years ended December 31, 2018, 2017 and 2016 was $1.91, $2.20 and $2.44 per share, respectively. The total fair value of restricted stock that vested during 2018, 2017 and 2016 was $141,000, $159,000 and $54,000, respectively.

Employee Stock Purchase Plan

In March 2014, our board of directors adopted the 2014 Employee Stock Purchase Plan, or 2014 Purchase Plan. The 2014 Purchase Plan was approved by our stockholders in May 2014. The 2014 Purchase Plan replaced the 1996 Employee Stock Purchase Plan, or 1996 Purchase Plan, which was terminated effective as of the date the 2014 Purchase Plan was approved by our stockholders. Under the 2014 Purchase Plan, we are authorized to sell to eligible employees up to an aggregate of 1,000,000 shares of Geron common stock. As of December 31, 2018, an aggregate of 123,092 shares of our common stock have been issued under the 2014 Purchase Plan since its adoption.

The 2014 Purchase Plan is comprised of a series of offering periods, each with a maximum duration (not to exceed 12 months) with new offering periods commencing on January 1st and July 1st of each year. The date an employee enters the offering period will be designated as the entry date for purposes of that offering period. An employee may participate only in one offering period at a time. Each offering period consists of two consecutive purchase periods of six months' duration, with the last day of such period designated a purchase date.

Under the terms of the 2014 Purchase Plan, employees can choose to have up to 10% of their annual salary withheld to purchase our common stock. An employee may not make additional payments into such account or increase the withholding percentage during the offering period.

The purchase price per share at which common stock is purchased by the employee on each purchase date within the offering period is equal to 85% of the lower of (i) the fair market value per share of Geron common stock on the employee's entry date into that offering period or (ii) the fair market value per share of Geron common stock on the purchase date. If the fair market value per share of Geron common stock on the purchase date is less than the fair market value at the beginning of the offering period, a new 12 month offering period will automatically begin on the first business day following the purchase date with a new fair market value.

Stock-Based Compensation for Employees and Directors

We measure and recognize compensation expense for all share-based payment awards made to employees and directors, including employee stock options, restricted stock awards and employee stock purchases, based on grant-date fair values for these instruments. We use the Black Scholes option-pricing model to estimate the grant-date fair value of our service-based and performance-based stock options and employee stock purchases. The fair value for service-based restricted stock awards is determined using the fair value of our common stock on the date of grant.

As stock-based compensation expense recognized in the statements of operations for the years ended December 31, 2018, 2017 and 2016 is based on awards ultimately expected to vest, it has been reduced for estimated forfeitures, but at a minimum, reflects the grant-date fair value of those awards that actually vested in the period. Forfeitures have been estimated at the time of grant based on historical data and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. With the adoption of Accounting Standards Update No. 2016-09, *Improvements to Employee Share Based Payment Accounting*, or ASU 2016-09, in the first quarter of 2017, we elected to continue to estimate forfeitures expected to occur to determine the amount of stock-based compensation expense to be recognized in each period. The adoption of ASU 2016-09 did not impact our accounting for or presentation of excess tax benefits recognized on stock-based compensation expense on our financial statements since our net deferred tax assets are fully offset by a valuation allowance due to our history of operating losses. In addition, presentation requirements for cash flows related to employee taxes paid for withheld shares had no impact to all periods presented.

In 2018, our board of directors awarded performance-based stock options to certain employees. These performance-based stock options are included in the outstanding options table above. Performance-based options vest only upon achievement of discrete strategic milestones. Stock-based compensation expense for performance-based options is recognized over the period from the date the performance condition is determined to be probable of occurring through the date the applicable condition is expected to be met and is reduced for estimated forfeitures, as applicable. If the performance condition is not considered probable of being achieved, no stock-based compensation expense is recognized until such time as the performance condition is considered probable of being met, if ever.

We recognize stock-based compensation expense for service-based stock options on a straight-line basis over the requisite service period, which is generally the vesting period. We have not recognized any stock-based compensation expense for performance-based stock options in our statements of operations for the year ended December 31, 2018, as the achievement of the specified strategic milestones was not considered probable during that time. The following table summarizes the stock-based compensation expense related to service-based stock options, restricted stock awards and employee stock purchases for the years ended December 31, 2018, 2017 and 2016 which was allocated as follows:

	Year Ended December 31,		
(In thousands)	2018	2017	2016
Research and development	$ 949	$ 988	$ 1,275
General and administrative	5,419	7,156	6,970
Stock-based compensation expense included in operating expenses	$ 6,368	$ 8,144	$ 8,245

The fair value of stock options granted in 2018, 2017 and 2016 has been estimated at the date of grant using the Black Scholes option-pricing model with the following assumptions:

	Year Ended December 31,		
	2018	2017	2016
Dividend yield	0%	0%	0%
Expected volatility range	0.821 to 0.990	0.884 to 0.892	0.888 to 0.890
Risk-free interest rate range	2.55% to 3.11%	1.98% to 1.99%	1.21% to 1.38%
Expected term range	5.25 - 6.62 yrs	5.5 yrs	5.5 yrs

The fair value of employee stock purchases in 2018, 2017 and 2016 has been estimated using the Black Scholes option-pricing model with the following assumptions:

	Year Ended December 31,		
	2018	2017	2016
Dividend yield	0%	0%	0%
Expected volatility range	0.437 to 0.475	0.577 to 0.641	0.641 to 0.684
Risk-free interest rate range	1.53% to 1.76%	0.45% to 0.89%	0.28% to 0.45%
Expected term range	6 - 12 mos	6 - 12 mos	6 - 12 mos

Dividend yield is based on historical cash dividend payments and Geron has paid no cash dividends to date. The expected volatility range is based on historical volatilities of our stock since traded options on Geron common stock do not correspond to option terms and the trading volume of options is limited. The risk-free interest rate range is based on the U.S. Zero Coupon Treasury Strip Yields for the expected term in effect on the date of grant for an award. The expected term of options is derived from actual historical exercise and post-vesting cancellation data and represents the period of time that options granted are expected to be outstanding. The expected term of employees' purchase rights is equal to the purchase period.

Based on the Black Scholes option-pricing model, the weighted average estimated fair value of stock options granted during the years ended December 31, 2018, 2017 and 2016 was $1.52, $1.58 and $1.83 per share, respectively. The weighted average estimated fair value of employees' purchase rights for the years ended December 31, 2018, 2017 and 2016 was $0.56, $0.75 and $1.01 per share, respectively. As of December 31, 2018, total compensation cost related to unvested share-based payment awards not yet recognized, net of estimated forfeitures and assuming no probability of achievement for outstanding performance-based stock options, was $8,814,000, which is expected to be recognized over the next 27 months on a weighted-average basis.

401(k) Plan Matching Contributions

We sponsor a defined-contribution savings plan under Section 401(k) of the Internal Revenue Code covering all full-time U.S. employees, or the Geron 401K Plan. Participating employees may contribute up to the annual Internal Revenue Service contribution limit. The Geron 401K Plan also permits us to provide discretionary matching and profit sharing contributions. Prior to 2014, our board of directors approved matching contributions for the Geron 401K Plan in our common stock, which vested ratably over four years for each year of service completed by our employees, commencing from the date of hire.

Stock-Based Compensation to Service Providers

We grant stock options and restricted stock awards to consultants from time to time in exchange for services performed for us. In general, the stock options and restricted stock awards vest over the contractual period of the consulting arrangement. The fair value of stock options and restricted stock awards held by consultants is recorded as operating expenses over the vesting term of the respective equity awards. In addition, we will record any increase in the fair value of the stock options and restricted stock awards as the respective equity award vests. We recorded stock-based compensation expense of $50,000, $41,000 and $104,000 for the vested portion of the fair value of stock options and restricted stock awards held by consultants in 2018, 2017 and 2016, respectively.

We have also issued common stock to non-employee directors and consultants. For stock issuances where services are to be performed for us, we record a prepaid asset equal to the fair market value of the shares on the date of issuance and amortize the fair value of the shares to our operating expenses on a pro-rata basis as services are performed. For stock issuances where services have been performed for us, we record the fair market value of the shares on the date of issuance to offset the amounts owed. In 2018, 2017 and 2016, we issued 73,980, 72,066 and 21,541 shares of common stock, respectively, in exchange for services provided. In 2018, 2017 and 2016, we recognized approximately $141,000, $159,000 and $52,000, respectively, of expense in connection with stock grants to non-employee directors and consultants.

Common Stock Reserved for Future Issuance

Common stock reserved for future issuance as of December 31, 2018 is as follows:

Outstanding stock options	27,285,952
Options and awards available for grant	11,964,399
Employee stock purchase plan	876,908
Warrant outstanding	537,893
Total	40,665,152

8. INCOME TAXES

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of our deferred tax assets are as follows:

	December 31,	
	2018	2017
	(In thousands)	
Net operating loss carryforwards	$ 192,100	$ 187,700
Research credits	35,500	34,300
Capitalized research and development	2,500	2,500
License fees	—	100
Other-net	7,000	8,200
Total deferred tax assets	237,100	232,800
Valuation allowance for deferred tax assets	(237,100)	(232,800)
Net deferred tax assets	$ —	$ —

We record net deferred tax assets to the extent we believe these assets will more likely than not be realized. In making such determination, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies and recent financial performance. Forming a conclusion that a valuation allowance is not required is difficult when there is negative evidence such as cumulative losses in recent years. Because of our history of losses, the net deferred tax assets have been fully offset by a valuation allowance. The valuation allowance increased by $4,300,000 and $9,600,000 for the years ended December 31, 2018 and 2016, respectively, and decreased by $89,400,000 during the year ended December 31, 2017. No income tax benefit was realized from stock options exercised in 2018 because our net deferred tax assets have been fully offset by a valuation allowance.

As of December 31, 2018, we had domestic federal net operating loss carryforwards of approximately $816,800,000. Of this, $788,500,000 will expire at various dates beginning in 2019 through 2037 and the remaining will carryforward indefinitely under the new tax laws, but is subject to an 80% taxable income limitation. As of December 31, 2018, we had state net operating loss carryforwards of approximately $294,800,000 expiring at various dates beginning in 2028 through 2038, if not utilized. We also had federal research and development tax credit carryforwards of approximately $35,500,000 expiring at various dates beginning in 2019 through 2038, if not utilized. Our state research and development tax credit carryforwards of approximately $19,200,000 carry forward indefinitely.

Due to the change of ownership provisions of the Tax Reform Act of 1986, utilization of a portion of our domestic net operating loss and tax credit carryforwards may be limited in future periods. Further, a portion of the carryforwards may expire before being applied to reduce future income tax liabilities.

On December 22, 2017, the Tax Cuts and Jobs Act of 2017, or 2017 Tax Act, was signed into law. Among other things, the 2017 Tax Act permanently lowers the corporate federal income tax rate to 21% from the previous maximum rate of 35%, effective for tax years including or commencing January 1, 2018. In accordance with GAAP, we remeasured the carrying value of our deferred tax assets as of December 31, 2017 using the new enacted corporate federal income tax rate of 21%. This remeasurement reduced our aggregate deferred tax assets and correspondingly reduced the valuation allowance by approximately $102,300,000. The remeasurement did not impact our financial statements.

In accordance with Staff Accounting Bulletin 118, as of December 31, 2017, we made a reasonable estimate of the effects of the 2017 Tax Act on our existing deferred tax assets. Our preliminary estimate and the remeasurement of our deferred tax assets was subject to further analysis related to certain matters, such as developing interpretations of the provisions of the 2017 Tax Act, changes to certain estimates and the filing of our tax returns. U.S. Treasury regulations, administrative interpretations or court decisions interpreting the 2017 Tax Act may require further adjustments and changes in our estimates. In the fourth quarter of 2018, we completed our analysis to determine the effect of the 2017 Tax Act. No material adjustments were noted from the completion of the analysis as of December 31, 2018.

We adopted the provision of the standard for accounting for uncertainties in income taxes on January 1, 2007. Upon adoption, we recognized no material adjustment in the liability for unrecognized tax benefits. At December 31, 2018, we had approximately $16,400,000 of unrecognized tax benefits, none of which would currently affect our effective tax rate if recognized due to our deferred tax assets being fully offset by a valuation allowance.

A reconciliation of the beginning and ending amounts of unrecognized tax benefits is as follows (in thousands):

Balance as of December 31, 2017	$ 15,900
Decrease related to prior year tax positions	(100)
Increase related to current year tax positions	600
Balance as of December 31, 2018	$ 16,400

If applicable, we would classify interest and penalties related to uncertain tax positions in income tax expense. Through December 31, 2018, there has been no interest expense or penalties related to unrecognized tax benefits.

We do not currently expect any significant changes to unrecognized tax benefits during the fiscal year ended December 31, 2019. In certain cases, our uncertain tax positions are related to tax years that remain subject to examination by the relevant tax authorities. Tax years for which we have carryforward net operating loss and credit attributes remain subject to examination by federal and most state tax authorities.

9. STATEMENTS OF CASH FLOWS DATA

	Year Ended December 31,		
	2018	2017	2016
	(In thousands)		
Supplemental investing activities:			
Net unrealized gain (loss) on marketable securities	$ 24	$ (154)	$ 160

We have not made any cash payments for taxes or interest for the years ended December 31, 2018, 2017 and 2016.

10. SELECTED QUARTERLY FINANCIAL INFORMATION (UNAUDITED)

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
	(In thousands, except per share amounts)			
Year Ended December 31, 2018:				
Revenues	$ 318	$ 208	$ 165	$ 375
Operating expenses	7,755	7,450	6,970	9,964
Net loss	(7,186)	(6,934)	(5,597)	(7,300)
Basic and diluted net loss per share	$ (0.04)	$ (0.04)	$ (0.03)	$ (0.04)
Year Ended December 31, 2017:				
Revenues	$ 537	$ 174	$ 163	$ 191
Operating expenses	8,031	6,905	7,407	7,977
Net loss	(7,183)	(6,405)	(6,899)	(7,429)
Basic and diluted net loss per share	$ (0.05)	$ (0.04)	$ (0.04)	$ (0.05)

Basic and diluted net loss per share are computed independently for each of the quarters presented. Therefore, the sum of the quarters may not be equal to the full year net loss per share amounts.

11. SUBSEQUENT EVENT

We have engaged Parexel as our contract research organization to support imetelstat clinical development activities. Parexel will provide contract research services related to clinical trials conducted by us, in accordance with the terms of the Master Services Agreement, or the MSA, that we entered into with Parexel on January 30, 2019, and related work orders. We may terminate the MSA and/or any work order without cause on prior written notice to Parexel. Contemporaneously with entering the MSA, we entered into a first work order with Parexel, under which Parexel will provide services related to IMerge. Under the first work order, we will pay Parexel service fees and pass-through expenses estimated to be approximately $33 million in the aggregate for Parexel's services related to IMerge.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

(I) Evaluation of Disclosure Controls and Procedures

We have carried out an evaluation under the supervision and with the participation of management, including our Chief Executive Officer and our Chief Financial Officer, of our disclosure controls and procedures (as defined in Rule 13a-15(e) of the Securities Exchange Act of 1934, as amended) as of the end of the period covered by this annual report on Form 10-K. Based on that evaluation, our Chief Executive Officer and our Chief Financial Officer concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of December 31, 2018.

In designing and evaluating disclosure controls and procedures, our management recognizes that any system of controls, however well designed and operated, can provide only reasonable assurance, and not absolute assurance, that the desired control objectives of the system are met. In addition, the design of any control system is based in part upon certain assumptions about the likelihood of future events. Because of these and other inherent limitations of control systems, there can be no assurance that any design will succeed in achieving its stated goals in all future circumstances. Accordingly, our disclosure controls and procedures are designed to provide reasonable, not absolute, assurance that the objectives of our disclosure control system are met and, as set forth above, our Chief Executive Officer and our Chief Financial Officer have concluded, based on their evaluation as of the end of the period covered by this annual report on Form 10-K, that our disclosure controls and procedures were effective to provide reasonable assurance that the objectives of our disclosure control system were met.

(II) Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during the quarter ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

(III) Management's Report on Internal Control over Financial Reporting

Internal control over financial reporting refers to the process designed by, or under the supervision of, our Chief Executive Officer and Chief Financial Officer, and effected by our board of directors, management and other personnel, 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, and includes those policies and procedures that:

(1) Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets;

(2) Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and

(3) Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Management is responsible for establishing and maintaining an adequate internal control over financial reporting for us. Internal control over financial reporting cannot provide absolute assurance of achieving financial reporting objectives because of its inherent limitations. Internal control over financial reporting is a process that involves human diligence and compliance and is subject to lapses in judgment and breakdowns resulting from human failures. Internal control over financial reporting also can be circumvented by collusion or improper management override. Because of such limitations, there is a risk that material misstatements may not be prevented or detected on a timely basis by internal control over financial reporting. However, these inherent limitations are known features of the financial reporting process. Therefore, it is possible to design into the process safeguards to reduce, though not eliminate, this risk.

Under the supervision and with the participation of our management, including our Chief Executive Officer and our Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework set forth in "Internal Control—Integrated Framework" issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Based on our evaluation under the framework set forth in "Internal Control—Integrated Framework," our management concluded that our internal control over financial reporting was effective as of December 31, 2018. The effectiveness of our internal control over financial reporting as of December 31, 2018 has been audited by Ernst & Young LLP, an independent registered public accounting firm, as stated in their report which is included herein.

(IV) Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Geron Corporation

Opinion on Internal Control over Financial Reporting

We have audited Geron Corporation's internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control-Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Geron Corporation (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the balance sheets of the Company as of December 31, 2018 and 2017, the related statements of operations, comprehensive loss, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes and our report dated March 7, 2019 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

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

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

/s/ Ernst & Young LLP

Redwood City, California
March 7, 2019

ITEM 9B. OTHER INFORMATION

None.

PART III

Certain information required by Part III is omitted from this annual report on Form 10-K because we will file with the U.S. Securities and Exchange Commission a definitive proxy statement pursuant to Regulation 14A in connection with the solicitation of proxies for Geron's Annual Meeting of Stockholders expected to be held in June 2019, or the Proxy Statement, not later than 120 days after the end of the fiscal year covered by this annual report on Form 10-K, and certain information included therein is incorporated herein by reference.

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Identification of Directors and Nominees for Director

The information required by this item concerning our directors and nominees for director is incorporated by reference from the section captioned "Proposal 1: Election of Directors" contained in our Proxy Statement.

Identification of Executive Officers

The information required by this item concerning our executive officers is set forth in Part I, Item 1 of this annual report on Form 10-K.

Code of Ethics

We have adopted a Code of Conduct with which every person who works for Geron, including our board of directors, is expected to comply. The Code of Conduct is publicly available on our website under the Investor Relations section at www.geron.com. This website address is intended to be an inactive, textual reference only; none of the material on this website is part of this annual report on Form 10-K. If any substantive amendments are made to the Code of Conduct or any waiver granted, including any implicit waiver, from a provision of the Code to our Chief Executive Officer, Chief Financial Officer or Corporate Controller, we will disclose the nature of such amendment or waiver on that website or in a report on Form 8-K.

Copies of the Code of Conduct will be furnished without charge to any person who submits a written request directed to the attention of our Corporate Secretary, at our offices located at 149 Commonwealth Drive, Suite 2070, Menlo Park, California, 94025.

Section 16(a) Compliance

Information concerning Section 16(a) beneficial ownership reporting compliance is incorporated by reference from the section captioned "Section 16(a) Beneficial Ownership Reporting Compliance" contained in the Proxy Statement.

Certain Corporate Governance Matters

The information required by this item concerning our audit committee, audit committee financial expert and procedures by which stockholders may recommend nominees to our board of directors, may be found under the sections captioned "Board Leadership and Governance" and "Other Matters" contained in the Proxy Statement.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item is incorporated by reference from the sections captioned "Compensation Discussion and Analysis," "Compensation Committee Report," "Executive Compensation Tables and Related

Narrative Disclosure," "Compensation of Directors" and "Compensation Committee Interlocks and Insider Participation" contained in the Proxy Statement.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item is incorporated by reference from the sections captioned "Equity Compensation Plan Information" and "Security Ownership of Certain Beneficial Owners and Management" contained in the Proxy Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item is incorporated by reference from the sections captioned "Proposal 1: Election of Directors" and "Certain Transactions" contained in the Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this item is incorporated by reference from the section captioned "Principal Accountant Fees and Services" contained in the Proxy Statement.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) (1) Financial Statements

Included in Part II, Item 8 of this Report:

(2) Financial Statement Schedules

Financial statement schedules are omitted because they are not required or the information is disclosed in the financial statements listed in Item 15(a)(1) above.

(3) Exhibits

		Incorporation by Reference			
Exhibit Number	Description	Exhibit Number	Filing	Filing Date	File No.
2.1	Asset Contribution Agreement by and among Geron Corporation, BioTime, Inc. and Asterias Biotherapeutics, Inc. (formerly known as BioTime Acquisition Corporation)	2.1	8-K	January 8, 2013	000-20859
3.1	Restated Certificate of Incorporation	3.3	8-K	May 18, 2012	000-20859
3.2	Certificate of Amendment of the Restated Certificate of Incorporation	3.1	8-K	May 18, 2012	000-20859
3.3	Amended and Restated Bylaws of Registrant	3.1	8-K	March 19, 2010	000-20859
3.4	Amendment to Amended and Restated Bylaws of Registrant	3.4	8-K	November 22, 2017	000-20859
4.1	Form of Common Stock Certificate	4.1	10-K	March 15, 2013	000-20859
4.2	Form of 2011 Warrant	Attachment to 10.1	10-Q	November 3, 2011	000-20859
10.1	Form of Indemnification Agreement	10.1	10-K	March 7, 2012	000-20859
10.2	Amended and Restated 2002 Equity Incentive Plan*	4.1	S-8	June 4, 2010	333-167349
10.3	Form of Stock Option Agreement under 2002 Equity Incentive Plan*	10.6	10-K	March 15, 2013	000-20859
10.4	Amended and Restated 2006 Directors' Stock Option Plan*	10.5	10-Q	November 7, 2013	000-20859
10.5	2011 Incentive Award Plan*	10.1	8-K	May 16, 2011	000-20859
10.6	Form of Stock Option Agreement under 2011 Incentive Award Plan*	10.11	10-K	March 15, 2013	000-20859
10.7	Form of Restricted Stock Award Agreement under 2011 Incentive Award Plan*	10.12	10-K	March 15, 2013	000-20859

		Incorporation by Reference			
Exhibit Number	Description	Exhibit Number	Filing	Filing Date	File No.
10.8	Form of Non-Employee Director Stock Option Agreement under 2011 Incentive Award Plan*	10.2	10-Q	May 7, 2015	000-20859
10.9	2018 Equity Incentive Plan*	10.2	8-K	May 18, 2018	000-20859
10.10	Form of Employee Stock Option Agreement under 2018 Equity Incentive Plan*	10.3	8-K	May 18, 2018	000-20859
10.11	Form of Employee Stock Option Agreement under 2018 Equity Incentive Plan, as amended*				
10.12	Form of Non-Employee Director Stock Option Agreement under 2018 Equity Incentive Plan*	10.4	8-K	May 18, 2018	000-20859
10.13	Form of Non-Employee Director Stock Option Agreement under 2018 Equity Incentive Plan, as amended*				
10.14	Form of Performance-Vesting Stock Option Agreement under 2018 Equity Incentive Plan*				
10.15	Form of Performance-Vesting Stock Option Agreement under 2018 Equity Incentive Plan, as amended*				
10.16	2018 Inducement Award Plan*	10.1	8-K	December 14, 2018	000-20859
10.17	2018 Inducement Award Plan, as amended*				
10.18	Form of Stock Option Agreement under 2018 Inducement Award Plan*	10.2	8-K	December 14, 2018	000-20859
10.19	Form of Stock Option Agreement under 2018 Inducement Award Plan, as amended*				
10.20	Form of Performance-Vesting Stock Option Agreement under 2018 Inducement Award Plan*				
10.21	2014 Employee Stock Purchase Plan*	10.1	8-K	May 23, 2014	000-20859
10.22	Non-Employee Director Compensation Policy, as amended February 11, 2016*	10.30	10-K	March 10, 2016	000-20859
10.23	Non-Employee Director Compensation Policy, as amended January 31, 2018*	10.31	10-K	March 16, 2018	000-20859
10.24	Non-Employee Director Compensation Policy, as amended May 15, 2018*	10.5	8-K	May 18, 2018	000-20859
10.25	Non-Employee Director Compensation Policy, as amended October 1, 2018*	10.2	10-Q	November 1, 2018	000-20859
10.26	Non-Employee Director Compensation Policy, as amended January 30, 2019*				
10.27	Directors' Market Value Stock Purchase Plan, effective October 1, 2018*	10.1	10-Q	November 1, 2018	000-20859
10.28	Amended and Restated Severance Plan, effective as of January 30, 2019*				

Exhibit Number	Description	Incorporation by Reference			
		Exhibit Number	Filing	Filing Date	File No.
10.29	Amended and Restated Employment agreement between the Registrant and John A. Scarlett, M.D., effective as of January 31, 2019*				
10.30	Amended and Restated Employment agreement between the Registrant and Stephen N. Rosenfield, effective as of January 31, 2019*				
10.31	Amended and Restated Employment agreement between the Registrant and Andrew J. Grethlein, effective as of January 31, 2019*				
10.32	Amended and Restated Employment agreement between the Registrant and Olivia K. Bloom, effective as of January 31, 2019*				
10.33	Amended and Restated Employment agreement between the Registrant and Melissa A. Kelly Behrs, effective as of January 31, 2019*				
10.34	Employment Agreement between the Registrant and Aleksandra K. Rizo, effective as of January 15, 2019*				
10.35†	California Institute for Regenerative Medicine Notice of Loan Award	10.1	10-Q	November 3, 2011	000-20859
10.36†	Office Lease Agreement by and between the Registrant and Exponent Realty, LLC, effective as of February 29, 2012	10.36	10-K/A	March 27, 2012	000-20859
10.37	Fifth Amendment to Office Lease Agreement by and between the Registrant and Exponent Realty, LLC, effective as of September 15, 2015	10.1	8-K	September 18, 2015	000-20859
10.38	Sixth Amendment to Office Lease Agreement by and between the Registrant and Exponent Realty, LLC, effective as of September 21, 2017	10.1	8-K	September 22, 2017	000-20859
10.39	At Market Issuance Sales Agreement, dated August 28, 2015, by and between the Registrant and MLV & Co. LLC	10.1	8-K	August 28, 2015	000-20859
10.40	At Market Issuance Sales Agreement, dated May 18, 2018, by and between Geron Corporation and B. Riley FBR, Inc.	10.1	8-K	May 18, 2018	000-20859
10.41†	Collaboration and License Agreement by and between the Registrant and Janssen Biotech, Inc., dated November 13, 2014	10.36	10-K	March 11, 2015	000-20859
10.42#	Master Services Agreement by and between the Registrant and Parexel International (IRL) Limited, dated January 30, 2019				

Exhibit Number	Description	Incorporation by Reference			
		Exhibit Number	Filing	Filing Date	File No.
10.43#	Work Order No. 1 under Master Services Agreement by and between the Registrant and Parexel International (IRL) Limited, dated January 30, 2019				
23.1	Consent of Independent Registered Public Accounting Firm				
24.1	Power of Attorney (see signature page)				
31.1	Certification of Chief Executive Officer pursuant to Form of Rule 13a-14(a), as Adopted Pursuant to Section 302(a) of the Sarbanes-Oxley Act of 2002, dated March 7, 2019				
31.2	Certification of Chief Financial Officer pursuant to Form of Rule 13a-14(a), as Adopted Pursuant to Section 302(a) of the Sarbanes-Oxley Act of 2002, dated March 7, 2019				
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, dated March 7, 2019**				
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, dated March 7, 2019**				
101	The following materials from the Registrant's annual report on Form 10-K for the year ended December 31, 2018, formatted in Extensible Business Reporting Language (XBRL) include: (i) Balance Sheets as of December 31, 2018 and 2017, (ii) Statements of Operations, Comprehensive Loss, Stockholders' Equity and Cash Flows for each of the three years in the period ended December 31, 2018, and (iii) Notes to Financial Statements				

† Confidential treatment has been granted for certain portions of this exhibit. Omitted information has been filed separately with the Securities and Exchange Commission.

Confidential treatment has been requested for certain portions of this exhibit. Omitted information has been filed separately with the Securities and Exchange Commission.

* Management contract or compensation plan or arrangement.

** The certifications attached as Exhibits 32.1 and 32.2 that accompany this annual report on Form 10-K, are not deemed filed with the Securities and Exchange Commission and are not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of this Form 10-K), irrespective of any general incorporation language contained in such filing.

ITEM 16. FORM 10-K SUMMARY

None.

SIGNATURES

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

GERON CORPORATION

Date: March 7, 2019

By: /s/ Olivia K. Bloom
OLIVIA K. BLOOM
Executive Vice President, Finance,
Chief Financial Officer and Treasurer

POWER OF ATTORNEY

KNOW BY ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints, jointly and severally, John A. Scarlett, M.D., and Olivia K. Bloom, and each one of them, attorneys-in-fact for the undersigned, each with the power of substitution, for the undersigned in any and all capacities, to sign any and all amendments to this annual report on Form 10-K, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact, or his or her substitutes, may do or cause to be done by virtue hereof.

IN WITNESS WHEREOF, each of the undersigned has executed this Power of Attorney as of the date indicated opposite his/her name.

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

Signature	Title	Date
/s/ John A. Scarlett JOHN A. SCARLETT	President, Chief Executive Officer and Chairman of the Board (Principal Executive Officer)	March 7, 2019
/s/ Olivia K. Bloom OLIVIA K. BLOOM	Executive Vice President, Finance, Chief Financial Officer and Treasurer (Principal Financial and Accounting Officer)	March 7, 2019
/s/ Daniel M. Bradbury DANIEL M. BRADBURY	Director	March 7, 2019
/s/ Karin Eastham KARIN EASTHAM	Director	March 7, 2019
/s/ V. Bryan Lawlis V. BRYAN LAWLIS	Director	March 7, 2019
/s/ Susan M. Molineaux SUSAN M. MOLINEAUX	Director	March 7, 2019
/s/ Robert J. Spiegel ROBERT J. SPIEGEL	Director	March 7, 2019

EXHIBIT 10.11

Geron Corporation
2018 Equity Incentive Plan

Option Agreement
(Incentive Stock Option or Nonstatutory Stock Option)

Pursuant to your Stock Option Grant Notice ("***Grant Notice***") and this Option Agreement, Geron Corporation (the "***Company***") has granted you an option under its 2018 Equity Incentive Plan (the "***Plan***") to purchase the number of shares of the Company's Common Stock indicated in your Grant Notice at the exercise price indicated in your Grant Notice. The option is granted to you effective as of the date of grant set forth in the Grant Notice (the "***Date of Grant***"). If there is any conflict between the terms in this Option Agreement and the Plan, the terms of the Plan will control. Capitalized terms not explicitly defined in this Option Agreement or in the Grant Notice but defined in the Plan will have the same definitions as in the Plan.

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

1. Vesting. Subject to the provisions contained herein, your option will vest as provided in your Grant Notice. Vesting will cease upon the termination of your Continuous Service. Notwithstanding the foregoing, the following provisions shall apply:

(a) In the event your Continuous Service is terminated due to your Disability, then the vesting and exercisability of your option shall accelerate in an amount equal to the lesser of (i) the then remaining unvested shares covered by your option, and (ii) the number of shares subject to your option that would have vested had you remained in Continuous Service for thirty-six (36) months (or such lesser period of time as is determined by the Board) after the date of such termination.

(b) In the event your Continuous Service is terminated due to your death or in the event that you die within 3 months following the termination of your service for any reason other than Cause, then the vesting and exercisability of your option shall accelerate in an amount equal to the lesser of (i) the then remaining unvested shares covered by your option, and (ii) the number of shares subject to your option that would have vested had you remained in Continuous Service for thirty-six (36) months (or such lesser period of time as is determined by the Board) after the date of such termination.

(c) In the event of either a Change in Control or a Corporate Transaction that is not a license, and you have not terminated your Continuous Service prior to the effective date of the Change in Control or Corporate Transaction, then the vesting and exercisability of your option will be accelerated in full upon the effective date of such Change in Control or Corporate Transaction.

(i) If any payment or benefit you would receive from the Company or otherwise in connection with a Change in Control or other similar transaction (a "280G Payment") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), then any such 280G Payment (a "Payment") shall be equal to the Reduced Amount. The "Reduced Amount" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment (after reduction) being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount (i.e., the amount determined by clause (x) or by clause (y)), after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all

computed at the highest applicable marginal rate), results in your receipt, on an after-tax basis, of the greater economic benefit notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in a Payment is required pursuant to the preceding sentence and the Reduced Amount is determined pursuant to clause (x) of the preceding sentence, the reduction shall occur in the manner (the "Reduction Method") that results in the greatest economic benefit for you. If more than one method of reduction will result in the same economic benefit, the items so reduced will be reduced pro rata (the "Pro Rata Reduction Method").

(ii) Notwithstanding the foregoing, if the Reduction Method or the Pro Rata Reduction Method would result in any portion of the Payment being subject to taxes pursuant to Section 409A of the Code that would not otherwise be subject to taxes pursuant to Section 409A of the Code, then the Reduction Method and/or the Pro Rata Reduction Method, as the case may be, shall be modified so as to avoid the imposition of taxes pursuant to Section 409A of the Code as follows: (A) as a first priority, the modification shall preserve to the greatest extent possible, the greatest economic benefit for you as determined on an after-tax basis; (B) as a second priority, Payments that are contingent on future events (e.g., being terminated without Cause), shall be reduced (or eliminated) before Payments that are not contingent on future events; and (C) as a third priority, Payments that are "deferred compensation" within the meaning of Section 409A of the Code shall be reduced (or eliminated) before Payments that are not deferred compensation within the meaning of Section 409A of the Code.

(iii) Unless you and the Company agree on an alternative accounting firm, the accounting firm engaged by the Company for general tax compliance purposes as of the day prior to the effective date of a Change in Control triggering the Payment shall perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting a Change in Control, the Company shall appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company shall bear all expenses with respect to the determinations by such accounting firm required to be made hereunder. The Company shall use commercially reasonable efforts to cause the accounting firm engaged to make the determinations hereunder to provide its calculations, together with detailed supporting documentation, to you and the Company within fifteen (15) calendar days after the date on which your right to a 280G Payment becomes reasonably likely to occur (if requested at that time by you or the Company) or such other time as requested by you or the Company.

(iv) If you receive a Payment for which the Reduced Amount was determined pursuant to clause (x) of the first paragraph of this Section 1(c) and the Internal Revenue Service determines thereafter that some portion of the Payment is subject to the Excise Tax, you shall promptly return to the Company a sufficient amount of the Payment (after reduction pursuant to clause (x) of the first paragraph of this Section 1(c)) so that no portion of the remaining Payment is subject to the Excise Tax. For the avoidance of doubt, if the Reduced Amount was determined pursuant to clause (y) in the first paragraph of this Section 1(c), you shall have no obligation to return any portion of the Payment pursuant to the preceding sentence.

2. Number of Shares and Exercise Price. The number of shares of Common Stock subject to your option and your exercise price per share in your Grant Notice will be adjusted for Capitalization Adjustments.

3. Exercise Restriction for Non-Exempt Employees. If you are an Employee eligible for overtime compensation under the Fair Labor Standards Act of 1938, as amended (that is, a "***Non-Exempt Employee***"), and except as otherwise provided in the Plan, you may not exercise your option until you have completed at least six (6) months of Continuous Service measured from the Date of Grant, even if you have already been an employee for more than six (6) months. Consistent with the provisions of the Worker Economic Opportunity Act, you may exercise your option as to any vested portion prior to such six (6) month anniversary in the case of (i) your death or disability, (ii) a Corporate Transaction in which your option is not assumed, continued or substituted, (iii) a Change in Control or (iv) your termination of Continuous Service on your "retirement" (as defined in the Company's benefit plans).

4. Method of Payment. You must pay the full amount of the exercise price for the shares you wish to exercise. You may pay the exercise price in cash or by check, bank draft or money order payable to the Company or, if ***permitted by your Grant Notice*** and if at the time of exercise the Common Stock is publicly traded, then pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of Common Stock, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds. This manner of payment is also known as a "broker-assisted exercise", "same day sale", or "sell to cover".

5. Whole Shares. You may exercise your option only for whole shares of Common Stock.

6. Securities Law Compliance. In no event may you exercise your option unless the shares of Common Stock issuable upon exercise are then registered under the Securities Act or, if not registered, the Company has determined that your exercise and the issuance of the shares would be exempt from the registration requirements of the Securities Act. The exercise of your option also must comply with all other applicable laws and regulations governing your option, and you may not exercise your option if the Company determines that such exercise would not be in material compliance with such laws and regulations (including any restrictions on exercise required for compliance with Treas. Reg. 1.401(k)-1(d)(3), if applicable).

7. Term. You may not exercise your option before the Date of Grant or after the expiration of the option's term. The term of your option expires, subject to the provisions of Sections 5(h) and 9(c) of the Plan, upon the earliest of the following:

(a) immediately upon the termination of your Continuous Service for Cause;

(b) three (3) months after the termination of your Continuous Service for any reason other than Cause, your Disability or your death (except as otherwise provided in Section 7(d) below); *provided, however,* that if during any part of such three (3) month period your option is not exercisable solely because of the condition set forth in the section above relating to "Securities Law Compliance," your option will not expire until the earlier of the Expiration Date or until it has been exercisable for an aggregate period of three (3) months after the termination of your Continuous Service; *provided further,* that if (i) you are a Non-Exempt Employee, (ii) your Continuous Service terminates within six (6) months after the Date of Grant, and (iii) you have vested in a portion of your option at the time of your termination of Continuous Service, your option will not expire until the earlier of (x) the later of (A) the date that is seven (7) months after the Date of Grant, and (B) the date that is three (3) months after the termination of your Continuous Service, and (y) the Expiration Date;

(c) twenty-four (24) months after the termination of your Continuous Service due to your Disability (except as otherwise provided in Section 7(d)) below;

(d) twenty-four (24) months after your death if you die either during your Continuous Service or within three (3) months after your Continuous Service terminates for any reason other than Cause;

(e) the Expiration Date indicated in your Grant Notice; or

(f) the day before the tenth (10th) anniversary of the Date of Grant.

If your option is an Incentive Stock Option, note that to obtain the federal income tax advantages associated with an Incentive Stock Option, the Code requires that at all times beginning on the Date of Grant and ending on the day three (3) months before the date of your option's exercise, you must be an employee of the Company or an Affiliate, except in the event of your death or Disability. The Company has provided for extended exercisability of your option under certain circumstances for your benefit but cannot guarantee that your option will necessarily be treated as an Incentive Stock Option if you continue to provide services to the Company or an Affiliate as a Consultant or Director after your employment terminates or if you otherwise exercise your option more than three (3) months after the date your employment with the Company or an Affiliate terminates.

8. Exercise.

(a) You may exercise the vested portion of your option (and the unvested portion of your option if your Grant Notice so expressly permits) during its term by (i) delivering a Notice of Exercise (in a form designated by the Company) or completing such other documents and/or procedures designated by the Company for exercise and (ii) paying the exercise price and any applicable withholding taxes to the Company's Secretary, stock plan administrator, or such other person as the Company may designate, together with such additional documents as the Company may then require.

(b) By exercising your option you agree that, as a condition to any exercise of your option, the Company may require you to enter into an arrangement providing for the payment by you to the Company of any tax withholding obligation of the Company arising by reason of (i) the exercise of your option, (ii) the lapse of any substantial risk of forfeiture to which the shares of Common Stock are subject at the time of exercise, or (iii) the disposition of shares of Common Stock acquired upon such exercise.

(c) If your option is an Incentive Stock Option, by exercising your option you agree that you will notify the Company in writing within fifteen (15) days after the date of any disposition of any of the shares of the Common Stock issued upon exercise of your option that occurs within two (2) years after the Date of Grant or within one (1) year after such shares of Common Stock are transferred upon exercise of your option.

9. Transferability. Except as otherwise provided in this Section 9, your option is not transferable, except by will or by the laws of descent and distribution, and is exercisable during your life only by you.

(a) Certain Trusts. Upon receiving written permission from the Board or its duly authorized Officer, you may transfer your option to a trust if you are considered to be the sole beneficial owner (determined under Section 671 of the Code and applicable state law) while the option is held in the trust. You and the trustee must enter into transfer and other agreements required by the Company.

(b) Domestic Relations Orders. Upon receiving written permission from the Board or its duly authorized Officer, and provided that you and the designated transferee enter into transfer and other agreements required by the Company, you may transfer your option pursuant to the terms of a domestic relations order, official marital settlement agreement or other divorce or separation instrument as permitted by Treasury Regulation 1.421-1(b)(2) that contains the information required by the Company to effectuate the transfer. You are encouraged to discuss the proposed terms of any division of this option with the Company prior to finalizing the domestic relations order or marital settlement agreement to help ensure the required information is contained within the domestic relations order or marital settlement agreement. If this option is an Incentive Stock Option, this option may be deemed to be a Nonstatutory Stock Option as a result of such transfer.

(c) Beneficiary Designation. Upon receiving written permission from the Board or its duly authorized Officer, you may, by delivering written notice to the Company, in a form approved by the Company and any broker designated by the Company to handle option exercises, designate a third party who, on your death, will thereafter be entitled to exercise this option and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, your executor or administrator of your estate will be entitled to exercise this option and receive, on behalf of your estate, the Common Stock or other consideration resulting from such exercise.

10. Option not a Service Contract. Your option is not an employment or service contract, and nothing in your option 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 your option will obligate the Company or an Affiliate, their respective shareholders, 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.

11. Withholding Obligations.

(a) At the time you exercise your option, in whole or in part, and at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for (including by means of a "same day sale" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations of the Company or an Affiliate, if any, which arise in connection with the exercise of your option.

(b) If this option is a Nonstatutory Stock Option, then upon your request and subject to approval by the Company, and compliance with any applicable legal conditions or restrictions, the Company may withhold from fully vested shares of Common Stock otherwise issuable to you upon the exercise of your option a number of whole shares of Common Stock having a Fair Market Value, determined by the Company as of the date of exercise, not in excess of the minimum amount of tax required to be withheld by law (or such lower amount as may be necessary to avoid classification of your option as a liability for financial accounting purposes). Notwithstanding the filing of such election, shares of Common Stock shall be withheld solely from fully vested shares of Common Stock determined as of the date of exercise of your option that are otherwise issuable to you upon such exercise. Any adverse consequences to you arising in connection with such share withholding procedure shall be your sole responsibility.

(c) You may not exercise your option unless the tax withholding obligations of the Company and/or any Affiliate are satisfied. Accordingly, you may not be able to exercise your option when desired even though your option is vested, and the Company will have no obligation to issue a

certificate for such shares of Common Stock or release such shares of Common Stock from any escrow provided for herein, if applicable, unless such obligations are satisfied.

12. Tax Consequences. You hereby 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 your option or your other compensation. In particular, you acknowledge that this option is exempt from Section 409A of the Code only if the exercise price per share specified in the Grant Notice is at least equal to the Fair Market Value per share of the Common Stock on the Date of Grant and there is no other impermissible deferral of compensation associated with the option.

13. Notices. Any notices provided for in your option 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 this option by electronic means or to request your consent to participate in the Plan by electronic means. By accepting this option, you consent to receive such documents 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.

14. Governing Plan Document. Your option is subject to all the provisions of the Plan, the provisions of which are hereby made a part of your option, and is 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 your option and those of the Plan, the provisions of the Plan will control. In addition, your option (and any compensation paid or shares issued under your option) is subject to recoupment in accordance with The Dodd–Frank Wall Street Reform and Consumer Protection Act and any implementing regulations thereunder, any clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable law. No recovery of compensation under such a clawback policy will be an event giving rise to a right to voluntarily terminate employment upon a resignation for "good reason," or for a "constructive termination" or any similar term under any plan of or agreement with the Company.

15. Other Documents. You hereby acknowledge receipt of and the right to receive a document providing the information required by Rule 428(b)(1) promulgated under the Securities Act, which includes the Plan prospectus. In addition, you acknowledge receipt of the Company's policy permitting certain individuals to sell shares only during certain "window" periods and the Company's insider trading policy, in effect from time to time.

16. Effect on Other Employee Benefit Plans. The value of this option will not be included as compensation, earnings, salaries, or other similar terms used when calculating your benefits under any employee benefit plan sponsored by the Company or any Affiliate, except as such plan otherwise expressly provides. The Company expressly reserves its rights to amend, modify, or terminate any of the Company's or any Affiliate's employee benefit plans.

17. Voting Rights. You will not have voting or any other rights as a shareholder of the Company with respect to the shares to be issued pursuant to this option until such shares are issued to you. Upon such issuance, you will obtain full voting and other rights as a shareholder of the Company. Nothing contained in this option, and no action taken pursuant to its provisions, will create or be

construed to create a trust of any kind or a fiduciary relationship between you and the Company or any other person.

18. Severability. If all or any part of this Option Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity will not invalidate any portion of this Option Agreement or the Plan not declared to be unlawful or invalid. Any section of this Option Agreement (or part of such a section) so declared to be unlawful or invalid shall, if possible, be construed in a manner which will give effect to the terms of such section or part of a section to the fullest extent possible while remaining lawful and valid.

19. Miscellaneous.

(a) The rights and obligations of the Company under your option will be transferable by the Company to any one or more persons or entities, and all covenants and agreements hereunder will inure to the benefit of, and be enforceable by, the Company's successors and assigns.

(b) You agree upon request to execute any further documents or instruments necessary or desirable in the sole determination of the Company to carry out the purposes or intent of your option.

(c) You acknowledge and agree that you have reviewed your option in its entirety, have had an opportunity to obtain the advice of counsel prior to executing and accepting your option, and fully understand all provisions of your option.

(d) This Option Agreement will be subject to all applicable laws, rules, and regulations, and to such approvals by any governmental agencies or national securities exchanges as may be required.

(e) All obligations of the Company under the Plan and this Option Agreement will be binding on any successor to the Company, whether the existence of such successor is the result of a direct or indirect purchase, merger, consolidation, or otherwise, of all or substantially all of the business and/or assets of the Company.

* * *

This Option Agreement will be deemed to be accepted by you upon your original signature of the Grant Notice to which it is attached or your acknowledgement through an online or electronic system established and maintained by the Company or another third party designated by the Company.

EXHIBIT 10.13

GERON CORPORATION
2018 EQUITY INCENTIVE PLAN

OPTION AGREEMENT
(NONSTATUTORY STOCK OPTION)

Pursuant to your Stock Option Grant Notice ("***Grant Notice***") and this Option Agreement, Geron Corporation (the "***Company***") has granted you an option under its 2018 Equity Incentive Plan (the "***Plan***") to purchase the number of shares of the Company's Common Stock indicated in your Grant Notice at the exercise price indicated in your Grant Notice. The option is granted to you effective as of the date of grant set forth in the Grant Notice (the "***Date of Grant***"). If there is any conflict between the terms in this Option Agreement and the Plan, the terms of the Plan will control. Capitalized terms not explicitly defined in this Option Agreement or in the Grant Notice but defined in the Plan will have the same definitions as in the Plan.

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

1. Vesting. Subject to the provisions contained herein, your option will vest as provided in your Grant Notice. Vesting will cease upon the termination of your Continuous Service. Notwithstanding the foregoing, the following provisions shall apply:

(a) In the event your Continuous Service is terminated due to your Disability, then the vesting and exercisability of your option shall accelerate in an amount equal to the lesser of (i) the then remaining unvested shares covered by your option, and (ii) the number of shares subject to your option that would have vested had you remained in Continuous Service for thirty-six (36) months (or such lesser period of time as is determined by the Board) after the date of such termination.

(b) In the event your Continuous Service is terminated due to your death or in the event that you die within 3 months following the termination of your service for any reason other than Cause, then the vesting and exercisability of your option shall accelerate in an amount equal to the lesser of (i) the then remaining unvested shares covered by your option, and (ii) the number of shares subject to your option that would have vested had you remained in Continuous Service for thirty-six (36) months (or such lesser period of time as is determined by the Board) after the date of such termination.

(c) In the event of either a Change in Control or a Corporate Transaction that is not a license, and you have not terminated your Continuous Service prior to the effective date of the Change in Control or Corporate Transaction, then the vesting and exercisability of your option will be accelerated in full upon the effective date of such Change in Control or Corporate Transaction.

(i) If any payment or benefit you would receive from the Company or otherwise in connection with a Change in Control or other similar transaction (a "280G Payment") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), then any such 280G Payment (a "Payment") shall be equal to the Reduced Amount. The "Reduced Amount" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment (after reduction) being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount (i.e., the amount determined by clause (x) or by clause (y)), after taking into

account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in your receipt, on an after-tax basis, of the greater economic benefit notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in a Payment is required pursuant to the preceding sentence and the Reduced Amount is determined pursuant to clause (x) of the preceding sentence, the reduction shall occur in the manner (the "Reduction Method") that results in the greatest economic benefit for you. If more than one method of reduction will result in the same economic benefit, the items so reduced will be reduced pro rata (the "Pro Rata Reduction Method").

(ii) Notwithstanding the foregoing, if the Reduction Method or the Pro Rata Reduction Method would result in any portion of the Payment being subject to taxes pursuant to Section 409A of the Code that would not otherwise be subject to taxes pursuant to Section 409A of the Code, then the Reduction Method and/or the Pro Rata Reduction Method, as the case may be, shall be modified so as to avoid the imposition of taxes pursuant to Section 409A of the Code as follows: (A) as a first priority, the modification shall preserve to the greatest extent possible, the greatest economic benefit for you as determined on an after-tax basis; (B) as a second priority, Payments that are contingent on future events (e.g., being terminated without Cause), shall be reduced (or eliminated) before Payments that are not contingent on future events; and (C) as a third priority, Payments that are "deferred compensation" within the meaning of Section 409A of the Code shall be reduced (or eliminated) before Payments that are not deferred compensation within the meaning of Section 409A of the Code.

(iii) Unless you and the Company agree on an alternative accounting firm, the accounting firm engaged by the Company for general tax compliance purposes as of the day prior to the effective date of a Change in Control triggering the Payment shall perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting a Change in Control, the Company shall appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company shall bear all expenses with respect to the determinations by such accounting firm required to be made hereunder. The Company shall use commercially reasonable efforts to cause the accounting firm engaged to make the determinations hereunder to provide its calculations, together with detailed supporting documentation, to you and the Company within fifteen (15) calendar days after the date on which your right to a 280G Payment becomes reasonably likely to occur (if requested at that time by you or the Company) or such other time as requested by you or the Company.

(iv) If you receive a Payment for which the Reduced Amount was determined pursuant to clause (x) of the first paragraph of this Section 1(c) and the Internal Revenue Service determines thereafter that some portion of the Payment is subject to the Excise Tax, you shall promptly return to the Company a sufficient amount of the Payment (after reduction pursuant to clause (x) of the first paragraph of this Section 1(c)) so that no portion of the remaining Payment is subject to the Excise Tax. For the avoidance of doubt, if the Reduced Amount was determined pursuant to clause (y) in the first paragraph of this Section 1(c), you shall have no obligation to return any portion of the Payment pursuant to the preceding sentence.

2. Number of Shares and Exercise Price. The number of shares of Common Stock subject to your option and your exercise price per share in your Grant Notice will be adjusted for Capitalization Adjustments.

3. **METHOD OF PAYMENT.** You must pay the full amount of the exercise price for the shares you wish to exercise. You may pay the exercise price in cash or by check, bank draft or money order payable to the Company or, if ***permitted by your Grant Notice*** and if at the time of exercise the Common Stock is publicly traded, then pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of Common Stock, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds. This manner of payment is also known as a "broker-assisted exercise", "same day sale", or "sell to cover".

4. **WHOLE SHARES.** You may exercise your option only for whole shares of Common Stock.

5. **SECURITIES LAW COMPLIANCE.** In no event may you exercise your option unless the shares of Common Stock issuable upon exercise are then registered under the Securities Act or, if not registered, the Company has determined that your exercise and the issuance of the shares would be exempt from the registration requirements of the Securities Act. The exercise of your option also must comply with all other applicable laws and regulations governing your option, and you may not exercise your option if the Company determines that such exercise would not be in material compliance with such laws and regulations (including any restrictions on exercise required for compliance with Treas. Reg. 1.401(k)-1(d)(3), if applicable).

6. **TERM.** You may not exercise your option before the Date of Grant or after the expiration of the option's term. The term of your option expires, subject to the provisions of Sections 5(h) and 9(c) of the Plan, upon the earliest of the following:

(a) immediately upon the termination of your Continuous Service for Cause;

(b) thirty-six (36) months after the termination of your Continuous Service for any reason other than Cause, your Disability or your death (except as otherwise provided in Section 6(d) below); *provided, however,* that if during any part of such thirty-six (36) month period your option is not exercisable solely because of the condition set forth in the section above relating to "Securities Law Compliance," your option will not expire until the earlier of the Expiration Date or until it has been exercisable for an aggregate period of thirty-six (36) months after the termination of your Continuous Service;

(c) thirty-six (36) months after the termination of your Continuous Service due to your Disability (except as otherwise provided in Section 6(d)) below;

(d) thirty-six (36) months after your death if you die either during your Continuous Service or within three (3) months after your Continuous Service terminates for any reason other than Cause;

(e) the Expiration Date indicated in your Grant Notice; or

(f) the day before the tenth (10th) anniversary of the Date of Grant.

7. **EXERCISE.**

(a) You may exercise the vested portion of your option (and the unvested portion of your option if your Grant Notice so expressly permits) during its term by (i) delivering a Notice of Exercise (in a form designated by the Company) or completing such other documents and/or procedures designated by the Company for exercise and (ii) paying the exercise price and any applicable withholding taxes to the Company's Secretary, stock plan administrator, or such other person as the Company may designate, together with such additional documents as the Company may then require.

(b) By exercising your option you agree that, as a condition to any exercise of your option, the Company may require you to enter into an arrangement providing for the payment by you to the Company of any tax withholding obligation of the Company arising by reason of (i) the exercise of your option, (ii) the lapse of any substantial risk of forfeiture to which the shares of Common Stock are subject at the time of exercise, or (iii) the disposition of shares of Common Stock acquired upon such exercise.

8. TRANSFERABILITY. Except as otherwise provided in this Section 8, your option is not transferable, except by will or by the laws of descent and distribution, and is exercisable during your life only by you.

(a) Certain Trusts. Upon receiving written permission from the Board or its duly authorized Officer, you may transfer your option to a trust if you are considered to be the sole beneficial owner (determined under Section 671 of the Code and applicable state law) while the option is held in the trust. You and the trustee must enter into transfer and other agreements required by the Company.

(b) DOMESTIC RELATIONS ORDERS. Upon receiving written permission from the Board or its duly authorized Officer, and provided that you and the designated transferee enter into transfer and other agreements required by the Company, you may transfer your option pursuant to the terms of a domestic relations order, official marital settlement agreement or other divorce or separation instrument as permitted by Treasury Regulation 1.421-1(b)(2) that contains the information required by the Company to effectuate the transfer. You are encouraged to discuss the proposed terms of any division of this option with the Company prior to finalizing the domestic relations order or marital settlement agreement to help ensure the required information is contained within the domestic relations order or marital settlement agreement.

(c) BENEFICIARY DESIGNATION. Upon receiving written permission from the Board or its duly authorized Officer, you may, by delivering written notice to the Company, in a form approved by the Company and any broker designated by the Company to handle option exercises, designate a third party who, on your death, will thereafter be entitled to exercise this option and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, your executor or administrator of your estate will be entitled to exercise this option and receive, on behalf of your estate, the Common Stock or other consideration resulting from such exercise.

9. OPTION NOT A SERVICE CONTRACT. Your option is not an employment or service contract, and nothing in your option 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 your option will obligate the Company or an Affiliate, their respective shareholders, 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.

10. WITHHOLDING OBLIGATIONS.

(a) At the time you exercise your option, in whole or in part, and at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for (including by means of a "same day sale" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations of the Company or an Affiliate, if any, which arise in connection with the exercise of your option.

(b) Upon your request and subject to approval by the Company, and compliance with any applicable legal conditions or restrictions, the Company may withhold from fully vested shares of Common Stock otherwise issuable to you upon the exercise of your option a number of whole shares of Common Stock having a Fair Market Value, determined by the Company as of the date of exercise, not in excess of the minimum amount of tax required to be withheld by law (or such lower amount as may be necessary to avoid classification of your option as a liability for financial accounting purposes). Notwithstanding the filing of such election, shares of Common Stock shall be withheld solely from fully vested shares of Common Stock determined as of the date of exercise of your option that are otherwise issuable to you upon such exercise. Any adverse consequences to you arising in connection with such share withholding procedure shall be your sole responsibility.

(c) You may not exercise your option unless the tax withholding obligations of the Company and/or any Affiliate are satisfied. Accordingly, you may not be able to exercise your option when desired even though your option is vested, and the Company will have no obligation to issue a certificate for such shares of Common Stock or release such shares of Common Stock from any escrow provided for herein, if applicable, unless such obligations are satisfied.

11. TAX CONSEQUENCES. You hereby 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 your option or your other compensation. In particular, you acknowledge that this option is exempt from Section 409A of the Code only if the exercise price per share specified in the Grant Notice is at least equal to the Fair Market Value per share of the Common Stock on the Date of Grant and there is no other impermissible deferral of compensation associated with the option.

12. NOTICES. Any notices provided for in your option 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 this option by electronic means or to request your consent to participate in the Plan by electronic means. By accepting this option, you consent to receive such documents 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.

13. GOVERNING PLAN DOCUMENT. Your option is subject to all the provisions of the Plan, the provisions of which are hereby made a part of your option, and is 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 your option and those of the Plan, the provisions of the Plan will control. In addition, your option (and any compensation paid or shares issued

under your option) is subject to recoupment in accordance with The Dodd–Frank Wall Street Reform and Consumer Protection Act and any implementing regulations thereunder, any clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable law. No recovery of compensation under such a clawback policy will be an event giving rise to a right to voluntarily terminate employment upon a resignation for "good reason," or for a "constructive termination" or any similar term under any plan of or agreement with the Company.

14. **OTHER DOCUMENTS**. You hereby acknowledge receipt of and the right to receive a document providing the information required by Rule 428(b)(1) promulgated under the Securities Act, which includes the Plan prospectus. In addition, you acknowledge receipt of the Company's policy permitting certain individuals to sell shares only during certain "window" periods and the Company's insider trading policy, in effect from time to time.

15. **EFFECT ON OTHER EMPLOYEE BENEFIT PLANS**. The value of this option will not be included as compensation, earnings, salaries, or other similar terms used when calculating your benefits under any employee benefit plan sponsored by the Company or any Affiliate, except as such plan otherwise expressly provides. The Company expressly reserves its rights to amend, modify, or terminate any of the Company's or any Affiliate's employee benefit plans.

16. **VOTING RIGHTS**. You will not have voting or any other rights as a shareholder of the Company with respect to the shares to be issued pursuant to this option until such shares are issued to you. Upon such issuance, you will obtain full voting and other rights as a shareholder of the Company. Nothing contained in this option, and no action taken pursuant to its provisions, will create or be construed to create a trust of any kind or a fiduciary relationship between you and the Company or any other person.

17. **SEVERABILITY**. If all or any part of this Option Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity will not invalidate any portion of this Option Agreement or the Plan not declared to be unlawful or invalid. Any section of this Option Agreement (or part of such a section) so declared to be unlawful or invalid shall, if possible, be construed in a manner which will give effect to the terms of such section or part of a section to the fullest extent possible while remaining lawful and valid.

18. **MISCELLANEOUS**.

(a) The rights and obligations of the Company under your option will be transferable by the Company to any one or more persons or entities, and all covenants and agreements hereunder will inure to the benefit of, and be enforceable by, the Company's successors and assigns.

(b) You agree upon request to execute any further documents or instruments necessary or desirable in the sole determination of the Company to carry out the purposes or intent of your option.

(c) You acknowledge and agree that you have reviewed your option in its entirety, have had an opportunity to obtain the advice of counsel prior to executing and accepting your option, and fully understand all provisions of your option.

(d) This Option Agreement will be subject to all applicable laws, rules, and regulations, and to such approvals by any governmental agencies or national securities exchanges as may be required.

(e) All obligations of the Company under the Plan and this Option Agreement will be binding on any successor to the Company, whether the existence of such successor is the result of a direct or indirect purchase, merger, consolidation, or otherwise, of all or substantially all of the business and/or assets of the Company.

* * *

This Option Agreement will be deemed to be accepted by you upon your original signature of the Grant Notice to which it is attached or your acknowledgement through an online or electronic system established and maintained by the Company or another third party designated by the Company.

EXHIBIT 10.14

GERON CORPORATION
2018 EQUITY INCENTIVE PLAN

PERFORMANCE-VESTING OPTION AGREEMENT
(INCENTIVE STOCK OPTION OR NONSTATUTORY STOCK OPTION)

Pursuant to your Stock Option Grant Notice *("**Grant Notice**")* and this Option Agreement, Geron Corporation (the *"**Company**")* has granted you an option under its 2018 Equity Incentive Plan (the *"**Plan**")* to purchase the number of shares of the Company's Common Stock indicated in your Grant Notice at the exercise price indicated in your Grant Notice. The option is granted to you effective as of the date of grant set forth in the Grant Notice (the *"**Date of Grant**")*. If there is any conflict between the terms in this Option Agreement and the Plan, the terms of the Plan will control. Capitalized terms not explicitly defined in this Option Agreement or in the Grant Notice but defined in the Plan will have the same definitions as in the Plan.

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

1. VESTING. Subject to the provisions contained herein, your option will vest as provided in your Grant Notice. Vesting will cease upon the termination of your Continuous Service, except as provided below:

(a) In the event your Continuous Service is terminated due to your Disability, then, notwithstanding your termination of Continuous Service due to your Disability, to the extent your option is not fully vested as of the date of Disability, such unvested portion of your option will continue to be eligible to vest and become exercisable upon the achievement of the performance goal set forth in the "Vesting Schedule" section of the Grant Notice as certified in writing by the Compensation Committee of the Board (a "***Milestone***"), to the extent the Milestone has not already been achieved as of the date of your termination of Continuous Service due to your Disability, if and only if the Milestone occurs within the thirty-six (36) month period following your termination of Continuous Service due to your Disability, or such shorter period of time your option remains outstanding pursuant to Section 7 below.

(b) In the event your Continuous Service is terminated due to your death or in the event that you die within 3 months following the termination of your Continuous Service for any reason other than Cause, then, notwithstanding your death, to the extent your option is not fully vested as of the date of your death, such unvested portion of your option will continue to be eligible to vest and become exercisable upon the achievement of the Milestone, if and only if the Milestone occurs within the thirty-six (36) month period following your death or such shorter period of time your option remains outstanding pursuant to Section 7 below.

(c) In the event of either (i) a Change in Control, or (ii) a Corporate Transaction in which the successor or surviving entity does not assume, continue or substitute for your option, and your Continuous Service has not terminated prior to such transaction, and subject to Section l (c)(i)-(iv) below, then your option will be accelerated in full.

(i) If any payment or benefit you would receive from the Company or otherwise in connection with a Change in Control or other similar transaction (a "280G Payment") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), then any such 280G Payment (a "Payment") shall be equal to the Reduced Amount. The "Reduced Amount" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment (after reduction) being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount (i.e., the amount determined by clause (x) or by clause (y)), after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in your receipt, on an after-tax basis, of the greater economic benefit notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in a Payment is required pursuant to the preceding sentence and the Reduced Amount is determined pursuant to clause (x) of the preceding sentence, the reduction shall occur in the manner (the "Reduction Method") that results in the greatest economic benefit for you. If more than one method of reduction will result in the same economic benefit, the items so reduced will be reduced pro rata (the "Pro Rata Reduction Method").

(ii) Notwithstanding the foregoing, if the Reduction Method or the Pro Rata Reduction Method would result in any portion of the Payment being subject to taxes pursuant to Section 409A of the Code that would not otherwise be subject to taxes pursuant to Section 409A of the Code, then the Reduction Method and/or the Pro Rata Reduction Method, as the case may be, shall be modified so as to avoid the imposition of taxes pursuant to Section 409A of the Code as follows: (A) as a first priority, the modification shall preserve to the greatest extent possible, the greatest economic benefit for you as determined on an after-tax basis; (B) as a second priority, Payments that are contingent on future events (e.g., being terminated without cause), shall be reduced (or eliminated) before Payments that are not contingent on future events; and (C) as a third priority, Payments that are "deferred compensation" within the meaning of Section 409A of the Code shall be reduced (or eliminated) before Payments that are not deferred compensation within the meaning of Section 409A of the Code.

(iii) Unless you and the Company agree on an alternative accounting firm, the accounting firm engaged by the Company for general tax compliance purposes as of the day prior to the effective date of a Change in Control triggering the Payment shall perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting the Change in Control, the Company shall appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company shall bear all expenses with respect to the determinations by such accounting firm required to be made hereunder. The Company shall use commercially reasonable efforts to cause the accounting firm engaged to make the determinations hereunder to provide its calculations, together with detailed supporting documentation, to you and the Company within fifteen (15) calendar days after the date on which your right to a 280G Payment becomes reasonably likely to occur (if requested at that time by you or the Company) or such other time as requested by you or the Company.

(iv) If you receive a Payment for which the Reduced Amount was determined pursuant to clause (x) of the first paragraph of this Section l(c) and the Internal Revenue Service determines thereafter that some portion of the Payment is subject to the Excise Tax, you shall promptly return to the Company a sufficient amount of the Payment (after reduction pursuant to clause (x) of the first paragraph of this Section l(c)) so that no portion of the remaining Payment is subject to the Excise Tax. For the avoidance of doubt, if the Reduced Amount was determined pursuant to clause (y) in the first paragraph of this Section 1(c), you shall have no obligation to return any portion of the Payment pursuant to the preceding sentence.

2. NUMBER OF SHARES AND EXERCISE PRICE. The number of shares of Common Stock subject to your option and your exercise price per share in your Grant Notice will be adjusted for Capitalization Adjustments.

3. EXERCISE RESTRICTION FOR NON-EXEMPT EMPLOYEES. If you are an Employee eligible for overtime compensation under the Fair Labor Standards Act of 1938, as amended (that is, a *"**Non-Exempt Employee**"),* and except as otherwise provided in the Plan, you may not exercise your option until you have completed at least six (6) months of Continuous Service measured from the Date of Grant, even if you have already been an employee for more than six (6) months. Consistent with the provisions of the Worker Economic Opportunity Act, you may exercise your option as to any vested portion prior to such six (6) month anniversary in the case of (i) your death or disability, (ii) a Corporate Transaction in which your option is not assumed, continued or substituted, (iii) a Change in Control or(iv) your termination of Continuous Service on your "retirement" (as defined in the Company's benefit plans).

4. METHOD OF PAYMENT . You must pay the full amount of the exercise price for the shares you wish to exercise. You may pay the exercise price in cash or by check, bank draft or money order payable to the Company or, if permitted by your Grant Notice and if at the time of exercise the Common Stock is publicly traded, then pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of Common Stock, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds. This manner of payment is also known as a "broker-assisted exercise'', "same day sale", or "sell to cover".

5. WHOLE SHARES. You may exercise your option only for whole shares of Common Stock.

6. SECURITIES LAW COMPLIANCE. In no event may you exercise your option unless the shares of Common Stock issuable upon exercise are then registered under the Securities Act or, if not registered, the Company has determined that your exercise and the issuance of the shares would be exempt from the registration requirements of the Securities Act. The exercise of your option also must comply with all other applicable laws and regulations governing your option, and you may not exercise your option if the Company determines that such exercise would not be in material compliance with such laws and regulations (including any restrictions on exercise required for compliance with Treas. Reg. 1.40l(k)-1(d)(3), if applicable).

7. **TERM**. You may not exercise your option before the Date of Grant or after the expiration of the option's term. The term of your option expires, subject to the provisions of Sections 5(h) and 9(c) of the Plan, upon the *earliest* of the following:

(a) immediately upon the termination of your Continuous Service for Cause;

(b) immediately with respect to the portion of your option that is unvested, if any, as of the date of your termination of Continuous Service for any reason other than your Disability or your death (except as otherwise provided in Section 7(e) below), immediately upon the termination of your Continuous Service for any reason other than your Disability or your death (except as otherwise provided in Section 7(e) below);

(c) with respect to the portion of your option that is vested, if any, as of the date of termination of Continuous Service for any reason other than Cause, your Disability or your death (except as otherwise provided in Section 7(e) below), three (3) months after the termination of your Continuous Service for any reason other than Cause, your Disability or your death (except as otherwise provided in Section 7(e) below); *provided, however,* that if during any part of such three (3) month period your option is not exercisable solely because of the condition set forth in the section above relating to "Securities Law Compliance," your option will not expire until the earlier of the Expiration Date or until it has been exercisable for an aggregate period of three (3) months after the termination of your Continuous Service; *provided further,* that if (i) you are a Non-Exempt Employee, (ii) your Continuous Service terminates within six (6) months after the Date of Grant, and (iii) you have vested in a portion of your option at the time of your termination of Continuous Service, your option will not expire until the earlier of (x) the later of (A) the date that is seven (7) months after the Date of Grant, and (B) the date that is three (3) months after the termination of your Continuous Service, and (y) the Expiration Date;

(d) If your termination of Continuous Service is due to your Disability (except as otherwise provided in Section 7(e) below):

- with respect to the portion of your option that is vested, if any, at the time of termination of your Continuous Service due to your Disability, twenty-four (24) months after the termination of your Continuous Service due to your Disability;

- with respect to the portion of your option that is unvested, if any, at the time of termination of your Continuous Service due to your Disability, thirty-six (36) months after the termination of your Continuous Service due to your Disability (except as otherwise provided in Section 7(e) below); *provided, however,* that if the achievement of a Milestone occurs during such thirty-six (36) month period, the portion of your option that vests as a result of such Milestone shall expire on the earlier of (1) ninety (90) calendar days following the Company's notice to you that such Milestone has occurred and (2) such shorter period required by Sections 7(f) and 7(g) below;

(e) If your termination of Continuous Service is due to your death or if you die either during your Continuous Service or within three (3) months after your Continuous Service terminates for any reason other than Cause:

- with respect to the portion of your option that is vested, if any, at the time of your death, twenty-four (24) months after your death;

- with respect to the portion of your option that is unvested, if any, at the time of your death, thirty-six (36) months after your death; *provided, however,* that if the achievement of a Milestone occurs during such thirty-six (36) month period, the portion of your option that vests as a result of such Milestone shall expire on the earlier of (1) ninety (90) calendar days following the Company's notice to your estate (or, as applicable, the person who acquired the right to exercise the option by bequest or inheritance or by the person designated to exercise the option upon your death) that such Milestone has occurred and (2) such shorter period required by Sections 7(f) and 7(g) below);

(f) the Expiration Date indicated in your Grant Notice; or

(g) the day before the tenth (10th) anniversary of the Date of Grant.

If your option is an Incentive Stock Option, note that to obtain the federal income tax advantages associated with an Incentive Stock Option, the Code requires that at all times beginning on the Date of Grant and ending on the day three (3) months before the date of your option's exercise, you must be an employee of the Company or an Affiliate, except in the event of your death or Disability. The Company has provided for extended exercisability of your option under certain circumstances for your benefit but cannot guarantee that your option will necessarily be treated as an Incentive Stock Option if you continue to provide services to the Company or an Affiliate as a Consultant or Director after your employment terminates or if you otherwise exercise your option more than three (3) months after the date your employment with the Company or an Affiliate terminates.

8. EXERCISE.

(a) You may exercise the vested portion of your option (and the unvested portion of your option if your Grant Notice so expressly permits) during its term by (i) delivering a Notice of Exercise (in a form designated by the Company) or completing such other documents and/or procedures designated by the Company for exercise and (ii) paying the exercise price and any applicable withholding taxes to the Company's Secretary, stock plan administrator, or such other person as the Company may designate, together with such additional documents as the Company may then require.

(b) By exercising your option you agree that, as a condition to any exercise of your option, the Company may require you to enter into an arrangement providing for the payment by you to the Company of any tax withholding obligation of the Company arising by reason of (i) the exercise of your option, (ii) the lapse of any substantial risk of forfeiture to which the shares of Common Stock are subject at the time of exercise, or (iii) the disposition of shares of Common Stock acquired upon such exercise.

(c) If your option is an Incentive Stock Option, by exercising your option you agree that you will notify the Company in writing within fifteen (15) days after the date of any disposition of any of the shares of the Common Stock issued upon exercise of your option that occurs within two (2) years after the Date of Grant or within one (1) year after such shares of Common Stock are transferred upon exercise of your option.

9. TRANSFERABILITY. Except as otherwise provided in this Section 9, your option is not transferable, except by will or by the laws of descent and distribution, and is exercisable during your life only by you.

(a) Certain Trusts. Upon receiving written permission from the Board or its duly authorized designee, you may transfer your option to a trust if you are considered to be the sole beneficial owner (determined under Section 671 of the Code and applicable state law) while the option is held in the trust. You and the trustee must enter into transfer and other agreements required by the Company.

(b) Domestic Relations Orders. Upon receiving written permission from the Board or its duly authorized Officer, and provided that you and the designated transferee enter into transfer and other agreements required by the Company, you may transfer your option pursuant to the terms of a domestic relations order, official marital settlement agreement or other divorce or separation instrument as permitted by Treasury Regulation l.421-l(b)(2) that contains the information required by the Company to effectuate the transfer. You are encouraged to discuss the proposed terms of any division of this option with the Company prior to finalizing the domestic relations order or marital settlement agreement to help ensure the required information is contained within the domestic relations order or marital settlement agreement. If this option is an Incentive Stock Option, this option may be deemed to be a Nonstatutory Stock Option as a result of such transfer.

(c) Beneficiary Designation. Upon receiving written permission from the Board or its duly authorized Officer, you may by delivering written notice to the Company, in a form approved by the Company and any broker designated by the Company to handle option exercises, designate a third party who, on your death, will thereafter be entitled to exercise this option and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, your executor or administrator of your estate will be entitled to exercise this option and receive, on behalf of your estate, the Common Stock or other consideration resulting from such exercise.

10. OPTION NOT A SERVICE CONTRACT. Your option is not an employment or service contract, and nothing in your option 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 your option will obligate the Company or an Affiliate, their respective shareholders, 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.

11. WITHHOLDING OBLIGATIONS.

(a) At the time you exercise your option, in whole or in part, and at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for (including by means of a "same day sale" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations of the Company or an Affiliate, if any, which arise in connection with the exercise of your option.

(b) If this option is a Nonstatutory Stock Option, then upon your request and subject to approval by the Company, and compliance with any applicable legal conditions or restrictions, the Company may withhold from fully vested shares of Common Stock otherwise issuable to you upon the exercise of your option a number of whole shares of Common Stock having a Fair Market Value, determined by the Company as of the date of exercise, not in excess of the minimum amount of tax required to be withheld by law (or such lower amount as may be necessary to avoid classification of your option as a liability for financial accounting purposes). Notwithstanding the filing of such election, shares of Common Stock shall be withheld solely from fully vested shares of Common Stock determined as of the date of exercise of your option that are otherwise issuable to you upon such exercise. Any adverse consequences to you arising in connection with such share withholding procedure shall be your sole responsibility.

(c) You may not exercise your option unless the tax withholding obligations of the Company and/or any Affiliate are satisfied. Accordingly, you may not be able to exercise your option when desired even though your option is vested, and the Company will have no obligation to issue a certificate for such shares of Common Stock or release such shares of Common Stock from any escrow provided for herein, if applicable, unless such obligations are satisfied.

12. TAX CONSEQUENCES. You hereby 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 your option or your other compensation. In particular, you acknowledge that this option is exempt from Section 409A of the Code only if the exercise price per share specified in the Grant Notice is at least equal to the Fair Market Value per share of the Common Stock on the Date of Grant and there is no other impermissible deferral of compensation associated with the option.

13. NOTICES. Any notices provided for in your option 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 this option by electronic means or to request your consent to participate in the Plan by electronic means. By accepting this option, you consent to receive such documents 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.

14. GOVERNING PLAN DOCUMENT. Your option is subject to all the provisions of the Plan, the provisions of which are hereby made a part of your option, and is 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 your option and those of the Plan, the provisions of the Plan will control. In addition, your option (and any compensation paid or shares issued under your option) is subject to recoupment in accordance with The Dodd-Frank Wall Street Reform and Consumer Protection Act and any implementing regulations thereunder, any clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable law. No recovery of compensation under such a clawback policy will be an event giving rise to a right to voluntarily terminate employment upon a resignation for "good reason," or for a "constructive termination" or any similar term under any plan of or agreement with the Company.

15. OTHER DOCUMENTS. You hereby acknowledge receipt of and the right to receive a document providing the information required by Rule 428(b)(l) promulgated under the Securities Act, which includes the Plan prospectus. In addition, you acknowledge receipt of the Company's policy permitting certain individuals to sell shares only during certain "window" periods and the Company's insider trading policy, in effect from time to time.

16. EFFECT ON OTHER EMPLOYEE BENEFIT PLANS. The value of this option will not be included as compensation, earnings, salaries, or other similar terms used when calculating your benefits under any employee benefit plan sponsored by the Company or any Affiliate, except as such plan otherwise expressly provides. The Company expressly reserves its rights to amend, modify, or terminate any of the Company's or any Affiliate's employee benefit plans.

17. VOTING RIGHTS. You will not have voting or any other rights as a shareholder of the Company with respect to the shares to be issued pursuant to this option until such shares are issued to you. Upon such issuance, you will obtain full voting and other rights as a shareholder of the Company. Nothing contained in this option, and no action taken pursuant to its provisions, will create or be construed to create a trust of any kind or a fiduciary relationship between you and the Company or any other person.

18. SEVERABILITY. If all or any part of this Option Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity will not invalidate any portion of this Option Agreement or the Plan not declared to be unlawful or invalid. Any section of this Option Agreement (or part of such a section) so declared to be unlawful or invalid shall, if possible, be construed in a manner which will give effect to the terms of such section or part of a Section to the fullest extent possible while remaining lawful and valid.

19. MISCELLANEOUS.

(a) The rights and obligations of the Company under your option will be transferable by the Company to any one or more persons or entities, and all covenants and agreements hereunder will inure to the benefit of, and be enforceable by, the Company's successors and assigns.

(b) You agree upon request to execute any further documents or instruments necessary or desirable in the sole determination of the Company to carry out the purposes or intent of your option.

(c) You acknowledge and agree that you have reviewed your option in its entirety, have had an opportunity to obtain the advice of counsel prior to executing and accepting your option, and fully understand all provisions of your option.

(d) This Option Agreement will be subject to all applicable laws, rules, and regulations, and to such approvals by any governmental agencies or national securities exchanges as may be required.

(e) All obligations of the Company under the Plan and this Option Agreement will be binding on any successor to the Company, whether the existence of such successor is the result of a direct or indirect purchase, merger, consolidation, or otherwise, of all or substantially all of the business and/or assets of the Company.

* * *

This Option Agreement will be deemed to be accepted by you upon your original signature of the Grant Notice to which it is attached or your acknowledgement through an online or electronic system established and maintained by the Company or another third party designated by the Company.

EXHIBIT 10.15

GERON CORPORATION
2018 EQUITY INCENTIVE PLAN

PERFORMANCE-VESTING OPTION AGREEMENT
(INCENTIVE STOCK OPTION OR NONSTATUTORY STOCK OPTION)

Pursuant to your Stock Option Grant Notice *("**Grant Notice**")* and this Option Agreement, Geron Corporation (the *"**Company**")* has granted you an option under its 2018 Equity Incentive Plan (the *"**Plan**")* to purchase the number of shares of the Company's Common Stock indicated in your Grant Notice at the exercise price indicated in your Grant Notice. The option is granted to you effective as of the date of grant set forth in the Grant Notice (the *"**Date of Grant**")*. If there is any conflict between the terms in this Option Agreement and the Plan, the terms of the Plan will control. Capitalized terms not explicitly defined in this Option Agreement or in the Grant Notice but defined in the Plan will have the same definitions as in the Plan.

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

1. VESTING. Subject to the provisions contained herein, your option will vest as provided in your Grant Notice. Vesting will cease upon the termination of your Continuous Service, except as provided below:

(a) In the event your Continuous Service is terminated due to your Disability, then, notwithstanding your termination of Continuous Service due to your Disability, to the extent your option is not fully vested as of the date of Disability, such unvested portion of your option will continue to be eligible to vest and become exercisable upon the achievement of the performance goal set forth in the "Vesting Schedule" section of the Grant Notice as certified in writing by the Compensation Committee of the Board (a "***Milestone***"), to the extent the Milestone has not already been achieved as of the date of your termination of Continuous Service due to your Disability, if and only if the Milestone occurs within the thirty-six (36) month period following your termination of Continuous Service due to your Disability, or such shorter period of time your option remains outstanding pursuant to Section 7 below.

(b) In the event your Continuous Service is terminated due to your death or in the event that you die within 3 months following the termination of your Continuous Service for any reason other than Cause, then, notwithstanding your death, to the extent your option is not fully vested as of the date of your death, such unvested portion of your option will continue to be eligible to vest and become exercisable upon the achievement of the Milestone, if and only if the Milestone occurs within the thirty-six (36) month period following your death or such shorter period of time your option remains outstanding pursuant to Section 7 below.

(c) In the event of either a Change in Control or a Corporate Transaction that is not a license, and you have not terminated your Continuous Service prior to the effective date of the Change in Control or Corporate Transaction, then the vesting and exercisability of your

option will be accelerated in full upon the effective date of such Change in Control or Corporate Transaction.

(i) If any payment or benefit you would receive from the Company or otherwise in connection with a Change in Control or other similar transaction (a "280G Payment") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), then any such 280G Payment (a "Payment") shall be equal to the Reduced Amount. The "Reduced Amount" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment (after reduction) being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount (i.e., the amount determined by clause (x) or by clause (y)), after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in your receipt, on an after-tax basis, of the greater economic benefit notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in a Payment is required pursuant to the preceding sentence and the Reduced Amount is determined pursuant to clause (x) of the preceding sentence, the reduction shall occur in the manner (the "Reduction Method") that results in the greatest economic benefit for you. If more than one method of reduction will result in the same economic benefit, the items so reduced will be reduced pro rata (the "Pro Rata Reduction Method").

(ii) Notwithstanding the foregoing, if the Reduction Method or the Pro Rata Reduction Method would result in any portion of the Payment being subject to taxes pursuant to Section 409A of the Code that would not otherwise be subject to taxes pursuant to Section 409A of the Code, then the Reduction Method and/or the Pro Rata Reduction Method, as the case may be, shall be modified so as to avoid the imposition of taxes pursuant to Section 409A of the Code as follows: (A) as a first priority, the modification shall preserve to the greatest extent possible, the greatest economic benefit for you as determined on an after-tax basis; (B) as a second priority, Payments that are contingent on future events (e.g., being terminated without cause), shall be reduced (or eliminated) before Payments that are not contingent on future events; and (C) as a third priority, Payments that are "deferred compensation" within the meaning of Section 409A of the Code shall be reduced (or eliminated) before Payments that are not deferred compensation within the meaning of Section 409A of the Code.

(iii) Unless you and the Company agree on an alternative accounting firm, the accounting firm engaged by the Company for general tax compliance purposes as of the day prior to the effective date of a Change in Control triggering the Payment shall perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting the Change in Control, the Company shall appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company shall bear all expenses with respect to the determinations by such accounting firm required to be made hereunder. The Company shall use commercially reasonable efforts to cause the accounting firm engaged to make the determinations hereunder to provide its calculations, together with detailed supporting documentation, to you and the Company within fifteen (15) calendar days after the date on which your right to a 280G Payment becomes reasonably likely to occur (if requested at that time by you or the Company) or such other time as requested by you or the Company.

(iv) If you receive a Payment for which the Reduced Amount was determined pursuant to clause (x) of the first paragraph of this Section l(c) and the Internal Revenue Service determines thereafter that some portion of the Payment is subject to the Excise Tax, you shall promptly return to the Company a sufficient amount of the Payment (after reduction pursuant to clause (x) of the first paragraph of this Section l(c)) so that no portion of the remaining Payment is subject to the Excise Tax. For the avoidance of doubt, if the Reduced Amount was determined pursuant to clause (y) in the first paragraph of this Section 1(c), you shall have no obligation to return any portion of the Payment pursuant to the preceding sentence.

2. NUMBER OF SHARES AND EXERCISE PRICE. The number of shares of Common Stock subject to your option and your exercise price per share in your Grant Notice will be adjusted for Capitalization Adjustments.

3. EXERCISE RESTRICTION FOR NON-EXEMPT EMPLOYEES. If you are an Employee eligible for overtime compensation under the Fair Labor Standards Act of 1938, as amended (that is, a ***"Non-Exempt Employee"),*** and except as otherwise provided in the Plan, you may not exercise your option until you have completed at least six (6) months of Continuous Service measured from the Date of Grant, even if you have already been an employee for more than six (6) months. Consistent with the provisions of the Worker Economic Opportunity Act, you may exercise your option as to any vested portion prior to such six (6) month anniversary in the case of (i) your death or disability, (ii) a Corporate Transaction in which your option is not assumed, continued or substituted, (iii) a Change in Control or(iv) your termination of Continuous Service on your "retirement" (as defined in the Company's benefit plans).

4. METHOD OF PAYMENT . You must pay the full amount of the exercise price for the shares you wish to exercise. You may pay the exercise price in cash or by check, bank draft or money order payable to the Company or, if permitted by your Grant Notice and if at the time of exercise the Common Stock is publicly traded, then pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of Common Stock, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds. This manner of payment is also known as a "broker-assisted exercise'', "same day sale", or "sell to cover".

5. WHOLE SHARES. You may exercise your option only for whole shares of Common Stock.

6. SECURITIES LAW COMPLIANCE. In no event may you exercise your option unless the shares of Common Stock issuable upon exercise are then registered under the Securities Act or, if not registered, the Company has determined that your exercise and the issuance of the shares would be exempt from the registration requirements of the Securities Act. The exercise of your option also must comply with all other applicable laws and regulations governing your option, and you may not exercise your option if the Company determines that such exercise would not be in material compliance with such laws and regulations (including any restrictions on exercise required for compliance with Treas. Reg. 1.40l(k)-1(d)(3), if applicable).

7. **TERM**. You may not exercise your option before the Date of Grant or after the expiration of the option's term. The term of your option expires, subject to the provisions of Sections 5(h) and 9(c) of the Plan, upon the *earliest* of the following:

(a) immediately upon the termination of your Continuous Service for Cause;

(b) immediately with respect to the portion of your option that is unvested, if any, as of the date of your termination of Continuous Service for any reason other than your Disability or your death (except as otherwise provided in Section 7(e) below), immediately upon the termination of your Continuous Service for any reason other than your Disability or your death (except as otherwise provided in Section 7(e) below);

(c) with respect to the portion of your option that is vested, if any, as of the date of termination of Continuous Service for any reason other than Cause, your Disability or your death (except as otherwise provided in Section 7(e) below), three (3) months after the termination of your Continuous Service for any reason other than Cause, your Disability or your death (except as otherwise provided in Section 7(e) below); provided, however, that if during any part of such three (3) month period your option is not exercisable solely because of the condition set forth in the section above relating to "Securities Law Compliance," your option will not expire until the earlier of the Expiration Date or until it has been exercisable for an aggregate period of three (3) months after the termination of your Continuous Service; provided further, that if (i) you are a Non-Exempt Employee, (ii) your Continuous Service terminates within six (6) months after the Date of Grant, and (iii) you have vested in a portion of your option at the time of your termination of Continuous Service, your option will not expire until the earlier of (x) the later of (A) the date that is seven (7) months after the Date of Grant, and (B) the date that is three (3) months after the termination of your Continuous Service, and (y) the Expiration Date;

(d) If your termination of Continuous Service is due to your Disability (except as otherwise provided in Section 7(e) below):

- with respect to the portion of your option that is vested, if any, at the time of termination of your Continuous Service due to your Disability, twenty-four (24) months after the termination of your Continuous Service due to your Disability;

- with respect to the portion of your option that is unvested, if any, at the time of termination of your Continuous Service due to your Disability, thirty-six (36) months after the termination of your Continuous Service due to your Disability (except as otherwise provided in Section 7(e) below); *provided, however*, that if the achievement of a Milestone occurs during such thirty-six (36) month period, the portion of your option that vests as a result of such Milestone shall expire on the earlier of (1) ninety (90) calendar days following the Company's notice to you that such Milestone has occurred and (2) such shorter period required by Sections 7(f) and 7(g) below;

(e) If your termination of Continuous Service is due to your death or if you die either during your Continuous Service or within three (3) months after your Continuous Service terminates for any reason other than Cause:

- with respect to the portion of your option that is vested, if any, at the time of your death, twenty-four (24) months after your death;

- with respect to the portion of your option that is unvested, if any, at the time of your death, thirty-six (36) months after your death; provided, however, that if the achievement of a Milestone occurs during such thirty-six (36) month period, the portion of your option that vests as a result of such Milestone shall expire on the earlier of (1) ninety (90) calendar days following the Company's notice to your estate (or, as applicable, the person who acquired the right to exercise the option by bequest or inheritance or by the person designated to exercise the option upon your death) that such Milestone has occurred and (2) such shorter period required by Sections 7(f) and 7(g) below);

(f) the Expiration Date indicated in your Grant Notice; or

(g) the day before the tenth (10th) anniversary of the Date of Grant.

If your option is an Incentive Stock Option, note that to obtain the federal income tax advantages associated with an Incentive Stock Option, the Code requires that at all times beginning on the Date of Grant and ending on the day three (3) months before the date of your option's exercise, you must be an employee of the Company or an Affiliate, except in the event of your death or Disability. The Company has provided for extended exercisability of your option under certain circumstances for your benefit but cannot guarantee that your option will necessarily be treated as an Incentive Stock Option if you continue to provide services to the Company or an Affiliate as a Consultant or Director after your employment terminates or if you otherwise exercise your option more than three (3) months after the date your employment with the Company or an Affiliate terminates.

8. EXERCISE.

(a) You may exercise the vested portion of your option (and the unvested portion of your option if your Grant Notice so expressly permits) during its term by (i) delivering a Notice of Exercise (in a form designated by the Company) or completing such other documents and/or procedures designated by the Company for exercise and (ii) paying the exercise price and any applicable withholding taxes to the Company's Secretary, stock plan administrator, or such other person as the Company may designate, together with such additional documents as the Company may then require.

(b) By exercising your option you agree that, as a condition to any exercise of your option, the Company may require you to enter into an arrangement providing for the payment by you to the Company of any tax withholding obligation of the Company arising by reason of (i) the exercise of your option, (ii) the lapse of any substantial risk of forfeiture to which the shares of Common Stock are subject at the time of exercise, or (iii) the disposition of shares of Common Stock acquired upon such exercise.

(c) If your option is an Incentive Stock Option, by exercising your option you agree that you will notify the Company in writing within fifteen (15) days after the date of any disposition of any of the shares of the Common Stock issued upon exercise of your option that occurs within two (2) years after the Date of Grant or within one (1) year after such shares of Common Stock are transferred upon exercise of your option.

9. TRANSFERABILITY. Except as otherwise provided in this Section 9, your option is not transferable, except by will or by the laws of descent and distribution, and is exercisable during your life only by you.

(a) Certain Trusts. Upon receiving written permission from the Board or its duly authorized designee, you may transfer your option to a trust if you are considered to be the sole beneficial owner (determined under Section 671 of the Code and applicable state law) while the option is held in the trust. You and the trustee must enter into transfer and other agreements required by the Company.

(b) Domestic Relations Orders. Upon receiving written permission from the Board or its duly authorized Officer, and provided that you and the designated transferee enter into transfer and other agreements required by the Company, you may transfer your option pursuant to the terms of a domestic relations order, official marital settlement agreement or other divorce or separation instrument as permitted by Treasury Regulation l.421-l(b)(2) that contains the information required by the Company to effectuate the transfer. You are encouraged to discuss the proposed terms of any division of this option with the Company prior to finalizing the domestic relations order or marital settlement agreement to help ensure the required information is contained within the domestic relations order or marital settlement agreement. If this option is an Incentive Stock Option, this option may be deemed to be a Nonstatutory Stock Option as a result of such transfer.

(c) Beneficiary Designation. Upon receiving written permission from the Board or its duly authorized Officer, you may by delivering written notice to the Company, in a form approved by the Company and any broker designated by the Company to handle option exercises, designate a third party who, on your death, will thereafter be entitled to exercise this option and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, your executor or administrator of your estate will be entitled to exercise this option and receive, on behalf of your estate, the Common Stock or other consideration resulting from such exercise.

10. OPTION NOT A SERVICE CONTRACT. Your option is not an employment or service contract, and nothing in your option 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 your option will obligate the Company or an Affiliate, their respective shareholders, 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.

11. WITHHOLDING OBLIGATIONS.

(a) At the time you exercise your option, in whole or in part, and at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for (including by means of a "same day sale" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations of the Company or an Affiliate, if any, which arise in connection with the exercise of your option.

(b) If this option is a Nonstatutory Stock Option, then upon your request and subject to approval by the Company, and compliance with any applicable legal conditions or restrictions, the Company may withhold from fully vested shares of Common Stock otherwise issuable to you upon the exercise of your option a number of whole shares of Common Stock having a Fair Market Value, determined by the Company as of the date of exercise, not in excess of the minimum amount of tax required to be withheld by law (or such lower amount as may be necessary to avoid classification of your option as a liability for financial accounting purposes). Notwithstanding the filing of such election, shares of Common Stock shall be withheld solely from fully vested shares of Common Stock determined as of the date of exercise of your option that are otherwise issuable to you upon such exercise. Any adverse consequences to you arising in connection with such share withholding procedure shall be your sole responsibility.

(c) You may not exercise your option unless the tax withholding obligations of the Company and/or any Affiliate are satisfied. Accordingly, you may not be able to exercise your option when desired even though your option is vested, and the Company will have no obligation to issue a certificate for such shares of Common Stock or release such shares of Common Stock from any escrow provided for herein, if applicable, unless such obligations are satisfied.

12. TAX CONSEQUENCES. You hereby 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 your option or your other compensation. In particular, you acknowledge that this option is exempt from Section 409A of the Code only if the exercise price per share specified in the Grant Notice is at least equal to the Fair Market Value per share of the Common Stock on the Date of Grant and there is no other impermissible deferral of compensation associated with the option.

13. NOTICES. Any notices provided for in your option 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 this option by electronic means or to request your consent to participate in the Plan by electronic means. By accepting this option, you consent to receive such documents 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.

14. GOVERNING PLAN DOCUMENT. Your option is subject to all the provisions of the Plan, the provisions of which are hereby made a part of your option, and is 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 your option and those of the Plan, the provisions of the Plan will control. In addition, your option (and any compensation paid or shares issued under your option) is subject to recoupment in accordance with The Dodd-Frank Wall Street Reform and Consumer Protection Act and any implementing regulations thereunder, any clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable law. No recovery of compensation under such a clawback policy will be an event giving rise to a right to voluntarily terminate employment upon a resignation for "good reason," or for a "constructive termination" or any similar term under any plan of or agreement with the Company.

15. OTHER DOCUMENTS. You hereby acknowledge receipt of and the right to receive a document providing the information required by Rule 428(b)(l) promulgated under the Securities Act, which includes the Plan prospectus. In addition, you acknowledge receipt of the Company's policy permitting certain individuals to sell shares only during certain "window" periods and the Company's insider trading policy, in effect from time to time.

16. EFFECT ON OTHER EMPLOYEE BENEFIT PLANS. The value of this option will not be included as compensation, earnings, salaries, or other similar terms used when calculating your benefits under any employee benefit plan sponsored by the Company or any Affiliate, except as such plan otherwise expressly provides. The Company expressly reserves its rights to amend, modify, or terminate any of the Company's or any Affiliate's employee benefit plans.

17. VOTING RIGHTS. You will not have voting or any other rights as a shareholder of the Company with respect to the shares to be issued pursuant to this option until such shares are issued to you. Upon such issuance, you will obtain full voting and other rights as a shareholder of the Company. Nothing contained in this option, and no action taken pursuant to its provisions, will create or be construed to create a trust of any kind or a fiduciary relationship between you and the Company or any other person.

18. SEVERABILITY. If all or any part of this Option Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity will not invalidate any portion of this Option Agreement or the Plan not declared to be unlawful or invalid. Any section of this Option Agreement (or part of such a section) so declared to be unlawful or invalid shall, if possible, be construed in a manner which will give effect to the terms of such section or part of a Section to the fullest extent possible while remaining lawful and valid.

19. MISCELLANEOUS.

(a) The rights and obligations of the Company under your option will be transferable by the Company to any one or more persons or entities, and all covenants and agreements hereunder will inure to the benefit of, and be enforceable by, the Company's successors and assigns.

(b) You agree upon request to execute any further documents or instruments necessary or desirable in the sole determination of the Company to carry out the purposes or intent of your option.

(c) You acknowledge and agree that you have reviewed your option in its entirety, have had an opportunity to obtain the advice of counsel prior to executing and accepting your option, and fully understand all provisions of your option.

(d) This Option Agreement will be subject to all applicable laws, rules, and regulations, and to such approvals by any governmental agencies or national securities exchanges as may be required.

(e) All obligations of the Company under the Plan and this Option Agreement will be binding on any successor to the Company, whether the existence of such successor is the result of a direct or indirect purchase, merger, consolidation, or otherwise, of all or substantially all of the business and/or assets of the Company.

* * *

This Option Agreement will be deemed to be accepted by you upon your original signature of the Grant Notice to which it is attached or your acknowledgement through an online or electronic system established and maintained by the Company or another third party designated by the Company.

EXHIBIT 10.17

GERON CORPORATION
2018 INDUCEMENT AWARD PLAN
ADOPTED BY THE BOARD OF DIRECTORS: DECEMBER 14, 2018
AMENDED AND RESTATED BY THE COMPENSATION COMMITTEE OF THE BOARD OF DIRECTORS:
JANUARY 29, 2019

1. GENERAL.

(a) Eligible Award Recipients. Awards may only be granted to Employees who satisfy the standards for inducement grants under Rule 5635(c)(4) of the Nasdaq Listing Rules. A person who previously served as an Employee or Director will not be eligible to receive Awards, other than following a bona fide period of non-employment.

(B) AVAILABLE STOCK AWARDS. The Plan provides for the grant of the following types of Stock Awards: (i) Nonstatutory Stock Options, (ii) Stock Appreciation Rights, (iii) Restricted Stock Awards, (iv) Restricted Stock Unit Awards and (v) Other Stock Awards.

(C) PURPOSE. The Plan, through the granting of Stock Awards, is intended to 1) help the Company and any Affiliate secure and retain the services of eligible Stock Award recipients, 2) provide an inducement material for such persons to enter into employment with the Company or an Affiliate within the meaning of Rule 5635(c)(4) of the Nasdaq Listing Rules, 3) provide incentives for such persons to exert maximum efforts for the success of the Company and any Affiliate and 4) provide a means by which the eligible recipients may benefit from increases in value of the Common Stock. The Plan is also intended to provide long-term incentives that align the interests of our eligible Stock Award recipients with the interests of our stockholders.

2. ADMINISTRATION.

(a) Administration by Board. The Board will administer the Plan. The Board may delegate administration of the Plan to a Committee or Committees, as provided in Section 2(c). However, notwithstanding the foregoing or anything in the Plan to the contrary, the grant of Stock Awards will be approved by the Company's independent compensation committee or a majority of the Company's independent directors (as defined in Rule 5605(a)(2) of the Nasdaq Listing Rules) in order to comply with the exemption from the stockholder approval requirement for "inducement grants" provided under Rule 5635(c)(4) of the Nasdaq Listing Rules.

(b) Powers of Board. The Board will have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine (A) who will be granted Stock Awards; (B) when and how each Stock Award will be granted; (C) what type of Stock Award will be granted; (D) the provisions of each Stock Award (which need not be identical), including when a person will be permitted to exercise or otherwise receive cash or Common Stock under the Stock Award; (E) the number of shares of Common Stock subject to, or the cash value of, a Stock Award; and (F) the Fair Market Value applicable to a Stock Award.

(II) To construe and interpret the Plan and Stock Awards granted under it, and to establish, amend and revoke rules and regulations for administration of the Plan and Stock Awards. The Board, in the exercise of these powers, may correct any defect, omission or inconsistency in the Plan or in any Stock Award Agreement, in a manner and to the extent it will deem necessary or expedient to make the Plan or Stock Award fully effective.

(iii) To settle all controversies regarding the Plan and Stock Awards granted under it.

(iv) To accelerate, in whole or in part, the time at which a Stock Award may be exercised or vest (or the time at which cash or shares of Common Stock may be issued in settlement thereof).

(v) To suspend or terminate the Plan at any time. Except as otherwise provided in the Plan or a Stock Award Agreement, suspension or termination of the Plan will not materially impair a Participant's rights under his or her then-outstanding Stock Award without his or her written consent except as provided in subsection (viii) below.

(vi) To amend the Plan in any respect the Board deems necessary or advisable, including, without limitation, by adopting amendments relating to certain nonqualified deferred compensation under Section 409A of the Code and/or to make the Plan or Stock Awards granted under the Plan exempt from or compliant with the requirements for nonqualified deferred compensation under Section 409A of the Code, subject to the limitations, if any, of applicable law. Except as provided in the Plan (including Section 2(b)(viii)) or a Stock Award Agreement, no amendment of the Plan will materially impair a Participant's rights under an outstanding Stock Award without the Participant's written consent.

(vii) To submit any amendment to the Plan for stockholder approval (to the extent the Board determines advisable or to the extent required pursuant to applicable laws or listing requirements), including, but not limited to, amendments to the Plan to comply with other applicable laws or listing requirements, provided, however, that any amendment provided in Section 9(a) relating to Capitalization Adjustments shall not require stockholder approval.

(viii) To approve forms of Stock Award Agreements for use under the Plan and to amend the terms of any one or more Stock Awards, including, but not limited to, amendments to provide terms more favorable to the Participant than previously provided in the Stock Award Agreement, subject to any specified limits in the Plan that are not subject to Board discretion and applicable laws or listing requirements, including Rule 5635(c) of the Nasdaq Listing Rules; *provided, however,* that a Participant's rights under any Stock Award will not be impaired by any such amendment unless (A) the Company requests the consent of the affected Participant, and (B) such Participant consents in writing. Notwithstanding the foregoing, (1) a Participant's rights will not be deemed to have been impaired by any such amendment if the Board, in its sole discretion, determines that the amendment, taken as a whole, does not materially impair the Participant's rights, and (2) subject to the limitations of applicable law, if any, the Board may amend the terms of any one or more Stock Awards without the affected Participant's consent (A) to clarify the manner of exemption from, or to bring the Stock Award into compliance with, Section 409A of the Code; or (B) to comply with other applicable laws or listing requirements.

(ix) Generally, to exercise such powers and to perform such acts as the Board deems necessary or expedient to promote the best interests of the Company and that are not in conflict with the provisions of the Plan or Stock Awards.

(x) To adopt such procedures and sub-plans as are necessary or appropriate to permit participation in the Plan by Employees who are foreign nationals or employed outside the United States (provided that Board approval will not be necessary for immaterial modifications to the Plan or any Stock Award Agreement that are required for compliance with the laws of the relevant foreign jurisdiction).

(c) Delegation to Committee. The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration of the Plan is delegated to a Committee, the Committee will have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to a subcommittee of the Committee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board will thereafter be to the Committee or subcommittee, as applicable). Any delegation of administrative powers will be reflected in resolutions, not inconsistent with the provisions of the Plan, adopted from time to time by the Board or Committee (as applicable). The Committee may, at any time, abolish the subcommittee and/or revest in the Committee any powers delegated to the subcommittee. The Board may retain the authority to concurrently administer the Plan with the Committee and may, at any time, revest in the Board some or all of the powers previously delegated. However, notwithstanding the foregoing or anything in the Plan to the contrary, the grant of Stock Awards will be approved by the Company's independent compensation committee or a majority of the Company's independent directors (as defined in Rule 5605(a)(2) of the Nasdaq Listing Rules) in order to comply with the exemption from the stockholder approval requirement for "inducement grants" provided under Rule 5635(c)(4) of the Nasdaq Listing Rules.

(d) Effect of Board's Decision. All determinations, interpretations and constructions made by the Board in good faith will not be subject to review by any person and will be final, binding and conclusive on all persons.

(e) Repricing; Cancellation and Re-Grant of Stock Awards. Neither the Board nor any Committee will have the authority to (i) reduce the exercise, purchase or strike price of any outstanding Option or SAR under the Plan, or (ii) cancel any outstanding Option or SAR that has an exercise price or strike price greater than the then-current Fair Market Value of the Common Stock in exchange for cash or other Stock Awards under the Plan, unless the stockholders of the Company have approved such an action within 12 months prior to such an event.

(f) Dividends and Dividend Equivalents. Dividends or dividend equivalents may be paid or credited, as applicable, with respect to any shares of Common Stock subject to a Stock Award, as determined by the Board and contained in the applicable Stock Award Agreement; *provided, however*, that (i) no dividends or dividend equivalents may be paid with respect to any such shares before the date such shares have vested under the terms of such Stock Award Agreement, (ii) any dividends or dividend equivalents that are credited with respect to any such shares will be subject to all of the terms and conditions applicable to such shares under the terms of such Stock Award Agreement (including, but not limited to, any vesting conditions), and (iii) any dividends or dividend equivalents that are credited with respect to any such shares will be forfeited to the Company on the date, if any, such shares are forfeited to or repurchased by the Company due to a failure to meet any vesting conditions under the terms of such Stock Award Agreement.

3. Shares Subject to the Plan.

(a) Share Reserve.

(i) Subject to Section 9(a) relating to Capitalization Adjustments, the aggregate number of shares of Common Stock that may be issued pursuant to Stock Awards will not exceed 8,000,000 shares (the "***Share Reserve***").

(ii) For clarity, the Share Reserve in this Section 3(a) is a limitation on the number of shares of Common Stock that may be issued pursuant to the Plan. Accordingly, this Section 3(a) does not limit the granting of Stock Awards except as provided in Section 7(a). Shares may be issued in connection with a merger or acquisition as permitted by Nasdaq Listing Rule 5635(c) or, if applicable, NYSE Listed Company Manual Section 303A.08, AMEX Company Guide Section 711 or other applicable rule, and such issuance will not reduce the number of shares available for issuance under the Plan.

(b) Reversion of Shares to the Share Reserve. If a Stock Award or any portion thereof (i) expires or otherwise terminates without all of the shares covered by such Stock Award having been issued or (ii) is settled in cash (*i.e.*, the Participant receives cash rather than stock), such expiration, termination or settlement will not reduce (or otherwise offset) the number of shares of Common Stock that may be available for issuance under the Plan. If any shares of Common Stock issued pursuant to a Stock Award are forfeited back to or repurchased or reacquired by the Company for any reason, including because of the failure to meet a contingency or condition required to vest such shares in the Participant, then the shares that are forfeited or repurchased or reacquired will revert to and again become available for issuance under the Plan. Any shares reacquired or withheld by the Company in satisfaction of tax withholding obligations on a Stock Award or as consideration for the exercise or purchase price of a Stock Award (including any shares subject to a Stock Award that are not delivered to a Participant because such Stock Award is exercised through a reduction of shares subject to such Stock Award (*i.e.*, "net exercised")) will again become available for issuance under the Plan.

(c) Source of Shares. The stock issuable under the Plan will be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market or otherwise.

4. Eligibility.

(a) Eligibility for Stock Awards. Stock Awards may be granted only to persons who are Employees described in Section 1(a), where the Stock Award is an inducement material to the individual's entering into employment with the Company or an Affiliate within the meaning of Rule 5635(c)(4) of the Nasdaq Listing Rules. For clarity, Stock Awards may not be granted to (1) Directors, for service in such capacity, or (2) any individual who was previously an Employee or Director, other than following a bona fide period of non-employment. Notwithstanding the foregoing, Stock Awards may not be granted to Employees who are providing Continuous Service only to any "parent" of the Company, as

such term is defined in Rule 405, unless (i) the stock underlying such Stock Awards is treated as "service recipient stock" under Section 409A of the Code (for example, because the Stock Awards are granted pursuant to a corporate transaction such as a spin off transaction) or (ii) the Company, in consultation with its legal counsel, has determined that such Stock Awards are otherwise exempt from or alternatively comply with the distribution requirements of Section 409A of the Code.

(B) APPROVAL REQUIREMENTS. All Stock Awards must be granted either by a majority of the Company's independent directors or by the Company's compensation committee comprised of independent directors within the meaning of Rule 5605(a)(2) of the Nasdaq Listing Rules.

5. PROVISIONS RELATING TO OPTIONS AND STOCK APPRECIATION RIGHTS.

Each Option or SAR will be in such form and will contain such terms and conditions as the Board deems appropriate. All Options will be Nonstatutory Stock Options. The provisions of separate Options or SARs need not be identical; *provided, however*, that each Stock Award Agreement will conform to (through incorporation of provisions hereof by reference in the applicable Stock Award Agreement or otherwise) the substance of each of the following provisions:

(A) TERM. No Option or SAR will be exercisable after the expiration of ten (10) years from the date of its grant or such shorter period specified in the Stock Award Agreement.

(b) Exercise Price. The exercise or strike price of each Option or SAR will be not less than 100% of the Fair Market Value of the Common Stock subject to the Option or SAR on the date the Stock Award is granted. Notwithstanding the foregoing, an Option or SAR may be granted with an exercise or strike price lower than 100% of the Fair Market Value of the Common Stock subject to the Stock Award if such Stock Award is granted pursuant to an assumption of or substitution for another option or stock appreciation right pursuant to a Corporate Transaction and in a manner consistent with the provisions of Section 409A of the Code. Each SAR will be denominated in shares of Common Stock equivalents.

(C) PURCHASE PRICE FOR OPTIONS. The purchase price of Common Stock acquired pursuant to the exercise of an Option may be paid, to the extent permitted by applicable law and as determined by the Board in its sole discretion, by any combination of the methods of payment set forth below. The Board will have the authority to grant Options that do not permit all of the following methods of payment (or that otherwise restrict the ability to use certain methods) and to grant Options that require the consent of the Company to use a particular method of payment. The permitted methods of payment are as follows:

(i) by cash, check, bank draft or money order payable to the Company;

(ii) pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of the Common Stock subject to the Option, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds;

(iii) by delivery to the Company (either by actual delivery or attestation) of shares of Common Stock;

(iv) by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issuable upon exercise by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price; *provided, however*, that the Company will accept a cash or other payment from the Participant to the extent of any remaining balance of the aggregate exercise price not satisfied by such reduction in the number of whole shares to be issued. Shares of Common Stock will no longer be subject to an Option and will not be exercisable thereafter to the extent that (A) shares issuable upon exercise are used to pay the exercise price pursuant to the "net exercise," (B) shares are delivered to the Participant as a result of such exercise, and (C) shares are withheld to satisfy tax withholding obligations; or

(v) in any other form of legal consideration that may be acceptable to the Board and specified in the applicable Stock Award Agreement.

(d) Exercise and Payment of a SAR. To exercise any outstanding SAR, the Participant must provide written notice of exercise to the Company in compliance with the provisions of the Stock Award Agreement evidencing such SAR. The appreciation distribution payable on the exercise of a SAR will be not greater than an amount equal to the excess of (A) the aggregate Fair Market Value (on the date of the exercise of the SAR) of a number of shares of Common Stock equal to the number of Common Stock equivalents in which the Participant is vested under such SAR, and with respect to which the Participant is exercising the SAR on such date, over (B) the aggregate strike price of the number of Common Stock equivalents with respect to which the Participant is exercising the SAR on such date. The appreciation distribution may be paid in Common Stock, in cash, in any combination of the two or in any other form of consideration, as determined by the Board and contained in the Stock Award Agreement evidencing such SAR.

(e) Transferability of Options and SARs. The Board may, in its sole discretion, impose such limitations on the transferability of Options and SARs as the Board may determine. In the absence of such a determination by the Board to the contrary, the restrictions set forth in this Section 5(e) on the transferability of Options and SARs will apply. Notwithstanding the foregoing or anything in the Plan or a Stock Award Agreement to the contrary, no Option or SAR may be transferred to any financial institution without prior stockholder approval.

(i) Restrictions on Transfer. An Option or SAR will not be transferable except by will or by the laws of descent and distribution (and pursuant to Sections 5(e)(ii) and 5(e)(iii) below) and will be exercisable during the lifetime of the Participant only by the Participant. Subject to the foregoing paragraph, the Board may permit transfer of the Option or SAR in a manner that is not prohibited by applicable tax and securities laws. Except as explicitly provided in the Plan, neither an Option nor a SAR may be transferred for consideration.

(ii) Domestic Relations Orders. Subject to the approval of the Board or a duly authorized Officer, an Option or SAR may be transferred pursuant to the terms of a domestic relations order, official marital settlement agreement or other divorce or separation instrument as permitted by Treasury Regulations Section 1.421-1(b)(2).

(iii) Beneficiary Designation. Subject to the approval of the Board or a duly authorized Officer, a Participant may, by delivering written notice to the Company, in a form approved by the Company (or the designated broker), designate a third party who, upon the death of the Participant, will thereafter be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, upon the death of the Participant, the executor or administrator of the Participant's estate will be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. However, the Company may prohibit designation of a beneficiary at any time, including due to any conclusion by the Company that such designation would be inconsistent with the provisions of applicable laws.

(f) Vesting Generally. The total number of shares of Common Stock subject to an Option or SAR may vest and become exercisable in periodic installments that may or may not be equal. The Option or SAR may be subject to such other terms and conditions on the time or times when it may or may not be exercised (which may be based on the satisfaction of performance goals or other criteria) as the Board may deem appropriate. The vesting provisions of individual Options or SARs may vary. The provisions of this Section 5(f) are subject to any Option or SAR provisions governing the minimum number of shares of Common Stock as to which an Option or SAR may be exercised.

(g) Termination of Continuous Service. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company or an Affiliate, if a Participant's Continuous Service terminates (other than for Cause and other than upon the Participant's death or Disability), the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date three months following such termination of Continuous Service (or such longer or shorter period specified in the Stock Award Agreement), and (ii) the expiration of the term of the Option or SAR as set forth in the Stock Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR (as applicable) within the applicable time frame, the Option or SAR (as applicable) will terminate.

(h) Extension of Termination Date. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company or an Affiliate, if the exercise of an Option or SAR following the termination of the Participant's Continuous Service (other than for Cause and other than upon the Participant's death or Disability) would be prohibited at any time solely because the issuance of shares of Common Stock would violate the registration requirements under the Securities Act, then the Option or SAR will terminate on the earlier of (i) the expiration of a total period of time (that need not be consecutive) equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the exercise of the Option or SAR would not be in violation of such registration requirements, or (ii) the expiration of the term of the Option or SAR as set forth in the applicable Stock Award Agreement. In addition, unless otherwise provided in a Participant's Stock Award Agreement, if the sale of any Common Stock received upon exercise of an Option or SAR following the termination of the Participant's Continuous Service (other than for Cause) would violate the Company's insider trading policy, then the Option or SAR will terminate on the earlier of (i) the expiration of a period of time (that need not be consecutive) equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the sale of the Common Stock received upon exercise of the Option or SAR would not be in violation of the Company's insider trading policy, or (ii) the expiration of the term of the Option or SAR as set forth in the applicable Stock Award Agreement.

(i) Disability of Participant. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company or an Affiliate, if a Participant's Continuous Service terminates as a result of the Participant's Disability, the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date 24 months following such termination of Continuous Service (or such longer or shorter period specified in the Stock Award Agreement), and (ii) the expiration of the term of the Option or SAR as set forth in the Stock Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR (as applicable) within the applicable time frame, the Option or SAR (as applicable) will terminate.

(j) Death of Participant. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company or an Affiliate, if (i) a Participant's Continuous Service terminates as a result of the Participant's death, or (ii) the Participant dies within the period (if any) specified in the Stock Award Agreement for exercisability after the termination of the Participant's Continuous Service (for a reason other than death), then the Participant's Option or SAR may be exercised (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of death) by the Participant's estate, by a person who acquired the right to exercise the Option or SAR by bequest or inheritance or by a person designated to exercise the Option or SAR upon the Participant's death, but only within such period of time ending on the earlier of (i) the date 24 months following the date of death (or such longer or shorter period specified in the Stock Award Agreement), and (ii) the expiration of the term of such Option or SAR as set forth in the Stock Award Agreement. If, after the Participant's death, the Option or SAR (as applicable) is not exercised within the applicable time frame, the Option or SAR (as applicable) will terminate.

(k) Termination for Cause. Except as explicitly provided otherwise in a Participant's Stock Award Agreement or other individual written agreement between the Participant and the Company or an Affiliate, if a Participant's Continuous Service is terminated for Cause, the Participant's Option or SAR will terminate immediately upon such termination of Continuous Service, and the Participant will be prohibited from exercising his or her Option or SAR from and after the time of such termination of Continuous Service.

(l) Non-Exempt Employees. If an Option or SAR is granted to an Employee who is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, the Option or SAR will not be first exercisable for any shares of Common Stock until at least six months following the date of grant of the Option or SAR (although the Stock Award may vest prior to such date). Consistent with the provisions of the Worker Economic Opportunity Act, (i) if such non-exempt employee dies or suffers a Disability, (ii) upon a Corporate Transaction in which such Option or SAR is not assumed, continued, or substituted, (iii) upon a Change in Control, or (iv) upon the Participant's retirement (as such term may be defined in the Participant's Stock Award Agreement, in another agreement between the Participant and the Company or an Affiliate, or, if no such definition, in accordance with the Company's or Affiliate's then current employment policies and guidelines), the vested portion of any Options and SARs may be exercised earlier than six months following the date of grant. The foregoing provision is intended to operate so that

any income derived by a non-exempt employee in connection with the exercise or vesting of an Option or SAR will be exempt from his or her regular rate of pay. To the extent permitted and/or required for compliance with the Worker Economic Opportunity Act to ensure that any income derived by a non-exempt employee in connection with the exercise, vesting or issuance of any shares under any other Stock Award will be exempt from the employee's regular rate of pay, the provisions of this Section 5(l) will apply to all Stock Awards and are hereby incorporated by reference into such Stock Award Agreements.

6. Provisions of Stock Awards Other than Options and SARs.

(a) Restricted Stock Awards. Each Restricted Stock Award Agreement will be in such form and will contain such terms and conditions as the Board deems appropriate. To the extent consistent with the Company's bylaws, at the Board's election, shares of Common Stock underlying a Restricted Stock Award may be (i) held in book entry form subject to the Company's instructions until any restrictions relating to the Restricted Stock Award lapse, or (ii) evidenced by a certificate, which certificate will be held in such form and manner as determined by the Board. The terms and conditions of Restricted Stock Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Award Agreements need not be identical. Each Restricted Stock Award Agreement will conform to (through incorporation of the provisions hereof by reference in the agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. A Restricted Stock Award may be awarded in consideration for (A) cash, check, bank draft or money order payable to the Company or (B) any other form of legal consideration (including future services) that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. Shares of Common Stock awarded under the Restricted Stock Award Agreement may be subject to forfeiture to the Company in accordance with a vesting schedule to be determined by the Board.

(iii) Termination of Participant's Continuous Service. If a Participant's Continuous Service terminates, the Company may receive through a forfeiture condition or a repurchase right any or all of the shares of Common Stock held by the Participant as of the date of termination of Continuous Service under the terms of the Restricted Stock Award Agreement.

(iv) Transferability. Rights to acquire shares of Common Stock under the Restricted Stock Award Agreement will be transferable by the Participant only upon such terms and conditions as are set forth in the Restricted Stock Award Agreement, as the Board will determine in its sole discretion, so long as Common Stock awarded under the Restricted Stock Award Agreement remains subject to the terms of the Restricted Stock Award Agreement. Notwithstanding the foregoing or anything in the Plan or a Restricted Stock Award Agreement to the contrary, no Restricted Stock Award may be transferred to any financial institution without prior stockholder approval.

(b) Restricted Stock Unit Awards. Each Restricted Stock Unit Award Agreement will be in such form and will contain such terms and conditions as the Board deems appropriate. The terms and conditions of Restricted Stock Unit Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Unit Award Agreements need not be identical. Each Restricted Stock Unit Award Agreement will conform to (through incorporation of the provisions hereof by reference in the Agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. At the time of grant of a Restricted Stock Unit Award, the Board will determine the consideration, if any, to be paid by the Participant upon delivery of each share of Common Stock subject to the Restricted Stock Unit Award. The consideration to be paid (if any) by the Participant for each share of Common Stock subject to a Restricted Stock Unit Award may be paid in any form of legal consideration that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. At the time of the grant of a Restricted Stock Unit Award, the Board may impose such restrictions on or conditions to the vesting of the Restricted Stock Unit Award as it, in its sole discretion, deems appropriate.

(iii) Payment. A Restricted Stock Unit Award may be settled by the delivery of shares of Common Stock, their cash equivalent, any combination thereof or in any other form of consideration, as determined by the Board and contained in the Restricted Stock Unit Award Agreement.

(iv) Additional Restrictions. At the time of the grant of a Restricted Stock Unit Award, the Board, as it deems appropriate, may impose such restrictions or conditions that delay the delivery of the shares of Common Stock (or their cash equivalent) subject to a Restricted Stock Unit Award to a time after the vesting of such Restricted Stock Unit Award.

(v) Termination of Participant's Continuous Service. Except as otherwise provided in the applicable Restricted Stock Unit Award Agreement, such portion of the Restricted Stock Unit Award that has not vested will be forfeited upon the Participant's termination of Continuous Service.

(c) Other Stock Awards. Other forms of Stock Awards valued in whole or in part by reference to, or otherwise based on, Common Stock, including the appreciation in value thereof (*e.g.*, options or stock appreciation rights with an exercise price or strike price less than 100% of the Fair Market Value of the Common Stock at the time of grant) may be granted either alone or in addition to Stock Awards granted under Section 5 and this Section 6. Subject to the provisions of the Plan (including, but not limited to, Section 2(f)), the Board will have sole and complete authority to determine the persons to whom and the time or times at which such Other Stock Awards will be granted, the number of shares of Common Stock (or the cash equivalent thereof) to be granted pursuant to such Other Stock Awards and all other terms and conditions of such Other Stock Awards.

7. Covenants of the Company.

(a) Availability of Shares. The Company will keep available at all times the number of shares of Common Stock reasonably required to satisfy then-outstanding Stock Awards.

(b) Securities Law Compliance. The Company will seek to obtain from each regulatory commission or agency having jurisdiction over the Plan the authority required to grant Stock Awards and to issue and sell shares of Common Stock upon exercise of the Stock Awards; *provided, however*, that this undertaking will not require the Company to register under the Securities Act the Plan, any Stock Award or any Common Stock issued or issuable pursuant to any such Stock Award. If, after reasonable efforts and at a reasonable cost, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary for the lawful issuance and sale of Common Stock under the Plan, the Company will be relieved from any liability for failure to issue and sell Common Stock upon exercise of such Stock Awards unless and until such authority is obtained. A Participant will not be eligible for the grant of a Stock Award or the subsequent issuance of cash or Common Stock pursuant to the Stock Award if such grant or issuance would be in violation of any applicable securities law.

(c) No Obligation to Notify or Minimize Taxes. The Company will have no duty or obligation to any Participant to advise such holder as to the time or manner of exercising a Stock Award. Furthermore, the Company will have no duty or obligation to warn or otherwise advise such holder of a pending termination or expiration of a Stock Award or a possible period in which the Stock Award may not be exercised. The Company has no duty or obligation to minimize the tax consequences of a Stock Award to the holder of such Stock Award.

8. Miscellaneous.

(a) Use of Proceeds from Sales of Common Stock. Proceeds from the sale of shares of Common Stock issued pursuant to Stock Awards will constitute general funds of the Company.

(b) Corporate Action Constituting Grant of Stock Awards. Corporate action constituting a grant by the Company of a Stock Award to any Participant will be deemed completed as of the date of such corporate action, unless otherwise determined by the Board, regardless of when the instrument, certificate, or letter evidencing the Stock Award is communicated to, or actually received or accepted by, the Participant. In the event that the corporate records (*e.g.*, Board consents, resolutions or minutes) documenting the corporate action constituting the grant contain terms (*e.g.*, exercise price, vesting schedule or number of shares) that are inconsistent with those in the Stock Award Agreement or related grant documents as a result of a clerical error in the preparation of the Stock Award Agreement or related grant documents, the corporate records will control and the Participant will have no legally binding right to the incorrect terms in the Stock Award Agreement or related grant documents.

(c) Stockholder Rights. No Participant will be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Common Stock subject to a Stock Award unless and until (i) such Participant has satisfied all requirements for exercise of, or the issuance of shares of Common Stock under, the Stock Award pursuant to its terms, and (ii) the issuance of the Common Stock subject to such Stock Award has been entered into the books and records of the Company.

(d) No Employment or Other Service Rights. Nothing in the Plan, any Stock Award Agreement or any other instrument executed thereunder or in connection with any Stock Award granted pursuant thereto will confer upon any Participant any right to continue to serve the Company or an Affiliate in the capacity in effect at the time the Stock Award was granted or will affect the right of the Company or an Affiliate to terminate (i) the employment of an Employee with or without notice and with or without cause or (ii) as may be applicable after the grant of a Stock Award should the Employee recipient's service capacity change to that of a Consultant or Director, (1) the service of a Consultant pursuant to the terms of such Consultant's agreement with the Company or an Affiliate, or (2) the service of a Director pursuant to the bylaws of the Company or an Affiliate, and any applicable provisions of the corporate law of the state in which the Company or the Affiliate is incorporated, as the case may be.

(e) Change in Time Commitment. In the event a Participant's regular level of time commitment in the performance of his or her services for the Company or any Affiliate is reduced (for example, and without limitation, if the Participant is an Employee of the Company and the Employee has a change in status from a full-time Employee to a part-time Employee) after the date of grant of any Stock Award to the Participant, the Board has the right in its sole discretion to (x) make a corresponding reduction in the number of shares or cash amount subject to any portion of such Stock Award that is scheduled to vest or become payable after the date of such change in time commitment, and (y) in lieu of or in combination with such a reduction, extend the vesting or payment schedule applicable to such Stock Award. In the event of any such reduction, the Participant will have no right with respect to any portion of the Stock Award that is so reduced or extended.

(f) Investment Assurances. The Company may require a Participant, as a condition of exercising or acquiring Common Stock under any Stock Award, (i) to give written assurances satisfactory to the Company as to the Participant's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters and that he or she is capable of evaluating, alone or together with the purchaser representative, the merits and risks of exercising the Stock Award; and (ii) to give written assurances satisfactory to the Company stating that the Participant is acquiring Common Stock subject to the Stock Award for the Participant's own account and not with any present intention of selling or otherwise distributing the Common Stock. The foregoing requirements, and any assurances given pursuant to such requirements, will be inoperative if (A) the issuance of the shares upon the exercise or acquisition of Common Stock under the Stock Award has been registered under a then currently effective registration statement under the Securities Act, or (B) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws. The Company may, upon advice of counsel to the Company, place legends on stock certificates issued under the Plan as such counsel deems necessary or appropriate in order to comply with applicable securities laws, including, but not limited to, legends restricting the transfer of the Common Stock.

(g) Withholding Obligations. Unless prohibited by the terms of a Stock Award Agreement, the Company may, in its sole discretion, satisfy any federal, state or local tax withholding obligation relating to a Stock Award by any of the following means or by a combination of such means: (i) causing the Participant to tender a cash payment; (ii) withholding shares of Common Stock from the shares of Common Stock issued or otherwise issuable to the Participant in connection with the Stock Award; *provided, however,* that no shares of Common Stock are withheld with a value exceeding the maximum amount of tax that may be required to be withheld by law (or such other amount as may be permitted while still avoiding classification of the Stock Award as a liability for financial accounting purposes); (iii) withholding cash from a Stock Award settled in cash; (iv) withholding payment from any amounts otherwise payable to the Participant; or (v) by such other method as may be set forth in the Stock Award Agreement.

(h) Electronic Delivery. Any reference herein to a "written" agreement or document will include any agreement or document delivered electronically, filed publicly at www.sec.gov (or any successor website thereto) or posted on the Company's intranet (or other shared electronic medium controlled by the Company to which the Participant has access).

(i) Deferrals. To the extent permitted by applicable law, the Board, in its sole discretion, may determine that the delivery of Common Stock or the payment of cash, upon the exercise, vesting or settlement of all or a portion of any Stock Award may be deferred and may establish programs and procedures for deferral elections to be made by Participants. Deferrals by Participants will be made in accordance with Section 409A of the Code. Consistent with Section 409A of the Code, the Board may provide for distributions while a Participant is still an employee or otherwise providing services to the Company or an Affiliate. The Board is authorized to make deferrals of Stock Awards and determine when, and in what annual percentages, Participants may receive payments, including lump sum payments, following the Participant's termination of Continuous Service, and implement such other terms and conditions consistent with the provisions of the Plan and in accordance with applicable law.

(j) Compliance with Section 409A of the Code. Unless otherwise expressly provided for in a Stock Award Agreement, the Plan and Stock Award Agreements will be interpreted to the greatest extent possible in a manner that makes the Plan and the Stock Awards granted hereunder exempt from Section 409A of the Code, and, to the extent not so exempt, in compliance with Section 409A of the Code. To the extent that the Board determines that any Stock Award granted hereunder is not exempt from and is therefore subject to Section 409A of the Code, the Stock Award Agreement evidencing such Stock Award will incorporate the terms and conditions necessary to avoid the consequences specified in Section 409A(a)(1) of the Code, and, to the extent applicable, the Plan and Stock Award Agreements will be interpreted in accordance with the requirements of Section 409A of the Code. Notwithstanding anything to the contrary in this Plan (and unless the Stock Award Agreement specifically provides otherwise), if the shares of Common Stock are publicly traded and a Participant holding a Stock Award that constitutes "deferred compensation" under Section 409A of the Code is a "specified employee" for purposes of Section 409A of the Code, no distribution or payment of any amount will be made upon a "separation from service" before a date that is six months following the date of such Participant's "separation from service" (as defined in Section 409A of the Code without regard to alternative definitions thereunder) or, if earlier, the date of the Participant's death.

(k) Clawback/Recovery. All Stock Awards granted under the Plan will be subject to recoupment in accordance with any clawback provisions in a Participant's employment agreement or other agreement with the Company or any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Board may impose such other clawback, recovery or recoupment provisions in a Stock Award Agreement as the Board determines necessary or appropriate, including but not limited to a reacquisition right in respect of previously acquired shares of Common Stock or other cash or property upon the occurrence of Cause. No recovery of compensation under such a clawback policy will be an event giving rise to a right to resign for "good reason" or "constructive termination" (or similar term) under any agreement with the Company or an Affiliate.

9. Adjustments upon Changes in Common Stock; Other Corporate Events.

(a) Capitalization Adjustments. In the event of a Capitalization Adjustment, the Board will appropriately and proportionately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a) and (ii) the class(es) and number of securities and price per share of stock subject to outstanding Stock Awards. The Board will make such adjustments, and its determination will be final, binding and conclusive.

(b) Dissolution or Liquidation. Except as otherwise provided in the Stock Award Agreement, in the event of a dissolution or liquidation of the Company, all outstanding Stock Awards (other than Stock Awards consisting of vested and outstanding shares of Common Stock not subject to a forfeiture condition or the Company's right of repurchase) will terminate immediately prior to the completion of such dissolution or liquidation, and the shares of Common Stock subject to the Company's repurchase rights or subject to a forfeiture condition may be repurchased or reacquired by the Company notwithstanding the fact that the holder of such Stock Award is providing Continuous Service, *provided, however*, that the Board may, in its sole discretion, cause some or all Stock Awards to become fully vested, exercisable and/or no longer subject to repurchase or forfeiture (to the extent such Stock Awards have not previously expired or terminated) before the dissolution or liquidation is completed but contingent on its completion.

(c) Corporate Transaction. The following provisions will apply to Stock Awards in the event of a Corporate Transaction unless otherwise provided in the Stock Award Agreement or any other written agreement between the Company or any Affiliate and the Participant or unless otherwise expressly provided by the Board at the time of grant of a Stock Award. In the event of a Corporate Transaction, then, notwithstanding any other provision of the Plan, the Board may take one or more of the following actions with respect to Stock Awards, contingent upon the closing or completion of the Corporate Transaction:

(i) arrange for the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) to assume or continue the Stock Award or to substitute a similar stock award for the Stock Award (including, but not limited to, an award to acquire the same consideration paid to the stockholders of the Company pursuant to the Corporate Transaction);

(ii) arrange for the assignment of any reacquisition or repurchase rights held by the Company in respect of Common Stock issued pursuant to the Stock Award to the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company);

(iii) accelerate the vesting, in whole or in part, of the Stock Award (and, if applicable, the time at which the Stock Award may be exercised) to a date prior to the effective time of such Corporate Transaction as the Board determines (or, if the Board does not determine such a date, to the date that is five (5) days prior to the effective date of the Corporate Transaction), with such Stock Award terminating if not exercised (if applicable) at or prior to the effective time of the Corporate Transaction; *provided, however*, that the Board may require Participants to complete and deliver to the Company a notice of exercise before the effective date of a Corporate Transaction, which exercise is contingent upon the effectiveness of such Corporate Transaction;

(iv) arrange for the lapse, in whole or in part, of any reacquisition or repurchase rights held by the Company with respect to the Stock Award;

(v) cancel or arrange for the cancellation of the Stock Award, to the extent not vested or not exercised prior to the effective time of the Corporate Transaction, in exchange for such cash consideration, if any, as the Board, in its sole discretion, may consider appropriate; and

(vi) make a payment, in such form as may be determined by the Board equal to the excess, if any, of (A) the value of the property the Participant would have received upon the exercise of the Stock Award immediately prior to the effective time of the Corporate Transaction, over (B) any exercise price payable by such holder in connection with such exercise. For clarity, this payment may be zero ($0) if the value of the property is equal to or less than the exercise price. Payments under this provision may be delayed to the same extent that payment of consideration to the holders of the Company's Common Stock in connection with the Corporate Transaction is delayed as a result of escrows, earn outs, holdbacks or any other contingencies.

The Board need not take the same action or actions with respect to all Stock Awards or portions thereof or with respect to all Participants. The Board may take different actions with respect to the vested and unvested portions of a Stock Award.

(d) Change in Control. A Stock Award may be subject to additional acceleration of vesting and exercisability upon or after a Change in Control as may be provided in the Stock Award Agreement for such Stock Award or as may be provided in any other written agreement between the Company or any Affiliate and the Participant, but in the absence of such provision, no such acceleration will occur.

10. Termination or Suspension of the Plan.

(a) The Board may suspend or terminate the Plan at any time. No Stock Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

(b) No Impairment of Rights. Suspension or termination of the Plan will not materially impair rights and obligations under any Stock Award granted while the Plan is in effect except with the written consent of the affected Participant or as otherwise permitted in the Plan.

11. Effective Date of Plan.

This Plan will become effective on the Effective Date.

12. Choice of Law.

The laws of the State of Delaware will govern all questions concerning the construction, validity and interpretation of this Plan, without regard to that state's conflict of laws rules.

13. Definitions. As used in the Plan, the following definitions will apply to the capitalized terms indicated below:

(a) "***Affiliate***" means, at the time of determination, any "parent" or "subsidiary" of the Company as such terms are defined in Rule 405. The Board will have the authority to determine the time or times at which "parent" or "subsidiary" status is determined within the foregoing definition.

(b) "***Board***" means the Board of Directors of the Company.

(c) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Stock Award after the Effective Date without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, reverse stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or any similar equity restructuring transaction, as that term is used in Statement of Financial Accounting Standards Board Accounting Standards Codification Topic 718 (or any successor thereto). Notwithstanding the foregoing, the conversion of any convertible securities of the Company will not be treated as a Capitalization Adjustment.

(d) "***Cause***" will have the meaning ascribed to such term in any written agreement between the Participant and the Company or an Affiliate defining such term and, in the absence of such agreement, such term will mean, with respect to a Participant and for purposes of the application of this Plan, the occurrence of any of the following events: (i) such Participant's conviction of, or plea of no contest with respect to, any crime involving fraud, dishonesty or moral turpitude; (ii) such Participant's attempted commission of or participation in a fraud or act of dishonesty against the Company or an Affiliate that results in (or might have reasonably resulted in) material harm to the business of the Company or an Affiliate; (iii) such Participant's intentional, material violation of any contract or agreement between the Participant and the Company or an Affiliate, or any statutory duty the Participant owes to the Company or an Affiliate; or (iv) such Participant's conduct that constitutes gross misconduct, insubordination, incompetence or habitual neglect of duties and that results in (or might have reasonably resulted in) material harm to the business of the Company or an Affiliate. The determination that a termination of the Participant's Continuous Service is either for Cause or without Cause will be made by the Company, in its sole discretion. Any determination by the Company that the Continuous Service of a Participant was terminated with or without Cause for the purposes of outstanding Stock Awards held by such Participant will have no effect upon any determination of the rights or obligations of the Company or an Affiliate or such Participant for any other purpose.

(e) "***Change in Control***" will be deemed to have occurred upon the first to occur of an event set forth in any one of the following paragraphs:

(i) As a result of any merger or consolidation, the voting securities of the Company outstanding immediately prior thereto represent (either by remaining outstanding or by being converted into voting securities of the surviving or acquiring entity) less than 49% of the combined voting power of the voting securities of the Company or such surviving or acquiring entity outstanding immediately after such merger or consolidation;

(ii) during any period of twenty-four consecutive calendar months, the individuals who at the beginning of such period constitute the Board, and any new directors whose election by such Board or nomination for election by stockholders was approved by a vote of at least two-thirds of the members of such Board who were either directors on such Board at the beginning of the period or whose election or nomination for election as directors was previously so approved, for any reason cease to constitute at least a majority of the members thereof;

(iii) any individual, entity or group (within the meaning of Section 13(d)(3) or 14(d)(2) of the Exchange Act) shall become the beneficial owner (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of more than 20% of the then outstanding shares of Common Stock of the Company;

(iv) any sale of all or substantially all of the assets of the Company; or

(v) the complete liquidation or dissolution of the Company.

Notwithstanding the foregoing, if a Change in Control constitutes a payment event with respect to any Stock Award which provides for the deferral of compensation and is subject to Section 409A of the Code, the transaction or event with respect to such Stock Award must also constitute a "change in control event," as defined in Treasury Regulation §1.409A-3(i)(5) to the extent required by Section 409A.

The Committee shall have full and final authority, which shall be exercised in its discretion, to determine conclusively whether a Change in Control of the Company has occurred pursuant to the above definition, and the date of the occurrence of such Change in Control and any incidental matters relating thereto.

Notwithstanding the foregoing, a Change in Control shall not be deemed to occur solely because the threshold voting power of the Company's then outstanding securities in Section 13(e)(i) or (iii) is acquired by (A) a trustee or other fiduciary holding securities under one or more employee benefit plans maintained by the Company or any of its subsidiaries or (B) any corporation which, immediately prior to such acquisition, is owned directly or indirectly by the stockholders of the Company in the same proportion as their ownership of stock in the Company immediately prior to such acquisition.

For the avoidance of doubt, the term Change in Control shall not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company.

Notwithstanding the foregoing or any other provision of this Plan, the definition of Change in Control (or any analogous term) in an individual written agreement between the Company or any Affiliate and the Participant shall supersede the foregoing definition with respect to Stock Awards subject to such agreement; provided, however, that if no definition of Change in Control or any analogous term is set forth in such an individual written agreement, the foregoing definition shall apply.

(f) "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(g) "***Committee***" means a committee of one or more Directors to whom authority has been delegated by the Board in accordance with Section 2(c).

(h) "***Common Stock***" means the common stock of the Company.

(i) "***Company***" means Geron Corporation, a Delaware corporation.

(j) "***Consultant***" means any person, including an advisor, who is (i) engaged by the Company or an Affiliate to render consulting or advisory services and is compensated for such services, or (ii) serving as a member of the board of directors of an Affiliate and is compensated for such services. However, service solely as a Director, or payment of a fee for such service, will not cause a Director to be considered a "Consultant" for purposes of the Plan. Notwithstanding the foregoing, a person is treated as a Consultant under this Plan only if a Form S-8 Registration Statement under the Securities Act is available to register either the offer or the sale of the Company's securities to such person. Consultants are not eligible to be granted Stock Awards under this Plan with respect to their service in such capacity.

(k) "***Continuous Service***" means that the Participant's service with the Company or an Affiliate, whether as an Employee, Director or Consultant, is not interrupted or terminated. A change in the capacity in which the Participant renders service to the Company or an Affiliate as an Employee, Director or Consultant or a change in the Entity for which the Participant renders such service, provided that there is no interruption or termination of the Participant's service with the Company or an Affiliate, will not terminate a Participant's Continuous Service; *provided, however,* that if the Entity for which a Participant is rendering services ceases to qualify as an Affiliate, as determined by the Board, in its sole discretion, such Participant's Continuous Service will be considered to have terminated on the date such Entity ceases to qualify as an Affiliate. For example, a change in status from an Employee of the Company to a Consultant of an Affiliate or to a Director will not constitute an interruption of Continuous Service. To the extent permitted by law, the Board or the chief executive officer of the Company, in that party's sole discretion, may determine whether Continuous Service will be considered interrupted in the case of (i) any leave of absence approved by the Board or chief executive officer, including sick leave, military leave or any other personal leave, or (ii) transfers between the Company, an Affiliate, or their successors. Notwithstanding the foregoing, a leave of absence will be treated as Continuous Service for purposes of vesting in a Stock Award only to such extent as may be provided in the Company's or Affiliate's leave of absence policy, in the written terms of any leave of absence agreement or policy applicable to the Participant, or as otherwise required by law.

(l) "***Corporate Transaction***" means the consummation, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) a sale, lease or other disposition of all or substantially all of the assets of the Company;

(ii) a sale or other disposition of at least ninety percent (90%) of the outstanding securities of the Company;

(iii) a merger, consolidation or similar transaction in which the Company is not the surviving corporation; or

(iv) a reverse merger, consolidation or similar transaction in which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

Notwithstanding the foregoing definition or any other provision of this Plan, the term Corporate Transaction will not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company.

(m) "***Director***" means a member of the Board. Directors are not eligible to be granted Stock Awards with respect to their service in such capacity under this Plan.

(n) "***Disability***" means, with respect to a Participant, the inability of such Participant to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or that has lasted or can be expected to last for a continuous period of not less than 12 months, as provided in Sections 22(e)(3) and 409A(a)(2)(c)(i) of the Code, and will be determined by the Board on the basis of such medical evidence as the Board deems warranted under the circumstances.

(o) "***Effective Date***" means the effective date of this Plan document, which is December 14, 2018, the date the Plan was approved by the Board.

(p) "***Employee***" means any person employed by the Company or an Affiliate. However, service solely as a Director, or payment of a fee for such services, will not cause a Director to be considered an "Employee" for purposes of the Plan.

(q) "***Entity***" means a corporation, partnership, limited liability company or other domestic or foreign entity.

(r) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(s) "***Fair Market Value***" means, as of any date, the value of the Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or traded on any established market, the Fair Market Value of a share of Common Stock will be, unless otherwise determined by the Board, the closing sales price for such stock as quoted on such exchange or market (or the exchange or market with the greatest volume of trading in the Common Stock) on the date of determination, as reported in a source the Board deems reliable.

(ii) Unless otherwise provided by the Board, if there is no closing sales price for the Common Stock on the date of determination, then the Fair Market Value will be the closing selling price on the last preceding date for which such quotation exists.

(iii) In the absence of such markets for the Common Stock, the Fair Market Value will be determined by the Board in good faith and in a manner that complies with Sections 409A and 422 of the Code.

(t)"***Non-Employee Director***" means a Director who either (i) is not a current employee or officer of the Company or an Affiliate, does not receive compensation, either directly or indirectly, from the Company or an Affiliate for services rendered as a consultant or in any capacity other than as a Director (except for an amount as to which disclosure would not be required under Item 404(a) of Regulation S-K promulgated pursuant to the Securities Act ("***Regulation S-K***")), does not possess an interest in any other transaction for which disclosure would be required under Item 404(a) of Regulation S-K, and is not engaged in a business relationship for which disclosure would be required pursuant to Item 404(b) of Regulation S-K; or (ii) is otherwise considered a "non-employee director" for purposes of Rule 16b-3.

(u) "***Nonstatutory Stock Option***" means any option granted pursuant to Section 5 that does not qualify as an "incentive stock option" within the meaning of Section 422 of the Code.

(v) "***Officer***" means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act.

(w) "***Option***" means a Nonstatutory Stock Option to purchase shares of Common Stock granted pursuant to the Plan.

(x) "***Option Agreement***" means a written agreement between the Company and an Optionholder evidencing the terms and conditions of an Option grant. Each Option Agreement will be subject to the terms and conditions of the Plan.

(y) "***Optionholder***" means a person to whom an Option is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Option.

(z) "***Other Stock Award***" means an award based in whole or in part by reference to the Common Stock which is granted pursuant to the terms and conditions of Section 6(c).

(aa) "***Own,***" "***Owned,***" "***Owner,***" "***Ownership***" means a person or Entity will be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(bb) "***Participant***" means a person to whom a Stock Award is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Stock Award.

(cc) "***Plan***" means this Geron Corporation 2018 Inducement Award Plan.

(dd) "***Restricted Stock Award***" means an award of shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(a).

(ee) "***Restricted Stock Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Award evidencing the terms and conditions of a Restricted Stock Award grant. Each Restricted Stock Award Agreement will be subject to the terms and conditions of the Plan.

(ff) "***Restricted Stock Unit Award***" means a right to receive shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(b).

(gg) "***Restricted Stock Unit Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Unit Award evidencing the terms and conditions of a Restricted Stock Unit Award grant. Each Restricted Stock Unit Award Agreement will be subject to the terms and conditions of the Plan.

(hh) "***Rule 16b-3***" means Rule 16b-3 promulgated under the Exchange Act or any successor to Rule 16b-3, as in effect from time to time.

(ii) "***Rule 405***" means Rule 405 promulgated under the Securities Act.

(jj) "***Securities Act***" means the Securities Act of 1933, as amended.

(kk) "***Stock Appreciation Right***" or "***SAR***" means a right to receive the appreciation on Common Stock that is granted pursuant to the terms and conditions of Section 5.

(ll) "***Stock Award***" means any right to receive Common Stock granted under the Plan, including a Nonstatutory Stock Option, a Stock Appreciation Right, a Restricted Stock Award, a Restricted Stock Unit Award or any Other Stock Award.

(mm) "***Stock Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of a Stock Award grant. Each Stock Award Agreement will be subject to the terms and conditions of the Plan.

(nn) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than 50% of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation will have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than 50%.

EXHIBIT 10.19

GERON CORPORATION
2018 INDUCEMENT AWARD PLAN

OPTION AGREEMENT
(NONSTATUTORY STOCK OPTION)

Pursuant to your Stock Option Grant Notice ("***Grant Notice***") and this Option Agreement, Geron Corporation (the "***Company***") has granted you an option under its 2018 Inducement Award Plan (the "***Plan***") to purchase the number of shares of the Company's Common Stock indicated in your Grant Notice at the exercise price indicated in your Grant Notice. The option is granted to you effective as of the date of grant set forth in the Grant Notice (the "***Date of Grant***"). If there is any conflict between the terms in this Option Agreement and the Plan, the terms of the Plan will control. Capitalized terms not explicitly defined in this Option Agreement or in the Grant Notice but defined in the Plan will have the same definitions as in the Plan.

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

1. VESTING. Subject to the provisions contained herein, your option will vest as provided in your Grant Notice. Vesting will cease upon the termination of your Continuous Service. Notwithstanding the foregoing, the following provisions shall apply:

(a) In the event your Continuous Service is terminated due to your Disability, then the vesting and exercisability of your option shall accelerate in an amount equal to the lesser of (i) the then remaining unvested shares covered by your option, and (ii) the number of shares subject to your option that would have vested had you remained in Continuous Service for thirty-six (36) months (or such lesser period of time as is determined by the Board) after the date of such termination.

(b) In the event your Continuous Service is terminated due to your death or in the event that you die within 3 months following the termination of your service for any reason other than Cause, then the vesting and exercisability of your option shall accelerate in an amount equal to the lesser of (i) the then remaining unvested shares covered by your option, and (ii) the number of shares subject to your option that would have vested had you remained in Continuous Service for thirty-six (36) months (or such lesser period of time as is determined by the Board) after the date of such termination.

(c) In the event of either a Change in Control or a Corporate Transaction that is not a license, and you have not terminated your Continuous Service prior to the effective date of the Change in Control or Corporate Transaction, then the vesting and exercisability of your option will be accelerated in full upon the effective date of such Change in Control or Corporate Transaction.

(i) If any payment or benefit you would receive from the Company or otherwise in connection with a Change in Control or other similar transaction (a "280G Payment") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), then any such 280G Payment (a "Payment") shall be equal to the Reduced Amount. The "Reduced Amount" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment (after reduction) being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount (i.e., the amount determined by clause (x) or by clause (y)), after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all

computed at the highest applicable marginal rate), results in your receipt, on an after-tax basis, of the greater economic benefit notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in a Payment is required pursuant to the preceding sentence and the Reduced Amount is determined pursuant to clause (x) of the preceding sentence, the reduction shall occur in the manner (the "Reduction Method") that results in the greatest economic benefit for you. If more than one method of reduction will result in the same economic benefit, the items so reduced will be reduced pro rata (the "Pro Rata Reduction Method").

(ii) Notwithstanding the foregoing, if the Reduction Method or the Pro Rata Reduction Method would result in any portion of the Payment being subject to taxes pursuant to Section 409A of the Code that would not otherwise be subject to taxes pursuant to Section 409A of the Code, then the Reduction Method and/or the Pro Rata Reduction Method, as the case may be, shall be modified so as to avoid the imposition of taxes pursuant to Section 409A of the Code as follows: (A) as a first priority, the modification shall preserve to the greatest extent possible, the greatest economic benefit for you as determined on an after-tax basis; (B) as a second priority, Payments that are contingent on future events (e.g., being terminated without cause), shall be reduced (or eliminated) before Payments that are not contingent on future events; and (C) as a third priority, Payments that are "deferred compensation" within the meaning of Section 409A of the Code shall be reduced (or eliminated) before Payments that are not deferred compensation within the meaning of Section 409A of the Code.

(iii) Unless you and the Company agree on an alternative accounting firm, the accounting firm engaged by the Company for general tax compliance purposes as of the day prior to the effective date of a Change in Control triggering the Payment shall perform the aforementioned calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting the Change in Control, the Company shall appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company shall bear all expenses with respect to the determinations by such accounting firm required to be made hereunder. The Company shall use commercially reasonable efforts to cause the accounting firm engaged to make the determinations hereunder to provide its calculations, together with detailed supporting documentation, to you and the Company within fifteen (15) calendar days after the date on which your right to a 280G Payment becomes reasonably likely to occur (if requested at that time by you or the Company) or such other time as requested by you or the Company.

(iv) If you receive a Payment for which the Reduced Amount was determined pursuant to clause (x) of the first paragraph of this Section 1(c) and the Internal Revenue Service determines thereafter that some portion of the Payment is subject to the Excise Tax, you shall promptly return to the Company a sufficient amount of the Payment (after reduction pursuant to clause (x) of the first paragraph of this Section 1(c) so that no portion of the remaining Payment is subject to the Excise Tax. For the avoidance of doubt, if the Reduced Amount was determined pursuant to clause (y) in the first paragraph of this Section 1(c), you shall have no obligation to return any portion of the Payment pursuant to the preceding sentence.

2. Number of Shares and Exercise Price. The number of shares of Common Stock subject to your option and your exercise price per share in your Grant Notice will be adjusted for Capitalization Adjustments.

3. Exercise Restriction for Non-Exempt Employees. If you are an Employee eligible for overtime compensation under the Fair Labor Standards Act of 1938, as amended (that is, a "***Non-Exempt Employee***"), and except as otherwise provided in the Plan, you may not exercise your option until you have completed at least six (6) months of Continuous Service measured from the Date of Grant, even if you have already been an employee for more than six (6) months. Consistent with the provisions of

the Worker Economic Opportunity Act, you may exercise your option as to any vested portion prior to such six (6) month anniversary in the case of (i) your death or disability, (ii) a Corporate Transaction in which your option is not assumed, continued or substituted, (iii) a Change in Control or (iv) your termination of Continuous Service on your "retirement" (as defined in the Company's benefit plans).

4. METHOD OF PAYMENT. You must pay the full amount of the exercise price for the shares you wish to exercise. You may pay the exercise price in cash or by check, bank draft or money order payable to the Company or, if ***permitted by your Grant Notice*** and if at the time of exercise the Common Stock is publicly traded, then pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of Common Stock, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds. This manner of payment is also known as a "broker-assisted exercise", "same day sale", or "sell to cover".

5. WHOLE SHARES. You may exercise your option only for whole shares of Common Stock.

6. SECURITIES LAW COMPLIANCE. In no event may you exercise your option unless the shares of Common Stock issuable upon exercise are then registered under the Securities Act or, if not registered, the Company has determined that your exercise and the issuance of the shares would be exempt from the registration requirements of the Securities Act. The exercise of your option also must comply with all other applicable laws and regulations governing your option, and you may not exercise your option if the Company determines that such exercise would not be in material compliance with such laws and regulations (including any restrictions on exercise required for compliance with Treas. Reg. 1.401(k)-1(d)(3), if applicable).

7. TERM. You may not exercise your option before the Date of Grant or after the expiration of the option's term. The term of your option expires, subject to the provisions of Sections 5(h) and 9(c) of the Plan, upon the earliest of the following:

(a) immediately upon the termination of your Continuous Service for Cause;

(b) three (3) months after the termination of your Continuous Service for any reason other than Cause, your Disability or your death (except as otherwise provided in Section 7(d) below); *provided, however,* that if during any part of such three (3) month period your option is not exercisable solely because of the condition set forth in the section above relating to "Securities Law Compliance," your option will not expire until the earlier of the Expiration Date or until it has been exercisable for an aggregate period of three (3) months after the termination of your Continuous Service; *provided further,* that if (i) you are a Non-Exempt Employee, (ii) your Continuous Service terminates within six (6) months after the Date of Grant, and (iii) you have vested in a portion of your option at the time of your termination of Continuous Service, your option will not expire until the earlier of (x) the later of (A) the date that is seven (7) months after the Date of Grant, and (B) the date that is three (3) months after the termination of your Continuous Service, and (y) the Expiration Date;

(c) twenty-four (24) months after the termination of your Continuous Service due to your Disability (except as otherwise provided in Section 7(d)) below;

(d) twenty-four (24) months after your death if you die either during your Continuous Service or within three (3) months after your Continuous Service terminates for any reason other than Cause;

(e) the Expiration Date indicated in your Grant Notice; or

(f) the day before the tenth (10th) anniversary of the Date of Grant.

8. EXERCISE.

(a) You may exercise the vested portion of your option (and the unvested portion of your option if your Grant Notice so expressly permits) during its term by (i) delivering a Notice of Exercise (in a form designated by the Company) or completing such other documents and/or procedures designated by the Company for exercise and (ii) paying the exercise price and any applicable withholding taxes to the Company's Secretary, stock plan administrator, or such other person as the Company may designate, together with such additional documents as the Company may then require.

(b) By exercising your option you agree that, as a condition to any exercise of your option, the Company may require you to enter into an arrangement providing for the payment by you to the Company of any tax withholding obligation of the Company arising by reason of (i) the exercise of your option, (ii) the lapse of any substantial risk of forfeiture to which the shares of Common Stock are subject at the time of exercise, or (iii) the disposition of shares of Common Stock acquired upon such exercise.

9. TRANSFERABILITY. Except as otherwise provided in this Section 9, your option is not transferable, except by will or by the laws of descent and distribution, and is exercisable during your life only by you.

(a) **Certain Trusts.** Upon receiving written permission from the Board or its duly authorized designee, you may transfer your option to a trust if you are considered to be the sole beneficial owner (determined under Section 671 of the Code and applicable state law) while the option is held in the trust. You and the trustee must enter into transfer and other agreements required by the Company.

(b) **DOMESTIC RELATIONS ORDERS.** Upon receiving written permission from the Board or its duly authorized Officer, and provided that you and the designated transferee enter into transfer and other agreements required by the Company, you may transfer your option pursuant to the terms of a domestic relations order, official marital settlement agreement or other divorce or separation instrument as permitted by Treasury Regulation 1.421-1(b)(2) that contains the information required by the Company to effectuate the transfer. You are encouraged to discuss the proposed terms of any division of this option with the Company prior to finalizing the domestic relations order or marital settlement agreement to help ensure the required information is contained within the domestic relations order or marital settlement agreement.

(c) **BENEFICIARY DESIGNATION.** Upon receiving written permission from the Board or its duly authorized Officer, you may, by delivering written notice to the Company, in a form approved by the Company and any broker designated by the Company to handle option exercises, designate a third party who, on your death, will thereafter be entitled to exercise this option and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, your executor or administrator of your estate will be entitled to exercise this option and receive, on behalf of your estate, the Common Stock or other consideration resulting from such exercise.

10. OPTION NOT A SERVICE CONTRACT. Your option is not an employment or service contract, and nothing in your option 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 your option will obligate the Company or an Affiliate, their respective shareholders, boards of directors, officers or employees to continue any relationship that you might have, following the date of grant of your option, as a Director or Consultant for the Company or an Affiliate.

11. WITHHOLDING OBLIGATIONS.

(a) At the time you exercise your option, in whole or in part, and at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for (including by means of a "same day sale" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations of the Company or an Affiliate, if any, which arise in connection with the exercise of your option.

(b) Upon your request and subject to approval by the Company, and compliance with any applicable legal conditions or restrictions, the Company may withhold from fully vested shares of Common Stock otherwise issuable to you upon the exercise of your option a number of whole shares of Common Stock having a Fair Market Value, determined by the Company as of the date of exercise, not in excess of the minimum amount of tax required to be withheld by law (or such lower amount as may be necessary to avoid classification of your option as a liability for financial accounting purposes). Notwithstanding the filing of such election, shares of Common Stock shall be withheld solely from fully vested shares of Common Stock determined as of the date of exercise of your option that are otherwise issuable to you upon such exercise. Any adverse consequences to you arising in connection with such share withholding procedure shall be your sole responsibility.

(c) You may not exercise your option unless the tax withholding obligations of the Company and/or any Affiliate are satisfied. Accordingly, you may not be able to exercise your option when desired even though your option is vested, and the Company will have no obligation to issue a certificate for such shares of Common Stock or release such shares of Common Stock from any escrow provided for herein, if applicable, unless such obligations are satisfied.

12. TAX CONSEQUENCES. You hereby 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 your option or your other compensation. In particular, you acknowledge that this option is exempt from Section 409A of the Code only if the exercise price per share specified in the Grant Notice is at least equal to the Fair Market Value per share of the Common Stock on the Date of Grant and there is no other impermissible deferral of compensation associated with the option.

13. **NOTICES.** Any notices provided for in your option 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 this option by electronic means or to request your consent to participate in the Plan by electronic means. By accepting this option, you consent to receive such documents 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.

14. **GOVERNING PLAN DOCUMENT.** Your option is subject to all the provisions of the Plan, the provisions of which are hereby made a part of your option, and is 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 your option and those of the Plan, the provisions of the Plan will control. In addition, your option (and any compensation paid or shares issued under your option) is subject to recoupment in accordance with The Dodd–Frank Wall Street Reform and Consumer Protection Act and any implementing regulations thereunder, any clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable law. No recovery of compensation under such a clawback policy will be an event giving rise to a right to voluntarily terminate employment upon a resignation for "good reason," or for a "constructive termination" or any similar term under any plan of or agreement with the Company.

15. **OTHER DOCUMENTS.** You hereby acknowledge receipt of and the right to receive a document providing the information required by Rule 428(b)(1) promulgated under the Securities Act, which includes the Plan prospectus. In addition, you acknowledge receipt of the Company's policy permitting certain individuals to sell shares only during certain "window" periods and the Company's insider trading policy, in effect from time to time.

16. **EFFECT ON OTHER EMPLOYEE BENEFIT PLANS.** The value of this option will not be included as compensation, earnings, salaries, or other similar terms used when calculating your benefits under any employee benefit plan sponsored by the Company or any Affiliate, except as such plan otherwise expressly provides. The Company expressly reserves its rights to amend, modify, or terminate any of the Company's or any Affiliate's employee benefit plans.

17. **VOTING RIGHTS.** You will not have voting or any other rights as a shareholder of the Company with respect to the shares to be issued pursuant to this option until such shares are issued to you. Upon such issuance, you will obtain full voting and other rights as a shareholder of the Company. Nothing contained in this option, and no action taken pursuant to its provisions, will create or be construed to create a trust of any kind or a fiduciary relationship between you and the Company or any other person.

18. **SEVERABILITY.** If all or any part of this Option Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity will not invalidate any portion of this Option Agreement or the Plan not declared to be unlawful or invalid. Any section of this Option Agreement (or part of such a section) so declared to be unlawful or invalid shall, if possible, be construed in a manner which will give effect to the terms of such section or part of a section to the fullest extent possible while remaining lawful and valid.

19. **MISCELLANEOUS.**

(a) The rights and obligations of the Company under your option will be transferable by the Company to any one or more persons or entities, and all covenants and agreements hereunder will inure to the benefit of, and be enforceable by the Company's successors and assigns.

(b) You agree upon request to execute any further documents or instruments necessary or desirable in the sole determination of the Company to carry out the purposes or intent of your option.

(c) You acknowledge and agree that you have reviewed your option in its entirety, have had an opportunity to obtain the advice of counsel prior to executing and accepting your option, and fully understand all provisions of your option.

(d) This Option Agreement will be subject to all applicable laws, rules, and regulations, and to such approvals by any governmental agencies or national securities exchanges as may be required.

(e) All obligations of the Company under the Plan and this Option Agreement will be binding on any successor to the Company, whether the existence of such successor is the result of a direct or indirect purchase, merger, consolidation, or otherwise, of all or substantially all of the business and/or assets of the Company.

* * *

This Option Agreement will be deemed to be accepted by you upon your original signature of the Grant Notice to which it is attached or your acknowledgement through an online or electronic system established and maintained by the Company or another third party designated by the Company.

EXHIBIT 10.20

GERON CORPORATION
2018 INDUCEMENT AWARD PLAN

PERFORMANCE-VESTING OPTION AGREEMENT
(NONSTATUTORY STOCK OPTION)

Pursuant to your Stock Option Grant Notice *("**Grant Notice**")* and this Option Agreement, Geron Corporation (the *"**Company**")* has granted you an option under its 2018 Inducement Award Plan (the *"**Plan**")* to purchase the number of shares of the Company's Common Stock indicated in your Grant Notice at the exercise price indicated in your Grant Notice. The option is granted to you effective as of the date of grant set forth in the Grant Notice (the *"**Date of Grant**")*. If there is any conflict between the terms in this Option Agreement and the Plan, the terms of the Plan will control. Capitalized terms not explicitly defined in this Option Agreement or in the Grant Notice but defined in the Plan will have the same definitions as in the Plan.

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

1. VESTING. Subject to the provisions contained herein, your option will vest as provided in your Grant Notice. Vesting will cease upon the termination of your Continuous Service, except as provided below:

(a) In the event your Continuous Service is terminated due to your Disability, then, notwithstanding your termination of Continuous Service due to your Disability, to the extent your option is not fully vested as of the date of Disability, such unvested portion of your option will continue to be eligible to vest and become exercisable upon the achievement of the performance goal set forth in the "Vesting Schedule" section of the Grant Notice as certified in writing by the Compensation Committee of the Board (a "***Milestone***"), to the extent the Milestone has not already been achieved as of the date of your termination of Continuous Service due to your Disability, if and only if the Milestone occurs within the thirty-six (36) month period following your termination of Continuous Service due to your Disability, or such shorter period of time your option remains outstanding pursuant to Section 7 below.

(b) In the event your Continuous Service is terminated due to your death or in the event that you die within 3 months following the termination of your Continuous Service for any reason other than Cause, then, notwithstanding your death, to the extent your option is not fully vested as of the date of your death, such unvested portion of your option will continue to be eligible to vest and become exercisable upon the achievement of the Milestone, if and only if the Milestone occurs within the thirty-six (36) month period following your death or such shorter period of time your option remains outstanding pursuant to Section 7 below.

(c) In the event of either a Change in Control or a Corporate Transaction that is not a license, and you have not terminated your Continuous Service prior to the effective date of the Change in Control or Corporate Transaction, then the vesting and exercisability of your option will be accelerated in full upon the effective date of such Change in Control or Corporate Transaction.

(i) If any payment or benefit you would receive from the Company or otherwise in connection with a Change in Control or other similar transaction (a "280G Payment") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), then any such 280G Payment (a "Payment") shall be equal to the Reduced Amount. The "Reduced Amount" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment (after reduction) being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount (i.e., the amount determined by clause (x) or by clause (y)), after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in your receipt, on an after-tax basis, of the greater economic benefit notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in a Payment is required pursuant to the preceding sentence and the Reduced Amount is determined pursuant to clause (x) of the preceding sentence, the reduction shall occur in the manner (the "Reduction Method") that results in the greatest economic benefit for you. If more than one method of reduction will result in the same economic benefit, the items so reduced will be reduced pro rata (the "Pro Rata Reduction Method").

(ii) Notwithstanding the foregoing, if the Reduction Method or the Pro Rata Reduction Method would result in any portion of the Payment being subject to taxes pursuant to Section 409A of the Code that would not otherwise be subject to taxes pursuant to Section 409A of the Code, then the Reduction Method and/or the Pro Rata Reduction Method, as the case may be, shall be modified so as to avoid the imposition of taxes pursuant to Section 409A of the Code as follows: (A) as a first priority, the modification shall preserve to the greatest extent possible, the greatest economic benefit for you as determined on an after-tax basis; (B) as a second priority, Payments that are contingent on future events (e.g., being terminated without cause), shall be reduced (or eliminated) before Payments that are not contingent on future events; and (C) as a third priority, Payments that are "deferred compensation" within the meaning of Section 409A of the Code shall be reduced (or eliminated) before Payments that are not deferred compensation within the meaning of Section 409A of the Code.

(iii) Unless you and the Company agree on an alternative accounting firm, the accounting firm engaged by the Company for general tax compliance purposes as of the day prior to the effective date of a Change in Control triggering the Payment shall perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting the Change in Control, the Company shall appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company shall bear all expenses with respect to the determinations by such accounting firm required to be made hereunder. The Company shall use commercially reasonable efforts to cause the accounting firm engaged to make the determinations hereunder to provide its calculations, together with detailed supporting documentation, to you and the Company within fifteen (15) calendar days after the date on which your right to a 280G Payment becomes reasonably likely to occur (if requested at that time by you or the Company) or such other time as requested by you or the Company.

(iv) If you receive a Payment for which the Reduced Amount was determined pursuant to clause (x) of the first paragraph of this Section l(c) and the Internal Revenue Service determines thereafter that some portion of the Payment is subject to the Excise Tax, you shall promptly return to the Company a sufficient amount of the Payment (after reduction pursuant to clause (x) of the first paragraph of this Section l(c)) so that no portion of the remaining Payment is subject to the Excise Tax. For the avoidance of doubt, if the Reduced Amount was determined pursuant to clause (y) in the first paragraph of this Section 1(c), you shall have no obligation to return any portion of the Payment pursuant to the preceding sentence.

2. NUMBER OF SHARES AND EXERCISE PRICE. The number of shares of Common Stock subject to your option and your exercise price per share in your Grant Notice will be adjusted for Capitalization Adjustments.

3. EXERCISE RESTRICTION FOR NON-EXEMPT EMPLOYEES. If you are an Employee eligible for overtime compensation under the Fair Labor Standards Act of 1938, as amended (that is, a *"**Non-Exempt Employee**"),* and except as otherwise provided in the Plan, you may not exercise your option until you have completed at least six (6) months of Continuous Service measured from the Date of Grant, even if you have already been an employee for more than six (6) months. Consistent with the provisions of the Worker Economic Opportunity Act, you may exercise your option as to any vested portion prior to such six (6) month anniversary in the case of (i) your death or disability, (ii) a Corporate Transaction in which your option is not assumed, continued or substituted, (iii) a Change in Control or(iv) your termination of Continuous Service on your "retirement" (as defined in the Company's benefit plans).

4. METHOD OF PAYMENT . You must pay the full amount of the exercise price for the shares you wish to exercise. You may pay the exercise price in cash or by check, bank draft or money order payable to the Company or, if permitted by your Grant Notice and if at the time of exercise the Common Stock is publicly traded, then pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of Common Stock, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds. This manner of payment is also known as a "broker-assisted exercise'', "same day sale", or "sell to cover".

5. WHOLE SHARES. You may exercise your option only for whole shares of Common Stock.

6. SECURITIES LAW COMPLIANCE. In no event may you exercise your option unless the shares of Common Stock issuable upon exercise are then registered under the Securities Act or, if not registered, the Company has determined that your exercise and the issuance of the shares would be exempt from the registration requirements of the Securities Act. The exercise of your option also must comply with all other applicable laws and regulations governing your option, and you may not exercise your option if the Company determines that such exercise would not be in material compliance with such laws and regulations (including any restrictions on exercise required for compliance with Treas. Reg. 1.40l(k)-1(d)(3), if applicable).

7. **TERM**. You may not exercise your option before the Date of Grant or after the expiration of the option's term. The term of your option expires, subject to the provisions of Sections 5(h) and 9(c) of the Plan, upon the *earliest* of the following:

(a) immediately upon the termination of your Continuous Service for Cause;

(b) immediately with respect to the portion of your option that is unvested, if any, as of the date of your termination of Continuous Service for any reason other than your Disability or your death (except as otherwise provided in Section 7(e) below), immediately upon the termination of your Continuous Service for any reason other than your Disability or your death (except as otherwise provided in Section 7(e) below);

(c) with respect to the portion of your option that is vested, if any, as of the date of termination of Continuous Service for any reason other than Cause, your Disability or your death (except as otherwise provided in Section 7(e) below), three (3) months after the termination of your Continuous Service for any reason other than Cause, your Disability or your death (except as otherwise provided in Section 7(e) below); *provided, however,* that if during any part of such three (3) month period your option is not exercisable solely because of the condition set forth in the section above relating to "Securities Law Compliance," your option will not expire until the earlier of the Expiration Date or until it has been exercisable for an aggregate period of three (3) months after the termination of your Continuous Service; *provided further,* that if (i) you are a Non-Exempt Employee, (ii) your Continuous Service terminates within six (6) months after the Date of Grant, and (iii) you have vested in a portion of your option at the time of your termination of Continuous Service, your option will not expire until the earlier of (x) the later of (A) the date that is seven (7) months after the Date of Grant, and (B) the date that is three (3) months after the termination of your Continuous Service, and (y) the Expiration Date;

(d) If your termination of Continuous Service is due to your Disability (except as otherwise provided in Section 7(e) below):

- with respect to the portion of your option that is vested, if any, at the time of termination of your Continuous Service due to your Disability, twenty-four (24) months after the termination of your Continuous Service due to your Disability;

- with respect to the portion of your option that is unvested, if any, at the time of termination of your Continuous Service due to your Disability, thirty-six (36) months after the termination of your Continuous Service due to your Disability (except as otherwise provided in Section 7(e) below); *provided, however*, that if the achievement of a Milestone occurs during such thirty-six (36) month period, the portion of your option that vests as a result of such Milestone shall expire on the earlier of (1) ninety (90) calendar days following the Company's notice to you that such Milestone has occurred and (2) such shorter period required by Sections 7(f) and 7(g) below;

(e) If your termination of Continuous Service is due to your death or if you die either during your Continuous Service or within three (3) months after your Continuous Service terminates for any reason other than Cause:

- with respect to the portion of your option that is vested, if any, at the time of your death, twenty-four (24) months after your death;

- with respect to the portion of your option that is unvested, if any, at the time of your death, thirty-six (36) months after your death; *provided, however*, that if the achievement of a Milestone occurs during such thirty-six (36) month period, the portion of your option that vests as a result of such Milestone shall expire on the earlier of (1) ninety (90) calendar days following the Company's notice to your estate (or, as applicable, the person who acquired the right to exercise the option by bequest or inheritance or by the person designated to exercise the option upon your death) that such Milestone has occurred and (2) such shorter period required by Sections 7(f) and 7(g) below);

(f) the Expiration Date indicated in your Grant Notice; or

(g) the day before the tenth (10th) anniversary of the Date of Grant.

8. EXERCISE.

(a) You may exercise the vested portion of your option (and the unvested portion of your option if your Grant Notice so expressly permits) during its term by (i) delivering a Notice of Exercise (in a form designated by the Company) or completing such other documents and/or procedures designated by the Company for exercise and (ii) paying the exercise price and any applicable withholding taxes to the Company's Secretary, stock plan administrator, or such other person as the Company may designate, together with such additional documents as the Company may then require.

(b) By exercising your option you agree that, as a condition to any exercise of your option, the Company may require you to enter into an arrangement providing for the payment by you to the Company of any tax withholding obligation of the Company arising by reason of (i) the exercise of your option, (ii) the lapse of any substantial risk of forfeiture to which the shares of Common Stock are subject at the time of exercise, or (iii) the disposition of shares of Common Stock acquired upon such exercise.

9. TRANSFERABILITY. Except as otherwise provided in this Section 9, your option is not transferable, except by will or by the laws of descent and distribution, and is exercisable during your life only by you.

(a) Certain Trusts. Upon receiving written permission from the Board or its duly authorized designee, you may transfer your option to a trust if you are considered to be the sole beneficial owner (determined under Section 671 of the Code and applicable state law) while the option is held in the trust. You and the trustee must enter into transfer and other agreements required by the Company.

(b) Domestic Relations Orders. Upon receiving written permission from the Board or its duly authorized Officer, and provided that you and the designated transferee enter into transfer and other agreements required by the Company, you may transfer your option pursuant to the terms of a domestic relations order, official marital settlement agreement or other divorce or separation instrument as permitted by Treasury Regulation l.421-l(b)(2) that contains the information required by the Company to effectuate the transfer. You are encouraged to discuss the proposed terms of any division of this option with the Company prior to finalizing the domestic relations order or marital settlement agreement to help ensure the required information is contained within the domestic relations order or marital settlement agreement.

(c) Beneficiary Designation. Upon receiving written permission from the Board or its duly authorized Officer, you may by delivering written notice to the Company, in a form approved by the Company and any broker designated by the Company to handle option exercises, designate a third party who, on your death, will thereafter be entitled to exercise this option and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, your executor or administrator of your estate will be entitled to exercise this option and receive, on behalf of your estate, the Common Stock or other consideration resulting from such exercise.

10. OPTION NOT A SERVICE CONTRACT. Your option is not an employment or service contract, and nothing in your option 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 your option will obligate the Company or an Affiliate, their respective shareholders, 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.

11. WITHHOLDING OBLIGATIONS.

(a) At the time you exercise your option, in whole or in part, and at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for (including by means of a "same day sale" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations of the Company or an Affiliate, if any, which arise in connection with the exercise of your option.

(b) upon your request and subject to approval by the Company, and compliance with any applicable legal conditions or restrictions, the Company may withhold from fully vested shares of Common Stock otherwise issuable to you upon the exercise of your option a number of whole shares of Common Stock having a Fair Market Value, determined by the Company as of the date of exercise, not in excess of the minimum amount of tax required to be withheld by law (or such lower amount as may be necessary to avoid classification of your option as a liability for financial accounting purposes). Notwithstanding the filing of such election, shares of Common Stock shall be withheld solely from fully vested shares of Common Stock determined as of the date of exercise of your option that are otherwise issuable to you upon such exercise. Any adverse consequences to you arising in connection with such share withholding procedure shall be your sole responsibility.

(c) You may not exercise your option unless the tax withholding obligations of the Company and/or any Affiliate are satisfied. Accordingly, you may not be able to exercise your option when desired even though your option is vested, and the Company will have no obligation to issue a certificate for such shares of Common Stock or release such shares of Common Stock from any escrow provided for herein, if applicable, unless such obligations are satisfied.

12. TAX CONSEQUENCES. You hereby 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 your option or your other compensation. In particular, you acknowledge that this option is exempt from Section 409A of the Code only if the exercise price per share specified in the Grant Notice is at least equal to the Fair Market Value per share of the Common Stock on the Date of Grant and there is no other impermissible deferral of compensation associated with the option.

13. NOTICES. Any notices provided for in your option 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 this option by electronic means or to request your consent to participate in the Plan by electronic means. By accepting this option, you consent to receive such documents 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.

14. GOVERNING PLAN DOCUMENT. Your option is subject to all the provisions of the Plan, the provisions of which are hereby made a part of your option, and is 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 your option and those of the Plan, the provisions of the Plan will control. In addition, your option (and any compensation paid or shares issued under your option) is subject to recoupment in accordance with The Dodd-Frank Wall Street Reform and Consumer Protection Act and any implementing regulations thereunder, any clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable law. No recovery of compensation under such a clawback policy will be an event giving rise to a right to voluntarily terminate employment upon a resignation for "good reason," or for a "constructive termination" or any similar term under any plan of or agreement with the Company.

15. OTHER DOCUMENTS. You hereby acknowledge receipt of and the right to receive a document providing the information required by Rule 428(b)(l) promulgated under the Securities Act, which includes the Plan prospectus. In addition, you acknowledge receipt of the Company's policy permitting certain individuals to sell shares only during certain "window" periods and the Company's insider trading policy, in effect from time to time.

16. EFFECT ON OTHER EMPLOYEE BENEFIT PLANS. The value of this option will not be included as compensation, earnings, salaries, or other similar terms used when calculating your benefits under any employee benefit plan sponsored by the Company or any Affiliate,

except as such plan otherwise expressly provides. The Company expressly reserves its rights to amend, modify, or terminate any of the Company's or any Affiliate's employee benefit plans.

17. VOTING RIGHTS. You will not have voting or any other rights as a shareholder of the Company with respect to the shares to be issued pursuant to this option until such shares are issued to you. Upon such issuance, you will obtain full voting and other rights as a shareholder of the Company. Nothing contained in this option, and no action taken pursuant to its provisions, will create or be construed to create a trust of any kind or a fiduciary relationship between you and the Company or any other person.

18. SEVERABILITY. If all or any part of this Option Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity will not invalidate any portion of this Option Agreement or the Plan not declared to be unlawful or invalid. Any section of this Option Agreement (or part of such a section) so declared to be unlawful or invalid shall, if possible, be construed in a manner which will give effect to the terms of such section or part of a Section to the fullest extent possible while remaining lawful and valid.

19. MISCELLANEOUS.

(a) The rights and obligations of the Company under your option will be transferable by the Company to any one or more persons or entities, and all covenants and agreements hereunder will inure to the benefit of, and be enforceable by, the Company's successors and assigns.

(b) You agree upon request to execute any further documents or instruments necessary or desirable in the sole determination of the Company to carry out the purposes or intent of your option.

(c) You acknowledge and agree that you have reviewed your option in its entirety, have had an opportunity to obtain the advice of counsel prior to executing and accepting your option, and fully understand all provisions of your option.

(d) This Option Agreement will be subject to all applicable laws, rules, and regulations, and to such approvals by any governmental agencies or national securities exchanges as may be required.

(e) All obligations of the Company under the Plan and this Option Agreement will be binding on any successor to the Company, whether the existence of such successor is the result of a direct or indirect purchase, merger, consolidation, or otherwise, of all or substantially all of the business and/or assets of the Company.

*** * ***

This Option Agreement will be deemed to be accepted by you upon your original signature of the Grant Notice to which it is attached or your acknowledgement through an online or electronic system established and maintained by the Company or another third party designated by the Company.

EXHIBIT 10.26

GERON CORPORATION
NON -EMPLOYEE DIRECTOR COMPENSATION POLICY

ORIGINALLY ADOPTED BY THE BOARD OF DIRECTORS: MARCH 10, 2014

AMENDED BY THE BOARD OF DIRECTORS: FEBRUARY 12, 2015, MAY 6, 2015, FEBRUARY 11, 2016, JANUARY 31, 2018, MAY 15, 2018, OCTOBER 1, 2018 AND JANUARY 30, 2019

Each member of the board of directors (the "***Board***") of Geron Corporation (the "***Company***") who is not an Employee (as defined in the Geron Corporation 2018 Equity Incentive Plan (the "***2018 Plan***")) (each, a "***Non-Employee Director***") will be eligible to receive cash and equity compensation as set forth in this Geron Corporation Non-Employee Director Compensation Policy (this "***Policy***"). The cash and equity compensation described in this Policy will be paid or granted, as applicable, automatically and without further action of the Board to each Non-Employee Director who is eligible to receive such cash or equity compensation, unless such Non-Employee Director declines the receipt of such cash or equity compensation by written notice to the Company.

This Policy, as amended, is effective as of January 1, 2019, and will remain in effect until it is revised or rescinded by further action of the Board. Capitalized terms not explicitly defined in this Policy but defined in the 2018 Plan will have the same definitions as in the 2018 Plan, except when specific reference is made to the Directors' Market Value Stock Purchase Plan (the "**Market Value Stock Plan**"), in which case such terms will have the definitions set forth in the Market Value Stock Plan.

1. CASH COMPENSATION.

(a) Annual Retainers. Each Non-Employee Director will be eligible to receive the following annual retainers for service as (i) an individual, member and/or chairperson of the Board and (ii) an individual, member or chairperson of a committee of the Board ("***Committee***") set forth below, as applicable.

Board or Committee	Type of Retainer*	Amount (Per Year)
Board	Chair	$35,000
	Lead Independent Director	$25,000
	Member	$42,500
Audit Committee	Chair	$25,000
	Member (Non-Chair)	$12,500
Compensation Committee	Chair	$15,000
	Member (Non-Chair)	$7,500
Nominating and Corporate Governance Committee	Chair	$10,000
	Member (Non-Chair)	$5,000

* The Lead Independent Director and the chairperson of the Board are eligible to receive a retainer for service as the Lead Independent Director or chairperson, as applicable, and an additional retainer for service as a member of the Board. The chairperson of each Committee is eligible to receive a retainer for service as the chairperson, but not an additional retainer for service as a member of the Committee.

The annual retainers will be paid in arrears in four equal quarterly installments, earned upon the completion of service in each calendar quarter. Notwithstanding the foregoing, each person who is elected or appointed to be a Non-Employee Director or who is appointed to serve on one of the Committees set forth above or as the Lead Independent Director or chairperson of the Board or one of the Committees set forth above, in each case other than on the first day of a calendar quarter, will be eligible to receive a pro rata amount of the annual retainers described above with respect to the calendar quarter in which such person becomes a Non-Employee Director, a member of one of the Committees, or the Lead Independent Director or chairperson of the Board or one of the Committees, as applicable, which pro rata amount reflects a reduction for each day during the calendar quarter prior to the date of such election or appointment.

The annual retainers will be paid on a pro-rata basis in arrears after the end of each quarter in the form of cash, or alternatively, subject to each Non-Employee Director's written election pursuant to the requirements set forth in this paragraph, in the form of fully vested shares of Common Stock on the same date the cash retainer would otherwise have been paid. Such shares of Common Stock shall be issued under (i) the 2018 Plan based on the Fair Market Value (as defined in the 2018 Plan) for retainers paid for 2018 service and (ii) the Market Value Stock Plan based on the Market Value (as defined in the Market Value Stock Plan) for retainers paid for service in and after 2019; *provided*, *however*, that, in connection with the adoption of the Market Value Stock Plan by the Board effective October 1, 2018, any Non-Employee Director may, no later than December 1, 2018, elect in writing to receive shares of Common Stock under the Market Value Stock Plan for retainers paid for service in the quarter ending December 31, 2018 (each, a "***Special Election***").

Subject to the following sentence, all written elections (other than any Special Elections) must be submitted (A) with respect to continuing Non-Employee Directors, in January of each calendar year or (B) with respect to any person who first becomes a Non-Employee Director in any calendar year, in the first month of the next quarter following the quarter in which he or she first became a Non-Employee Director (such elections, the "***Annual Elections***"), and all Annual Elections and any Special Elections must also be submitted during an "open window period" in accordance with the Company's then-effective Insider Trading Compliance Program or any other policy on trading in Company securities and when the Non-Employee Director submitting the Annual Election or Special Election, as the case may be, is not otherwise aware of any material, nonpublic information with respect to the Company or any of its securities (collectively, each, an "***Open Window***"). With respect to Annual Elections, if a Non-Employee Director is unable to submit an Annual Election within the applicable timeframe set forth in the preceding sentence due to the fact that there were no Open Windows within such applicable timeframe during which an Annual Election could be submitted, then the Annual Election for that calendar year will be due no later than the tenth business day following the commencement of the next Open Window (provided that an Annual Election is actually submitted during such next Open Window). If, as a result of the preceding sentence, an Annual Election for any calendar year is submitted after the date that is thirty days prior to the end of the next quarter, then such Annual Election will be applicable only to the quarters ending after the end of such next quarter. Subject to the preceding sentence, an Annual Election to be paid in Common Stock will be applied to each quarter's payment during the calendar year of such Annual Election.

(b) Expenses. Each Non-Employee Director will be eligible for reimbursement from the Company for all reasonable out-of-pocket expenses incurred by the Non-Employee Director in connection with his or her attendance at Board and Committee meetings.

To the extent that any taxable reimbursements are provided to a Non-Employee Director, they will be provided in accordance with Section 409A of the Internal Revenue Code of 1986, as amended, and the Treasury Regulations and other guidance thereunder and any state law of similar effect, including, but not limited to, the following provisions: (i) the amount of any such expenses eligible for reimbursement during the Non-Employee Director's taxable year may not affect the expenses eligible for reimbursement in any other taxable year; (ii) the reimbursement of an eligible expense must be made no later than the last day of the Non-Employee Director's taxable year that immediately follows the taxable year in which the expense was incurred; and (iii) the right to any reimbursement may not be subject to liquidation or exchange for another benefit.

2. EQUITY COMPENSATION. The options described in this Policy will be granted under the 2018 Plan and will be subject to the terms and conditions of (i) this Policy, (ii) the 2018 Plan and (ii) the forms of Option Agreements approved by the Board for the grant of options to Non-Employee Directors under the 2018 Plan.

(a) Initial Grants. Each person who first becomes a Non-Employee Director, whether through election by the stockholders of the Company or appointment by the Board to fill a vacancy, automatically will be granted a Nonstatutory Stock Option to purchase 120,000 shares of Common Stock (a "***First Director Option***") on the date of his or her initial election or appointment to be a Non-Employee Director. For the avoidance of doubt, an executive chairman of the Board will not be eligible to receive a First Director Option pursuant to this Section 2(a).

(b) Annual Grants. On the date of each annual meeting of the Company's stockholders each person who is then a Non-Employee Director and will be continuing as a Non-Employee Director following the date of such annual meeting (other than any Non-Employee Director receiving a First Director Option on the date of such annual meeting) automatically will be granted a Nonstatutory Stock Option to purchase 70,000 shares of Common Stock (a "***Subsequent Director Option***"). For the avoidance of doubt, an executive chairman of the Board will not be eligible to receive a Subsequent Director Option pursuant to this Section 2(b).

(c) Terms of Options.

(i) Exercise Price. The exercise price of each First Director Option and Subsequent Director Option will be equal to 100% of the Fair Market Value of the Common Stock subject to such option (as determined in accordance with the 2018 Plan) on the date such option is granted.

(ii) Vesting. Each First Director Option and Subsequent Director Option will vest and become exercisable as follows:

(A) Each First Director Option will vest and become exercisable in installments cumulatively as to 33 1/3% of the shares of Common Stock subject to such option on each of the first, second and third anniversaries of the date of grant of such option, subject to the Non-Employee Director's Continuous Service through such dates.

(B) Each Subsequent Director Option will vest and become exercisable as to 100% of the shares of Common Stock subject to such option on the earlier of (i) the date of the next annual meeting of the Company's stockholders (the "***Next Annual Meeting***") or (ii) the first anniversary of the date of grant of such option, subject to the Non-Employee Director's Continuous Service through such dates. For the sake of clarity, if a Non-Employee Director either (x) does not stand for reelection at the Next Annual Meeting and is a member of the class of directors whose term expires at the Next Annual Meeting or (y) otherwise resigns from the Board effective at or on the date of the Next Annual Meeting and, in either case, the Non-Employee Director's Continuous Service terminates at or on the date of the Next Annual Meeting, then such Non-Employee Director's Continuous Service shall be deemed to have continued through the date of the Next Annual Meeting for purposes of this Policy.

(C) Notwithstanding Sections 2(c)(ii)(A) and 2(c)(ii)(B) above, the vesting of a First Director Option and Subsequent Director Option will be subject to (i) full acceleration in the event of a Change in Control and (ii) partial acceleration in the event of the Non-Employee Director's termination of Continuous Service by reason of the Non-Employee Director's Disability or death pursuant to, and in accordance with, the 2018 Plan and each Option Agreement.

EXHIBIT 10.28

Effective January 30, 2019

Geron Corporation
Amended and Restated
Severance Plan
(and Summary Plan Description)

This Amended and Restated Geron Corporation Severance Plan (the "***Plan***") sets forth the severance benefits available to Covered Employees of Geron Corporation (together with any successor to substantially all of its business, stock or assets, the "***Company***") whose employment is terminated as a result of a Triggering Event (as defined below).

The Plan is an employee welfare benefit plan subject to the Employee Retirement Income Security Act of 1974, as amended ("***ERISA***"). This Plan document is also the summary plan description of the Plan. References in the Plan to "You" or "Your" are references to an employee of the Company.

1. General Eligibility. You shall only be eligible for benefits under this Plan if: (i) immediately prior to a Triggering Event, you are an employee of the Company and are not subject to an ongoing performance improvement plan (a "***Covered Employee***") and (ii) you are notified by the Company in writing that you are eligible for severance benefits under the Plan as a result of a Triggering Event.

2. Severance Benefits.

(a) Upon a Triggering Event, you shall be entitled to receive a severance payment equal to the amount of your Base Salary for a severance period that is determined based on your position with the Company immediately before such Triggering Event pursuant to the following schedule, provided that the Triggering Event constitutes a "separation from service" within the meaning of Section 409A of the Internal Revenue Code of 1986, as amended (the "***Code***") and the regulations promulgated thereunder, including Treasury Regulation Section 1.409A-1(h) (a "***Separation from Service***"):

Covered Position	Severance Period (Non-Change of Control Triggering Event)	Severance Period (Change of Control Triggering Event)
CEO	Not applicable	18 months
Executive Vice President, Senior Vice President, Chief Financial Officer, Chief Scientific Officer, and other executives that have "Individual Employment Agreements"[1]	Not applicable	15 months
Vice President	12 months	12 months
Executive Director, Senior Director	9 months	9 months
Director, Associate Director	6 months	6 months
Senior Scientist/Scientist, Manager, Associate, other Staff	3 months	3 months

1 As defined in Section 7 below.

For purposes of calculating Plan benefits, "***Base Salary***" shall mean your base pay (excluding incentive pay, premium pay, commissions, overtime, bonuses and other forms of variable compensation), at the rate in effect during the last regularly scheduled payroll period immediately preceding the date of your Separation from Service.

(b) Upon a Triggering Event (and provided such Triggering Event constitutes a Separation from Service), you shall be paid your target annual bonus at the target bonus percentage in effect immediately preceding the date of your Separation from Service, for the calendar year in which the termination occurs, prorated for the length of service provided during the calendar year through the termination date;

(c) Upon a Triggering Event, the Company shall pay all premiums required for continuation of your health benefits (as in effect on the date of your Separation from Service) under the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("***COBRA***"), provided that you timely elect such continued coverage under COBRA, on a monthly basis through the earliest of: (i) the end of your applicable severance period as specified in Section 2(a), (ii) the date you obtain other employment offering health care coverage, or (iii) the expiration of your eligibility for such continued coverage under COBRA (such period from the date of your Separation from Service through the earliest of (i) through (iii), the "***COBRA Payment Period***").

Notwithstanding the foregoing, if at any time the Company determines, in its sole discretion, that the payment of such COBRA premiums would result in a violation of applicable law (including, without limitation, Section 105(h)(2) of the Code and Section 2716 of the Public Health Service Act), then in lieu of providing such COBRA premiums, the Company shall instead pay you, on the last day of each remaining month of the COBRA Payment Period, a fully taxable cash payment equal to the COBRA premiums for that month, subject to applicable tax withholdings (such amount, the "***Special Severance Payment***"); *provided, however*, that any such Special Severance Payment shall be made without regard to your payment of COBRA premiums and for purposes of any such Special Severance Payment, the "COBRA Payment Period" shall be determined without regard to the expiration of your eligibility for continued coverage under COBRA.

If you become eligible for coverage under another employer's health plan or otherwise cease to be eligible for COBRA during the COBRA Payment Period, you must immediately notify the Company of such event, and all payments and obligations under this Section 2(c) shall cease. For purposes of this Section 2(c), (i) references to COBRA shall be deemed to refer also to analogous provisions of state law and (ii) any applicable insurance premiums that are paid by the Company shall not include any amounts payable by you pursuant to a health care reimbursement plan under Section 125 of the Code, which amounts, if any, are your sole responsibility.

(d) Notwithstanding any provision in the Plan to the contrary, upon the occurrence of an event that constitutes both a Non-Change of Control Triggering Event and a Change of Control Triggering Event, your benefits under the Plan shall be determined based on the type of Triggering Event that results in the greater amount of benefits for you, and you shall not be entitled to receive benefits based on both types of Triggering Events.

(e) The Company, in its sole discretion, shall have the authority to reduce your severance benefits under the Plan, in whole or in part, by any other severance benefits, pay and benefits provided during a period following written notice of a plant closing or mass layoff, pay and benefits in lieu of such notice, or other similar benefits payable to you by the Company that become payable in connection with your termination of employment pursuant to any applicable legal requirement, including, without limitation, the Worker Adjustment and Retraining Notification Act, the California Plant Closing Act, or any other similar state law and the Plan Administrator shall so construe and implement the terms of the Plan. Any such reductions that the Company determines to make pursuant to this Section 2(e) shall be made such that any benefit under the Plan shall be reduced solely by any similar type of benefit under such legal requirement, agreement, policy or practice (*i.e.*, any cash severance benefits under the Plan shall be reduced solely by any cash payments or severance benefits under such legal requirement, and any continued insurance benefits under the Plan shall be reduced solely by any continued insurance benefits under such legal requirement).

3. Payment and Other Terms.

(a) All severance payments under Section 2(a) and 2(b) shall be made in a lump-sum and be reduced by any applicable taxes or any other amounts required to be paid or withheld by the Company. Such payments shall be made on the date that is sixty (60) days following the applicable Triggering Event. Notwithstanding any provision herein to the contrary, if you are deemed by the Company at the time of your Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, to the extent delayed commencement of any portion of the benefits to which you are entitled under this Plan is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such portion of your benefits shall not be provided to you prior to the earlier of (i) the expiration of the six-month period measured from the date of your Separation from Service or (ii) the date of your death. Upon the first business day following the expiration of the applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to the preceding sentence shall be paid in a lump sum to you (or your estate or beneficiaries), and any remaining payments due under the Plan shall be paid as otherwise provided herein.

(b) Subject to Section 3(a), to the extent that any payments of COBRA premiums or Special Severance Payments under Section 2(c) constitute "deferred compensation" within the meaning of Section 409A of the Code and are not exempt from the application of Section 409A of the Code pursuant to Treasury Regulations Sections 1.409A-1(b)(4), 1.409A-1(b)(9)(iii) or 1.409A-1(b)(9)(v), on the sixtieth (60^{th}) day following your Separation from Service, the Company shall make the first payment under Section 2(c) equal to the aggregate amount of payments that the Company would have paid through such date had such payments commenced on the Separation from Service through such sixtieth (60^{th}) day, with the balance of the payments paid thereafter on the schedule described in Section 2(c).

(c) The receipt of any severance benefits pursuant to the Plan will be subject to your signing (or, in the event of your death, your estate or beneficiaries signing) a general release of all claims against the Company and its affiliates in a form determined by the Company, within the applicable time period set forth therein, and subsequently not revoking such release within any period permitted under applicable law; *provided, however*, that in no event may the applicable time period or revocation period extend beyond sixty (60) days following your Separation from Service. No severance benefits under the Plan will be paid or provided until the general release of claims becomes effective and irrevocable.

(d) You will not be entitled to any severance benefits under the Plan unless and until you return all Company Property. For this purpose, "***Company Property***" means all Company documents (and all copies thereof) and other Company property which you had in your possession at any time, including, but not limited to, files, notes, drawings, records, plans, forecasts, reports, studies, analyses, proposals, agreements, financial information, research and development information, sales and marketing information, operational and personnel information, specifications, code, software, databases, computer-recorded information, tangible property and equipment (including, but not limited to, computers, facsimile machines, mobile telephones, servers), credit cards, entry cards, identification badges and keys, and any materials of any kind which contain or embody any proprietary or confidential information of the Company (and all reproductions thereof in whole or in part).

4. Effective Date of Plan/Amendment. This Plan was originally established effective as of January 21, 2003 and was subsequently amended and restated effective as of December 19, 2008, February 13, 2013, May 23, 2013 and January 30, 2019 . The Board shall have the power to amend or terminate this Plan from time-to-time in its discretion and for any reason (or no reason), provided that no such amendment or termination shall be effective with respect to a Triggering Event that occurred prior to the amendment or termination.

5. Claims Procedures.

(a) Normally, you do not need to present a formal claim to receive benefits payable under this Plan.

(b) If any person (the "***Claimant***") believes that benefits are being denied improperly, that the Plan is not being operated properly, that fiduciaries of the Plan have breached their duties, or that the Claimant's legal rights are being violated with respect to the Plan, the Claimant must file a formal claim, in writing, with the Plan Administrator. This requirement applies to all claims that any Claimant has with respect to the Plan, including claims against fiduciaries and former fiduciaries, except to the extent the Plan Administrator determines, in its sole discretion, that it does not have the power to grant all relief reasonably being sought by the Claimant.

(c) A formal claim must be filed within 90 days after the date the Claimant first knew or should have known of the facts on which the claim is based, unless the Plan Administrator in writing consents otherwise. The Plan Administrator shall provide a Claimant, on request, with a copy of the claims procedures established under Section 5(d).

(d) The Plan Administrator has adopted procedures for considering claims (which are set forth in Appendix A), which it may amend from time to time, as it sees fit. These procedures shall comply with all applicable legal requirements. These procedures may provide that final and binding arbitration shall be the ultimate means of contesting a denied claim (even if the Plan Administrator or its delegates have failed to follow the prescribed procedures with respect to the claim). The right to receive benefits under this Plan is contingent on a Claimant using the prescribed claims and arbitration procedures to resolve any claim.

6. Plan Administration.

(a) The Plan Administrator is responsible for the general administration and management of the Plan and shall have all powers and duties necessary to fulfill its responsibilities, including, but not limited to, the discretion to interpret and apply the Plan and to determine all questions relating to eligibility for benefits. The Plan shall be interpreted in accordance with its terms and their intended meanings. However, the Plan Administrator and all Plan fiduciaries shall have the discretion to interpret or construe ambiguous, unclear, or implied (but omitted) terms in any fashion they deem to be appropriate in their sole discretion, and to make any findings of fact needed in the administration of the Plan. The validity of any such interpretation, construction, decision, or finding of fact shall not be given de novo review if challenged in court, by arbitration, or in any other forum, and shall be upheld unless clearly arbitrary or capricious.

(b) All actions taken and all determinations made in good faith by the Plan Administrator or by Plan fiduciaries will be final and binding on all persons claiming any interest in or under the Plan. To the extent the Plan Administrator or any Plan fiduciary has been granted discretionary authority under the Plan, the Plan Administrator's or Plan fiduciary's prior exercise of such authority shall not obligate it to exercise its authority in a like fashion thereafter.

(c) If, due to errors in drafting, any Plan provision does not accurately reflect its intended meaning, as demonstrated by consistent interpretations or other evidence of intent, or as determined by the Plan Administrator in its sole discretion, the provision shall be considered ambiguous and shall be interpreted by the Plan Administrator and all Plan fiduciaries in a fashion consistent with its intent, as determined in the sole discretion of the Plan Administrator. The Plan Administrator shall amend the Plan retroactively to cure any such ambiguity.

(d) No Plan fiduciary shall have the authority to answer questions about any pending or final business decision of the Company or any affiliate that has not been officially announced, to make disclosures about such matters, or even to discuss them, and no person shall rely on any unauthorized, unofficial disclosure. Thus, before a decision is officially announced, no fiduciary is authorized to tell any employee, for example, that the employee will or will not be laid off or that the Company will or will not offer exit incentives in the future. Nothing in this subsection shall preclude any fiduciary from fully participating in the consideration, making, or official announcement of any business decision.

(e) This Section 6 may not be invoked by any person to require the Plan to be interpreted in a manner inconsistent with its interpretation by the Plan Administrator or other Plan fiduciaries.

7. Superseding Plan. This Plan (i) shall be the only plan with respect to which benefits may be provided to you upon a Change of Control or upon a termination of your employment by the Company without Cause after the effective date of this Amended and Restated Plan; and (ii) shall supersede any other plan or agreement (other than the 1992 Stock Option Plan, 2002 Equity Incentive Plan, 2011 Incentive Award Plan, 2018 Equity Incentive Plan and 2018 Inducement Award Plan, and any option or other equity award agreements thereunder) previously adopted by the Company with respect to benefits that may be provided upon a Change of Control or a termination of employment by the Company without Cause; *provided, however*, that this Plan shall not supersede any employment agreement or other similar agreement entered into between an individual and the Company (an "***Individual Employment Agreement***"), and provided, further, that if you are entitled to benefits upon a termination of your employment under both this Plan and your Individual Employment Agreement, you will receive the greater of (without duplication) such benefits under your Individual Employment Agreement and this Plan, as in effect at the time of your termination. The benefits provided under this Plan are not intended to be duplicative of those provided in any Individual Employment Agreement.

8. Limitation On Employee Rights; At-Will Employment. This Plan shall not give any employee the right to be retained in the service of the Company or interfere with or restrict the right of the Company to discharge or retire the employee. All employees of the Company are employed at will.

9. No Third-Party Beneficiaries. This Plan shall not give any rights or remedies to any person other than Covered E mployees and the Company.

10. Governing Law. This Plan is a welfare plan subject to ERISA and it shall be interpreted, administered, and enforced in accordance with that law. To the extent that state law is applicable, the statutes and common law of the State of California, excluding any that mandate the use of another jurisdiction's laws, shall apply.

11. Miscellaneous. Where the context so indicates, the singular will include the plural and vice versa. Titles are provided herein for convenience only and are not to serve as a basis for interpretation or construction of the Plan. Unless the context clearly indicates to the contrary, a reference to a statute or document shall be construed as referring to any subsequently enacted, adopted, or executed counterpart.

12. Section 409A. To the extent applicable, this Plan shall be interpreted in accordance with, and incorporate the terms and conditions required by, Section 409A of the Code and Department of Treasury regulations and other interpretive guidance issued thereunder, including without limitation any such regulations or other guidance that may be issued after the adoption of this Plan. It is intended that (i) each installment of any benefits payable under the Plan to you be regarded as a separate "payment" for purposes of Treasury Regulations Section 1.409A-2(b)(2)(i), (ii) all payments of any such benefits under the Plan satisfy, to the greatest extent possible, the exemptions from the application of Section 409A provided under Treasury Regulations Sections 1.409A-1(b)(4) and 1.409A-1(b)(9)(iii), and (iii) any such benefits consisting of COBRA premiums also satisfy, to the greatest extent possible, the exemption from the application of Section 409A provided under Treasury Regulations Section 1.409A-1(b)(9)(v). Notwithstanding any provision of this Plan to the contrary, in the event that the Company determines that any amounts payable hereunder will cause you to incur adverse tax consequences under Section 409A of the Code and related Department of Treasury guidance, to the extent permitted under Section 409A of the Code, the Company may, to the extent permitted under Section 409A of the Code (a) cooperate in good faith to adopt such amendments to this Plan and appropriate policies and procedures, including amendments and policies with retroactive effect, that it determines necessary or appropriate to preserve the intended tax treatment of the benefits provided by this Plan, preserve the economic benefits of this Plan and avoid less favorable accounting or tax consequences for the Company and/or (b) take such other actions as mutually determined necessary or appropriate to exempt the amounts payable hereunder from Section 409A of the Code or to comply with the requirements of Section 409A of the Code and thereby avoid the application of adverse tax consequences under such section.

13. Basis of Payments. The Plan shall be unfunded, and all cash payments under the Plan shall be paid only from the general assets of the Company.

14. Definitions. For purposes of this Plan, the following terms shall have the following meanings:

(a) "*Cause*" shall mean any of the following:

(i) your continued failure to satisfactorily perform your duties to the Company (other than as a result of your total or partial incapacity due to physical or mental illness);

(ii) any willful act or omission by you constituting dishonesty, fraud or other malfeasance against the Company;

(iii) your conviction of a felony under the laws of the United States or any state thereof or any other jurisdiction in which the Company conducts business;

(iv) your debarment by the U.S. Food and Drug Administration from working in or providing services to any pharmaceutical or biotechnology company under the Generic Drug Enforcement Act of 1992, or other ineligibility under any law or regulation to perform your duties to the Company; or

(v) your breach of any of the material policies of the Company, including without limitation being under the influence of illicit drugs or alcohol at work or on the Company's premises.

(b) "*Change of Control*" shall mean the occurrence of any of the following:

(i) as a result of any merger or consolidation, the voting securities of the Company outstanding immediately prior thereto represent (either by remaining outstanding or by being converted into voting securities of the surviving or acquiring entity) less than 49% of the combined voting power of the voting securities of the Company or such surviving or acquiring entity outstanding immediately after such merger or consolidation;

(ii) during any period of twenty-four (24) consecutive calendar months, the individuals who at the beginning of such period constitute the Company's Board of Directors (the "***Board***"), and any new directors whose election by such Board or nomination for election by stockholders was approved by a vote of at least two-thirds of the members of such Board who were either directors on such Board at the beginning of the period or whose election or nomination for election as directors was previously so approved, for any reason cease to constitute at least a majority of the members thereof;

(iii) any individual, entity or group (within the meaning of Section 13(d)(3) or 14(d)(2) of the Securities Exchange Act of 1934 as amended ("***Exchange Act***") shall become the beneficial owner (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of more than 20% of the then outstanding shares of common stock of the Company;

(iv) any sale of all or substantially all of the assets of the Company; *provided, however*, that in the event of a sale of less than all of the assets of the Company, the Plan Administrator may determine that a Change of Control has only occurred (for purposes of determining eligibility for benefits under the Plan) with regard to those employees whose services are specifically attributable to the sold assets; or

(v) the complete liquidation or dissolution of the Company.

The Plan Administrator shall have sole discretion with regard to whether a Change of Control has occurred for purposes of this Plan, and if a Change of Control has occurred as a result of sale of less than all of the Company's assets as described in clause (iv) above, shall have sole discretion with regard to the determination of which employees' services are specifically attributable to the sold assets and are therefore eligible for benefits under this Plan in connection with such sale of assets.

(c) **"*Triggering Event*"** shall mean the occurrence of either a Non-Change of Control Triggering Event or a Change of Control Triggering Event. For the purposes of this Plan, the termination of your employment due to your death or Disability will not constitute a termination without Cause or any other Triggering Event.

For purposes of the Plan, a "***Non-Change of Control Triggering Event***" shall mean your employment is terminated by the Company without Cause.

For purposes of the Plan, a "***Change of Control Triggering Event***" shall mean any of the following:

(i) your employment is terminated by the Company without Cause in connection with a Change of Control or within twelve (12) months following a Change of Control; *provided, however*, that if you are terminated by the Company in connection with a Change of Control but immediately accept employment with the Company's successor or acquirer, you will not be deemed to be covered by this subsection (i), unless you are subsequently terminated without Cause by the successor or acquirer within the twelve (12) months following the Change of Control;

(ii) you resign your employment with the Company because in connection with a Change of Control, you are offered terms of employment (new or continuing) by the Company or the Company's successor or acquirer within thirty (30) days after the Change of Control that result in a Material Change in Your Terms of Employment. For purposes of the foregoing, a "***Material Change in Your Terms of Employment***" shall occur if one of the following events occurs without your consent: (a) your base salary is materially reduced from that in effect immediately prior to the Change of Control, or (b) if as of the Change of Control you are employed at the director level or above, you are subject to a material reduction in your duties (including responsibilities and/or authority), or (c) your principal work location is to be moved to a location that is either (i) more than forty-five (45) miles from your principal work location immediately prior to the Change of Control or (ii) more than thirty (30) miles farther from your principal weekday residence than was your principal work location immediately prior to the Change of Control, or (d) the Company or the Company's successor or acquirer materially breaches the terms of any employment or similar service agreement with you; *provided*, *however*, that to resign due to a Material Change in Your Terms of Employment, you must (1) provide written notice to the Company's General Counsel within 30 days after the first occurrence of the event giving rise to a Material Change in Your Terms of Employment setting forth the basis for your resignation, (2) allow the Company at least 30 days from receipt of such written notice to cure such event, and (3) if such event is not reasonably cured within such period, your resignation from all positions you then hold with the Company is effective not later than 90 days after the expiration of the cure period; or

(iii) after accepting (or continuing) employment with the Company or the Company's successo r or acquirer after a Change of Control, you resign your employment within twelve (12) months following the Change of Control due to a Material Change in Your Terms of Employment as defined above.

For purposes of the Plan, "***Disability***" means any physical or mental condition which renders you incapable of performing the work for which you were employed by the Company (or its successor or acquirer after a Change of Control) or similar work offered by the Company (or its successor or acquirer after a Change of Control). Disability shall be established if (i) you satisfy the requirements for benefits under the long-term disability plan of the Company (or its successor or acquirer after a Change of Control) or (ii) if no long-term disability plan, you satisfy the requirements for Social Security disability benefits.

APPENDIX A

DETAILED CLAIMS AND ARBITRATION PROCEDURES

1. Claims Procedure

Initial Claims

All claims shall be presented to the Plan Administrator in writing. Within 90 days after receiving a claim, a claims official appointed by the Plan Administrator shall consider the claim and issue his or her determination thereon in writing. If the Plan Administrator or claims official determines that an extension of time is necessary, the claims official may extend the determination period for up to an additional 90 days by giving the Claimant written notice prior to the termination of the initial 90 day period. The extension notice will indicate the special circumstances requiring the extension of time and the date by which the claims official expects to render a decision on the claim. Any claims that the Claimant does not pursue in good faith through the initial claims stage shall be treated as having been irrevocably waived.

Claims Decisions

If the claim is granted, the benefits or relief the Claimant seeks shall be provided. If the claim is wholly or partially denied, the claims official shall, within 90 days (or a longer period, as described above), provide the Claimant with written or electronic notice of the denial, setting forth, in a manner calculated to be understood by the Claimant: (1) the specific reason or reasons for the denial; (2) specific references to the provisions on which the denial is based; (3) a description of any additional material or information necessary for the Claimant to perfect the claim, together with an explanation of why the material or information is necessary; and (4) an explanation of the procedures for appealing denied claims and the time limits applicable to such procedures, including a statement of the Claimant's right to proceed to arbitration following a denial on review of the claim, as described below. Any electronic notice will comply with the regulations of the U.S. Department of Labor. If the Claimant can establish that the claims official has failed to respond to the claim in a timely manner, the Claimant may treat the claim as having been denied by the claims official.

Appeals of Denied Claims

Each Claimant shall have the opportunity to appeal the claims official's denial of a claim in writing to an appeals official appointed by the Plan Administrator (which may be a person, committee, or other entity). A Claimant must appeal a denied claim within 60 days after receipt of written notice of denial of the claim, or within 60 days after it was due if the Claimant did not receive it by its due date. The Claimant (or the Claimant's duly authorized representative) shall be provided upon request and free of charge, reasonable access to, and copies of, all documents, records and other information relevant to the Claimant's claim. The appeals official shall take into account during its review all comments, documents, records and other information submitted by the Clamant (or the Claimant's duly authorized representative) relating to the claim, without regard to whether such information was submitted or considered in the initial benefits review. Any claims that the Claimant does not pursue in good faith through the appeals stage, such as by failing to file a timely appeal request, shall be treated as having been irrevocably waived.

Appeals Decisions

The decision by the appeals official shall be made not later than 60 days after the written appeal is received by the Plan Administrator. However, if the appeals official determines that an extension of time is necessary, the appeals official may extend the determination period for up to an additional 60 days by giving the Claimant written notice prior to the termination of the initial 60 day period. The extension notice will indicate the special circumstances requiring the extension of time and the date by which the appeals official expects to render a decision on the appeal. The appeals official shall provide the Claimant with written or electronic notice of the appeal decision, setting forth, in a manner calculated to be understood by the Claimant: (1) the specific reason or reasons for the denial; (2) specific references to the provisions on which the denial is based; (3) a statement that the Claimant is entitled to receive, upon request and free of charge, reasonable access to, and copies of, all documents, records and other information relevant to the Claimant's claim; and (4) a statement of the Claimant's right to proceed to arbitration, as described below. Any electronic notice will comply with the regulations of the U.S. Department of Labor. If a Claimant does not receive the appeal decision by the date it is due, the Claimant may deem the appeal to have been denied.

Procedures

The Plan Administrator shall adopt procedures by which initial claims shall be considered and appeals shall be resolved; different procedures may be established for different claims. All procedures shall be designed to afford a Claimant full and fair consideration of his or her claim and shall be consistent with the Plan and with ERISA.

Arbitration of Rejected Appeals

If a Claimant has pursued a claim through the appeal stage of these claims procedures and has been notified that the Claimant's appeal has been denied (or the Claimant does not receive an appeal decision by the date due), the Claimant may contest the actual or deemed denial of that claim through arbitration, as described below. Except as set forth in Appendix B, in no event shall any denied claim be subject to resolution by any means (such as in a court of law) other than arbitration in accordance with the following provisions.

2. Arbitration Procedure

Request for Arbitration

A Claimant must submit a request for arbitration to the Plan Administrator within 60 days after receipt of the written denial of an appeal (or within 60 days after he or she should have received the determination). The Claimant or the Plan Administrator may bring an action in any court of appropriate jurisdiction to compel arbitration in accordance with these procedures.

Applicable Arbitration Rules

If the Claimant has entered into a valid arbitration agreement with the Company, the arbitration shall be conducted in accordance with that agreement. If not, the rules set forth in the balance of this Appendix shall apply: The arbitration shall be held under the auspices of the Judicial Arbitration and Mediation Service (JAMS), whichever is chosen by the party who did not initiate the arbitration. Except as provided below, the arbitration shall be in accordance with JAMS's then-current employment dispute resolution rules. The Arbitrator shall apply the Federal Rules of

Evidence and shall have the authority to entertain a motion to dismiss or a motion for summary judgment by any party and shall apply the standards governing such motions under the Federal Rules of Civil Procedure. The Federal Arbitration Act shall govern all arbitrations that take place under these Detailed Claims and Arbitration Procedures (or that are required to take place under them), and shall govern the interpretation or enforcement of these Procedures or any arbitration award. To the extent that the Federal Arbitration Act is inapplicable, California law pertaining to arbitration agreements shall apply.

Arbitrator

The Arbitrator shall be an attorney familiar with employee benefit matters who is licensed to practice law in the state in which the arbitration is convened. The Arbitrator shall be selected in the following manner from a list of 11 arbitrators drawn by the sponsoring organization under whose auspices the arbitration is being conducted and taken from its panel of labor and employment arbitrators. Each party shall designate all arbitrators on the list whom they find acceptable; the parties shall then alternately strike arbitrators from the list of arbitrators acceptable to both parties, with the party who did not initiate the arbitration striking first. If only one arbitrator is acceptable to both parties, he or she will be the Arbitrator. If none of the arbitrators is acceptable to both parties, a new panel of arbitrators shall be obtained from the sponsoring organization and the selection process shall be repeated.

Location

The arbitration will take place in or near the city in which the Claimant is or was last employed by the Company or in which the Plan is principally administered, whichever is specified by the Plan Administrator, or in such other location as may be acceptable to both the Claimant and the Plan Administrator.

Authority of Arbitrator

The Arbitrator shall have the authority to resolve any factual or legal claim relating to the Plan or relating to the interpretation, applicability, or enforceability of these arbitration procedures, including, but not limited to, any claim that these procedures are void or voidable. The Arbitrator may grant a Claimant's claim only if the Arbitrator determines that it is justified because: (1) the appeals official erred on an issue of law; or (2) the appeals official's findings of fact, if applicable, were not supported by substantial evidence. The arbitration shall be final and binding on all parties.

Limitation on Scope of Arbitration

The Claimant may not present any evidence, facts, arguments, or theories at the arbitration that the Claimant did not pursue in his or her appeal, except in response to new evidence, facts, arguments, or theories presented on behalf of the other parties to the arbitration. However, an arbitrator may permit a Claimant to present additional evidence or theories if the Arbitrator determines that the Claimant was precluded from presenting them during the claim and appeal procedures due to procedural errors of the Plan Administrator or its delegates.

Administrative Record

The Plan Administrator shall submit to the Arbitrator a certified copy of the record on which the appeals official's decision was made.

Experts, Depositions, and Discovery

Except as otherwise permitted by the Arbitrator on a showing of substantial need, either party may: (1) designate one expert witness; (2) take the deposition of one individual and the other party's expert witness; (3) propound requests for production of documents; and (4) subpoena witnesses and documents relating to the discovery permitted in this paragraph.

Pre-Hearing Procedures

At least 30 days before the arbitration hearing, the parties must exchange lists of witnesses, including any expert witnesses, and copies of all exhibits intended to be used at the hearing. The Arbitrator shall have jurisdiction to hear and rule on pre-hearing disputes and is authorized to hold pre-hearing conferences by telephone or in person, as the Arbitrator deems necessary.

Transcripts

Either party may arrange for a court reporter to provide a stenographic record of the proceedings at the party's own cost.

Post-Hearing Procedures

Either party, on request at the close of the hearing, may be given leave to file a post-hearing brief within the time limits established by the Arbitrator.

Costs and Attorneys' Fees

The Claimant and the Company shall equally share the fees and costs of the Arbitrator, except that the Claimant shall not be required to pay any of the Arbitrator's fees and costs if such a requirement would make mandatory arbitration under these procedures unenforceable. On a showing of material hardship, the Company, in its discretion, may advance all or part of the Claimant's share of the fees and costs, in which case the Claimant shall reimburse the Company out of the proceeds of the arbitration award, if any, that the Claimant receives. Each party shall pay its own costs and attorneys' fees, except as required by applicable law.

Procedure for Collecting Costs From Claimant

Before the arbitration commences, the Claimant must deposit with the Plan Administrator his or her share of the anticipated fees and costs of the Arbitrator, as reasonably determined by the Plan Administrator. At least 2 weeks before delivering his or her decision, the Arbitrator shall send his or her final bill for fees and costs to the Plan Administrator for payment. The Plan Administrator shall apply the amount deposited by the Claimant to pay the Claimant's share of the Arbitrator's fees and costs and return any surplus deposit. If the Claimant's deposit is insufficient, the Claimant will be billed for any remaining amount due. Failure to pay any amount within 10 days after it is billed shall constitute the Claimant's irrevocable election to withdraw his or her arbitration request and abandon his or her claim.

Arbitration Award

The Arbitrator shall render an award and opinion in the form typically rendered in labor arbitrations. Within 20 days after issuance of the Arbitrator's award and opinion, either party may file with the Arbitrator a motion to reconsider, which shall be accompanied by a supporting brief.

If such a motion is filed, the other party shall have 20 days from the date of the motion to respond, after which the Arbitrator shall reconsider the issues raised by the motion and either promptly confirm or promptly change his or her decision. The decision shall then be final and conclusive on the parties. Arbitrator fees and other costs of a motion for reconsideration shall be borne by the losing party, unless the Arbitrator orders otherwise. Either party may bring an action in any court of appropriate jurisdiction to enforce an arbitration award. A party opposing enforcement of an arbitration award may not do so in an enforcement proceeding, but must bring a separate action in a court of competent jurisdiction to set aside the award. In any such action, the standard of review shall be the same as that applied by an appellate court reviewing the decision of a trial court in a nonjury trial.

Severability

The invalidity or unenforceability of any part of these arbitration procedures shall not affect the validity of the rest of the procedures.

APPENDIX B

ADDITIONAL INFORMATION

RIGHTS UNDER ERISA

As a participant in the Plan, you are entitled to certain rights and protections under ERISA. ERISA provides that all Plan participants will be entitled to:

Receive Information About Your Plan and Benefits

1. Examine, without charge, at the Plan Administrator's office and at certain Company offices, all documents governing the Plan and a copy of the latest annual report (Form 5500 Series), if applicable, filed by the Plan with the U.S. Department of Labor and available at the Public Disclosure Room of the Employee Benefits Security Administration.

2. Obtain, upon written request to the Plan Administrator, copies of documents governing the operation of the Plan and copies of the latest annual report (Form 5500 Series), if applicable, and updated summary plan description. The Plan Administrator may make a reasonable charge for the copies.

3. Receive a summary of the Plan's annual financial report, if any. The Plan Administrator is required by law to furnish each participant with a copy of this summary annual report.

Prudent Actions by Plan Fiduciaries

In addition to creating rights for Plan participants, ERISA imposes duties upon the people who are responsible for the operation of the employee benefit plan. The people who operate the Plan, called "fiduciaries" of the Plan, have a duty to do so prudently and in the interest of you and other Plan participants and beneficiaries. No one, including the Company, your union, or any other person, may fire you or otherwise discriminate against you in any way to prevent you from obtaining a Plan benefit or exercising your rights under ERISA.

Enforce Your Rights

If your claim for a Plan benefit is denied or ignored, in whole or in part, you have a right to know why this was done, to obtain copies of documents relating to the decision without charge, and to appeal any denial, all within certain time schedules.

Under ERISA, there are steps you can take to enforce the above rights. For instance, if you request a copy of Plan documents or the latest annual report from the Plan, if applicable, and do not receive them within 30 days, you may file suit in a Federal court. In such a case, the court may require the Plan Administrator to provide the materials and pay you up to $110 a day until you receive the materials, unless the materials were not sent because of reasons beyond the control of the Plan Administrator. If you have a claim for benefits~~,~~ which is denied or ignored, in whole or in part, you may proceed to arbitration, as set forth in Appendix A. If you are discriminated against for asserting your rights, you may seek assistance from the U.S. Department of Labor, or you may file suit in a Federal court. The court will decide who should pay court costs and legal fees. If you are successful, the court may order the person you have sued to pay these costs and fees. If you lose, the court may order you to pay these costs and fees, for example, if it finds your claim is frivolous.

Assistance with Your Questions

If you have any questions about the Plan, you should contact the Plan Administrator. If you have any questions about this statement or about your rights under ERISA, or if you need assistance in obtaining documents from the Plan Administrator, you should contact the nearest office of the Employee Benefits Security Administration, U. S. Department of Labor, listed in your telephone directory or the Division of Technical Assistance and Inquiries, Employee Benefits Security Administration, U. S. Department of Labor, 200 Constitution Avenue N. W., Washington, D. C. 20210. You may also obtain certain publications about your rights and responsibilities under ERISA by calling the publications hotline of the Employee Benefits Security Administration.

ADMINISTRATIVE INFORMATION

Name of Plan:	Amended and Restated Geron Corporation Severance Plan
Plan Administrator:	Compensation Committee of the Board of Directors Geron Corporation 149 Commonwealth Drive Menlo Park, CA 94025 USA Tel: 650-473-7700 Fax: 650-473-7750
Type of Administration:	Self-Administered
Type of Plan:	Severance Pay Employee Welfare Benefit Plan
Employer Identification Number:	75-2287752
Direct Questions Regarding the Plan to:	Compensation Committee of the Board of Directors Geron Corporation 149 Commonwealth Drive Menlo Park, CA 94025 USA Tel: 650-473-7700 Fax: 650-473-7750
Agent for Service of Legal Process:	Corporate Secretary Geron Corporation 149 Commonwealth Drive Menlo Park, CA 94025 USA Tel: 650-473-7700 Fax: 650-473-7750 Service of Legal Process may also be made upon the Plan Administrator
Plan Year:	Calendar Year The date of the end of the year for purposes of maintaining the Plan's fiscal records is December 31.
Plan Number:	510

EXHIBIT 10.29

AMENDED AND RESTATED
EMPLOYMENT AGREEMENT

This Amended and Restated Employment Agreement (this "**Agreement**") is entered into as of January 31, 2019 (the "**Effective Date**"), by and between John A. Scarlett, M.D. ("**Executive**") and Geron Corporation, a Delaware corporation (the "**Company**").

WHEREAS, the Company desires to employ Executive to provide personal services to the Company, and wishes to provide Executive with certain compensation and benefits in return for Executive's services; and

WHEREAS, Executive wishes to be employed by the Company and provide personal services to the Company in return for certain compensation and benefits;

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, it is hereby agreed by and between the parties hereto as follows:

ARTICLE I
DEFINITIONS

For purposes of the Agreement, the following terms are defined as follows:

1.1 "**Board**" means the Board of Directors of the Company.

1.2 "**Cause**" means the occurrence of any one or more of the following:

(a) any willful act or omission by Executive constituting material dishonesty, fraud or other malfeasance against the Company;

(b) Executive's conviction of a felony under the laws of the United States or any state thereof or any other jurisdiction in which the Company conducts business;

(c) Executive's debarment by the United States Food and Drug Administration from working in or providing services to any pharmaceutical or biotechnology company under the Generic Drug Enforcement Act of 1992, or other ineligibility under any law or regulation to perform Executive's duties to the Company; or

(d) Executive's breach of any of the material policies of the Company.

1.3 "**Change in Control**" shall have the meaning set forth in the Plan.

1.4 "**Code**" means the Internal Revenue Code of 1986, as amended.

1.5 "**Company**" means Geron Corporation, a Delaware corporation, and any successor thereto.

1.6 "**Comparable Employment**" means employment on terms which provide Executive with (a) the same or greater rate of base salary as in effect immediately prior to Executive's termination, (b) the same, an equivalent or a higher job title and level of responsibility as Executive had immediately prior to Executive's termination, (c) the equivalent or a higher bonus opportunity as the bonus opportunity for the calendar year preceding the calendar year in which Executive's termination occurs, and (d) a principal work location that is (i) no more than (A) forty-five (45) miles from Executive's principal work location immediately prior to Executive's termination with housing support and travel reimbursement no less favorable than the reimbursement provided pursuant to Section 3.5 of this Agreement and (B) thirty (30) miles farther from Executive's principal weekday residence than Executive's principal work location was immediately prior to Executive's termination or (ii) located within thirty (30) miles of Executive's permanent residence, which as of the date of this Agreement is located in Austin, Texas.

1.7 "**Covered Termination**" means an Involuntary Termination Without Cause that occurs at any time, *provided* that such termination constitutes a "separation from service" within the meaning of Section 409A of the Code and the regulations promulgated thereunder, including without limitation Treasury Regulation Section 1.409A-1(h) (a "**Separation from Service**").

1.8 "**Involuntary Termination Without Cause**" means Executive's dismissal or discharge other than (i) for Cause or (ii) following an involuntary or voluntary filing of a petition under Chapters 7 or 11 of Title 11 of the United States Code Section 101 et. seq., an assignment for the benefit of creditors, a liquidation of the Company's assets in a formal proceeding or otherwise or any other event of insolvency by the Company, in any case, without an offer of Comparable Employment by the Company or a successor, acquirer, or affiliate of the Company. For the purposes of this Agreement, the termination of Executive's employment due to Executive's death or disability will not constitute a termination for Cause.

1.9 "**Plan**" means the Company's 2011 Equity Incentive Award Plan, as amended, 2018 Equity Incentive Plan, and 2018 Inducement Award Plan (if applicable), and any successor to any of the foregoing Plans (collectively referred to as the **"Plans**").

ARTICLE II
EMPLOYMENT BY THE COMPANY

2.1 **Position and Duties.** Subject to the terms set forth herein, the Company shall employ Executive in the position of President, Chief Executive Officer and Chairman of the Board. During the term of Executive's employment with the Company, Executive will report to the Board or its designee. Executive shall serve in an employee capacity and shall perform such duties as are assigned to Executive by the Board and, except as otherwise instructed by the Board, such other duties as are customarily associated with the position of President, Chief Executive Officer and Chairman of the Board. During the term of Executive's employment with the Company, Executive will devote Executive's best efforts and substantially all of Executive's business time and attention to the business and affairs of the Company (except for vacation periods as set forth herein and reasonable periods of illness or other incapacities permitted by the Company's general employment policies or as otherwise set forth in this Agreement). The Company shall appoint Executive as a member of the Board and, during the period of time Executive serves as President, Chief Executive Officer and Chairman of the Board hereunder, shall nominate Executive for reelection as a member of the Board and use its best efforts to cause Executive to be so elected.

2.2 **Employment at Will.** Both the Company and Executive acknowledge and agree that Executive's employment with the Company is "at-will" and not for any specified time, and may be terminated at any time by Executive or the Company, with or without cause, and with or without prior notice; *provided, however*, that if Executive's employment with the Company is terminated, Executive will be eligible to receive certain severance payments and benefits as set forth in Article IV below.

2.3 Employment Policies. The employment relationship between the parties hereto shall be governed by the general employment policies and practices of the Company, including but not limited to those policies relating to the protection of confidential information and assignment of inventions. In the event of a conflict between the terms of this Agreement and the Company's general employment policies or practices, this Agreement shall control.

ARTICLE III
COMPENSATION

3.1 Base Salary. Commencing January 1, 2019, Executive shall receive an annual base salary of $690,000, subject to increase in the sole discretion of the Board (the "**Base Salary**"), payable in accordance with the regular payroll practices of the Company.

3.2 Bonus. Executive shall be eligible to earn, for each fiscal year of the Company ending during Executive's employment with the Company, an annual discretionary cash bonus (an "Annual Bonus") targeted at sixty percent (60%) of Executive's Base Salary. The Annual Bonus shall be paid on the date on which annual bonuses are paid to the Company's senior executives generally, but in no event later than March 15th of the fiscal year following the year in which the Annual Bonus is earned. If the Company determines, in its reasonable discretion, that Executive has engaged in any misconduct intended to affect the payment of his Annual Bonus, or has otherwise engaged in any act or omission that would constitute Cause for termination of employment, as defined by Section 1.2 of the Agreement, Executive will automatically and immediately forfeit his entire Annual Bonus. If the Annual Bonus has already been paid to Executive, such Annual Bonus will be deemed unearned, and the Company shall have the right to recover the entire amount of the Annual Bonus paid to Executive for the calendar year(s) in which such misconduct or other act or omission constituting Cause occurred. Without limiting the foregoing, any such misconduct or other act or omission constituting Cause will subject Executive to disciplinary action up to and including termination of employment. In addition, any Annual Bonus paid to Executive for the calendar year(s) in which such misconduct or other Cause occurred is subject to recoupment in accordance with The Dodd-Frank Wall Street Reform and Consumer Protection Act and any implementing regulations, any other clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable laws, regulations or statutes. Recovery by the Company of an Annual Bonus in accordance with this Section shall not constitute an event giving rise to a right by Executive to voluntarily terminate his employment for cause based on such recovery by Company, nor shall it constitute "constructive termination", or any similar term or circumstance under the Agreement or any other plan or agreement with the Company.

3.3 Equity Compensation. While Executive is actively employed under this Agreement, Executive shall be entitled to participate in one or more of the Company's equity Plans**.** For each equity grant made under a Plan, Executive will be required to sign a Stock Option Agreement or other equity award agreement in a form to be provided by the Company at the time of grant, and the terms of the equity awards will be governed in all respects by the terms of the Stock Option Agreement or other equity award agreement and the Plan from which the equity award is being granted. Copies of the Plans will be made available to Executive upon request.

3.4 Standard Company Benefits; Vacation. Executive shall be entitled to all rights and benefits for which Executive is eligible under the terms and conditions of the Company's benefit and compensation plans, practices, policies and programs, as in effect from time to time, that are provided by the Company to its senior executives generally. Except as specifically provided herein, nothing in this Agreement is construed or interpreted to provide greater rights, participation, coverage or benefits under such benefit plans or programs provided to executive employees pursuant to the terms and conditions of such benefit plans and programs. Executive will be eligible for vacation as an executive under the Company's vacation policy, as such policy may be modified from time to time.

3.5 Housing Allowance and Reimbursement For Personal Travel. During Executive's employment so long as his primary residence is located in Austin, Texas, the Company will provide Executive with reimbursement for out-of-pocket rent of not more than $4,000 per month, subject to increase at the sole discretion of the Board (the "Housing Allowance") actually incurred by Executive for his San Francisco Bay Area housing. In addition, during Executive's employment so long as his primary residence is located in Austin, Texas, the Company will reimburse Executive for the actually incurred, reasonable out-of-pocket costs of his weekly commute between the San Francisco Bay Area and Austin, Texas; provided that in no event shall such amounts provided to Executive pursuant to this sentence exceed in the aggregate $20,000 per year, subject to increase at the sole discretion of the Board. Any reimbursement pursuant to this Section 3.5 shall be subject to the Company's policies for reimbursement as may be in place from time-to-time. To the extent that any reimbursements payable pursuant to this Agreement are subject to the provisions of Section 409A of the Code, such reimbursements shall be paid to Executive no later than December 31 of the year following the year in which the expense was incurred, the amount of expenses reimbursed in one year shall not affect the amount eligible for reimbursement in any subsequent year, and Executive's right to reimbursement under this Agreement will not be subject to liquidation or exchange for another benefit.

ARTICLE IV
SEVERANCE BENEFITS AND RELEASE

4.1 Severance Benefits.:

(i) Payment of Accrued Obligations Upon Termination of Employment. Upon a termination of Executive's employment for any reason at any time following the Effective Date, the Company shall pay to in a single lump-sum cash payment within thirty (30) days following the date of termination, the aggregate amount of Executive's (A) earned but unpaid Base Salary applicable on the date of termination, (B) incurred but unreimbursed business expenses and (C) accrued but unpaid vacation pay using the Base Salary rate applicable on the date of termination (collectively, the "**Accrued Obligations**").

(ii) Severance Upon Covered Termination. If Executive's employment terminates due to a Covered Termination at any time after the Effective Date, then, in addition to the Accrued Obligations, Executive will be entitled to the following severance benefits:

(a) Executive shall be paid any unpaid Annual Bonus to which Executive would have become entitled for any fiscal year of the Company that ends on or before the termination date had Executive remained employment through the payment date, payable in a single lump-sum payment on the date on which annual bonuses are paid to the Company's senior executives generally for such fiscal year, but in no event later than March 15th following the end of the fiscal year to which the Annual Bonus relates;

(b) Executive shall be paid an aggregate amount equal to twenty-four (24) months of Executive's Base Salary in effect on the date of termination, payable to Executive in a single lump-sum amount on the sixtieth (60th) day following the termination date;

(c) Executive and Executive's covered dependents will be eligible to continue their health care benefit coverage as permitted by COBRA (Internal Revenue Code Section 4980B) at the same cost to Executive as in effect immediately prior to the Covered Termination for the one (l)-year period following the Covered Termination, and be entitled to maintain coverage for Executive and Executive's eligible dependents at Executive's own expense for the balance of the period that Executive is entitled to coverage under COBRA; and

(d) any options granted prior or subsequently to the date hereof or other exercisable equity interest in the Company held by Executive shall remain outstanding and exercisable through the earlier of (i) the second (2nd) anniversary of the date of termination or (ii) the original expiration date of the option(s) or other equity interest.

Notwithstanding the foregoing, if Executive's employment terminates due to a Covered Termination at any time after the Effective Date, Executive will receive the greater of (i) the severance benefits above, or (ii) the severance benefits provided for in the Amended and Restated Severance Plan attached hereto as Exhibit C, which may be amended from time-to-time by the Company at the Company's sole discretion, that is in effect at the time of termination. For the avoidance of doubt, all amounts payable under this Agreement shall be subject to applicable federal, state, local or foreign tax withholding requirements.

4.2 Parachute Payments. If any payment or benefit Executive would receive from the Company or otherwise in connection with a Change in Control ("**Payment**") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) be subject to the excise tax imposed by Section 4999 of the Code (the "**Excise Tax**"), then such Payment shall be reduced to the Reduced Amount. The "**Reduced Amount**" shall equal either (x) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local employment and income taxes and the Excise Tax (in each case, computed at the highest applicable marginal rate), results in Executive's receipt, on an after-tax basis, of the greater amount of the Payment. If payments or benefits constituting "parachute payments" must be reduced so that the Payment equals the Reduced Amount, such reduction shall occur in the following order unless Executive elects in writing, and the Company approves, a different order: (i) reduction of cash payments; (ii) cancellation of accelerated vesting of any stock awards; and (iii) reduction of non-cash employee benefits. In the event that acceleration of vesting of stock award compensation is reduced, such acceleration of vesting shall be cancelled in the reverse order of the date of grant of Executive's stock awards, such that the award granted on the latest date preceding the Change in Control shall be cancelled first, unless Executive elects in writing, and the Company approves, a different order.

The Company, for general audit purposes, shall engage a nationally recognized public accounting firm (the "**Accounting Firm**") to perform the foregoing calculations. The Company shall bear all expenses with respect to the calculations and determinations by such Accounting Firm required to be made hereunder. The Accounting Firm engaged to make the determinations hereunder shall provide its calculations, together with detailed supporting documentation, to the Company and Executive within fifteen (15) calendar days after the date on which Executive's right to a Payment is triggered (if requested at that time by the Company or Executive) or such other time as requested by the Company or Executive. If the Accounting Firm determines that no Excise Tax is payable with respect to a Payment, either before or after the application of the Reduced Amount, it shall furnish to the Company and Executive an opinion reasonably acceptable to Executive that no Excise Tax will be imposed with respect to such Payment. Any good faith determinations of the Accounting Firm made hereunder shall be final, binding and conclusive upon the Company and Executive.

4.3 Release. Notwithstanding the foregoing, Executive's right to receive the amounts provided for in Sections 4.1(ii) and 4.2 above shall be subject to and conditioned upon Executive's execution and non-revocation of a release of claims in substantially the form attached hereto as Exhibit A (the "**Release**") (as such form may be modified to take into account changes in the law) within fifty (50) days following the termination date. Such Release shall specifically relate to all of Executive's rights and claims in existence at the time of such execution and shall confirm Executive's obligations under the Proprietary Information Agreement (as defined below). Executive shall have a certain period of time to consider whether to execute

such Release, as set forth in the Release, and Executive may revoke such Release within seven (7) business days after execution. In the event Executive does not execute such Release within the applicable period, or if Executive revokes such Release within the subsequent seven (7) business day period, none of the payments and benefits set forth in Sections 4.1(ii) and 4.2 above shall be payable to Executive under this Agreement.

4.4 Six-Month Delay. Notwithstanding any provision to the contrary in this Agreement, if Executive is at the time of Executive's Separation from Service a "specified employee" within the meaning of Section 409A(a)(2)(B)(i) of the Code, then, to the extent delayed commencement of all or any portion of the benefits and payments to which Executive is entitled under this Agreement is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such benefits and payments shall not be paid to Executive until the earlier of (a) the first business day following the expiration of the six (6)-month period following Executive's Separation from Service or (b) the first business day following the date of Executive's death. Upon the expiration of the applicable period, all payments deferred pursuant to this Section 4.4 shall be paid in a single lump sum to Executive (or Executive's estate or beneficiaries, if applicable), without interest, and any remaining payments due under this Agreement shall be paid as otherwise provided herein. For purposes of Section 409A of the Code and the Department of Treasury regulations issued thereunder, Executive's right to receive the payments and benefits payable pursuant to the Agreement shall be treated as a right to receive a series of separate payments and accordingly, each payment shall at all times be considered a separate and distinct payment.

4.5 Mitigation. Executive shall not be required to mitigate the amount of any payment provided under this Agreement by seeking other employment or otherwise, nor shall the amount of any payment provided for under this Agreement be reduced by any compensation earned by Executive as a result of employment by another employer or by any retirement benefits received by Executive after the date of termination or otherwise.

ARTICLE V
PROPRIETARY INFORMATION OBLIGATIONS

5.1 Agreement. Executive agrees to abide by the Proprietary Information and Inventions Agreement attached hereto as Exhibit B (the "**Proprietary Information Agreement**").

5.2 Remedies. Executive acknowledges that Executive's duties under the Proprietary Information Agreement shall survive termination of Executive's employment with the Company and the termination of this Agreement. Executive acknowledges that any remedy at law for any breach or threatened breach by Executive of the provisions of the Proprietary Information Agreement would be inadequate, and Executive therefore agrees that the Company shall be entitled to injunctive relief in case of any such breach or threatened breach.

ARTICLE VI
OUTSIDE ACTIVITIES

6.1 No Other Employment. Except with the prior written consent of the Board, Executive shall not, during the term of Executive's employment with the Company, undertake or engage in any other employment, occupation or business enterprise. Notwithstanding the foregoing, during the term of Executive's employment with the Company, Executive may (a) undertake or engage in other employment, occupation or business enterprise in which Executive is a passive investor, and/or (b) engage in civic and not-for-profit activities, in each case, so long as such activities do not materially interfere with the performance of Executive's duties hereunder.

6.2 No Conflicting Business Interests. During the term of Executive's employment with the Company, except on behalf of the Company, Executive shall not, directly or indirectly, whether as an employee, officer, director, stockholder, partner, proprietor, associate, representative, consultant, or in any other capacity whatsoever, engage in, become financially interested in, be employed by or have any business connection with any other person, corporation, firm, partnership or other entity whatsoever known by Executive to compete directly with the Company, throughout the world, in any line of business engaged in (or planned to be engaged in) by the Company; *provided*, *however*, that notwithstanding anything to the contrary herein, Executive may own securities of any competitor corporation as a passive investor, so long as Executive's direct holdings in any one such corporation do not, in the aggregate, constitute more than one percent (1%) of the voting stock of such corporation at any time.

ARTICLE VII
NONINTERFERENCE

While employed by the Company and for one (1) year immediately following the date on which Executive terminates employment or otherwise ceases to provide services to the Company, Executive agrees not to interfere with the business of the Company by soliciting or attempting to solicit any employee of the Company to terminate such employee's employment in order to become an employee, consultant or independent contractor to or for any competitor of the Company. Executive's duties under this Article VII shall survive termination of Executive's employment with the Company and the termination of this Agreement.

ARTICLE VIII
GENERAL PROVISIONS

8.1 Notices. Any notices provided hereunder must be in writing and shall be deemed effective upon the earlier of (i) personal delivery (including personal delivery by telex) or (ii) the third (3rd) day after being mailed by first class mail, addressed to the Company at its primary office location and to Executive at Executive's address then listed on the Company payroll, or at such other address as the parties may later designate in writing.

8.2 Section 409A. To the extent applicable, this Agreement shall be interpreted in accordance with Section 409A of the Code and Department of Treasury regulations and other interpretative guidance issued thereunder, including without limitation any such regulations or other such guidance that may be issued after the Effective Date ("**Section 409A**"). Notwithstanding any provision of this Agreement to the contrary, in the event that following the Effective Date, the Company determines in good faith that any compensation or benefits payable under this Agreement may not be either exempt from or compliant with Section 409A, the Company may adopt such amendments to this Agreement or adopt other policies or procedures (including amendments, policies and procedures with retroactive effect), or take any other commercially reasonable actions necessary or appropriate to preserve the intended tax treatment of the compensation and benefits payable hereunder, including without limitation actions intended to (i) exempt the compensation and benefits payable under this Agreement from Section 409A, and/or (ii) comply with the requirements of Section 409A, provided, that this Section 8.2 does not, and shall not be construed so as to, create any obligation on the part of the Company to adopt any such amendments, policies or procedures or to take any other such actions or to create any liability on the part of the Company for any failure to do so.

8.3 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision hereof and this Agreement will continue in full force and effect without such provision.

8.4 Waiver. If either party should waive any breach of any provisions of this Agreement, such party shall not be deemed to have waived any preceding or succeeding breach of the same or any other provision of this Agreement.

8.5 Complete Agreement. This Agreement, together with Exhibits A, B and C attached hereto, constitutes the entire agreement between Executive and the Company and is the complete, final, and exclusive embodiment of their agreement with regard to the subject matter herein (except for the Plan, any successor thereto or the Company's Amended and Restated Severance Plan). As of the Effective Date, this Agreement supersedes and replaces any prior agreement between Executive and the Company or any predecessor employer in its entirety, including, without limitation, that certain Employment Agreement entered by Executive and the Company on September 29, 2011, as amended February 11, 2014 and January 31, 2018. Executive and the Company acknowledge and agree that this Agreement is entered into without reliance on any promise or representation other than those expressly contained herein and cannot be modified or amended except in a writing signed by a duly-authorized officer of the Company.

8.6 Counterparts. This Agreement may be executed in one or more counterparts, each of which will have the same force and effect as an original, but all of which taken together will constitute one and the same Agreement.

8.7 Headings. The headings of the sections hereof are inserted for convenience of reference only and shall not be deemed to constitute a part of this Agreement nor to affect the meaning or interpretation of any part of this Agreement.

8.8 Successors and Assigns. This Agreement is intended to be binding on, inure to the benefit of and be enforceable by Executive and the Company and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of Executive's duties or rights hereunder without the prior written consent of the Company, which consent shall not be withheld unreasonably.

8.9 Arbitration. In the event of any contractual, statutory or tort dispute or claim relating to or arising out of Executive's employment relationship with the Company (including but not limited to any claims of wrongful termination or age, sex, race, or other discrimination, but not including workers' compensation claims), Executive and the Company agree that all such disputes will be finally resolved by binding arbitration conducted by a single neutral arbitrator associated with the American Arbitration Association in Menlo Park, California. Executive and the Company hereby waive their respective rights to have any such disputes or claims tried to a judge or jury. However, the Company agrees that this arbitration provision will not apply to any claim, by either Executive or the Company, for injunctive relief. The administrative costs of any arbitration proceeding between Executive and the Company and the fees and costs of the arbitrator shall be borne by the Company.

8.10 Attorneys' Fees. If either party hereto brings any action to enforce its respective rights hereunder, each party in any such action shall be responsible for its own attorneys' fees and costs incurred in connection with such action.

8.11 Acknowledgement. Executive acknowledges that Executive (a) has had the opportunity to discuss this matter with and obtain advice from independent counsel of Executive's own choice and has been advised to do so by the Company, (b) has carefully read and fully understands all the provisions of this Agreement, and (c) is knowingly and voluntarily entering into this Agreement. Executive represents that Executive (i) is familiar with the restrictive covenants set forth in the Proprietary Information Agreement and (ii) is fully aware of his obligations thereunder.

8.12 Choice of Law. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the law of the State of California, without regard to the principles of conflict of laws thereof.

IN WITNESS WHEREOF, the parties have executed this Agreement on the on the day and year first above written.

GERON CORPORATION,
a Delaware corporation

By: /s/ Karin Eastham
Karin Eastham
Lead Independent Director

Date: 31-Jan-2019

Acknowledged, accepted and agreed this 31st day of January, 2019:

/s/ John Scarlett
John A. Scarlett, M.D.

EXHIBIT A

General Release

EXHIBIT B

Proprietary Information and Inventions Agreement

EXHIBIT C

Amended and Restated Severance Plan

EXHIBIT 10.30

AMENDED AND RESTATED
EMPLOYMENT AGREEMENT

This Amended and Restated Employment Agreement (the "**Agreement**") is made effective as of the 31st day of January, 2019 (the "**Effective Date**""), by and between Stephen N. Rosenfield ("**Executive**") and Geron Corporation, a Delaware corporation (the "**Company**").

Whereas, the Company desires to employ Executive to provide personal services to the Company, and wishes to provide Executive with certain compensation and benefits in return for Executive's services; and

Whereas, Executive wishes to be employed by the Company and provide personal services to the Company in return for certain compensation and benefits;

Now, Therefore, in consideration of the mutual promises and covenants contained herein, it is hereby agreed by and between the parties hereto as follows:

ARTICLE I
DEFINITIONS

For purposes of the Agreement, the following terms are defined as follows:

1.1 "**Board**" means the Board of Directors of the Company.

1.2 "**Cause**" means any of the following:

(a) any willful act or omission by Executive constituting dishonesty, fraud or other malfeasance against the Company;

(b) Executive's conviction of a felony under the laws of the United States or any state thereof or any other jurisdiction in which the Company conducts business;

(c) Executive's debarment by the U.S. Food and Drug Administration from working in or providing services to any pharmaceutical or biotechnology company under the Generic Drug Enforcement Act of 1992, or other ineligibility under any law or regulation to perform Executive's duties to the Company; or

(d) Executive's breach of any of the material policies of the Company.

1.3 "**Change in Control**" shall have the meaning set forth in the Plan.

1.4 "**Code**" means the Internal Revenue Code of 1986, as amended.

1.5 "**Company**" means Geron Corporation or its successors in interest.

1.6 "**Comparable Employment**" means employment on terms which provide (a) the same or greater rate of base pay or salary as in effect immediately prior to Executive's termination, (b) the same, equivalent or higher job title and level of responsibility as Executive had prior to Executive's termination, (c) equivalent or higher bonus opportunity as the bonus opportunity for the year preceding the year in which the termination occurs, and d) a principal work location that is both (i) no more than forty-five (45) miles from Executive's principal work location immediately prior to Executive's termination and (ii) no more than thirty (30) miles farther from Executive's principal weekday residence than was Executive's principal work location immediately prior to the termination.

1.7 "**Covered Termination**" means an Involuntary Termination Without Cause that occurs at any time, *provided* that such termination constitutes a "separation from service" within the meaning of Section 409A of the Code and the regulations promulgated thereunder, including Treasury Regulation Section 1.409A-1(h) (a "**Separation from Service**").

1.8 "**Involuntary Termination Without Cause**" means Executive's dismissal or discharge other than (i) for Cause, or (ii) after an involuntary or voluntary filing of a petition under chapter 7 or 11 of 11 USC Section 101 et. seq., an assignment for the benefit of creditors, a liquidation of the company's assets in formal proceeding or otherwise or any other event of insolvency by the Company, in any case, without an offer of Comparable Employment by the Company or a successor, acquirer, or affiliate of the Company. For purposes of this Agreement, the termination of Executive's employment due to Executive's death or disability will not constitute a termination for Cause.

1.9 "**Plan**" means the Company's 2011 Incentive Award Plan, as amended, 2018 Equity Incentive Plan, and 2018 Inducement Award Plan (if applicable), and any successor to any of the foregoing Plans (collectively referred to as the **"Plans"**).

ARTICLE II
EMPLOYMENT BY THE COMPANY

2.1 **Position and Duties.** Subject to the terms set forth herein, the Company agrees to employ Executive in the position of Executive Vice President and Chief Legal Officer. During the Executive's employment, Executive will report to the Chief Executive Officer. Executive shall serve in a part-time employee capacity equivalent to eighty percent (80%) of a full time work schedule and shall perform such duties as are assigned to Executive by the Chief Executive Officer and, except as otherwise instructed by the Chief Executive Officer, such other duties as are customarily associated with the position of Executive Vice President and Chief Legal Officer. The part-time schedule will be annually re-evaluated by the Company to ensure that the arrangement meets the needs of the Company. During Executive's employment with the Company, Executive will devote Executive's best efforts and substantially all of Executive's business time and attention (except for vacation periods as set forth herein and reasonable periods of illness or other incapacities permitted by the Company's general employment policies or as otherwise set forth in this Agreement) to the business of the Company.

2.2 **Employment at Will.** Both the Company and Executive acknowledge and agree that Executive's employment with the Company is "at-will" and not for any specified period of time, and may be terminated at any time by Executive or the Company, with or without Cause, and with or without prior notice; provided, however, that if Executive's employment with the Company is terminated under circumstances that constitute a Covered Termination, Executive will be eligible to receive certain severance payments and benefits as set forth in Article IV below.

2.3 **Employment Policies.** The employment relationship between the parties shall also be governed by the general employment policies and practices of the Company, including but not limited to those policies relating to protection of confidential information and assignment of inventions. In the event of a conflict between the terms of this Agreement and the Company's general employment policies or practices, this Agreement shall control.

ARTICLE III
COMPENSATION

3.1 Base Salary. Commencing January 1, 2019, Executive shall receive for services to be rendered hereunder an annual base salary of $368,000 which has been pro-rated to reflect eighty percent (80%) of a full time work schedule. The Base Salary is payable on the regular payroll dates of the Company subject to increase in the sole discretion of the Board (the "**Base Salary**").

3.2 Bonus. Executive shall be eligible to earn, for each fiscal year of the Company ending during Executive's employment with the Company, an annual discretionary cash bonus (an "Annual Bonus") targeted at forty-five percent (45%) of Executive's Base Salary. If the Company determines, in its reasonable discretion, that Executive has engaged in any misconduct intended to affect the payment of his Annual Bonus, or has otherwise engaged in any act or omission that would constitute Cause for termination of employment, as defined by Section 1.2 of the Agreement, Executive will automatically and immediately forfeit his entire Annual Bonus. If the Annual Bonus has already been paid to Executive, such Annual Bonus will be deemed unearned, and the Company shall have the right to recover the entire amount of the Annual Bonus paid to Executive for the calendar year(s) in which such misconduct or other act or omission constituting Cause occurred. Without limiting the foregoing, any such misconduct or other act or omission constituting Cause will subject Executive to disciplinary action up to and including termination of employment. In addition, any Annual Bonus paid to Executive for the calendar year(s) in which such misconduct or other Cause occurred is subject to recoupment in accordance with The Dodd-Frank Wall Street Reform and Consumer Protection Act and any implementing regulations, any other clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable laws, regulations or statutes. Recovery by the Company of an Annual Bonus in accordance with this Section shall not constitute an event giving rise to a right by Executive to voluntarily terminate his employment for cause based on such recovery by Company, nor shall it constitute "constructive termination", or any similar term or circumstance under the Agreement or any other plan or agreement with the Company

3.3 Equity Compensation. While Executive is actively employed under this Agreement, Executive shall be entitled to participate in one or more of the Company's equity Plans**.** For each equity grant made under a Plan, Executive will be required to sign a Stock Option Agreement or other equity award agreement in a form to be provided by the Company at the time of grant, and the terms of the equity awards will be governed in all respects by the terms of the Stock Option Agreement or other equity award agreement and the Plan from which the equity award is being granted. Copies of the Plans will be made available to Executive upon request.

3.4 Standard Company Benefits; Vacation. With the exception of health care, vision and dental benefits, Executive shall be entitled to all rights and benefits for which Executive is eligible under the terms and conditions of the Company's benefit and compensation plans, practices, policies and programs, as in effect from time to time, that are provided by the Company to its senior executives generally. Except as specifically provided herein, nothing in this Agreement is construed or interpreted to provide greater rights, participation, coverage or benefits under such benefit plans or programs provided to executive employees pursuant to the terms and conditions of such benefit plans and programs. Executive will be eligible for vacation accruals in accordance with the Company's current time off policy.

ARTICLE IV
SEVERANCE BENEFITS AND RELEASE

4.1 Severance Benefits. If Executive's employment terminates due to a Covered Termination after the date of execution of this Agreement, Executive shall receive:

(i) Payment of Accrued Obligations Upon Termination of Employment. Upon a termination of Executive's employment at any time following the Effective Date, the Company shall pay to Executive in a single lump-sum cash payment as soon as administratively practicable following the date of termination, the aggregate amount of Executive's (A) earned but unpaid Base Salary applicable on the date of termination, and (B) accrued but unpaid vacation pay using the Base Salary rate applicable on the date of termination. In addition, Executive shall be promptly paid for incurred but unreimbursed business expenses upon his submission of such expenses in accordance with the Company's expense reimbursement policies. The amounts set forth in this Section 4.1(i) are collectively referred to as the "**Accrued Obligations**".

(ii) Severance Upon a Covered Termination. If Executive's employment terminates due to a Covered Termination at any time after the Effective Date, then, in addition to the Accrued Obligations, Executive will be entitled to the following severance benefits:

(a) Executive shall be paid target Annual Bonus for the fiscal year in which the termination occurs, prorated for the length of service provided during the calendar year through the termination date, payable in a single lump-sum payment within sixty (60) days following the date of termination;

(b) Executive shall be paid an aggregate amount equal to twelve (12) months of Executive's Base Salary in effect on the date of termination, payable to Executive in a single lump-sum amount on the sixtieth (60^{th}) day following the date of termination;

(c) Executive and Executive's covered dependents will be eligible to continue their health care benefit coverage as permitted by COBRA (Internal Revenue Code Section 4980B) at the Company's expense for the lesser of (i) twelve (12) months following the Covered Termination, or (ii) until the Executive and/or Executive's covered dependents are no longer eligible for COBRA (for clarification and as an example, in the event Executive is covered by another health plan, etc.). Thereafter, Executive and Executive's covered dependents shall be entitled to maintain coverage for Executive and Executive's eligible dependents at Executive's own expense for the balance of the period that Executive is entitled to coverage under COBRA; and

(d) any options granted prior or subsequently to the date hereof or other exercisable equity interest in the Company held by Executive, shall remain outstanding and exercisable through the earlier of (i) the second (2nd) anniversary of the date of termination or (ii) the original expiration date of the option or other equity interest.

Notwithstanding the foregoing, if Executive's employment terminates due to a Covered Termination at any time after the Effective Date, Executive will receive the greater of (i) the severance benefits above, or (ii) the severance benefits provided for in the Amended and Restated Severance Plan attached hereto as Exhibit C, which may be amended from time-to-time by the Company at the Company's sole discretion, that is in effect at the time of termination.. For the avoidance of doubt, all amounts payable under this Agreement shall be subject to applicable federal, state, local or foreign tax withholding requirements.

4.2 Parachute Payments. If any payment or benefit Executive would receive in connection with a Change in Control from the Company or otherwise ("**Payment**") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "**Excise Tax**"), then such Payment shall be reduced to the Reduced Amount. The "Reduced Amount" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in Executive's receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments or benefits constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, reduction shall occur in the following order unless Executive elects in writing a different order (provided, however, that such election shall be subject to Company approval): reduction of cash payments; cancellation of accelerated vesting of stock awards; reduction of employee benefits. In the event that acceleration of vesting of stock award compensation is to be reduced, such acceleration of vesting shall be cancelled in the reverse order of the date of grant of Executive's stock awards unless Executive elects in writing a different order for cancellation.

The Company for general audit purposes shall engage a nationally recognized public accounting firm (the "**Accounting Firm**") to perform the foregoing calculations. The Company shall bear all expenses with respect to the determinations by such Accounting Firm required to be made hereunder. The Accounting Firm engaged to make the determinations hereunder shall provide its calculations, together with detailed supporting documentation, to the Company and Executive within fifteen (15) calendar days after the date on which Executive's right to a Payment is triggered (if requested at that time by the Company or Executive) or such other time as requested by the Company or Executive. If the Accounting Firm determines that no Excise Tax is payable with respect to a Payment, either before or after the application of the Reduced Amount, it shall furnish the Company and Executive with an opinion reasonably acceptable to Executive that no Excise Tax will be imposed with respect to such Payment. Any good faith determinations of the Accounting Firm made hereunder shall be final, binding and conclusive upon the Company and Executive.

4.3 Release. Notwithstanding the foregoing, Executive's right to receive the amounts provided for in Sections 4.1(ii) and 4.2 shall be subject to and conditioned upon Executive's execution and non-revocation of a release of claims in substantially the form attached hereto as Exhibit A (the "**Release**") (as such form may be modified to take into account changes in the law) within fifty (50) days following the termination date. Such Release shall specifically relate to all of Executive's rights and claims in existence at the time of such execution and shall confirm Executive's obligations under the Proprietary Information Agreement (as defined below). It is understood that Executive has a certain period to consider whether to execute such Release, as set forth in the Release, and Executive may revoke such Release within seven (7) business days after execution. In the event Executive does not execute such Release within the applicable period, or if Executive revokes such Release within the subsequent seven (7) business day period, none of the aforesaid benefits set forth in Sections 4.1(ii), 4.2 and the Change of Control acceleration referenced in Section 3.3 shall be payable to Executive under this Agreement and this Agreement shall be null and void.

4.4 Section 409A. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of the Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, to the extent delayed commencement of any portion of the benefits to which Executive is entitled under this Agreement is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such portion of Executive's benefits shall not be provided to Executive prior to the earlier of (a) the expiration of the six-month period measured from the date of Executive's Separation from Service or (b) the date of Executive's death. Upon the first business day following the expiration of the applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Section 4.4 shall be paid in a lump sum to Executive (or Executive's estate or beneficiaries), and any remaining payments due under the Agreement shall be paid as otherwise provided herein. For purposes of Section 409A of the Code, Executive's right to receive the payments of compensation pursuant to the Agreement shall be treated as a right to receive a series of separate payments and accordingly, each payment shall at all times be considered a separate and distinct payment.

4.5 Mitigation. Executive shall not be required to mitigate damages or the amount of any payment provided under this Agreement by seeking other employment or otherwise, nor shall the amount of any payment provided for under this Agreement be reduced by any compensation earned by Executive as a result of employment by another employer or by any retirement benefits received by Executive after the date of the Covered Termination, or otherwise.

ARTICLE V
PROPRIETARY INFORMATION OBLIGATIONS

5.1 Agreement. Executive agrees to abide by the Proprietary Information and Inventions Agreement attached hereto as Exhibit B (the "**Proprietary Information Agreement**").

5.2 Remedies. Executive's duties under the Proprietary Information and Inventions Agreement shall survive termination of Executive's employment with the Company and the termination of this Agreement. Executive acknowledges that a remedy at law for any breach or threatened breach by Executive of the provisions of the Proprietary Information and Inventions Agreement would be inadequate, and Executive therefore agrees that the Company shall be entitled to injunctive relief in case of any such breach or threatened breach.

ARTICLE VI
OUTSIDE ACTIVITIES

6.1 No Other Employment. Except with the prior written consent of the Board, Executive shall not during the term of Executive's employment with the Company, undertake or engage in any other employment, occupation or business enterprise. Notwithstanding the foregoing, during the term of Executive's employment with the Company, Executive may (a) undertake or engage in any other employment, occupation or business enterprise in which Executive is a passive investor, and/or (b) engage in civic and not-for-profit activities, in each case, so long as such activities do not materially interfere with the performance of Executive's duties hereunder.

6.2 No Conflicting Business Interests. During the term of Executive's employment by the Company, except on behalf of the Company, Executive shall not directly or indirectly, whether as an officer, director, stockholder, partner, proprietor, associate, representative, consultant, or in any capacity whatsoever engage in, become financially interested in, be employed by or have any business connection with any other person, corporation, firm, partnership or other entity whatsoever which were known by Executive to compete directly with the Company, throughout the world, in any line of business engaged in (or planned to be engaged in) by the Company; *provided, however*, that anything above to the contrary notwithstanding, Executive may own, as a passive investor, securities of any competitor corporation, so long as Executive's direct holdings in any one such corporation shall not in the aggregate constitute more than 1% of the voting stock of such corporation.

ARTICLE VII
NONINTERFERENCE

While employed by the Company, and for one (1) year immediately following the date on which Executive terminates employment or otherwise ceases providing services to the Company, Executive agrees not to interfere with the business of the Company by soliciting or attempting to solicit any employee of the Company to terminate such employee's employment in order to become an employee, consultant or independent contractor to or for any competitor of the Company. Executive's duties under this Article VII shall survive termination of Executive's employment with the Company and the termination of this Agreement.

ARTICLE VIII
GENERAL PROVISIONS

8.1 Notices. Any notices provided hereunder must be in writing and shall be deemed effective upon the earlier of personal delivery (including personal delivery by telex) or the third day after mailing by first class mail, to the Company at its primary office location and to Executive at Executive's address as listed on the Company payroll.

8.2 Section 409A. To the extent applicable, this Agreement shall be interpreted in accordance with Section 409A of the Code and Department of Treasury regulations and other interpretative guidance issued thereunder, including without limitation any such regulations or other such guidance that may be issued after the Effective Date ("**Section 409A**"). Notwithstanding any provision of this Agreement to the contrary, in the event that following the Effective Date, the Company determines in good faith that any compensation or benefits payable under this Agreement may not be either exempt from or compliant with Section 409A, the Company may adopt such amendments to this Agreement or adopt other policies or procedures (including amendments, policies and procedures with retroactive effect), or take any other commercially reasonable actions necessary or appropriate to preserve the intended tax treatment of the compensation and benefits payable hereunder, including without limitation actions intended to (i) exempt the compensation and benefits payable under this Agreement from Section 409A, and/or (ii) comply with the requirements of Section 409A, provided, that this Section 8.2 does not, and shall not be construed so as to, create any obligation on the part of the Company to adopt any such amendments, policies or procedures or to take any other such actions or to create any liability on the part of the Company for any failure to do so.

8.3 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction as if such invalid, illegal or unenforceable provisions had never been contained herein.

8.4 Waiver. If either party should waive any breach of any provisions of this Agreement, they shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision of this Agreement.

8.5 Complete Agreement. This Agreement and Exhibits A, B, and C hereto constitute the entire agreement between Executive and the Company and are the complete, final, and exclusive embodiment of their agreement with regard to this subject matter (except for the Plan, any successor thereto or the Company's Amended and Restated Severance Plan). As of the Effective Date, this Agreement supersedes any prior agreement between Executive and the Company or any predecessor employer in its entirety, including, without limitation, that certain Employment Agreement entered by Executive and the Company on February 16, 2012, as amended September 24, 2013. Executive and the Company acknowledge and agree that this Agreement is entered into without reliance on any promise or representation other than those expressly contained herein or therein and cannot be modified or amended except in a writing signed by a duly-authorized officer of the Company.

8.6 Counterparts. This Agreement may be executed in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement.

8.7 Headings. The headings of the sections hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

8.8 Successors and Assigns. This Agreement is intended to bind and inure to the benefit of and be enforceable by Executive and the Company, and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of Executive's duties hereunder and Executive may not assign any of Executive's rights hereunder, without the written consent of the Company, which shall not be withheld unreasonably.

8.9 Arbitration. In the event of any contractual, statutory or tort dispute or claim relating to or arising out of Executive's employment relationship with the Company (including but not limited to any claims of wrongful termination or age, sex, race, or other discrimination, but not including workers' compensation claims), Executive and the Company agree that all such disputes will be finally resolved by binding arbitration conducted by a single neutral arbitrator associated with the American Arbitration Association in Menlo Park, California. Executive and the Company hereby waive their respective rights to have any such disputes or claims tried to a judge or jury. However, the Company agrees that this arbitration provision will not apply to any claim, by either Executive or the Company, for injunctive relief. The administrative costs of any arbitration proceeding between Executive and the Company and the fees and costs of the arbitrator shall be borne by the Company.

8.10 Attorneys' Fees. If either party hereto brings any action to enforce rights hereunder, each party in any such action shall be responsible for its own attorneys' fees and costs incurred in connection with such action.

8.11 Acknowledgement. Executive acknowledges that Executive (a) has had the opportunity to discuss this matter with and obtain advice from independent counsel of Executive's own choice and has been advised to do so by the Company, (b) has carefully read and fully understands all the provisions of this Agreement, and (c) is knowingly and voluntarily entering into this Agreement. Executive represents that Executive (i) is familiar with the restrictive covenants set forth in the Proprietary Information Agreement and (ii) is fully aware of his obligations thereunder.

8.12 Choice of Law. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the law of the State of California.

In Witness Whereof, the parties have executed this Agreement on the respective dates set forth below:

GERON CORPORATION

By: /s/ John A. Scarlett
John A. Scarlett, MD
Chief Executive Officer

Date: Jan 31, 2019

Accepted and agreed this 31st day of January, 2019,

/s/ Stephen Rosenfield
Stephen N. Rosenfield

EXHIBIT A

GENERAL RELEASE OF CLAIMS

EXHIBIT B

PROPRIETARY INFORMATION AND INVENTIONS AGREEMENT

EXHIBIT C

AMENDED AND RESTATED SEVERANCE PLAN

EXHIBIT 10.31

AMENDED AND RESTATED
EMPLOYMENT AGREEMENT

This Amended and Restated Employment Agreement (the "**Agreement**") is made effective as of January 31, 2019 (the "**Effective Date**"), by and between Andrew Grethlein ("**Executive**") and Geron Corporation, a Delaware corporation (the "**Company**").

WHEREAS, the Company desires to employ Executive to provide personal services to the Company, and wishes to provide Executive with certain compensation and benefits in return for Executive's services; and

WHEREAS, Executive wishes to be employed by the Company and provide personal services to the Company in return for certain compensation and benefits;

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, it is hereby agreed by and between the parties hereto as follows:

ARTICLE I
DEFINITIONS

For purposes of the Agreement, the following terms are defined as follows:

1.1 "**Board**" means the Board of Directors of the Company.

1.2 "**Cause**" means any of the following:

(a) any willful act or omission by Executive constituting dishonesty, fraud or other malfeasance against the Company;

(b) Executive's conviction of a felony under the laws of the United States or any state thereof or any other jurisdiction in which the Company conducts business;

(c) Executive's debarment by the U.S. Food and Drug Administration from working in or providing services to any pharmaceutical or biotechnology company under the Generic Drug Enforcement Act of 1992, or other ineligibility under any law or regulation to perform Executive's duties to the Company; or

(d) Executive's breach of any of the material policies of the Company.

1.3 "**Change in Control**" shall have the meaning set forth in the Plan.

1.4 "**Code**" means the Internal Revenue Code of 1986, as amended.

1.5 "**Company**" means Geron Corporation or its successors in interest.

1.6 "**Comparable Employment**" means employment on terms which provide (a) the same or greater rate of base pay or salary as in effect immediately prior to Executive's termination, (b) the same, equivalent or higher job title and level of responsibility as Executive had prior to Executive's termination, (c) equivalent or higher bonus opportunity as the bonus opportunity for the year preceding the year in which the termination occurs, and d) a principal work location that is both (i) no more than forty-five (45) miles from Executive's principal work location immediately prior to Executive's termination and (ii) no more than thirty (30) miles farther from Executive's principal weekday residence than was Executive's principal work location immediately prior to the termination.

1.7 "**Covered Termination**" means an Involuntary Termination Without Cause that occurs at any time, *provided* that such termination constitutes a "separation from service" within the meaning of Section 409A of the Code and the regulations promulgated thereunder, including Treasury Regulation Section 1.409A-1(h) (a "**Separation from Service**").

1.8 "**Involuntary Termination Without Cause**" means Executive's dismissal or discharge other than (i) for Cause, or (ii) after an involuntary or voluntary filing of a petition under chapter 7 or 11 of 11 USC Section 101 et. seq., an assignment for the benefit of creditors, a liquidation of the company's assets in formal proceeding or otherwise or any other event of insolvency by the Company, in any case, without an offer of Comparable Employment by the Company or a successor, acquirer, or affiliate of the Company. For purposes of this Agreement, the termination of Executive's employment due to Executive's death or disability will not constitute a termination for Cause.

1.9 "**Plan**" means the Company's 2011 Incentive Award Plan, as amended, 2018 Equity Incentive Plan, and 2018 Inducement Award Plan (if applicable), and any successor to any of the foregoing Plans (collectively referred to as the "**Plans**").

ARTICLE II
EMPLOYMENT BY THE COMPANY

2.1 **Position and Duties.** Subject to the terms set forth herein, the Company agrees to employ Executive in the position of Executive Vice President and Chief Operating Officer. During the Executive's employment, Executive will report to the Chief Executive Officer. Executive shall serve in an employee capacity and shall perform such duties as are assigned to Executive by the Chief Executive Officer and, except as otherwise instructed by the Chief Executive Officer, such other duties as are customarily associated with the position of Executive Vice President and Chief Operating Officer. During Executive's employment with the Company, Executive will devote Executive's best efforts and substantially all of Executive's business time and attention (except for vacation periods as set forth herein and reasonable periods of illness or other incapacities permitted by the Company's general employment policies or as otherwise set forth in this Agreement) to the business of the Company.

2.2 **Employment at Will.** Both the Company and Executive acknowledge and agree that Executive's employment with the Company is "at-will" and not for any specified period of time, and may be terminated at any time by Executive or the Company, with or without Cause, and with or without prior notice; provided, however, that if Executive's employment with the Company is terminated under circumstances that constitute a Covered Termination, Executive will be eligible to receive certain severance payments and benefits as set forth in Article IV below.

2.3 **Employment Policies.** The employment relationship between the parties shall also be governed by the general employment policies and practices of the Company, including but not limited to those policies relating to protection of confidential information and assignment of inventions. In the event of a conflict between the terms of this Agreement and the Company's general employment policies or practices, this Agreement shall control.

ARTICLE III
COMPENSATION

3.1 Base Salary. Executive shall receive for services to be rendered hereunder an annual base salary of $460,000 payable on the regular payroll dates of the Company, subject to increase in the sole discretion of the Compensation Committee of the Board (the "**Base Salary**").

3.2 Bonus. Executive shall be eligible to earn, for each fiscal year of the Company ending during Executive's employment with the Company, an annual discretionary cash bonus (an "Annual Bonus") targeted at forty-five percent (45%) of Executive's Base Salary. If the Company determines, in its reasonable discretion, that Executive has engaged in any misconduct intended to affect the payment of his Annual Bonus, or has otherwise engaged in any act or omission that would constitute Cause for termination of employment, as defined by Section 1.2 of the Agreement, Executive will automatically and immediately forfeit his entire Annual Bonus. If the Annual Bonus has already been paid to Executive, such Annual Bonus will be deemed unearned, and the Company shall have the right to recover the entire amount of the Annual Bonus paid to Executive for the calendar year(s) in which such misconduct or other act or omission constituting Cause occurred. Without limiting the foregoing, any such misconduct or other act or omission constituting Cause will subject Executive to disciplinary action up to and including termination of employment. In addition, any Annual Bonus paid to Executive for the calendar year(s) in which such misconduct or other Cause occurred is subject to recoupment in accordance with The Dodd-Frank Wall Street Reform and Consumer Protection Act and any implementing regulations, any other clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable laws, regulations or statutes. Recovery by the Company of an Annual Bonus in accordance with this Section shall not constitute an event giving rise to a right by Executive to voluntarily terminate his employment for cause based on such recovery by Company, nor shall it constitute "constructive termination", or any similar term or circumstance under the Agreement or any other plan or agreement with the Company.

3.3 Equity Compensation. While Executive is actively employed under this Agreement, Executive shall be entitled to participate in one or more of the Company's equity Plans**.** For each equity grant made under a Plan, Executive will be required to sign a Stock Option Agreement or other equity award agreement in a form to be provided by the Company at the time of grant, and the terms of the equity awards will be governed in all respects by the terms of the Stock Option Agreement or other equity award agreement and the Plan from which the equity award is being granted. Copies of the Plans will be made available to Executive upon request.

3.4 Standard Company Benefits; Vacation. Executive shall be entitled to all rights and benefits for which Executive is eligible under the terms and conditions of the Company's benefit and compensation plans, practices, policies and programs, as in effect from time to time, that are provided by the Company to its senior executives generally. Except as specifically provided herein, nothing in this Agreement is construed or interpreted to provide greater rights, participation, coverage or benefits under such benefit plans or programs provided to executive employees pursuant to the terms and conditions of such benefit plans and programs. Executive will be eligible for vacation accruals in accordance with the Company's current time off policy.

ARTICLE IV
SEVERANCE BENEFITS AND RELEASE

4.1 Severance Benefits. If Executive's employment terminates due to a Covered Termination after the date of execution of this Agreement, Executive shall receive:

(i) Payment of Accrued Obligations Upon Termination of Employment. Upon a termination of Executive's employment at any time following the Effective Date, the Company shall pay to Executive in a single lump-sum cash payment as soon as administratively practicable following the date of termination, the aggregate amount of Executive's (A) earned but unpaid Base Salary applicable on the date of termination, and (B) accrued but unpaid vacation pay using the Base Salary rate applicable on the date of termination. In addition, Executive shall be promptly paid for incurred but unreimbursed business expenses upon his submission of such expenses in accordance with the Company's expense reimbursement policies. The amounts set forth in this Section 4.1(i) are collectively referred to as the "**Accrued Obligations**".

(ii) Severance Upon a Covered Termination. If Executive's employment terminates due to a Covered Termination at any time after the Effective Date, then, in addition to the Accrued Obligations, Executive will be entitled to the following severance benefits:

(a) Executive shall be paid target Annual Bonus for the fiscal year in which the termination occurs, prorated for the length of service provided during the calendar year through the termination date, payable in a single lump-sum payment within sixty (60) days following the date of termination;

(b) Executive shall be paid an aggregate amount equal to twelve (12) months of Executive's Base Salary in effect on the date of termination, payable to Executive in a single lump-sum amount on the sixtieth (60th) day following the date of termination;

(c) Executive and Executive's covered dependents will be eligible to continue their health care benefit coverage as permitted by COBRA (Internal Revenue Code Section 4980B) at the Company's expense for the lesser of (i) twelve (12) months following the Covered Termination, or (ii) until the Executive and/or Executive's covered dependents are no longer eligible for COBRA (for clarification and as an example, in the event Executive is covered by another health plan, etc.). Thereafter, Executive and Executive's covered dependents shall be entitled to maintain coverage for Executive and Executive's eligible dependents at Executive's own expense for the balance of the period that Executive is entitled to coverage under COBRA; and

(d) any options granted prior or subsequently to the date hereof or other exercisable equity interest in the Company held by Executive, shall remain outstanding and exercisable through the earlier of (i) the second (2nd) anniversary of the date of termination or (ii) the original expiration date of the option or other equity interest.

Notwithstanding the foregoing, if Executive's employment terminates due to a Covered Termination at any time after the Effective Date, Executive will receive the greater of (i) the severance benefits above, or (ii) the severance benefits provided for in the Amended and Restated Severance Plan attached hereto as Exhibit C, which may be amended from time-to-time by the Company at the Company's sole discretion, that is in effect at the time of termination. For the avoidance of doubt, all amounts payable under this Agreement shall be subject to applicable federal, state, local or foreign tax withholding requirements.

4.2 Parachute Payments. If any payment or benefit Executive would receive in connection with a Change in Control from the Company or otherwise ("**Payment**") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "**Excise Tax**"), then such Payment shall be reduced to the Reduced Amount. The "Reduced Amount" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in Executive's receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments or benefits constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, reduction shall occur in the following order unless Executive elects in writing a different order (provided, however, that such election shall be subject to Company approval): reduction of cash payments; cancellation of accelerated vesting of stock awards; reduction of employee benefits. In the event that acceleration of vesting of stock award compensation is to be reduced, such acceleration of vesting shall be cancelled in the reverse order of the date of grant of Executive's stock awards unless Executive elects in writing a different order for cancellation.

The Company for general audit purposes shall engage a nationally recognized public accounting firm (the "**Accounting Firm**") to perform the foregoing calculations. The Company shall bear all expenses with respect to the determinations by such Accounting Firm required to be made hereunder. The Accounting Firm engaged to make the determinations hereunder shall provide its calculations, together with detailed supporting documentation, to the Company and Executive within fifteen (15) calendar days after the date on which Executive's right to a Payment is triggered (if requested at that time by the Company or Executive) or such other time as requested by the Company or Executive. If the Accounting Firm determines that no Excise Tax is payable with respect to a Payment, either before or after the application of the Reduced Amount, it shall furnish the Company and Executive with an opinion reasonably acceptable to Executive that no Excise Tax will be imposed with respect to such Payment. Any good faith determinations of the Accounting Firm made hereunder shall be final, binding and conclusive upon the Company and Executive.

4.3 Release. Notwithstanding the foregoing, Executive's right to receive the amounts provided for in Sections 4.1(ii) and 4.2 shall be subject to and conditioned upon Executive's execution and non-revocation of a release of claims in substantially the form attached hereto as Exhibit A (the "**Release**") (as such form may be modified to take into account changes in the law) within fifty (50) days following the termination date. Such Release shall specifically relate to all of Executive's rights and claims in existence at the time of such execution and shall confirm Executive's obligations under the Proprietary Information Agreement (as defined below). It is understood that Executive has a certain period to consider whether to execute such Release, as set forth in the Release, and Executive may revoke such Release within seven (7) business days after execution. In the event Executive does not execute such Release within the applicable period, or if Executive revokes such Release within the subsequent seven (7) business day period, none of the aforesaid benefits set forth in Sections 4.1(ii), 4.2 and the Change of Control acceleration referenced in Section 3.3 shall be payable to Executive under this Agreement and this Agreement shall be null and void.

4.4 Section 409A. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of the Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, to the extent delayed commencement of any portion of the benefits to which Executive is entitled under this Agreement is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such portion of Executive's benefits shall not be provided to Executive prior to the earlier of (a) the expiration of the six-month period measured from the date of Executive's Separation from Service or (b) the date of Executive's death. Upon the first

business day following the expiration of the applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Section 4.4 shall be paid in a lump sum to Executive (or Executive's estate or beneficiaries), and any remaining payments due under the Agreement shall be paid as otherwise provided herein. For purposes of Section 409A of the Code, Executive's right to receive the payments of compensation pursuant to the Agreement shall be treated as a right to receive a series of separate payments and accordingly, each payment shall at all times be considered a separate and distinct payment.

4.5 Mitigation. Executive shall not be required to mitigate damages or the amount of any payment provided under this Agreement by seeking other employment or otherwise, nor shall the amount of any payment provided for under this Agreement be reduced by any compensation earned by Executive as a result of employment by another employer or by any retirement benefits received by Executive after the date of the Covered Termination, or otherwise.

ARTICLE V
PROPRIETARY INFORMATION OBLIGATIONS

5.1 Agreement. Executive agrees to abide by the Proprietary Information and Inventions Agreement attached hereto as Exhibit B (the "**Proprietary Information Agreement**").

5.2 Remedies. Executive's duties under the Proprietary Information and Inventions Agreement shall survive termination of Executive's employment with the Company and the termination of this Agreement. Executive acknowledges that a remedy at law for any breach or threatened breach by Executive of the provisions of the Proprietary Information and Inventions Agreement would be inadequate, and Executive therefore agrees that the Company shall be entitled to injunctive relief in case of any such breach or threatened breach.

ARTICLE VI
OUTSIDE ACTIVITIES

6.1 No Other Employment. Except with the prior written consent of the Board, Executive shall not during the term of Executive's employment with the Company, undertake or engage in any other employment, occupation or business enterprise. Notwithstanding the foregoing, during the term of Executive's employment with the Company, Executive may (a) undertake or engage in any other employment, occupation or business enterprise in which Executive is a passive investor, and/or (b) engage in civic and not-for-profit activities, in each case, so long as such activities do not materially interfere with the performance of Executive's duties hereunder.

6.2 No Conflicting Business Interests. During the term of Executive's employment by the Company, except on behalf of the Company, Executive shall not directly or indirectly, whether as an officer, director, stockholder, partner, proprietor, associate, representative, consultant, or in any capacity whatsoever engage in, become financially interested in, be employed by or have any business connection with any other person, corporation, firm, partnership or other entity whatsoever which were known by Executive to compete directly with the Company, throughout the world, in any line of business engaged in (or planned to be engaged in) by the Company; *provided, however*, that anything above to the contrary notwithstanding, Executive may own, as a passive investor, securities of any competitor corporation, so long as Executive's direct holdings in any one such corporation shall not in the aggregate constitute more than 1% of the voting stock of such corporation.

ARTICLE VII
NONINTERFERENCE

While employed by the Company, and for one (1) year immediately following the date on which Executive terminates employment or otherwise ceases providing services to the Company, Executive agrees not to interfere with the business of the Company by soliciting or attempting to solicit any employee of the Company to terminate such employee's employment in order to become an employee, consultant or independent contractor to or for any competitor of the Company. Executive's duties under this Article VII shall survive termination of Executive's employment with the Company and the termination of this Agreement.

ARTICLE VIII
GENERAL PROVISIONS

8.1 Notices. Any notices provided hereunder must be in writing and shall be deemed effective upon the earlier of personal delivery (including personal delivery by telex) or the third day after mailing by first class mail, to the Company at its primary office location and to Executive at Executive's address as listed on the Company payroll.

8.2 Section 409A. To the extent applicable, this Agreement shall be interpreted in accordance with Section 409A of the Code and Department of Treasury regulations and other interpretative guidance issued thereunder, including without limitation any such regulations or other such guidance that may be issued after the Effective Date ("**Section 409A**"). Notwithstanding any provision of this Agreement to the contrary, in the event that following the Effective Date, the Company determines in good faith that any compensation or benefits payable under this Agreement may not be either exempt from or compliant with Section 409A, the Company may adopt such amendments to this Agreement or adopt other policies or procedures (including amendments, policies and procedures with retroactive effect), or take any other commercially reasonable actions necessary or appropriate to preserve the intended tax treatment of the compensation and benefits payable hereunder, including without limitation actions intended to (i) exempt the compensation and benefits payable under this Agreement from Section 409A, and/or (ii) comply with the requirements of Section 409A, provided, that this Section 8.2 does not, and shall not be construed so as to, create any obligation on the part of the Company to adopt any such amendments, policies or procedures or to take any other such actions or to create any liability on the part of the Company for any failure to do so.

8.3 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction as if such invalid, illegal or unenforceable provisions had never been contained herein.

8.4 Waiver. If either party should waive any breach of any provisions of this Agreement, they shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision of this Agreement.

8.5 Complete Agreement. This Agreement and Exhibits A, B and C hereto constitute the entire agreement between Executive and the Company and are the complete, final, and exclusive embodiment of their agreement with regard to this subject matter (except for the Plan, any successor thereto or the Company's Amended and Restated Severance Plan). As of the Effective Date, this Agreement supersedes and replaces any prior agreement between Executive and the Company or any predecessor employer in its entirety, including, without limitation, that certain Employment Agreement entered by Executive and the Company on September 17, 2012, as amended February 11, 2014. Executive and the Company acknowledge and agree that this Agreement is entered into without reliance on any promise or representation other than those expressly contained herein or therein and cannot be modified or amended except in a writing signed by a duly-authorized officer of the Company.

8.6 Counterparts. This Agreement may be executed in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement.

8.7 Headings. The headings of the sections hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

8.8 Successors and Assigns. This Agreement is intended to bind and inure to the benefit of and be enforceable by Executive and the Company, and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of Executive's duties hereunder and Executive may not assign any of Executive's rights hereunder, without the written consent of the Company, which shall not be withheld unreasonably.

8.9 Arbitration. In the event of any contractual, statutory or tort dispute or claim relating to or arising out of Executive's employment relationship with the Company (including but not limited to any claims of wrongful termination or age, sex, race, or other discrimination, but not including workers' compensation claims), Executive and the Company agree that all such disputes will be finally resolved by binding arbitration conducted by a single neutral arbitrator associated with the American Arbitration Association in Menlo Park, California. Executive and the Company hereby waive their respective rights to have any such disputes or claims tried to a judge or jury. However, the Company agrees that this arbitration provision will not apply to any claim, by either Executive or the Company, for injunctive relief. The administrative costs of any arbitration proceeding between Executive and the Company and the fees and costs of the arbitrator shall be borne by the Company.

8.10 Attorneys' Fees. If either party hereto brings any action to enforce rights hereunder, each party in any such action shall be responsible for its own attorneys' fees and costs incurred in connection with such action.

8.11 Acknowledgement. Executive acknowledges that Executive (a) has had the opportunity to discuss this matter with and obtain advice from independent counsel of Executive's own choice and has been advised to do so by the Company, (b) has carefully read and fully understands all the provisions of this Agreement, and (c) is knowingly and voluntarily entering into this Agreement. Executive represents that Executive (i) is familiar with the restrictive covenants set forth in the Proprietary Information Agreement and (ii) is fully aware of his obligations thereunder.

8.12 Choice of Law. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the law of the State of California.

IN WITNESS WHEREOF, the parties have executed this Agreement on the respective dates set forth below:

GERON CORPORATION

By: /s/ John A. Scarlett
John A. Scarlett, MD
President & Chief Executive Officer

Date: January 31, 2019

Accepted and agreed this 31st day of January, 2019,

/s/ Andrew Grethlein
Andrew Grethlein

EXHIBIT A

GENERAL RELEASE OF CLAIMS

EXHIBIT B

PROPRIETARY INFORMATION AND INVENTIONS AGREEMENT

EXHIBIT C

AMENDED AND RESTATED SEVERANCE PLAN

EXHIBIT 10.32

AMENDED AND RESTATED
EMPLOYMENT AGREEMENT

This Amended and Restated Employment Agreement (the "**Agreement**") is made effective as of January 31, 2019 (the "**Effective Date**"), by and between Olivia K. Bloom ("**Executive**") and Geron Corporation, a Delaware corporation (the "**Company**").

WHEREAS, the Company desires to employ Executive to provide personal services to the Company, and wishes to provide Executive with certain compensation and benefits in return for Executive's services; and

WHEREAS, Executive wishes to be employed by the Company and provide personal services to the Company in return for certain compensation and benefits;

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, it is hereby agreed by and between the parties hereto as follows:

ARTICLE I
DEFINITIONS

For purposes of the Agreement, the following terms are defined as follows:

1.1 "**Board**" means the Board of Directors of the Company.

1.2 "**Cause**" means any of the following:

(a) any willful act or omission by Executive constituting dishonesty, fraud or other malfeasance against the Company;

(b) Executive's conviction of a felony under the laws of the United States or any state thereof or any other jurisdiction in which the Company conducts business;

(c) Executive's debarment by the U.S. Food and Drug Administration from working in or providing services to any pharmaceutical or biotechnology company under the Generic Drug Enforcement Act of 1992, or other ineligibility under any law or regulation to perform Executive's duties to the Company; or

(d) Executive's breach of any of the material policies of the Company.

1.3 "**Change in Control**" shall have the meaning set forth in the Plan.

1.4 "**Code**" means the Internal Revenue Code of 1986, as amended.

1.5 "**Company**" means Geron Corporation or its successors in interest.

1.6 "**Comparable Employment**" means employment on terms which provide (a) the same or greater rate of base pay or salary as in effect immediately prior to Executive's termination, (b) the same, equivalent or higher job title and level of responsibility as Executive had prior to Executive's termination, (c) equivalent or higher bonus opportunity as the bonus opportunity for the year preceding the year in which the termination occurs, and d) a principal work location that is both (i) no more than

forty-five (45) miles from Executive's principal work location immediately prior to Executive's termination and (ii) no more than thirty (30) miles farther from Executive's principal weekday residence than was Executive's principal work location immediately prior to the termination.

1.7 "**Covered Termination**" means an Involuntary Termination Without Cause that occurs at any time, *provided* that such termination constitutes a "separation from service" within the meaning of Section 409A of the Code and the regulations promulgated thereunder, including Treasury Regulation Section 1.409A-1(h) (a "**Separation from Service**").

1.8 "**Involuntary Termination Without Cause**" means Executive's dismissal or discharge other than (i) for Cause, or (ii) after an involuntary or voluntary filing of a petition under chapter 7 or 11 of 11 USC Section 101 et. seq., an assignment for the benefit of creditors, a liquidation of the company's assets in formal proceeding or otherwise or any other event of insolvency by the Company, in any case, without an offer of Comparable Employment by the Company or a successor, acquirer, or affiliate of the Company. For purposes of this Agreement, the termination of Executive's employment due to Executive's death or disability will not constitute a termination for Cause.

1.9 "**Plan**" means the Company's 2002 Equity Incentive Plan, 2011 Incentive Award Plan, as amended, 2018 Equity Incentive Plan, and 2018 Inducement Award Plan (if applicable), and any successor to any of the foregoing Plans (collectively referred to as the **"Plans"**).

ARTICLE II
EMPLOYMENT BY THE COMPANY

2.1 Position and Duties. Subject to the terms set forth herein, the Company agrees to employ Executive in the position of Chief Financial Officer, Executive Vice President, Finance and Treasurer. During the Executive's employment, Executive will report to the Chief Executive Officer. Executive shall serve in an employee capacity and shall perform such duties as are assigned to Executive by the Chief Executive Officer and, except as otherwise instructed by the Chief Executive Officer, such other duties as are customarily associated with the position of Chief Financial Officer, Executive Vice President, Finance and Treasurer. During Executive's employment with the Company, Executive will devote Executive's best efforts and substantially all of Executive's business time and attention (except for vacation periods as set forth herein and reasonable periods of illness or other incapacities permitted by the Company's general employment policies or as otherwise set forth in this Agreement) to the business of the Company.

2.2 Employment at Will. Both the Company and Executive acknowledge and agree that Executive's employment with the Company is "at-will" and not for any specified period of time, and may be terminated at any time by Executive or the Company, with or without Cause, and with or without prior notice; provided, however, that if Executive's employment with the Company is terminated under circumstances that constitute a Covered Termination, Executive will be eligible to receive certain severance payments and benefits as set forth in Article IV below.

2.3 Employment Policies. The employment relationship between the parties shall also be governed by the general employment policies and practices of the Company, including but not limited to those policies relating to protection of confidential information and assignment of inventions. In the event of a conflict between the terms of this Agreement and the Company's general employment policies or practices, this Agreement shall control.

2.4 Indemnification. The Company shall provide for indemnification of the Executive as set forth in the Indemnification Agreement attached hereto as Exhibit A.

ARTICLE III
COMPENSATION

3.1 Base Salary. Commencing January 1, 2019, Executive shall receive for services to be rendered hereunder an annual base salary of $460,000 payable on the regular payroll dates of the Company, subject to increase in the sole discretion of the Compensation Committee of the Board (the "**Base Salary**").

3.2 Bonus. Executive shall be eligible to earn, for each fiscal year of the Company ending during Executive's employment with the Company, an annual discretionary cash bonus (an "Annual Bonus") targeted at forty-five percent (45%) of Executive's Base Salary. If the Company determines, in its reasonable discretion, that Executive has engaged in any misconduct intended to affect the payment of her Annual Bonus, or has otherwise engaged in any act or omission that would constitute Cause for termination of employment, as defined by Section 1.2 of the Agreement, Executive will automatically and immediately forfeit her entire Annual Bonus. If the Annual Bonus has already been paid to Executive, such Annual Bonus will be deemed unearned, and the Company shall have the right to recover the entire amount of the Annual Bonus paid to Executive for the calendar year(s) in which such misconduct or other act or omission constituting Cause occurred. Without limiting the foregoing, any such misconduct or other act or omission constituting Cause will subject Executive to disciplinary action up to and including termination of employment. In addition, any Annual Bonus paid to Executive for the calendar year(s) in which such misconduct or other Cause occurred is subject to recoupment in accordance with The Dodd-Frank Wall Street Reform and Consumer Protection Act and any implementing regulations, any other clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable laws, regulations or statutes. Recovery by the Company of an Annual Bonus in accordance with this Section shall not constitute an event giving rise to a right by Executive to voluntarily terminate her employment for cause based on such recovery by Company, nor shall it constitute "constructive termination", or any similar term or circumstance under the Agreement or any other plan or agreement with the Company

3.3 Equity Compensation. While Executive is actively employed under this Agreement, Executive shall be entitled to participate in one or more of the Company's equity Plans**.** For each equity grant made under a Plan, Executive will be required to sign a Stock Option Agreement or other equity award agreement in a form to be provided by the Company at the time of grant, and the terms of the equity awards will be governed in all respects by the terms of the Stock Option Agreement or other equity award agreement and the Plan from which the equity award is being granted. . Copies of the Plans will be made available to Executive upon request.

3.4 Standard Company Benefits; Vacation. Executive shall be entitled to all rights and benefits for which Executive is eligible under the terms and conditions of the Company's benefit and compensation plans, practices, policies and programs, as in effect from time to time, that are provided by the Company to its senior executives generally. Except as specifically provided herein, nothing in this Agreement is construed or interpreted to provide greater rights, participation, coverage or benefits under such benefit plans or programs provided to executive employees pursuant to the terms and conditions of such benefit plans and programs. Executive will be eligible for vacation accruals in accordance with the Company's current time off policy.

ARTICLE IV
SEVERANCE BENEFITS AND RELEASE

4.1 Severance Benefits. If Executive's employment terminates due to a Covered Termination after the date of execution of this Agreement, Executive shall receive:

(i) Payment of Accrued Obligations Upon Termination of Employment. Upon a termination of Executive's employment at any time following the Effective Date, the Company shall pay to Executive in a single lump-sum cash payment as soon as administratively practicable following the date of termination, the aggregate amount of Executive's (A) earned but unpaid Base Salary applicable on the date of termination, and (B) accrued but unpaid vacation pay using the Base Salary rate applicable on the date of termination. In addition, Executive shall be promptly paid for incurred but unreimbursed business expenses upon her submission of such expenses in accordance with the Company's expense reimbursement policies. The amounts set forth in this Section 4.1(i) are collectively referred to as the "**Accrued Obligations**".

(ii) Severance Upon a Covered Termination. If Executive's employment terminates due to a Covered Termination at any time after the Effective Date, then, in addition to the Accrued Obligations Executive will be entitled to the following severance benefits:

(a) Executive shall be paid target Annual Bonus for the fiscal year in which the termination occurs, prorated for the length of service provided during the calendar year through the termination date, payable in a single lump-sum payment within sixty (60) days following the date of termination;

(b) Executive shall be paid an aggregate amount equal to twelve (12) months of Executive's Base Salary in effect on the date of termination, payable to Executive in a single lump-sum amount on the sixtieth (60th) day following the date of termination;

(c) Executive and Executive's covered dependents will be eligible to continue their health care benefit coverage as permitted by COBRA (Internal Revenue Code Section 4980B) at the Company's expense for the lesser of (i) twelve (12) months following the Covered Termination, or (ii) until the Executive and/or Executive's covered dependents are no longer eligible for COBRA (for clarification and as an example, in the event Executive is covered by another health plan, etc.). Thereafter, Executive and Executive's covered dependents shall be entitled to maintain coverage for Executive and Executive's eligible dependents at Executive's own expense for the balance of the period that Executive is entitled to coverage under COBRA; and

(d) any options granted prior or subsequently to the date hereof or other exercisable equity interest in the Company held by Executive, shall remain outstanding and exercisable through the earlier of (i) the second (2nd) anniversary of the date of termination or (ii) the original expiration date of the option or other equity interest.

Notwithstanding the foregoing, if Executive's employment terminates due to a Covered Termination at any time after the Effective Date, Executive will receive the greater of (i) the severance benefits above, or (ii) the severance benefits provided for in the Amended and Restated Severance Plan attached hereto as Exhibit D, which may be amended from time-to-time by the Company at the Company's sole discretion, that is in effect at the time of termination. For the avoidance of doubt, all amounts payable under this Agreement shall be subject to applicable federal, state, local or foreign tax withholding requirements.

4.2 Parachute Payments. If any payment or benefit Executive would receive in connection with a Change in Control from the Company or otherwise ("**Payment**") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "**Excise Tax**"), then such Payment shall be reduced to the Reduced Amount. The "Reduced Amount" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in Executive's receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments or benefits constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, reduction shall occur in the following order unless Executive elects in writing a different order (provided, however, that such election shall be subject to Company approval): reduction of cash payments; cancellation of accelerated vesting of stock awards; reduction of employee benefits. In the event that acceleration of vesting of stock award compensation is to be reduced, such acceleration of vesting shall be cancelled in the reverse order of the date of grant of Executive's stock awards unless Executive elects in writing a different order for cancellation.

The Company for general audit purposes shall engage a nationally recognized public accounting firm (the "**Accounting Firm**") to perform the foregoing calculations. The Company shall bear all expenses with respect to the determinations by such Accounting Firm required to be made hereunder. The Accounting Firm engaged to make the determinations hereunder shall provide its calculations, together with detailed supporting documentation, to the Company and Executive within fifteen (15) calendar days after the date on which Executive's right to a Payment is triggered (if requested at that time by the Company or Executive) or such other time as requested by the Company or Executive. If the Accounting Firm determines that no Excise Tax is payable with respect to a Payment, either before or after the application of the Reduced Amount, it shall furnish the Company and Executive with an opinion reasonably acceptable to Executive that no Excise Tax will be imposed with respect to such Payment. Any good faith determinations of the Accounting Firm made hereunder shall be final, binding and conclusive upon the Company and Executive.

4.3 Release. Notwithstanding the foregoing, Executive's right to receive the amounts provided for in Sections 4.1(ii) and 4.2 shall be subject to and conditioned upon Executive's execution and non-revocation of a release of claims in substantially the form attached hereto as Exhibit B (the "**Release**") (as such form may be modified to take into account changes in the law) within fifty (50) days following the termination date. Such Release shall specifically relate to all of

Executive's rights and claims in existence at the time of such execution and shall confirm Executive's obligations under the Proprietary Information Agreement (as defined below). It is understood that Executive has a certain period to consider whether to execute such Release, as set forth in the Release, and Executive may revoke such Release within seven (7) business days after execution. In the event Executive does not execute such Release within the applicable period, or if Executive revokes such Release within the subsequent seven (7) business day period, none of the aforesaid benefits set forth in Sections 4.1(ii), 4.2 and the Change of Control acceleration referenced in Section 3.3 shall be payable to Executive under this Agreement and this Agreement shall be null and void.

4.4 Section 409A. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of the Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, to the extent delayed commencement of any portion of the benefits to which Executive is entitled under this Agreement is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such portion of Executive's benefits shall not be provided to Executive prior to the earlier of (a) the expiration of the six-month

period measured from the date of Executive's Separation from Service or (b) the date of Executive's death. Upon the first business day following the expiration of the applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Section 4.4 shall be paid in a lump sum to Executive (or Executive's estate or beneficiaries), and any remaining payments due under the Agreement shall be paid as otherwise provided herein. For purposes of Section 409A of the Code, Executive's right to receive the payments of compensation pursuant to the Agreement shall be treated as a right to receive a series of separate payments and accordingly, each payment shall at all times be considered a separate and distinct payment.

4.5 Mitigation. Executive shall not be required to mitigate damages or the amount of any payment provided under this Agreement by seeking other employment or otherwise, nor shall the amount of any payment provided for under this Agreement be reduced by any compensation earned by Executive as a result of employment by another employer or by any retirement benefits received by Executive after the date of the Covered Termination, or otherwise.

ARTICLE V
PROPRIETARY INFORMATION OBLIGATIONS

5.1 Agreement. Executive agrees to abide by the Proprietary Information and Inventions Agreement attached hereto as Exhibit C (the "**Proprietary Information Agreement**").

5.2 Remedies. Executive's duties under the Proprietary Information and Inventions Agreement shall survive termination of Executive's employment with the Company and the termination of this Agreement. Executive acknowledges that a remedy at law for any breach or threatened breach by Executive of the provisions of the Proprietary Information and Inventions Agreement would be inadequate, and Executive therefore agrees that the Company shall be entitled to injunctive relief in case of any such breach or threatened breach.

ARTICLE VI
OUTSIDE ACTIVITIES

6.1 No Other Employment. Except with the prior written consent of the Board, Executive shall not during the term of Executive's employment with the Company, undertake or engage in any other employment, occupation or business enterprise. Notwithstanding the foregoing, during the term of Executive's employment with the Company, Executive may (a) undertake or engage in any other employment, occupation or business enterprise in which Executive is a passive investor, and/or (b) engage in civic and not-for-profit activities, in each case, so long as such activities do not materially interfere with the performance of Executive's duties hereunder.

6.2 No Conflicting Business Interests. During the term of Executive's employment by the Company, except on behalf of the Company, Executive shall not directly or indirectly, whether as an officer, director, stockholder, partner, proprietor, associate, representative, consultant, or in any capacity whatsoever engage in, become financially interested in, be employed by or have any business connection with any other person, corporation, firm, partnership or other entity whatsoever which were known by Executive to compete directly with the Company, throughout the world, in any line of business engaged in (or planned to be engaged in) by the Company; *provided, however*, that anything above to the contrary notwithstanding, Executive may own, as a passive investor, securities of any competitor corporation, so long as Executive's direct holdings in any one such corporation shall not in the aggregate constitute more than 1% of the voting stock of such corporation.

ARTICLE VII
NONINTERFERENCE

While employed by the Company, and for one (1) year immediately following the date on which Executive terminates employment or otherwise ceases providing services to the Company, Executive agrees not to interfere with the business of the Company by soliciting or attempting to solicit any employee of the Company to terminate such employee's employment in order to become an employee, consultant or independent contractor to or for any competitor of the Company. Executive's duties under this Article VII shall survive termination of Executive's employment with the Company and the termination of this Agreement.

ARTICLE VIII
GENERAL PROVISIONS

8.1 Notices. Any notices provided hereunder must be in writing and shall be deemed effective upon the earlier of personal delivery (including personal delivery by telex) or the third day after mailing by first class mail, to the Company at its primary office location and to Executive at Executive's address as listed on the Company payroll.

8.2 Section 409A. To the extent applicable, this Agreement shall be interpreted in accordance with Section 409A of the Code and Department of Treasury regulations and other interpretative guidance issued thereunder, including without limitation any such regulations or other such guidance that may be issued after the Effective Date ("**Section 409A**").

Notwithstanding any provision of this Agreement to the contrary, in the event that following the Effective Date, the Company determines in good faith that any compensation or benefits payable under this Agreement may not be either exempt from or compliant with Section 409A, the Company may adopt such amendments to this Agreement or adopt other policies or procedures (including amendments, policies and procedures with retroactive effect), or take any other commercially reasonable actions necessary or appropriate to preserve the intended tax treatment of the compensation and benefits payable hereunder, including without limitation actions intended to (i) exempt the compensation and benefits payable under this Agreement from Section 409A, and/or (ii) comply with the requirements of Section 409A, provided, that this Section 8.2 does not, and shall not be construed so as to, create any obligation on the part of the Company to adopt any such amendments, policies or procedures or to take any other such actions or to create any liability on the part of the Company for any failure to do so.

8.3 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction as if such invalid, illegal or unenforceable provisions had never been contained herein.

8.4 Waiver. If either party should waive any breach of any provisions of this Agreement, they shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision of this Agreement.

8.5 Complete Agreement. This Agreement and Exhibits A, B, C and D hereto constitute the entire agreement between Executive and the Company and are the complete, final, and exclusive embodiment of their agreement with regard to this subject matter (except for the Plan, any successor thereto, or any amendment to the Company's Amended and Restated Severance Plan). As of the Effective Date, this Agreement supersedes and replaces any prior agreement between Executive and the

Company or any predecessor employer in its entirety, including, without limitation, (a) that certain Employment Agreement entered by Executive and the Company on January 21, 2003, as amended December 19, 2008, and (b) that certain Employment Agreement entered into by Executive and the Company on December 7, 2012, as amended on September 24, 2013 and February 11, 2014. Executive and the Company acknowledge and agree that this Agreement is entered into without reliance on any promise or representation other than those expressly contained herein or therein and cannot be modified or amended except in a writing signed by a duly-authorized officer of the Company.

8.6 Counterparts. This Agreement may be executed in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement.

8.7 Headings. The headings of the sections hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

8.8 Successors and Assigns. This Agreement is intended to bind and inure to the benefit of and be enforceable by Executive and the Company, and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of Executive's duties hereunder and Executive may not assign any of Executive's rights hereunder, without the written consent of the Company, which shall not be withheld unreasonably.

8.9 Arbitration. In the event of any contractual, statutory or tort dispute or claim relating to or arising out of Executive's employment relationship with the Company (including but not limited to any claims of wrongful termination or age, sex, race, or other discrimination, but not including workers' compensation claims), Executive and the Company agree that all such disputes will be finally resolved by binding arbitration conducted by a single neutral arbitrator associated with the American Arbitration Association in Menlo Park, California. Executive and the Company hereby waive their respective rights to have any such disputes or claims tried to a judge or jury. However, the Company agrees that this arbitration provision will not apply to any claim, by either Executive or the Company, for injunctive relief. The administrative costs of any arbitration proceeding between Executive and the Company and the fees and costs of the arbitrator shall be borne by the Company.

8.10 Attorneys' Fees. If either party hereto brings any action to enforce rights hereunder, each party in any such action shall be responsible for its own attorneys' fees and costs incurred in connection with such action.

8.11 Acknowledgement. Executive acknowledges that Executive (a) has had the opportunity to discuss this matter with and obtain advice from independent counsel of Executive's own choice and has been advised to do so by the Company, (b) has carefully read and fully understands all the provisions of this Agreement, and (c) is knowingly and voluntarily entering into this Agreement. Executive represents that Executive (i) is familiar with the restrictive covenants set forth in the Proprietary Information Agreement and (ii) is fully aware of her obligations thereunder.

8.12 Choice of Law. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the law of the State of California.

IN WITNESS WHEREOF, the parties have executed this Agreement on the respective dates set forth below:

GERON CORPORATION

By: /s/ John A. Scarlett
John A. Scarlett, MD
President & Chief Executive Officer

Date: _____

Accepted and agreed this 31st day of January, 2019,

/s/ Olivia Bloom
Olivia K. Bloom

EXHIBIT A

INDEMNIFICATION AGREEMENT

EXHIBIT B

GENERAL RELEASE OF CLAIMS

EXHIBIT C

PROPRIETARY INFORMATION AND INVENTIONS AGREEMENT

EXHIBIT D

AMENDED AND RESTATED SEVERANCE PLAN

EXHIBIT 10.33

AMENDED AND RESTATED
EMPLOYMENT AGREEMENT

This Amended and Restated Employment Agreement **(**the **"Agreement")** is made effective as of January 31, 2019 (the **"Effective Date"),** by and between Melissa A. Kelly Behrs **("Executive")** and Geron Corporation, a Delaware corporation (the **"Company").**

WHEREAS, the Company desires to employ Executive to provide personal services to the Company, and wishes to provide Executive with certain compensation and benefits in return for Executive's services; and

WHEREAS, Executive wishes to be employed by the Company and provide personal services to the Company in return for certain compensation and benefits;

Now, THEREFORE, in consideration of the mutual promises and covenants contained herein, it is hereby agreed by and between the parties hereto as follows:

ARTICLE I
DEFINITIONS

For purposes of the Agreement, the following terms are defined as follows:

1.1 **"Board"** means the Board of Directors of the Company.

1.2 **"Cause"** means any of the following:

(a) any willful act or omission by Executive constituting dishonesty, fraud or other malfeasance against the Company;

(b) Executive's conviction of a felony under the laws of the United States or any state thereof or any other jurisdiction in which the Company conducts business;

(c) Executive's debarment by the U.S. Food and Drug Administration from working in or providing services to any pharmaceutical or biotechnology company under the Generic Drug Enforcement Act of 1992, or other ineligibility under any law or regulation to perform Executive's duties to the Company; or

(d) Executive's breach of any of the material policies of the Company.

1.3 **"Change in Control"** shall have the meaning set forth in the Plan.

1.4 **"Code"** means the Internal Revenue Code of 1986, as amended.

1.5 **"Company"** means Geron Corporation or its successors in interest.

1.6 **"Comparable Employment"** means employment on terms which provide (a) the same or greater rate of base pay or salary as in effect immediately prior to Executive's termination, (b) the same, equivalent or higher job title and level of responsibility as Executive had prior to Executive's termination, (c) equivalent or higher bonus opportunity as the bonus opportunity for the year preceding the year in which the termination occurs, and d) a principal work location that is both (i) no more than forty-five (45) miles from Executive's principal work location immediately prior to Executive's termination and (ii) no more than thirty (30) miles farther from Executive's principal weekday residence than was Executive's principal work location immediately prior to the termination.

1.7 **"Covered Termination"** means an Involuntary Termination Without Cause that occurs at any time, *provided* that such termination constitutes a "separation from service" within the meaning of Section 409A of the Code and the regulations promulgated thereunder, including Treasury Regulation Section 1.409A-l(h) (a **"Separation from Service").**

1.8 **"Involuntary Termination Without Cause"** means Executive's dismissal or discharge other than (i) for Cause, or (ii) after an involuntary or voluntary filing of a petition under chapter 7 or 11 of 11 USC Section 101 et. seq., an assignment for the benefit of creditors, a liquidation of the company's assets in formal proceeding or otherwise or any other event of insolvency by the Company, in any case, without an offer of Comparable Employment by the Company or a successor, acquirer, or affiliate of the Company. For purposes of this Agreement, the termination of Executive's employment due to Executive's death or disability will not constitute a termination for Cause.

1.9 **"Plan"** means the Company's 2002 Equity Incentive Plan, 2011 Incentive Award Plan, as amended, 2018 Equity Incentive Plan, and 2018 Inducement Award Plan (if applicable), and any successor to any of the foregoing Plans (collectively referred to as the **"Plans**").

ARTICLE II EMPLOYMENT BY THE COMPANY

2.1 **Position and Duties.** Subject to the terms set forth herein, the Company agrees to employ Executive in the position of Executive Vice President and Chief Business Officer. During the Executive's employment, Executive will report to the Chief Executive Officer. Executive shall serve in an employee capacity and shall perform such duties as are assigned to Executive by the Chief Executive Officer and, except as otherwise instructed by the Chief Executive Officer, such other duties as are customarily associated with the position of Executive Vice President and Chief Business Officer. During Executive's employment with the Company, Executive will devote Executive's best efforts and substantially all of Executive's business time and attention (except for vacation periods as set forth herein and reasonable periods of illness or other incapacities permitted by the Company's general employment policies or as otherwise set forth in this Agreement) to the business of the Company.

2.2 **Employment at Will.** Both the Company and Executive acknowledge and agree that Executive's employment with the Company is "at-will" and not for any specified period of time, and may be terminated at any time by Executive or the Company, with or without Cause, and with or without prior notice; provided, however, that if Executive's employment with the Company is terminated under circumstances that constitute a Covered Termination, Executive will be eligible to receive certain severance payments and benefits as set forth in Article IV below.

2.3 **Employment Policies.** The employment relationship between the parties shall also be governed by the general employment policies and practices of the Company, including but not limited to those policies relating to protection of confidential information and assignment of inventions. In the event of a conflict between the terms of this Agreement and the Company's general employment policies or practices, this Agreement shall control.

2.4 **Indemnification.** The Company shall provide for indemnification of the Executive as set forth in the Indemnification Agreement attached hereto as Exhibit A.

ARTICLE III
COMPENSATION

3.1 Base Salary. Commencing January 1, 2019, Executive shall receive for services to be rendered hereunder an annual base salary of $425,000 payable on the regular payroll dates of the Company, subject to increase in the sole discretion of the Compensation Committee of the Board (the **"Base Salary").**

3.2 Bonus. Executive shall be eligible to earn, for each fiscal year of the Company ending during Executive's employment with the Company, an annual discretionary cash bonus (an "Annual Bonus") targeted at forty-five percent (45%) of Executive's Base Salary. If the Company determines, in its reasonable discretion, that Executive has engaged in any misconduct intended to affect the payment of his/her Annual Bonus, or has otherwise engaged in any act or omission that would constitute Cause for termination of employment, as defined by Section 1.2 of the Agreement, Executive will automatically and immediately forfeit her entire Annual Bonus. If the Annual Bonus has already been paid to Executive, such Annual Bonus will be deemed unearned, and the Company shall have the right to recover the entire amount of the Annual Bonus paid to Executive for the calendar year(s) in which such misconduct or other act or omission constituting Cause occurred. Without limiting the foregoing, any such misconduct or other act or omission constituting Cause will subject Executive to disciplinary action up to and including termination of employment. In addition, any Annual Bonus paid to Executive for the calendar year(s) in which such misconduct or other Cause occurred is subject to recoupment in accordance with The Dodd-Frank Wall Street Reform and Consumer Protection Act and any implementing regulations, any other clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable laws, regulations or statutes. Recovery by the Company of an Annual Bonus in accordance with this Section shall not constitute an event giving rise to a right by Executive to voluntarily terminate her employment for cause based on such recovery by Company, nor shall it constitute "constructive termination", or any similar term or circumstance under the Agreement or any other plan or agreement with the Company.

3.3 Equity Compensation. While Executive is actively employed under this Agreement, Executive shall be entitled to participate in one or more of the Company's equity Plans**.** For each equity grant made under a Plan, Executive will be required to sign a Stock Option Agreement or other equity award agreement in a form to be provided by the Company at the time of grant, and the terms of the equity awards will be governed in all respects by the terms of the Stock Option Agreement or other equity award agreement and the Plan from which the equity award is being granted. Copies of the Plans will be made available to Executive upon request.

3.4 Standard Company Benefits; Vacation. Executive shall be entitled to all rights and benefits for which Executive is eligible under the terms and conditions of the Company's benefit and compensation plans, practices, policies and programs, as in effect from time to time, that are provided by the Company to its senior executives generally. Except as specifically provided herein, nothing in this Agreement is construed or interpreted to provide greater rights, participation, coverage or benefits under such benefit plans or programs provided to executive employees pursuant to the terms and conditions of such benefit plans and programs. Executive will be eligible for vacation accruals in accordance with the Company's current time off policy.

3.5 Housing Allowance and Reimbursement For Relocation Expenses. During Executive's employment and so long as the performance of Executive's duties shall, in the Company's sole discretion, require Executive to reside in New Jersey, the Company will, starting on the commencement date of Executive's housing lease or rental agreement in New Jersey, provide Executive with reimbursement for out-of-pocket housing costs of not more than $3,000 per month, subject to increase at the sole discretion of the Board or the Compensation Committee of the Board, for costs actually incurred by Executive with respect to housing in New Jersey (the "Housing Allowance"). The Housing Allowance will be reimbursed to Executive upon submission of valid original receipts and any supporting documentation reasonably

requested by the Company. In addition, on the commencement date of Executive's housing lease or rental agreement in New Jersey, the Company will provide Executive with a one-time relocation allowance in the amount of $10,000, to cover expenses related to relocating to New Jersey (the "Relocation Reimbursement"). The Relocation Reimbursement will be paid in a lump sum in the regular pay period no later than 30 calendar days preceding the commencement of Executive's housing lease or rental agreement in New Jersey. The Housing Allowance and Relocation Reimbursement will be reported as wages in Executive's W-2 taxable income. Any reimbursement pursuant to this Section 3.5 shall be subject to the Company's policies for reimbursement as may be in place from time-to-time.

ARTICLE IV
SEVERANCE BENEFITS AND RELEASE

4.1 Severance Benefits. If Executive's employment terminates due to a Covered Termination after the date of execution of this Agreement, Executive shall receive:

(i) Payment of Accrued Obligations Upon Termination of Employment. Upon a termination of Executive's employment at any time following the Effective Date, the Company shall pay to Executive in a single lump-sum cash payment as soon as administratively practicable following the date of termination, the aggregate amount of Executive's (A) earned but unpaid Base Salary applicable on the date of termination, and (B) accrued but unpaid vacation pay using the Base Salary rate applicable on the date of termination. In addition, Executive shall be promptly paid for incurred but unreimbursed business expenses upon her submission of such expenses in accordance with the Company's expense reimbursement policies. The amounts set forth in this Section 4.1(i) are collectively referred to as the **"Accrued Obligations".**

(ii) Severance Upon a Covered Termination. If Executive's employment terminates due to a Covered Termination at any time after the Effective Date, then, in addition to the Accrued Obligations, the Executive will be entitled to the following severance benefits:

(a) Executive shall be paid target Annual Bonus for the fiscal year in which the termination occurs, prorated for the length of service provided during the calendar year through the termination date, payable in a single lump-sum payment within sixty (60) days following the date of termination;

(b) Executive shall be paid an aggregate amount equal to twelve (12) months of Executive's Base Salary in effect on the date of termination, payable to Executive in a single lump-sum amount on the sixtieth (60th) day following the date of termination;

(c) Executive and Executive's covered dependents will be eligible to continue their health care benefit coverage as permitted by COBRA (Internal Revenue Code Section 4980B) at the Company's expense for the lesser of (i) twelve (12) months following the Covered Termination, or (ii) until the Executive and/or Executive's covered dependents are no longer eligible for COBRA (for clarification and as an example, in the event Executive is covered by another health plan, etc.). Thereafter, Executive and Executive's covered dependents shall be entitled to maintain coverage for Executive and Executive's eligible dependents at Executive's own expense for the balance of the period that Executive is entitled to coverage under COBRA; and

(d) any options granted prior or subsequently to the date hereof or other exercisable equity interest in the Company held by Executive, shall remain outstanding and exercisable through the earlier of (i) the second (2nd) anniversary of the date of termination or (ii) the original expiration date of the option(s) or other equity interest.

Notwithstanding the foregoing, if Executive's employment terminates due to a Covered Termination at any time after the Effective Date, Executive will receive the greater of (i) the severance benefits above, or (ii) the severance benefits provided for in the Amended and Restated Severance Plan attached hereto as Exhibit D, which may be amended from time-to-time by the Company at the Company's sole discretion, that is in effect at the time of termination. For the avoidance of doubt, all amounts payable under this Agreement shall be subject to applicable federal, state, local or foreign tax withholding requirements.

4.2 Parachute Payments. If any payment or benefit Executive would receive in connection with a Change in Control from the Company or otherwise **("Payment")** would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the **"Excise Tax"),** then such Payment shall be reduced to the Reduced Amount. The "Reduced Amount" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in Executive's receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments or benefits constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, reduction shall occur in the following order unless Executive elects in writing a different order (provided, however, that such election shall be subject to Company approval): reduction of cash payments; cancellation of accelerated vesting of stock awards; reduction of employee benefits. In the event that acceleration of vesting of stock award compensation is to be reduced, such acceleration of vesting shall be cancelled in the reverse order of the date of grant of Executive's stock awards unless Executive elects in writing a different order for cancellation.

The Company for general audit purposes shall engage a nationally recognized public accounting firm (the **"Accounting Firm")** to perform the foregoing calculations. The Company shall bear all expenses with respect to the determinations by such Accounting Firm required to be made hereunder. The Accounting Firm engaged to make the determinations hereunder shall provide its calculations, together with detailed supporting documentation, to the Company and Executive within fifteen (15) calendar days after the date on which Executive's right to a Payment is triggered (if requested at that time by the Company or Executive) or such other time as requested by the Company or Executive. If the Accounting Firm determines that no Excise Tax is payable with respect to a Payment, either before or after the application of the Reduced Amount, it shall furnish the Company and Executive with an opinion reasonably acceptable to Executive that no Excise Tax will be imposed with respect to such Payment. Any good faith determinations of the Accounting Firm made hereunder shall be final, binding and conclusive upon the Company and Executive.

4.3 Release. Notwithstanding the foregoing, Executive's right to receive the amounts provided for in Sections 4.l(ii) and 4.2 shall be subject to and conditioned upon Executive's execution and nonrevocation of a release of claims in substantially the form attached hereto as Exhibit B (the **"Release")** (as such form may be modified to take into account changes in the law) within fifty (50) days following the termination date. Such Release shall specifically relate to all of Executive's rights and claims in existence at the time of such execution and shall confirm Executive's obligations under the Proprietary Information Agreement (as defined below). It is understood that Executive has a certain period to consider whether to execute such Release, as set forth in the Release, and Executive may revoke such Release within seven (7) business days after execution. In the event Executive does not execute such Release within the applicable period, or if Executive revokes such Release within the subsequent seven (7) business day period, none of the aforesaid benefits set forth in Sections 4.1(ii), 4.2 and the Change of Control acceleration referenced in Section 3.3 shall be payable to Executive under this Agreement and this Agreement shall be null and void.

4.4 Section 409A. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of the Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, to the extent delayed commencement of any portion of the benefits to which Executive is entitled under this Agreement is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such portion of Executive's benefits shall not be provided to Executive prior to the earlier of (a) the expiration of the six-month period measured from the date of Executive's Separation from Service or (b) the date of Executive's death. Upon the first business day following the expiration of the applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Section 4.4 shall be paid in a lump sum to Executive (or Executive's estate or beneficiaries), and any remaining payments due under the Agreement shall be paid as otherwise provided herein. For purposes of Section 409A of the Code, Executive's right to receive the payments of compensation pursuant to the Agreement shall be treated as a right to receive a series of separate payments and accordingly, each payment shall at all times be considered a separate and distinct payment.

4.5 Mitigation. Executive shall not be required to mitigate damages or the amount of any payment provided under this Agreement by seeking other employment or otherwise, nor shall the amount of any payment provided for under this Agreement be reduced by any compensation earned by Executive as a result of employment by another employer or by any retirement benefits received by Executive after the date of the Covered Termination, or otherwise.

ARTICLE V
PROPRIETARY INFORMATION OBLIGATIONS

5.1 Agreement. Executive agrees to abide by the Proprietary Information and Inventions Agreement attached hereto as Exhibit C (the **"Proprietary Information Agreement").**

5.2 Remedies. Executive's duties under the Proprietary Information and Inventions Agreement shall survive termination of Executive's employment with the Company and the termination of this Agreement. Executive acknowledges that a remedy at law for any breach or threatened breach by Executive of the provisions of the Proprietary Information and Inventions Agreement would be inadequate, and Executive therefore agrees that the Company shall be entitled to injunctive relief in case of any such breach or threatened breach.

ARTICLE VI
OUTSIDE ACTIVITIES

6.1 No Other Employment. Except with the prior written consent of the Board, Executive shall not during the term of Executive's employment with the Company, undertake or engage in any other employment, occupation or business enterprise. Notwithstanding the foregoing, during the term of Executive's employment with the Company, Executive may (a) undertake or engage in any other employment, occupation or business enterprise in which Executive is a passive investor, and/or (b) engage in civic and not-for-profit activities, in each case, so long as such activities do not materially interfere with the performance of Executive's duties hereunder.

6.2 No Conflicting Business Interests. During the term of Executive's employment by the Company, except on behalf of the Company, Executive shall not directly or indirectly, whether as an officer, director, stockholder, partner, proprietor, associate, representative, consultant, or in any capacity whatsoever engage in, become financially interested in, be employed by or have any business connection with any other person, corporation, firm, partnership or other entity whatsoever which were known by Executive to compete directly with the Company, throughout the world, in any line of business engaged in (or planned to be engaged in) by the Company; provided, however, that anything above to the contrary notwithstanding, Executive may own, as a passive investor, securities of any competitor corporation, so long as Executive's direct holdings in any one such corporation shall not in the aggregate constitute more than 1% of the voting stock of such corporation.

ARTICLE VII
NONINTERFERENCE

While employed by the Company, and for one (1) year immediately following the date on which Executive terminates employment or otherwise ceases providing services to the Company, Executive agrees not to interfere with the business of the Company by soliciting or attempting to solicit any employee of the Company to terminate such employee's employment in order to become an employee, consultant or independent contractor to or for any competitor of the Company. Executive's duties under this Article VII shall survive termination of Executive's employment with the Company and the termination of this Agreement.

ARTICLE VIII GENERAL PROVISIONS

8.1 Notices. Any notices provided hereunder must be in writing and shall be deemed effective upon the earlier of personal delivery (including personal delivery by telex) or the third day after mailing by first class mail, to the Company at its primary office location and to Executive at Executive's address as listed on the Company payroll.

8.2 Section 409A. To the extent applicable, this Agreement shall be interpreted in accordance with Section 409A of the Code and Department of Treasury regulations and other interpretative guidance issued thereunder, including without limitation any such regulations or other such guidance that may be issued after the Commencement Date **("Section 409A").** Notwithstanding any provision of this Agreement to the contrary, in the event that following the Commencement Date, the Company determines in good faith that any compensation or benefits payable under this Agreement may not be either exempt from or compliant with Section 409A, the Company may adopt such amendments to this Agreement or adopt other policies or procedures (including amendments, policies and procedures with retroactive effect), or take any other commercially reasonable actions necessary or appropriate to preserve the intended tax treatment of the compensation and benefits payable hereunder, including without limitation actions intended to (i) exempt the compensation and benefits payable under this Agreement from Section 409A, and/or (ii) comply with the requirements of Section 409A, provided, that this Section 8.2 does not, and shall not be construed so as to, create any obligation on the part of the Company to adopt any such amendments, policies or procedures or to take any other such actions or to create any liability on the part of the Company for any failure to do so.

8.3 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction as if such invalid, illegal or unenforceable provisions had never been contained herein.

8.4 Waiver. If either party should waive any breach of any provisions of this Agreement, they shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision of this Agreement.

8.5 Complete Agreement. This Agreement and Exhibits A, B, C and D hereto constitute the entire agreement between Executive and the Company and are the complete, final, and exclusive embodiment of their agreement with regard to this subject matter (except for the Plans, any successor thereto, or any amendment to the Company's Amended and Restated Severance Plan). As of the Effective Date, this Agreement supersedes and replaces any prior agreement between Executive and the Company or any predecessor employer in its entirety, including, without limitation, (a) that certain Employment Agreement entered by Executive and the Company on January 21, 2003, as amended December 19, 2008,

and (b) that certain Employment Agreement entered into by Executive and the Company on January 31, 2013, as amended on September 24, 2013 and February 11, 2014, with regard to Executive's employment by the Company. Executive and the Company acknowledge and agree that this Agreement is entered into without reliance on any promise or representation other than those expressly contained herein or therein and cannot be modified or amended except in a writing signed by a duly-authorized officer of the Company.

8.6 Counterparts. This Agreement may be executed in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement.

8.7 Headings. The headings of the sections hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

8.8 Successors and Assigns. This Agreement is intended to bind and inure to the benefit of and be enforceable by Executive and the Company, and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of Executive's duties hereunder and Executive may not assign any of Executive's rights hereunder, without the written consent of the Company, which shall not be withheld unreasonably.

8.9 Arbitration. In the event of any contractual, statutory or tort dispute or claim relating to or arising out of Executive's employment relationship with the Company (including but not limited to any claims of wrongful termination or age, sex, race, or other discrimination, but not including workers' compensation claims), Executive and the Company agree that all such disputes will be finally resolved by binding arbitration conducted by a single neutral arbitrator associated with the American Arbitration Association in Menlo Park, California. Executive and the Company hereby waive their respective rights to have any such disputes or claims tried to a judge or jury. However, the Company agrees that this arbitration provision will not apply to any claim, by either Executive or the Company, for injunctive relief. The administrative costs of any arbitration proceeding between Executive and the Company and the fees and costs of the arbitrator shall be borne by the Company.

8.10 Attorneys' Fees. If either party hereto brings any action to enforce rights hereunder, each party in any such action shall be responsible for its own attorneys' fees and costs incurred in connection with such action.

8.11 Acknowledgement. Executive acknowledges that Executive (a) has had the opportunity to discuss this matter with and obtain advice from independent counsel of Executive's own choice and has been advised to do so by the Company, (b) has carefully read and fully understands all the provisions of this Agreement, and (c) is knowingly and voluntarily entering into this Agreement. Executive represents that Executive (i) is familiar with the restrictive covenants set forth in the Proprietary Information Agreement and (ii) is fully aware of her obligations thereunder.

8.12 Choice of Law. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the law of the State of California.

IN WITNESS WHEREOF, the parties have executed this Agreement on the respective dates set forth below:

GERON CORPORATION

By: /s/ John A. Scarlett
John A. Scarlett, MD
President & Chief Executive Officer

Date: 1/31/2019

Accepted and agreed this 31st day of January, 2019,

/s/ Melissa A. Kelly Behrs
Melissa A. Kelly Behrs

EXHIBIT A

INDEMNIFICATION AGREEMENT

EXHIBIT B

GENERAL RELEASE OF CLAIMS

EXHIBIT C

PROPRIETARY INFORMATION AND INVENTIONS AGREEMENT

EXHIBIT D

AMENDED AND RESTATED SEVERANCE PLAN

EXHIBIT 10.34

EMPLOYMENT AGREEMENT

This Employment Agreement ("**Agreement**") is made effective as of January 15, 2019, (the "**Effective Date**"), by and between Aleksandra Rizo, M.D., Ph.D. ("**Executive**") and Geron Corporation, a Delaware corporation (the "**Company**").

WHEREAS, the Company desires to employ Executive to provide personal services to the Company, and wishes to provide Executive with certain compensation and benefits in return for Executive's services with such employment beginning on January 30, 2019; and

WHEREAS, Executive wishes to be employed by the Company in an office location to be established in New Jersey and provide personal services to the Company in return for certain compensation and benefits;

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, it is hereby agreed by and between the parties hereto as follows:

ARTICLE I
DEFINITIONS

For purposes of the Agreement, the following terms are defined as follows:

1.1 "**Board**" means the Board of Directors of the Company.

1.2 "**Cause**" means any of the following:

(a) any willful act or omission by Executive constituting dishonesty, fraud or other malfeasance against the Company;

(b) Executive's conviction of a felony under the laws of the United States or any state thereof or any other jurisdiction in which the Company conducts business;

(c) Executive's debarment by the U.S. Food and Drug Administration from working in or providing services to any pharmaceutical or biotechnology company under the Generic Drug Enforcement Act of 1992, or other ineligibility under any law or regulation to perform Executive's duties to the Company; or

(d) Executive's breach of any of the material policies of the Company.

1.3 "**Change in Control**" shall have the meaning set forth in the Plan.

1.4 "**Code**" means the Internal Revenue Code of 1986, as amended.

1.5 "**Company**" means Geron Corporation or its successors in interest.

1.6 "**Comparable Employment**" means employment on terms which provide (a) the same or greater rate of base pay or salary as in effect immediately prior to Executive's termination,(b) the same, equivalent or higher job title and level of responsibility as Executive had prior to Executive's termination, (c) equivalent or higher bonus opportunity as the bonus opportunity for the year preceding the year in which the termination occurs, and d) a principal work location that is both (i) no more than forty-five (45) miles from Executive's principal work location immediately prior to Executive's termination and (ii) no more than thirty (30) miles farther from Executive's principal weekday residence than was Executive's principal work location immediately prior to the termination.

1.7 "**Covered Termination**" means an Involuntary Termination Without Cause that occurs at any time, provided that such termination constitutes a "separation from service" within the meaning of Section 409A of the Code and the regulations promulgated thereunder, including Treasury Regulation Section 1.409A-1(h) (a "**Separation from Service**").

1.8 "**Involuntary Termination Without Cause**" means Executive's dismissal or discharge other than (i) for Cause, or (ii) after an involuntary or voluntary filing of a petition under chapter 7 or 11 of 11 USC Section 101 et. seq., an assignment for the benefit of creditors, a liquidation of the company's assets in formal proceeding or otherwise or any other event of insolvency by the Company, in any case, without an offer of Comparable Employment by the Company or a successor, acquirer, or affiliate of the Company. For purposes of this Agreement, the termination of Executive's employment due to Executive's death or disability will not constitute a termination for Cause.

1.9 "**Inducement Plan**" means the Company's 2018 Inducement Award Plan.

1.10 "**Plan**" means the Company's 2018 Equity Incentive Award Plan.

ARTICLE II

EMPLOYMENT BY THE COMPANY

2.1 **Position and Duties.** Subject to the terms set forth herein, the Company agrees to employ Executive in the position of Executive Vice President and Chief Medical Officer. During the Executive's employment, Executive will report to the Chief Executive Officer. Executive shall serve in an employee capacity and shall perform such duties as are assigned to Executive by the Chief Executive Officer and, except as otherwise instructed by the Chief Executive Officer, such other duties as are customarily associated with the position of Chief Medical Officer. During Executive's employment with the Company, Executive will devote Executive's best efforts and substantially all of Executive's business time and attention (except for vacation periods as set forth herein and reasonable periods of illness or other incapacities permitted by the Company's general employment policies or as otherwise set forth in this Agreement) to the business of the Company; provided, however, that the Executive may accept consultant assignments and fees and engage in accept fees for additional professional activities, including publication in professional journals, with the written consent of the Company, such consent not to be unreasonably delayed or withheld

2.2 Employment at Will. Both the Company and Executive acknowledge and agree that Executive's employment with the Company is "at-will" and not for any specified period of time, and may be terminated at any time by Executive or the Company, with or without Cause, and with or without prior notice; provided, however, that if Executive's employment with the Company is terminated under circumstances that constitute a Covered Termination, Executive will be eligible to receive certain severance payments and benefits as set forth in Article IV below.

2.3 Employment Policies. The employment relationship between the parties shall also be governed by the general employment policies and practices of the Company, including but not limited to those policies relating to protection of confidential information and assignment of inventions. In the event of a conflict between the terms of this Agreement and the Company's general employment policies or practices, this Agreement shall control.

2.4 Indemnification. The Company shall provide for indemnification of the Executive as set forth in the Indemnification Agreement attached hereto as Exhibit A.

ARTICLE III

COMPENSATION

3.1 Base Salary. Executive shall receive for services to be rendered hereunder such annual base salary as is approved by the Board of Directors of the Company (the "Board") or the Compensation Committee of the Board, payable on the regular payroll dates of the Company, subject to increase in the sole discretion of the Board or Compensation Committee of the Board (the "Base Salary"). As of the first day of Executive's employment, Executive's Base Salary is $475,000.

3.2 Bonus. Executive shall be eligible to earn, for each fiscal year of the Company ending during Executive's employment with the Company, a pro-rata annual discretionary cash bonus (an "**Annual Bonus**") targeted at forty-five percent (45%) of Executive's Base Salary. The Annual Bonus is part of a variable and discretionary program, generally considered at the end of each calendar year with the eligibility cutoff date for participation being October 1st in the performance year for which any bonus may be paid. It is tied to the achievement of certain performance goals established for the Company and each individual and prorated for the individual's performance period. The total bonus pool generated for distribution, if any, is determined at the discretion of the Geron's Board of Directors (the "Board") and then distributed based on individual performance. If the Company determines, in its reasonable discretion, that Executive has engaged in any misconduct intended to affect the payment of her Annual Bonus or has otherwise engaged in any act or omission that would constitute Cause for termination of employment, as defined by Section 1.2 of the Agreement, Executive will automatically and immediately forfeit her entire Annual Bonus. If the Annual Bonus has already been paid to Executive, such Annual Bonus will be deemed unearned, and the Company shall have the right to recover the entire amount of the Annual Bonus paid to Executive for the calendar year(s) in which such misconduct or other act or omission constituting Cause occurred. Without limiting the foregoing, any such misconduct or other act or omission constituting Cause will subject Executive to disciplinary action up to and including termination of employment. In addition, any Annual Bonus paid to Executive for the calendar year(s) in which such misconduct or other Cause occurred is subject to recoupment in accordance with The Dodd–Frank Wall Street Reform and Consumer Protection Act and any implementing regulations, any other clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable laws, regulations or statutes. Recovery by the Company of an Annual Bonus in accordance with this

Section shall not constitute an event giving rise to a right by Executive to voluntarily terminate her employment for Cause based on such recovery by the Company, nor shall it constitute "constructive termination", or any similar term or circumstance under the Agreement or any other plan or agreement with the Company.

3.3 Inducement Stock Options. In accordance with the terms approved by the Company's Compensation Committee of the Board, the Compensation Committee of the Board shall grant Executive "Inducement Options" to purchase: (a) Seven Hundred Fifty Thousand (750,000) shares of Company common stock (b) a performance option of Two Hundred Fifty Thousand (250,000) shares of Company common stock, and (c) a performance option of Five Hundred Thousand (500,000) shares of Company common stock, in each case having an exercise price equal to the fair market value of Company common stock, as reported by the Nasdaq Global Select Market, on the first date of Executive's employment (the "Grant Date"). The Inducement Options serve as an inducement material to Executive entering into employment with the Company and will be granted under the Company's Inducement Plan as non-statutory stock options. The 750,000 share Inducement Option shall become exercisable and vest with respect to 12.5% of the shares subject to the Inducement Option on the six-month anniversary of the Executive's first date of employment and with respect to remaining shares subject to the Inducement Option on each monthly anniversary of the Executive's first date of employment in equal installments over 42 months thereafter. The 250,000 share performance Inducement Option shall vest upon acceptance for review by the United States Food and Drug Administration ("FDA") of a New Drug Application submission for the first imetelstat indication. The 500,000 share performance Inducement Option shall vest upon regulatory approval by the FDA for the first imetelstat indication. The vesting of all three of the Inducement Options shall be subject to Executive's continued service to the Company through the applicable vesting dates. Upon occurrence of a Change of Control, subject to Executive's continued service to the Company through the date of such Change of Control, the 750,000 share Inducement Option shall vest and become exercisable with respect to one hundred percent (100%) of the unvested shares subject thereto. For each of the 250,000 share and 500,000 share performance options, upon occurrence of a Change of Control in which the successor or surviving entity does not assume, continue or substitute for your unvested option, the option shall vest and become exercisable with respect to one hundred percent (100%) of the unvested shares subject thereto. The Inducement Options otherwise shall be subject to and governed in all respects by the terms of the Inducement Plan and the appropriate Inducement Stock Option Agreement to be entered into between the Company and Executive.

3.4 **Standard Company Benefits; Vacation.** Executive shall be entitled to all rights and benefits for which Executive is eligible under the terms and conditions of the Company's benefit and compensation plans, practices, policies and programs, as in effect from time to time, that are provided by the Company to its executive employees generally. Except as specifically provided herein, nothing in this Agreement is construed or interpreted to provide greater rights, participation, coverage or benefits under such benefit plans or programs provided to executive employees pursuant to the terms and conditions of such benefit plans and programs. Executive will be eligible for vacation accruals in accordance with the Company's current time off policy and such accrual rate will be equal to 20 days per calendar year. In accordance with the Company's vacation accrual policy, the maximum vacation accrual is 30 days.

3.5 Sign-On Bonus. Executive shall be paid a cash sign-on bonus to be made in three separate payments (the "**Sign-On Bonus**") and such payments shall total in aggregate $470,000. The first payment of $275,000 (the "**First Payment**") will be paid on the first scheduled payroll following the Grant Date; provided however, if Executive has voluntarily left the Company and is no longer employed by the Company on the first anniversary of the Grant Date, such First Payment will be deemed unearned, and the Company shall have the right to recover the entire $275,000, which shall be reimbursed by Executive to the Company within thirty (30) days after such voluntary departure by Executive. The second payment in the amount of $100,000 (the "**Second Payment**") will be paid on the first regularly scheduled payroll following the first anniversary of the Grant Date unless Executive has voluntarily left the Company and is no longer employed by the Company on the first anniversary of the Grant Date. The third payment in the amount of $95,000 (the "**Third Payment**") will be paid on the first regularly scheduled payroll following the second anniversary of the Grant Date unless Executive has voluntarily left the Company and is no longer employed by the Company on the second anniversary of the Grant Date. All payments will be subject to applicable taxes.

If the Company determines, in its reasonable discretion, that Executive has engaged in any misconduct or has otherwise engaged in any act or omission that would constitute Cause for termination of employment, as defined by Section 1.2 of this Agreement, Executive will automatically and immediately become ineligible to receive any remaining payments of the Sign- On Bonus. Further, if any payment of the Sign-On Bonus has been paid to Executive, such payment will be deemed unearned, and the Company shall have the right to recover the entire amount of such payment for the calendar year(s) in which such misconduct or other act or omission constituting Cause occurred. Without limiting the foregoing, any such misconduct or other act or omission constituting Cause will subject Executive to disciplinary action up to and including termination of employment. In addition, any Sign-On Bonus paid to Executive for the calendar year(s) in which such misconduct or other Cause occurred is subject to recoupment in accordance with The Dodd–Frank Wall Street Reform and Consumer Protection Act and any implementing regulations, any other clawback policy adopted by the Company and any compensation recovery policy otherwise required by applicable laws, regulations or statutes.

Recovery by the Company of any portion of the Sign-On Bonus in accordance with this Section shall not constitute an event giving rise to a right by Executive to voluntarily terminate her employment for cause based on such recovery by Company, nor shall it constitute "constructive termination," or any similar term or circumstance under the Agreement or any other plan or agreement with the Company. If the Executive's employment terminates for any reason other than a Covered Termination, the amounts paid under this Section will be repayable to the Company within one year following each payment date.

ARTICLE IV

SEVERANCE BENEFITS AND RELEASE

4.1 Severance Benefits. If Executive's employment terminates due to a Covered Termination after the date of execution of this Agreement, Executive shall receive:

(i) Payment of Accrued Obligations Upon Termination of Employment. Upon a termination of Executive's employment for any reason at any time following the Grant Date, the Company shall pay to Executive in a single lump-sum cash payment as soon as administratively practicable following the date of termination, the aggregate amount of Executive's (A) earned but unpaid Base Salary, and (B) accrued but unpaid vacation pay. In addition, Executive shall be

promptly paid for incurred but unreimbursed business expenses upon her submission of such expenses in accordance with the Company's expense reimbursement policies. The amounts set forth in this Section 4.1(i) are collectively referred to as the "Accrued Obligations".

(ii) Severance Upon a Covered Termination. If Executive's employment terminates due to a Covered Termination at any time after the Grant Date, then, in addition to the Accrued Obligations:

(a) Executive shall be paid target Annual Bonus for the fiscal year in which the termination occurs, prorated for the length of service provided during the calendar year through the termination date, payable in a single lump-sum payment within thirty (30) days following the date of termination;

(b) Executive shall be paid an aggregate amount equal to twelve (12) months of Executive's Base Salary in effect on the date of termination, payable to Executive in a single lump-sum amount on the sixtieth (60th) day following the date of termination;

(c) Executive and Executive's covered dependents will be eligible to continue their health care benefit coverage as permitted by COBRA (Internal Revenue Code Section 4980B) at the Company's expense for the lesser of (i) eighteen (18) months following the Covered Termination, or (ii) until the Executive and/or Executive's covered dependents are no longer eligible for COBRA (for clarification and as an example, in the event Executive is covered by another health plan, etc.). Thereafter, Executive and Executive's covered dependents shall be entitled to maintain coverage for Executive and Executive's eligible dependents at Executive's own expense for the balance of the period that Executive is entitled to coverage under COBRA; and

(d) the Inducement Option, along with any subsequent options or other exercisable equity interest in the Company held by Executive shall remain outstanding and exercisable through the earlier of (i) the second (2nd) anniversary of the date of termination or (ii) the original expiration date of the option or other equity interest.

4.2 Parachute Payments. If any payment or benefit Executive would receive in connection with a Change in Control from the Company or otherwise ("**Payment**") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "**Excise Tax**"), then such Payment shall be reduced to the Reduced Amount. The "Reduced Amount" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in Executive's receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments or benefits constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, reduction shall occur in the following order unless Executive elects in writing a different order (provided, however, that such election shall be subject to Company approval): reduction of cash payments; cancellation of accelerated vesting of stock awards; reduction of employee benefits. In the event that acceleration of vesting of stock award compensation is to be reduced, such acceleration of vesting shall be cancelled in the reverse order of the date of grant of Executive's stock awards unless Executive elects in writing a different order for cancellation.

The Company for general audit purposes shall engage a nationally recognized public accounting firm (the "**Accounting Firm**") to perform the foregoing calculations. The Company shall bear all expenses with respect to the determinations by such accounting firm required to be made hereunder. The Accounting Firm engaged to make the determinations hereunder shall provide its calculations, together with detailed supporting documentation, to the Company and Executive within fifteen (15) calendar days after the date on which Executive's right to a Payment is triggered (if requested at that time by the Company or Executive) or such other time as requested by the Company or Executive. If the Accounting Firm determines that no Excise Tax is payable with respect to a Payment, either before or after the application of the Reduced Amount, it shall furnish the Company and Executive with an opinion reasonably acceptable to Executive that no Excise Tax will be imposed with respect to such Payment. Any good faith determinations of the accounting firm made hereunder shall be final, binding and conclusive upon the Company and Executive.

4.3 Release. Notwithstanding the foregoing, Executive's right to receive the amounts provided for in Sections 4.1(ii) and 4.2, and the Change of Control acceleration referenced in Section 3.3 above or in any subsequent stock option agreement shall be subject to and conditioned upon Executive's execution and non-revocation of a release of claims in substantially the form attached hereto as Exhibit B (the "**Release**") (as such form may be modified by agreement between the Company and Executive, or to take into account changes in the law) within fifty (50) days following the termination date. Such Release shall specifically relate to all of Executive's rights and claims in existence at the time of such execution and shall confirm Executive's obligations under the Proprietary Information Agreement (as defined below). It is understood that Executive has a certain period to consider whether to execute such Release, as set forth in the Release, and Executive may revoke such Release within seven (7) business days after execution. In the event Executive does not execute such Release within the applicable period, or if Executive revokes such Release within the subsequent seven (7) business day period, none of the aforesaid benefits set forth in Sections 4.1(ii), 4.2 and the Change of Control acceleration referenced in Section 3.3 or in any subsequent stock option agreement shall be payable to Executive under this Agreement and this Agreement shall be null and void.

4.4 Section 409A. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of the Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, to the extent delayed commencement of any portion of the benefits to which Executive is entitled under this Agreement is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such portion of Executive's benefits shall not be provided to Executive prior to the earlier of (a) the expiration of the six-month period measured from the date of Executive's Separation from Service or (b) the date of Executive's death. Upon the first business day following the expiration of the applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Section 4.4 shall be paid in a lump sum to Executive (or Executive's estate or beneficiaries), and any remaining payments due under the Agreement shall be paid as otherwise provided herein. For purposes of Section 409A of the Code, Executive's right to receive the payments of compensation pursuant to the Agreement shall be treated as a right to receive a series of separate payments and accordingly, each payment shall at all times be considered a separate and distinct payment.

4.5 Mitigation. Executive shall not be required to mitigate damages or the amount of any payment provided under this Agreement by seeking other employment or otherwise, nor shall the amount of any payment provided for under this Agreement be reduced by any compensation earned by Executive as a result of employment by another employer or by any retirement benefits received by Executive after the date of the Covered Termination, or otherwise.

ARTICLE V

PROPRIETARY INFORMATION OBLIGATIONS

5.1 Agreement. Executive agrees to abide by the Proprietary Information and Inventions Agreement attached hereto as Exhibit C (the "Proprietary Information Agreement").

5.2 Remedies. Executive's duties under the Proprietary Information and Inventions Agreement shall survive termination of Executive's employment with the Company and the termination of this Agreement. Executive acknowledges that a remedy at law for any breach or threatened breach by Executive of the provisions of the Proprietary Information and Inventions Agreement may be inadequate, and Executive therefore agrees that the Company may be entitled to injunctive relief in case of any such breach or threatened breach.

ARTICLE VI

OUTSIDE ACTIVITIES

6.1 No Other Employment. Except with the prior written consent of the Board, Executive shall not during the term of Executive's employment with the Company, undertake or engage in any other employment, occupation or business enterprise. Notwithstanding the foregoing, during the term of Executive's employment with the Company, Executive may (a) undertake or engage in any other employment, occupation or business enterprise in which Executive is a passive investor, and/or (b) engage in civic and not-for-profit activities, in each case, so long as such activities do not materially interfere with the performance of Executive's duties hereunder.

6.2 No Conflicting Business Interests. During the term of Executive's employment by the Company, except on behalf of the Company, Executive shall not directly or indirectly, whether as an officer, director, stockholder, partner, proprietor, associate, representative, consultant, or in any capacity whatsoever engage in, become financially interested in, be employed by or have any business connection with any other person, corporation, firm, partnership or other entity whatsoever which were known by Executive to compete directly with the Company, in any geographical area in which the Company conducts business, in any line of business engaged in (or planned to be engaged in) by the Company; provided, however, (a)_ that anything above to the contrary notwithstanding, Executive may own, as a passive investor, securities of any competitor corporation, so long as Executive's direct holdings in any one such corporation shall not in the aggregate constitute more than 1% of the voting stock of such corporation; and (b) that the Executive may accept consultant assignments and fees and engage in and accept fees for additional professional activities, including publication in professional journals, with the written consent of the Company, such consent not to be unreasonably delayed or withheld.

ARTICLE VII

NONINTERFERENCE

While employed by the Company, and for one (1) year immediately following the date on which Executive terminates employment or otherwise ceases providing services to the Company, Executive agrees not to interfere with the business of the Company by soliciting or attempting to solicit any employee of the Company to terminate such employee's employment in order to become an employee, consultant or independent contractor to or for any competitor of the Company. Executive's duties under this Article VII shall survive termination of Executive's employment with the Company and the termination of this Agreement.

ARTICLE VIII

GENERAL PROVISIONS

8.1 Notices. Any notices provided hereunder must be in writing and shall be deemed effective upon the earlier of personal delivery (including personal delivery by telex) or the third day after mailing by first class mail, to the Company at its primary office location and to Executive at Executive's address as listed on the Company payroll.

8.2 Section 409A. To the extend applicable, this Agreement shall be interpreted in accordance with Section 409A of the Code and Department of Treasury regulations and other interpretative guidance issued thereunder, including without limitation any such regulations or other such guidance that may be issued after the Commencement Date ("Section 409A"). Notwithstanding any provision of this Agreement to the contrary, in the event that following the Commencement Date, the Company determines in good faith that any compensation or benefits payable under this Agreement may not be either exempt from or compliant with Section 409A, the Company may adopt such amendments to this Agreement or adopt other policies or procedures (including amendments, policies and procedures with retroactive effect), or take any other commercially reasonable actions necessary or appropriate to preserve the intended tax treatment of the compensation and benefits payable hereunder, including without limitation actions intended to (i) exempt the compensation and benefits payable under this Agreement from Section 409A, and/or (ii) comply with the requirements of Section 409A, provided, that this Section 8.2 does not, and shall not be construed so as to, create any obligation on the part of the Company to adopt any such amendments, policies or procedures or to take any other such actions or to create any liability on the part of the Company for any failure to do so.

8.3 Severability. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction as if such invalid, illegal or unenforceable provisions had never been contained herein.

8.4 Waiver. If either party should waive any breach of any provisions of this Agreement, they shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision of this Agreement.

8.5 Complete Agreement. This Agreement and Exhibits A, B, C and D hereto constitute the entire agreement between Executive and the Company and are the complete, final, and exclusive embodiment of their agreement with regard to this subject matter (except for the Plan, any successor thereto, or any amendment to the Amended and Restated Geron Corporation Severance Plan or Inducement Award Plan). As of the Effective Date, this Agreement supersedes any prior agreement between Executive and the Company. Executive and the Company acknowledge and agree that this Agreement is entered into without reliance on any promise or representation other than those expressly contained herein or therein and cannot be modified or amended except in a writing signed by a duly-authorized officer of the Company.

8.6 Counterparts and Electronic Signatures. This Agreement may be executed in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement. The parties agree that execution of this Agreement by industry standard electronic signature software and/or by exchanging PDF signatures shall have the same legal force and effect as the exchange of original signatures, and that in any proceeding arising under or relating to this Agreement, each party hereby waives any right to raise any defense or waiver based upon execution of this Agreement by means of such electronic signatures or maintenance of the executed agreement electronically.

8.7 Headings. The headings of the sections hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

8.8 Successors and Assigns. This Agreement is intended to bind and inure to the benefit of and be enforceable by Executive and the Company, and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of Executive's duties hereunder and Executive may not assign any of Executive's rights hereunder, without the written consent of the Company, which shall not be withheld unreasonably.

8.9 Arbitration. In the event of any contractual, statutory or tort dispute or claim relating to or arising out of Executive's employment relationship with the Company (including but not limited to any claims of wrongful termination or age, sex, race, or other discrimination, but not including workers' compensation claims), Executive and the Company agree that all such disputes will be finally resolved by binding arbitration conducted by a single neutral arbitrator associated with the American Arbitration Association in New York, New York. Executive and the Company hereby waive their respective rights to have any such disputes or claims tried to a judge or jury. However, the Company agrees that this arbitration provision will not apply to any claim, by either Executive or the Company, for injunctive relief. The administrative costs of any arbitration proceeding between Executive and the Company and the fees and costs of the arbitrator shall be borne by the Company.

8.10 Attorneys' Fees. If either party hereto brings any action to enforce rights hereunder, each party in any such action shall be responsible for its own attorneys' fees and costs incurred in connection with such action

8.11 Acknowledgement. Executive acknowledges that Executive (a) has had the opportunity to discuss this matter with and obtain advice from independent counsel of Executive's own choice and has been advised to do so by the Company, (b) has carefully read and fully understands all the provisions of this Agreement, and (c) is knowingly and voluntarily entering into this Agreement. Executive represents that Executive (i) is familiar with the restrictive covenants set forth in the Proprietary Information Agreement and (ii) is fully aware of her obligations thereunder.

8.12 Choice of Law. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the law of the State of New York.

IN WITNESS WHEREOF, the parties have executed this Agreement on the respective dates set forth below:

GERON CORPORATION

By: /s/ John Scarlett
John A. Scarlett, M.D.
President & Chief Executive Officer

Date: 14-Jan-2019

Accepted and agreed this 15th day of January, 2019.

/s/ Aleksandra Rizo
Aleksandra Rizo, M.D., Ph.D.

EXHIBIT A

INDEMNIFICATION AGREEMENT

EXHIBIT B

FORM OF GENERAL RELEASE

EXHIBIT C

PROPRIETARY INFORMATION AND INVENTIONS AGREEMENT

EXHIBIT D

AMENDED AND RESTATED SEVERANCE PLAN

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

EXHIBIT 10.42

MASTER SERVICES AGREEMENT

This Master Services Agreement (this "**Agreement**") is effective as of January 30, 2019 (the "**Effective Date**"), and is by and between Geron Corporation ("**Client**"), a Delaware corporation with a principal place of business at 149 Commonwealth Drive, Menlo Park, CA 94025, United States, and PAREXEL International (IRL) Limited ("**PAREXEL**"), a corporation organized under the laws of Ireland with a registered address at 70 Sir John Rogerson's Quay, Dublin 2, Ireland.

BACKGROUND

PAREXEL is a contract research organization providing a full range of contract research organization services for companies such as Client. Client and PAREXEL wish to enter into this Agreement to provide the terms and conditions under which Client may engage PAREXEL or its Affiliates (as defined below) from time to time, upon execution of a Work Order (as defined below), to provide services for Client's studies or projects.

NOW THEREFORE, the parties agree as follows:

1. DEFINITIONS

1.1. "**Affiliate**" means in relation to either party to this Agreement, any company, partnership or other entity which directly or indirectly controls, is controlled by, or is under common control with such party, or is managed by an entity that is under common control with such party. For purposes of this definition, "control" means the beneficial ownership of more than fifty percent (50%) of the issued voting shares or the legal power to direct or cause the direction of the general management of the company, partnership or other entity in question, and "controlled" shall be construed accordingly.

1.2. "**Applicable Law**" means any international, national, federal, state, provincial, commonwealth, or local government law, statute, rule, requirement, code, regulation, or ordinance that applies to either party or to a Project, the Services, or this Agreement, including, without limitation: the Health Insurance Portability and Accountability Act of 1996, and the regulations promulgated pursuant thereto ("**HIPAA**"), to the extent applicable; the Federal Food, Drug and Cosmetics Act ("**FFDCA**") and its implementing regulations; the European Directive 2001/20/EC and the General Data Protection Regulation (EU) 2016/679 (the "**GDPR**") as well as the current good clinical practices guidelines of the International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use Topic E6: Guidelines on Good Clinical Practice ("**ICH/GCP**"), and applicable version(s) of the World Medical Association Declaration of Helsinki, and, where applicable, rules governing distribution practice, manufacturing practice and good laboratory practice, and rules governing the collection and processing of personal data and the collection and storage of human tissue samples and the performance of DNA testing.

1.3. "**Investigational Product**" means a pharmaceutical form of an active ingredient or placebo being tested or used as a reference in a Study.

1.4. "**Investigator**" means the person responsible for the conduct of a Study at a Site. If a Study is conducted by a team of individuals at a Site, the Investigator is the responsible leader of the team and may be called the "**Principal Investigator**".

1.5. "**Protocol**" means a document that describes the objective(s), design, methodology, statistical considerations, and organization of a clinical trial.

1.6. "**Project**" means a Study and/or such other project for Client with respect to which PAREXEL provides Services pursuant to a Work Order.

1.7. "**Regulatory Authority**" means any supra-national, national or local agency, authority, department, inspectorate, minister, ministry official, parliament or public or statutory person (whether autonomous or not) of any government of any country having jurisdiction over any of the activities contemplated by this Agreement, including without limitation, the European Medicines Agency and the United States Food and Drug Administration.

1.8. "**Study**" means an investigation in human subjects intended to discover or verify the clinical, pharmacological and/or pharmacodynamics effects of an investigational product(s), and/or to identify any adverse reactions to an investigational product(s), and/or to study absorption, distribution, metabolism, and excretion of an investigational product(s) with the object of ascertaining its safety and/or efficacy. As used herein, a "Study" has the foregoing meaning and is conducted pursuant to a Protocol under a Work Order.

1.9. "**Study Data**" means all data generated through the direction, management or performance of a Study or any Study-related Services.

1.10. "**Study Materials**" means the Investigational Product and other supplied products and materials, including but not limited to an investigational or marketed or other pharmaceutical product (other than an Investigational Product) used as a reference in a Project.

1.11. "**Subcontractor**" means a particular provider of Services contracted directly by PAREXEL, subject to Client's prior written consent, except as expressly permitted by this Agreement or the applicable Work Order(s), in connection with the Services.

2. SERVICES

2.1. PAREXEL will provide to Client the services set forth in the work order(s) executed by both parties ("**Work Order**"), such Work Order(s) to be substantially in the form of **Attachment A** hereto ("**Services**"). PAREXEL shall perform the Services in compliance with: (i) the Protocol, (ii) the terms and conditions of this Agreement, (iii) the terms and conditions of the applicable Work Order, (iv) PAREXEL's standard operating procedures (" **SOPs**"), which shall have been reviewed by Client, and (v) all Applicable Laws. If any term in a Work Order conflicts with this Agreement, this Agreement will control except to the extent that the Work Order expressly states that such conflicting term prevails over this Agreement. To the extent that any Services relate to scientific or clinical trial matters, the Protocol will control the performance of such Services, and will take precedence over all other Project documents for such Services. Notwithstanding anything to the contrary in this Agreement, neither party nor its Affiliates shall have an obligation to order or provide Services in the absence of an executed Work Order.

2.2 Client and PAREXEL agree that any change to the details of a Work Order, the assumptions upon which such Work Order is based or the scope of a Work Order may require changes to the description of Services, budget, estimated timelines, or payment schedule. Client may, at Client's discretion, reduce the scope of Services set forth in any Work Order by notifying PAREXEL in writing, and the parties will cooperate to modify the Work Order accordingly as set forth herein. Any such required changes shall be reflected in either (i) an approved entry in a Change in Scope Log ("**CIS Log**"), in accordance with and in the form set forth in **Attachment B**, or (ii) a written amendment to the Work Order (a "**Change Order**"), in accordance with and in the form set forth in **Attachment C**. The parties to the Work Order agree to process such changes as follows:

(a) For each Work Order related to clinical research services only, PAREXEL shall generate and maintain a CIS Log showing all changes agreed by the parties to the scope of Services and any associated proposed changes to the budget. After each new entry, PAREXEL shall forward the updated CIS Log to the appropriate representative(s) of Client and Client shall review the CIS Log and request any changes in writing within [*] of receipt of the CIS Log. A Client representative duly authorized, as set forth in the applicable Work Order and subject to written update by Client as needed (the "**GERON Representative**") to approve new entries in the CIS Log shall promptly (but not later than [*] after receipt) sign each applicable line item approved by Client. Upon approval by Client, the amended scope of Services and any associated changes to the budget as reflected in signed CIS Log entries will be binding on both parties and shall be implemented. Once the aggregate amount of the CIS Log reaches a threshold that will be specified in the applicable Work Order, or if regulatory reasons demand it, then a formal Change Order will be prepared, and signed by both parties. A Change Order will be prepared irrespective of the threshold at the end of every [*] or as otherwise agreed upon in the respective Work Order, as well as the completion of Services.

(b) For all other Work Orders, the parties to the Work Order will negotiate and execute a Change Order reflecting agreed-upon changes and any related terms.

(c) PAREXEL shall not be required to perform any services or incur any expenses that are not specifically set forth in a Work Order unless and until a Change Order is executed by the parties to the Work Order or a CIS Log is approved by the Client as set forth above in this Section.

2.3 If PAREXEL performs any changes in good faith upon the written request of the GERON Representative before the applicable entries in the CIS Log are approved or the applicable Change Order is executed, then Client will pay PAREXEL for the performance of such changes and any expenses related thereto when the parties have finalized the applicable mutually acceptable Change Order or approved the applicable entries in the CIS Log. In addition, subject to acceptance by Client of the entries in the CIS Log or the terms and conditions of the applicable mutually acceptable Change Order, including, but not limited to, any corresponding changes in budget, if Client fails to approve a duly submitted CIS Log entry within [*] after PAREXEL has submitted such request, and/or if the parties fail to execute a formal Change Order within [*] after such formal Change Order has been submitted by PAREXEL to Client, then PAREXEL reserves the right, upon written notice to Client, to immediately terminate said activities.

2.4 If PAREXEL provides any Services in good faith upon the written request of the GERON Representative either (a) prior to execution by both parties of a start-up Work Order for such Services at the start of PAREXEL's engagement, or (b) following expiration of the start-up Work Order but prior to execution by both parties of a full Work Order for such engagement, then, in either such case, Client shall pay PAREXEL for the performance of such Services and any expenses related thereto in accordance with the terms of the applicable start-up Work Order or Work Order, and upon execution of the applicable start-up Work Order or Work Order, all terms and conditions of this Agreement shall apply to such Services to the same extent as if such Services had been performed while the applicable start-up Work Order (or full Work Order, as the case may be) was executed and in full force and effect. In addition, Client acknowledges that PAREXEL is under no obligation to provide Services under either scenario (a) or (b) set forth in the preceding sentence, and Client agrees that PAREXEL may immediately terminate said activities at any time prior to the execution by both parties of the applicable start-up Work Order or full Work Order (as the case may be).

2.5 Each Work Order will identify certain key personnel reasonably acceptable to Client (collectively, "**Key Personnel**"). Key Personnel may include a Project Manager (or comparable role, however titled), if applicable to the Project. PAREXEL recognizes that Client's entry into this Agreement is based in part on Client's reliance upon the assignment of such Key Personnel to Client's Projects. Subject to Section 15.3, PAREXEL agrees that it will not remove or substitute any Key Personnel or materially reduce the time commitment of Key Personnel without Client's prior written consent, such consent not to be unreasonably withheld, conditioned or delayed. Notwithstanding the

foregoing, Client recognizes that Key Personnel may leave the employ of PAREXEL for reasons beyond PAREXEL's control or may be promoted to different roles within PAREXEL. Whenever practicable, PAREXEL shall give Client at least [*] notice prior to the departure of any Key Personnel from Client's Projects, and shall propose replacement personnel. Client shall have the right to approve or reject any replacement Key Personnel at its reasonable discretion, such approval not to be unreasonably withheld, conditioned or delayed; provided, however, that PAREXEL shall not be liable for any delays caused by Client's rejection of any Key Personnel. In addition, Client may request replacement of Key Personnel by written notice to PAREXEL if Client reasonably believes that Key Personnel are not performing Services to the reasonable satisfaction of Client. PAREXEL shall submit the names and qualifications of proposed replacement Key Personnel to Client, Client will [*]. If PAREXEL and Client [*], the parties may [*].

2.5.1 The parties will establish an Executive Committee that comprises at least one executive or corporate officer of each Party, as well as certain PAREXEL Key Personnel and GERON Representatives (defined in 2.2 above). The Executive Committee will provide a functional mechanism for Client's oversight of PAREXEL's Services in accordance with the Agreement, the applicable Work Orders, and Applicable Law, including without limitation, as applicable, the requirements of ICH E6(R2) Sections 5.2.1 and 5.2.2 as well as 21 CFR 312.52(a) and (b). The Executive Committee will function at a strategic relationship level, across Projects and Studies for ongoing, overall assessment of PAREXEL's performance of Services to ensure compliance with regulatory requirements and obligations under this Agreement and Work Orders, as well as identification and resolution of project level and/or cross-project systemic issues. The composition of the Executive Committee and the scope and description of its activities will be determined by Client and confirmed by mutual agreement of the parties and may be documented in an ancillary document or plan. The actions of the Executive Committee will be subject at all times to the oversight and final approval of Client.

2.6 Obligations transferred to PAREXEL under a Work Order in accordance with 21 C.F.R. 312.52 will be set forth in a "Transfer of Obligations under 21, C.F.R. 312.52 and Applicable Foreign Equivalents" ("**TORO**"). PAREXEL will assume responsibility for transferred obligations set forth in the TORO and agrees to diligently carry out such transferred obligations in accordance with this Agreement and the applicable Work Order. In addition, and without limiting the foregoing, if called for by the Project and set forth in the Work Order, and further subject to PAREXEL's SOPs and standard tools and templates, PAREXEL will ensure that all relevant requirements are met with respect to: (a) obtaining informed consent from Study subjects in accordance with 21 C.F.R. Part 50, as amended; (b) obtaining signed authorizations (including Data Privacy Notices) for the collection, processing and transfer of the Personal Data of Data Subjects (each as defined in Section 8.5 below); (c) obtaining both initial and continuing ethics committee and investigational review board review and approval in accordance with 21 C.F.R. Part 56, as amended; (d) obtaining from each Study Investigator and providing to Client a fully completed and signed Form FDA 1572 and any other information required by 21 C.F.R. §312.53(c), as amended; and (e) requiring that each Study Investigator abides by the Study-related commitments and obligations he or she undertook by signing Form FDA 1572.

2.7 PAREXEL may use its Affiliates to perform any of its obligations under this Agreement or any Work Order. In addition, any Affiliate of either party may execute a Work Order pursuant to this Agreement. Wherever an Affiliate of either party enters into a Work Order, for the purposes of such Work Order, all references in this Agreement to Client or PAREXEL, as the case may be, shall be read as if they were a reference to that Affiliate only, and only that Affiliate shall be deemed the party to this Agreement for the purpose of the Services provided under such Work Order and shall be bound as a party by all terms and conditions of this Agreement with respect to such Services. [*], PAREXEL shall [*].

2.8 PAREXEL acknowledges that Client may, without the consent of PAREXEL, designate or retain one or more other third-party contract research organizations ("**CROs**") or other designees to assist Client with any Project. In that case, PAREXEL agrees to reasonably cooperate with any such CROs or other Client designees provided that (a) such CRO executes a confidentiality agreement containing terms acceptable to PAREXEL and customary in the industry, (b) Client manages

such CRO and, unless otherwise agreed in the applicable Work Order, PAREXEL's SOPs apply to all of PAREXEL's obligations under such Work Order, (c) such CRO will not have access to PAREXEL's SOPs and/or systems, and (d) PAREXEL will not have any obligation to contract with, or provide any management or supervision of, such CRO.

2.9 If, as part of the Services, PAREXEL provides online access to any software tools (the "**Software**"), then the following terms and conditions shall apply: Client shall not copy, modify, transcribe, translate, sell, lease, rent, share, offer a subscription service or service bureau, or assign, or in any way transfer the Software or access to the Software, or any interest thereto, or use the Software for any purpose other than for Client's business purposes relating to the Project. Client shall not reverse engineer, disassemble or decompile the Software, except to obtain information necessary to provide programs interoperable with the Software, and provided that Client first requests from PAREXEL such information and PAREXEL is unable or unwilling to provide the information within a reasonable period of time. Client acknowledges that the Software is PAREXEL Intellectual Property (as defined in Section 9.4). PAREXEL shall ensure that any Software owned by PAREXEL that collects, processes or transfers of the Personal Data of Data Subjects is compliant with all Applicable Laws.

2.10 PAREXEL will perform its Services in accordance with PAREXEL's SOPs, report and file templates, and systems, unless specifically stated otherwise in the applicable Work Order. Notwithstanding the foregoing, Client may request to use Client's SOPs, or to deviate from PAREXEL's SOPs, but Client acknowledges that the use of Client's SOPs, or deviations from PAREXEL's SOPs may result in a modification of the budget if the requested deviation would result in rework or changes to the resource assumptions contained within the Study budget.

3. STUDY MATERIALS

3.1 Unless otherwise set forth in the applicable Work Order, Client shall provide PAREXEL with a sufficient quantity of Study Materials which the Protocol specifies Client shall deliver or which Client deems necessary to conduct the Study. All such Study Materials are and shall remain the sole property of Client, and PAREXEL will use Study Materials only in connection with the applicable Protocol and for no other purpose unless otherwise approved in writing by Client. PAREXEL will ensure that Study Materials in its possession and control are at all times handled, stored, and administered in full compliance with Applicable Laws. Upon completion or termination of any Project, any unused or expired Study Materials shall, at Client's direction and expense, be promptly returned to Client or its designee, or be disposed of in compliance with Applicable Laws with written certification of same to Client.

3.2 In no event shall PAREXEL or its Affiliates have any liability to Client for loss, destruction or damage to Study Materials provided by Client caused by any third party, except to the extent that any such third party is a [*] PAREXEL or its Affiliates. PAREXEL's or its Affiliates liability to Client for damage, destruction or loss to Study Materials provided by Client that is caused by PAREXEL's or its Affiliates' [*] negligence or willful misconduct shall be [*]. Unless otherwise agreed in the applicable Work Order, [*] shall be [*].

3.3 Client shall provide to PAREXEL, in advance of the execution of a Work Order, all information reasonably available to Client regarding known or reasonably foreseeable hazards (in particular safety and toxicology data) associated with any of the Study Materials, and thereafter any information reasonably available to Client that PAREXEL may reasonably request as needed for the performance of Services.

3.4 In those cases where Services include clinical trial supplies and logistics services ("**CTSL Services**"), the additional terms and conditions related to Study Materials, set forth on **Attachment D** to this Agreement, shall also apply. In the event of any conflict between **Attachment D** and Section 3.1, above, with respect to Study Materials, **Attachment D** shall control whenever the Services to be performed include CTSL Services. Where applicable, information related to the scope

of the CTSL Services shall be set forth on an exhibit, incorporating the details (as applicable) of **Exhibit D** of the template Work Order, and the applicable budget for such CTSL Services shall also be set forth in an exhibit, incorporating the details (as applicable) of **Exhibit F, Table 2**, of the template Work Order.

4. RELATED AGREEMENTS

4.1 Client acknowledges and agrees that this Agreement does not cover certain specialized services ("**Specialized Services**") which PAREXEL may provide in particular countries where a Project is conducted, such as, but not limited to, serving as legal representative, local sponsor, agent, qualified person, or senior scientific officer, and agrees that any such Specialized Services shall require and be subject to the parties' execution of a separate services agreement with respect to such Specialized Services (each, a "**Specialized Services Agreement**"). The parties will use commercially reasonable efforts to execute those Specialized Services Agreements determined by the parties to be necessary or desirable to enable the performance of Client's Projects promptly following the determination that such Specialized Services Agreement is necessary and/or following completion of any additional steps required by PAREXEL policies and procedures. PAREXEL may, in its sole discretion, elect not to perform such Specialized Services. Client acknowledges and agrees that if PAREXEL does perform such Specialized Services, such Specialized Services will be at the cost and expense of Client, which costs shall be set forth in the Work Order or the Specialized Services Agreement.

4.2 Client and PAREXEL shall use commercially reasonable efforts to enter into a mutually acceptable quality agreement ("**Quality Agreement**"), which shall be incorporated by reference herein, promptly following execution hereof. The Quality Agreement shall set forth all mutually agreed quality assurance and quality control terms and conditions between the parties, including, without limitation, the quality oversight and standards for manufacturing, storing, testing, releasing, shipping and receipt of Investigational Product and any other applicable Study Materials, so as to allow Client or its designees to transfer, and PAREXEL to receive, such Investigational Product and any other applicable Study Materials. In the event of any conflicts between this Agreement and the Quality Agreement, this Agreement shall govern unless the intent to supersede this Agreement is expressly stated in the Quality Agreement.

4.3 Client and PAREXEL agree that in those cases in which a Clinical Pharmacology Unit of PAREXEL conducts a Project or provides Services, the parties shall negotiate additional terms tailored to such Project or Services, and shall agree upon such terms in an addendum hereto or in the applicable Work Order.

5 THIRD-PARTY AGREEMENTS

5.1 PAREXEL may use Subcontractors (defined in Section 1.11) and Specialty Vendors, as each is defined below, for Services in support of a Study, subject to Client's prior written approval, which shall not be unreasonably withheld. Subcontractors and Specialty Vendors set forth in a Work Order shall be deemed approved upon execution of the Work Order. PAREXEL will [*]. [*], PAREXEL shall be responsible and liable for its own negligence, omissions and/or intentional misconduct, and that of its Affiliates. Subject to the terms of such agreements, PAREXEL will ensure that Client may audit the records of the Services and inspect the facilities (if applicable) of its Subcontractors and any Client-Designated Vendors and Specialty Vendors performing Services in support of the Project where such Services are performed.

5.2 PAREXEL [*] shall ensure that any Subcontractors adhere to the terms and conditions of this Agreement. PAREXEL will maintain written agreements with such Subcontractors containing terms substantially similar to those in this Agreement, including with respect to compliance with Applicable Law, obligations of confidentiality and non-use of Client Confidential Information, ownership of Client Intellectual Property and indemnification obligations. If Client reasonably objects to any Subcontractor contracted directly by PAREXEL for the performance of a Project, PAREXEL will make reasonable efforts to promptly replace the Subcontractor with a Subcontractor reasonably acceptable to Client. Client shall have no liability for payments to Subcontractors, which shall be the sole responsibility of PAREXEL.

5.3 If Client requires in writing that PAREXEL use a particular provider of materials or services in connection with the Services and such provider is [*] or [*] (a "**Client-Designated Vendor**"), then PAREXEL will contract with such Client-Designated Vendor, unless PAREXEL [*], in which case Client may contract directly with such Client-Designated Vendor. Unless otherwise set forth in the applicable Work Order, if PAREXEL contracts directly with such Client-Designated Vendor, then payments to such Client-Designated Vendor shall be treated as a Pass-Through Expense, and PAREXEL shall [*].

5.4 [*] (a "**Specialty Vendor**"), [*]. The parties agree that third party vendors providing services that are administrative in nature and not unique to the Project (such as courier or translation services) shall not need to be identified in the Work Order. The parties further agree that a Site will not be deemed a Specialty Vendor. Any Specialty Vendor shall [*]. Any Specialty Vendor [*]. PAREXEL will maintain written agreements with its Specialty Vendors containing terms substantially similar to those in this Agreement with respect to compliance with Applicable Law, obligations of confidentiality and non-use of Client Confidential Information, ownership of Client Intellectual Property and indemnification obligations. If Client reasonably objects to any proposed Specialty Vendor, Client will promptly (prior to use) notify PAREXEL and PAREXEL will make reasonable efforts to promptly propose a qualified replacement Specialty Vendor, and will inform Client if it believes that identifying and qualifying a replacement Specialty Vendor would impact Work Order timelines and requirements. In no event shall PAREXEL be responsible for any delays caused by Client's rejection of a Specialty Vendor, or, per Section 5.4.1 below, rejection of any medical reviewers employed by a Specialty Vendor.

5.4.1 [*], as well as confirmation that such Specialty Vendors are not debarred and if agreed upon in the applicable work order, [*] for the prior [*] (or such lesser period as may be available to PAREXEL), including a complete list of inspection findings, if any, for Client's review and approval prior to the start of such medical imaging services. Client may provide its approval via email.

5.5 If, pursuant to the applicable Work Order, Client expressly delegates to PAREXEL the negotiation and execution of clinical trial related agreements (including budgets) ("**Clinical Trial Agreements**") with Investigators, hospitals and/or research institutions (collectively, "**Sites**") as part of the Services, then Client hereby authorizes PAREXEL and PAREXEL Affiliates, if applicable, to execute such Clinical Trial Agreements in PAREXEL's own name or jointly with Client, as mutually agreed with Client and subject to regulation or local custom; provided, however, that Client shall cooperate with PAREXEL in the event Client is required to execute a Clinical Trial Agreement or any documents related thereto. Client shall have the right to approve all Clinical Trial Agreement templates for use and all finalized Clinical Trial Agreements prior to execution. Unless the form of Clinical Trial Agreement is mandated by regulation, PAREXEL shall use the form of Clinical Trial Agreement mutually agreed upon by Client and PAREXEL, and shall obtain Client's approval of any material modifications of such Clinical Trial Agreements. Upon award of a Project, Client shall provide PAREXEL with written instructions regarding negotiation parameters for the Clinical Trial Agreements. If requested by PAREXEL and to the extent required by Applicable Law or requested by the Sites, Client agrees to provide letters of indemnification to Sites provided that the terms and conditions of such letters of indemnification are acceptable to Client. In the event the terms of such letters of indemnification are not acceptable to Client, Client acknowledges that PAREXEL may not be able to contract with such Site.

5.6 Provided that PAREXEL has received adequate funds in advance from Client, PAREXEL will administer and disburse payments to the Sites as described in the applicable Work Order. Client will provide adequate funds to PAREXEL in advance for such payments in accordance with a schedule and budget to be mutually agreed upon in advance between Client and PA REXEL. Client will not be required to provide funds exceeding the agreed budget for payments to Sites [*]. The budget for payments to Sites will be modified in accordance with Section 2.2 if it appears that payments to Sites will exceed the agreed budget. PAREXEL will not be required to disburse payments to any

Sites if Client has not made sufficient advance funds available to PAREXEL to cover such disbursements. In the event the funds advanced by Client pursuant to this Section are insufficient to cover such payments, Client will promptly pay to PAREXEL the additional amounts required consistent with the budget for such payments, in accordance with a schedule agreed upon by the parties, and if Client does not provide such agreed funds in time to enable PAREXEL to make timely payments, Client agrees to be liable for and to reimburse PAREXEL for any interest and other charges, costs, fees and expenses incurred by PAREXEL because of such late payment. In no event will a Site be construed to be PAREXEL's employee, Subcontractor, agent, consultant, or representative, or be deemed to be a vendor. Provided that Client has supplied funds on a timely basis and as agreed between PAREXEL and Client for payments to Sites, Client will have no liability to PAREXEL or any third party for PAREXEL's late payment of, or failure to pay, Sites.

6 PAYMENTS

6.1 Client will pay to PAREXEL the Service fees specified in the applicable Work Order, up to the amount of the budget set forth therein, as such budget for Service fees may be modified by any applicable Change Order. PAREXEL shall deliver all deliverables under a Work Order [*]. For the avoidance of doubt, PARAXEL shall deliver to Client all deliverables [*]. In addition to the payment of Service fees, Client will reimburse PAREXEL for all reasonable out-of-pocket expenses, including without limitation, printing, shipping, wire transfer fees, telephone, travel and lodging, incurred by PAREXEL or its Affiliates in providing the Services, and any other payments made by PAREXEL or its Affiliates to third parties in connection with the Services ("**Pass-Through Expenses**"), provided that PAREXEL shall supply appropriate supporting documentation consistent with PAREXEL's standard documentation with respect to any Pass-Through Expenses as to which PAREXEL requests reimbursement. Client will not be required to provide funds exceeding the agreed budget for Pass-Through Expenses [*], *provided, however,* that in the event [*], PAREXEL shall [*]. The budget for Pass-Through Expenses will be modified in accordance with Section 2.2 if it appears that payments to Sites will exceed the agreed budget. In addition, PAREXEL shall keep Client reasonably informed of estimated prospective Pass-Through Expenses on a regular basis to be set forth in the applicable Work Order.

6.2 All invoiced amounts for Services performed in accordance with the terms and conditions of this Agreement and any Work Order and any related Pass-Through Expenses (including Investigator fees) are due net [*] from the date of receipt by Client of PAREXEL's electronic invoice, together with appropriate supporting documentation (as set forth in Section 6.1 above). If Client identifies items in an invoice which are disputed, Client will notify PAREXEL in writing, noting its objection to the disputed item(s) with specificity, within [*] of the date of the invoice. All items that are not disputed by Client in writing within such period shall be deemed to have been approved by Client. All disputes of which Client notifies PAREXEL in accordance with this Section shall be addressed as set forth in Section 20 below. Client will pay any undisputed portions of any invoice per the agreed upon payment terms. Client will pay interest on any unpaid invoice (including any undisputed portion of a disputed invoice) at the rate of [*] until such invoice(s) is paid in full. Payments will be made to PAREXEL in accordance with the instructions set forth in the applicable Work Order or such other written instructions as may be provided by PAREXEL from time to time.

6.3 Each party will be responsible for any taxes based on its own net income/profits. All other taxes and duties incurred by PAREXEL or its Affiliates with respect to a Project, including those pertaining to PAREXEL's Service fees, Pass-Through Expenses or incurred on the movement of Client's Study Materials ("**Taxes**"), will be the responsibility of Client and such Taxes are not included in any such fees or expenses. PAREXEL shall be entitled to invoice Client in respect of such Taxes without mark-up and Client shall reimburse PAREXEL for such Taxes in accordance with Section 6.2. PAREXEL will reasonably cooperate with requests by Client to provide information or documents within PAREXEL's control, at Client's expense, to enable to Client to recover Taxes related to the Services provided under a Work Order to the extent permitted by law.

6.4 All payments due hereunder in accordance with the payment schedule of the applicable Work Order shall be made by Client in the currency that is used in the applicable Work Order (the "**Work Order Currency**"). The parties to the Work Order acknowledge and agree that all amounts set forth in the Work Order shall be in Work Order Currency. In determining the amount payable by Client under a Work Order for Pass-Through Expenses incurred by PAREXEL in a currency other than the Work Order Currency, PAREXEL will use a rate of exchange based on the www.oanda.com exchange rate on the date such Pass-Through Expenses are incurred by PAREXEL.

6.5 In addition to the requirement that Client advance adequate funds for payments to Sites as set forth in Section 5.6, to the extent that PAREXEL has agreed to act as payment agent for Client with respect to any other third parties, or to the extent that PAREXEL has agreed to advance any payments to third parties in respect of Pass-Through Expenses, Client will provide adequate funds to PAREXEL in advance for such payments in accordance with a schedule and budget to be mutually agreed upon in advance between Client and PAREXEL, and PAREXEL shall only be obligated to make such payments to third parties to the extent that Client has provided adequate funds to PAREXEL for such payments in advance. In the event the funds advanced by Client are insufficient to cover such payments, Client will promptly pay to PAREXEL the additional amounts required consistent with the budget (excluding all Taxes) for such payments, and if Client does not provide funds in time to enable PAREXEL to make timely payments, Client agrees to be liable for and to reimburse PAREXEL for any interest and other charges, costs, fees and expenses incurred by PAREXEL because of such late payment.

7 TERM AND TERMINATION

7.1 This Agreement will commence on the Effective Date and will expire on the fifth (5th) anniversary of the Effective Date unless earlier terminated in accordance with this Agreement, or unless extended in accordance with the following sentence. Any Work Order, the duration of which extends beyond the expiration or termination of this Agreement, will continue to be performed for the term of such Work Order, and will continue to be governed by the terms of this Agreement, which terms shall remain in effect beyond the expiration or termination of this Agreement solely with respect to such Work Order.

7.2 Either party to this Agreement and/or any individual Work Order(s) may immediately terminate this Agreement and/or such individual Work Order(s), and/or PAREXEL may suspend performance of Services, for a material breach of this Agreement or the applicable Work Order(s) by the other party (the "**Breaching Party**"), if the Breaching Party fails to cure such material breach within [*] (or [*] for payment breaches) after receipt of written notice specifying in reasonable detail the nature of such material breach.

7.3 Either party to this Agreement and/or any individual Work Order(s) may terminate this Agreement and/or such individual Work Order upon [*] written notice to the other party upon the happening of any of the following events: (a) PAREXEL may terminate any individual Work Order(s) if PAREXEL reasonably believes, based on documented serious adverse events in a Study, that continuation of the Services under the applicable Work Order(s) would pose a serious safety risk to the health and/or wellbeing of a Project participant in violation of Applicable Law, (b) if any certificate, authorization, approval or exemption from a Regulatory Authority required for the conduct of the Services is revoked, suspended, or expires without renewal, (c) if such party is of the reasonable opinion that the continuation of the Services would be in violation of Applicable Law, or (d) upon the other party's becoming insolvent and/or unable to pay all material debts when due, including without limitation if the other party files a petition in bankruptcy, or enters into an agreement with its creditors, or applies for or consents to the appointment of a receiver or trustee, or makes an assignment for the benefit of creditors, or suffers or permits the entry of any order adjudicating it to be bankrupt or insolvent.

7.4 Client may terminate this Agreement and/or any individual Work Order(s) without cause upon [*] prior written notice to PAREXEL.

7.5 Upon receipt of notice of termination of this Agreement and/or any Work Order(s) by a party to this Agreement or such Work Order: (a) in compliance with Applicable Laws and with due care for the safety of Study subjects, the parties will cooperate to establish a reasonable and mutually acceptable wind-down plan for Services, and PAREXEL will, as soon as reasonably practicable, discontinue providing the applicable Services, except to the extent reasonably required to safely close out a Project ("**Closeout Services**"), and (b) PAREXEL will terminate existing third party obligations to the extent practicable and cancelable. Upon expiration and/or termination of this Agreement and/or any Work Order, Client will pay PAREXEL for, or PAREXEL will apply any remaining advance payments to, all mutually agreed and undisputed (1) Services, (2) non-cancelable costs and (3) all Pass-Through Expenses actually incurred by PAREXEL up to and including the completion of Closeout Services, provided that in no event will Client be obligated to pay Pass-Through Expenses exceeding those set forth in a budget established in accordance with the applicable Work Order. Thereafter, any final payment still owed to PAREXEL, or any refund due Client (including with respect to any unused advance, Site fees, Pass-Through Expenses or other third party costs advanced by Client), pursuant to this Section, will be made by Client or PAREXEL, as applicable, within [*] of the final reconciliation invoice(s) from PAREXEL.

7.6 Termination of this Agreement or of a Work Order for any reason shall not affect the rights of the parties that have accrued on or before termination. Termination of one or more Work Order(s) shall not affect any other Work Order or this Agreement.

8 CONFIDENTIALITY AND PRIVACY COMPLIANCE

8.1 "**Confidential Information**" means information that relates to the business, operations, products, or plans of a party that either is marked as "Confidential," "Proprietary" or the substantial equivalent at the time of disclosure or that a reasonable person would believe to be confidential and/or proprietary based on the circumstances of its disclosure. The terms of this Agreement and any Work Order, including without limitation, pricing, constitute the Confidential Information of both parties and may not be disclosed by either party except in accordance with this Article 8 or the other party's prior written consent. PAREXEL Intellectual Property (as defined in Section 9.4) shall be the Confidential Information of PAREXEL. Confidential Information will not include information that (a) is or becomes part of the public domain through no fault of the recipient; (b) was in the recipient's rightful possession prior to disclosure by discloser; (c) is rightfully disclosed to the recipient by a third party with the right to disclose the information; or (d) is independently developed by the recipient without use of the discloser's Confidential Information.

8.2 In the event the receiving party (a) is required by Applicable Law to disclose the disclosing party's Confidential Information, including, without limitation, in accordance with (i) securities laws or regulations and the applicable rules of any public stock exchange or (ii) to defend or prosecute litigation or (b) receives a subpoena, other validly issued administrative or judicial order, or a request pursuant to regulatory audit, requesting Confidential Information of the disclosing party, then in any such case the receiving party may, to the limited extent necessary to comply with the requirements of subsection (a) and/or (b), disclose the other party's Confidential Information. In such event, to the extent practicable and permitted by Applicable Law or the requesting government agency, the receiving party shall promptly and prior to any such disclosure, notify the disclosing party in writing of such request and provide reasonable assistance to the disclosing party, at the disclosing party's expense, if the disclosing party wishes to seek a protective order or similar relief. In the event such protective order is not granted, the receiving party may disclose only that information which is legally required to be disclosed as evidenced by the written opinion of its outside legal counsel. PAREXEL acknowledges and agrees that Client may be required to publicly disclose certain terms of this Agreement or a Work Order by Applicable Law, or by regulation or rule of any stock exchange, such as in Forms 8-K, 10-Q and 10-K (each such disclosure a "**Public Disclosure**"), and nothing herein shall preclude Client from doing so to the extent required by Applicable Law; provided that Client will seek confidential treatment from the SEC regarding such Public Disclosures to the extent practicable and permitted by Applicable Law, and will provide advance notice to PAREXEL of such anticipated Public

Disclosure, to the extent permitted by Applicable Law. To the extent practicable, Client will reasonably take into consideration PAREXEL's input with respect to any co nfidential treatment request made by Client to the Securities and Exchange Commission (the "**SEC**") requesting that certain information contained in this Agreement or any Work Order(s) be afforded "confidential treatment" and thus redacted from Client's Public Disclosure, to the extent permitted by Applicable Law.

8.3 Any disclosure of Confidential Information by PAREXEL to institutional review boards, ethics committees and any Regulatory Authority shall be made (i) in accordance with the scope of Services expressly permitted under a Work Order, (ii) as required by Applicable Law and in accordance with the process outlined in Section 8.2 above, or (iii) as permitted by this Section 8.3. If PAREXEL reasonably believes [*] the parties will in good faith discuss the [*]. Client will [*] for discussion [*]. Other than [*], no disclosure [*] prior written consent.

8.4 Client and PAREXEL may use the other party's Confidential Information only in connection with its rights and obligations under this Agreement. Except as expressly permitted herein, each party will maintain in confidence and will not disclose the other party's Confidential Information, using the same degree of care, but no less than reasonable care, as it uses to protect its own confidential information of a similar nature. The receiving party may disclose the disclosing party's Confidential Information only to the receiving party's Affiliates and its and their respective employees, Board members, vendors, prospective vendors, Sites, independent contractors, outside consultants (including its legal counsel, its insurance carriers and agents, investment bankers, and its financial and accounting advisers) and actual and potential investors, lenders, acquirors, development and/or commercialization partners and collaborators who (a) have a need to know such Confidential Information, (b) are made aware of the Confidential Information's confidential and/or proprietary nature and (c) are under an obligation to protect confidential and/or proprietary information no less restrictive than the obligations set forth herein. PAREXEL's SOP's constitute PAREXEL's Confidential Information. If requested by Client, PAREXEL will provide Client [*] of SOP's used in the performance of the Services and online or electronic access to any such SOP's requested by Client for review in accordance with PAREXEL's policies and procedures.

8.5 PAREXEL and Client will comply with all Applicable Laws relating to collection, processing, transfer and protection of any information relating to an identified or identifiable natural person ("**Personal Data**") such as, but not limited to, Personal Data of its own employees, employees of the other party, Study subjects, Site Investigators and research site staff, as such Applicable Laws relate to the protection of the Personal Data of inhabitants of the European Economic Area (EEA). With respect to Personal Data that is received, collected or Processed in connection with a Project, Client and/or its Affiliates, PAREXEL agrees to comply, pursuant to its SOPs, with the Data Privacy Addendum set forth on **Attachment E**.

8.6 The terms and conditions of this Agreement shall apply to any Confidential Information made available to either party (or its Affiliates) by the other party (or its Affiliates) during the term of this Agreement and for a period of [*] thereafter, or such longer period as may otherwise be required by Applicable Law, including Confidential Information exchanged by the parties or their Affiliates before, during or after a bid defense or a request for a proposal.

9 OWNERSHIP

9.1 PAREXEL understands and agrees that all right, title and interest in and to (i) all intellectual property (including without limitation, patents, copyrights, trademarks, trade secrets, know-how, software, inventions, designs, utilities, tools, models, methodologies, programs, systems, and specifications) and all tangible property rights that are owned, developed, or licensed by, and/or on behalf of, Client and/or its Affiliates prior to, or independent of, this Agreement or any Work Order, or that are the subject of the Study, including but not limited to all rights in the Investigational Product and/or its applications (alone or in combination with other pharmaceutical ingredients, products, or devices), Study Materials, or the Study (collectively "**Pre-Existing Intellectual Property**"), as well as (ii) any improvements, modifications or enhancement thereto, derived as a direct or indirect result of

the performance of the Services, whether generated by Client, PAREXEL, its Affiliates or Subcontractors, non-administrative Specialty Vendors, or Client-Designated Vendors, or its or their respective agents or employees, either solely or jointly with others, but excluding any PAREXEL Intellectual Property (such improvements referred to herein as "**CLIENT Improvements**"), are the sole property of Client. Collectively, Pre-Existing Intellectual Property and CLIENT Improvements are referred to herein as "**CLIENT Intellectual Property**". PAREXEL hereby assigns, and shall require that its Affiliates and Subcontractors assign, to Client all right, title, and interest it or they may have or obtain in any such Client Intellectual Property, and acknowledges that Client Intellectual Property shall be considered Client's Confidential Information. PAREXEL and its employees, agents, Subcontractors, Affiliates and its and their related personnel, shall upon Client's request and at Client's reasonable expense, execute such documents and take such other actions as Client deems reasonably necessary for Client to perfect such ownership and to apply for, secure, and maintain patent or other proprietary protection of CLIENT Intellectual Property. PAREXEL shall ensure that each of its employees, agents, personnel, and any Affiliates and Subcontractors performing any part of the Services shall have a contractual obligation to assign to Client all CLIENT Improvements so that PAREXEL can comply with its obligations hereunder, and PAREXEL shall promptly obtain such assignments.

9.2 PAREXEL understands and agrees that all materials, data, information, reports, records, documentation and/or results (including, without limitation, Study Data, deliverables under the applicable Work Order ("**Deliverables**"), project management documentation, documents submitted to and received from regulatory authorities, case report forms, project data bases, site regulatory documentation related to a Study, etc.) generated, prepared or obtained by PAREXEL as a result of conducting a Project under this Agreement (collectively, the "**Service Records**") shall be the sole and exclusive property of Client; provided, however, Deliverables and Service Records will not include any PAREXEL Intellectual Property (as defined below). PAREXEL shall provide any or all Deliverables and Service Records (including originals thereof) to Client upon Client's written request, unless the applicable Work Order provides for an alternate disposition thereof. Client shall have the right to use Deliverables and Service Records for any lawful purpose without additional compensation to PAREXEL beyond the agreed budget amount set forth in the applicable Work Order for Services actually performed by PAREXEL.

9.3 PAREXEL will retain all Client Intellectual Property, Deliverables and Service Records in confidence and in accordance with all Applicable Laws. In particular, and without limitation, PAREXEL will ensure that all electronic records, as defined in 21 C.F.R. §11.3(a)(6), as amended, are maintained consistent with the requirements of 21 C.F.R. Part 11, as amended.

9.4 Notwithstanding anything to the contrary contained in this Agreement or any Work Order, PAREXEL retains exclusive ownership of all rights, title and interest in and to all intellectual property (including without limitation, patents, copyrights, trademarks, trade secrets, know-how, software, inventions, designs, utilities, tools, models, methodologies, programs, systems, and specifications) that is owned, developed, or licensed by, and/or on behalf of, PAREXEL or its Affiliates prior to, or independent of, PAREXEL's performance under this Agreement or any Work Order, even if utilized to provide the Services (the " **PAREXEL Pre-Existing Intellectual Property**"), as well as all improvements, modifications or enhancements to such PAREXEL Pre-Existing Intellectual Property developed in the course of performing the Services (each a "**PAREXEL Improvement**"), provided that in no event shall any such PAREXEL Pre-Existing Intellectual Property or PAREXEL Improvement [*]. Client hereby assigns to PAREXEL all right, title, and interest it may have or obtain in any such PAREXEL Improvements, including, without limitation, any and all intellectual property rights arising therefrom or related thereto. The PAREXEL Pre-Existing Intellectual Property, together with any PAREXEL Improvements, shall collectively be referred to as "**PAREXEL Intellectual Property**."

9.5 Prior to completion of Services under any Work Order, [*] the retention and storage of Project documents (including Deliverables, prior to their provision to Client, and Service Records) according to Applicable Law. Unless the parties agree on the terms and conditions under which PAREXEL may provide ongoing storage services to Client, PAREXEL will return to Client for archiving all documents relating to the Services performed (according to the Applicable Law of the participating countries) upon completion of the Services under any Work Order (or at any earlier point in time when requested to do so by Client in writing) at Client's reasonable expense, and thereafter Client will be responsible for the archiving of such documents. PAREXEL may retain one copy of the Project documents, including Confidential Information, if any, to satisfy regulatory and audit requirements [*]. In addition to the foregoing, to the extent permitted by Applicable Laws (including GDPR), PAREXEL may store and process information relating [*] in the United States or other countries where PAREXEL conducts business for as long as necessary to comply with PAREXEL's legal obligations or business needs. Any such storage or processing shall be conditioned upon the express, prior written consent [*]. Client shall have no responsibility or liability to PAREXEL, its Affiliates or Subcontractors, or any third party for [*] pursuant to this Section 9.5, except to the extent specifically set forth in the applicable Work Order to enable the performance of the Services.

10 INSURANCE

10.1 Each of Client and PAREXEL shall bind and maintain, at its sole expense, with financially sound and reputable insurers, insurance coverage at the following minimum limits covering the conduct of its business during the term of this Agreement and any Work Order, and for a period of [*] following the termination of this Agreement or any Work Order (whichever is longer). The limits below are in United States dollars and may be satisfied when in currencies other than United States dollars equivalent to the limits stated below:

(a) Commercial General Liability: [*] per occurrence and [*] in the aggregate. Client hereby warrants that the policy includes clinical trials coverage and does not exclude coverage for any product or compound subject to any Project.

(b) If Client has marketed products: Product Liability [*] per occurrence (Client only)

(c) Errors and Omissions: [*] per claim and in the aggregate. (PAREXEL only)

(d) Client and PAREXEL shall bind and maintain all other statutory insurance coverage as required by local laws in each country of operation.

10.2 In addition, to the fullest extent required in any particular jurisdiction under Applicable Law, Client will maintain in full force and effect during the term of the applicable Work Order, insurance coverage for all subjects who have been enrolled into any Project and/or in whom Project-related procedures are undertaken as specified in the applicable Protocol, i.e., "clinical trial insurance". PAREXEL will inform Client of those jurisdictions involved in a Study where such additional insurance is required, if any.

10.3 Unless otherwise set forth in the applicable Work Order, Client shall be responsible for insuring Study Materials provided by Client against loss or damage, except in the case of negligence or willful misconduct by PAREXEL, its Affiliates [*].

10.4 Client and PAREXEL will, upon written request from the other party, provide certificates of insurance evidencing the above required coverage, and showing the expiration date of each such policy.

11 AUDIT

11.1 Subject to Section 11.2 below, during the term of this Agreement, upon reasonable written notice and at times mutually agreed upon by the parties during PAREXEL's normal business hours, but no more frequently than [*] every [*] (except that one additional permitted "follow-on" audit ("**Follow-on Audit**") shall be permitted at no additional cost in the event of material negative findings in the initial annual audit), Client may, without disruption to PAREXEL's normal business operations, audit PAREXEL's, its Affiliates', [*] facilities used to perform the Services, including Project documentation and Pass-Through Expenses that relate directly to the Services. As permitted by Applicable Law and related directly to Services, PAREXEL, its Affiliates, [*] will provide all information and records reasonably requested by Client to permit Client to conduct the audit to Client's reasonable satisfaction, including, without limitation, information and records related to PAREXEL's and its Affiliates' oversight and audits of its [*]; any material deficiencies or weaknesses identified with respect to [*] related to Services; any regulatory findings or citations, including, but not limited to, U.S. FDA Form 483 notices or observations; any refusal to file, rejection or warning letters, and the basis therefor; and any corrective action plans implemented as a result thereof. Any such audit results shall be deemed Confidential Information of PAREXEL hereunder and will be subject to the confidentiality obligations set forth in this Agreement. Client will make reasonable efforts to provide a written report detailing the results of such audit to PAREXEL within [*] after completion of the audit. If PAREXEL, its Affiliates, [*] receives any regulatory findings or citations, including but not limited to U.S. FDA Form 483 notices or observations; or any refusal to file, rejection or warning letters, or similar notices, affecting or relating to a Study or the Services and/or the facilities in which the Services are or were conducted, Client shall be entitled conduct a for-cause audit and inspection of PARAXEL, the applicable Affiliate [*].

11.2 Notwithstanding anything to the contrary contained in this Agreement, no third party auditor used by Client to conduct an audit under this Agreement ("**Third Party Auditor**") will be (a) a competitor of PAREXEL or any of its Affiliates, or (b) permitted to access or to examine any information, materials or facilities, until such Third Party Auditor has entered into a reasonable non-disclosure agreement with PAREXEL, containing terms and conditions acceptable to the Third Party Auditor and Client and customary in the industry. Affiliates of Client shall not be considered Third Party Auditors. If the audit is to be conducted by an Affiliate of Client, Client shall obligate such Affiliate to comply with confidentiality obligations with respect to such audit that are no less restrictive than the confidentiality obligations set forth in Section 8 of this Agreement, and shall be liable for any breach by its Affiliate of those obligations. Client, its Affiliates, and its Third Party Auditors will have the right to conduct audits having the scope of, and according to the processes set forth in, Section 11.1; provided, however, Client, its Affiliates, and Third Party Auditors will not be given access to the confidential information of any third party.

11.3 PAREXEL will permit any Regulatory Authority to (a) inspect any of its facilities where the Services are performed; (b) monitor and/or audit the conduct of the Project; or (c) inspect, audit and/or copy any and all Project documents, source documents, work product and required licenses, certificates and accreditations. PAREXEL shall, and shall cause its Affiliates, [*], and its and their employees to, cooperate with any of the foregoing activities and shall provide timely access to requested documentation and facilities. PAREXEL will notify Client promptly if any Regulatory Authority conducts such an inspection related to Services, audit or visit, whether scheduled or unscheduled, of PAREXEL, its Affiliates, [*], and to the extent permitted by Applicable Law, Client will have the right to be present at the opening and closing meeting of any inspection, audit or visit by a Regulatory Authority that pertains to any Study or Services conducted by PAREXEL on behalf of Client. PAREXEL will provide Client with [*] of any inspection, audit or visit by a Regulatory Authority that pertains to any Study or Services, and will promptly provide a detailed written summary of any such inspection, audit or visit related to a Study or the Services, including, without limitation any regulatory findings or citations such as U.S. FDA Form 483 notices, and any refusal to file, rejection or warning letters, and the basis therefor, and any corrective actions to be implemented by PAREXEL in response

to such findings or citations. Client will not bear any fees or costs incurred by PAREXEL for any inspections, audits or visits conducted by a Regulatory Authority, unless such inspection, audit or visit is conducted solely for the purpose of auditing Services conducted by PAREXEL on behalf of Client and no other client, in which case [*] in such fees or costs.

11.4 PAREXEL Service fees and Pass-Through Expenses associated with audits performed by Client or on behalf of Client, except for Follow-on Audits, are considered outside the scope of Services, unless specifically defined otherwise in a Work Order. Any Service fees or Pass-Through Expenses with respect to Client audits will be billed at reasonable hourly rates to be agreed upon in advance by PAREXEL and Client.

12 DEBARMENT

12.1 PAREXEL represents that, consistent with Section 306(a) and Section 306(b) of the Federal Food, Drug and Cosmetic Act (21 U.S.C. § 335a (a) and 335a (b)), neither it nor any of its Affiliates, nor its or its Affiliates' employees engaged in the performance of Services, is debarred, sanctioned, excluded or otherwise ineligible to participate in a general healthcare program (collectively "**Debarred**" or "**Debarment**") and PAREXEL will not knowingly hire any Debarred individual or entity to perform Services. If PAREXEL, any of its Affiliates, or Subcontractors, or PAREXEL's, its Affiliates' or Subcontractors' employees or any individuals contracted thereby to perform Services, is Debarred or receives notice of an action or threat of action of Debarment, PAREXEL shall immediately notify Client. The debarment of PAREXEL, its Affiliates, or Subcontractors, or PAREXEL, its Affiliates' or Subcontractors' employees or individuals retained thereby to perform Services remains in place for a period of [*] shall be deemed to be a material breach of this Agreement.

13 INDEMNIFICATION

13.1 PAREXEL will defend, indemnify and hold harmless Client, its Affiliates and their respective directors, officers, and employees ("**Client Indemnitees**") from and against all damages, liabilities, judgments, settlements, penalties, and costs and expenses (including without limitation, reasonable fees and disbursements of counsel and costs and expenses associated with subpoenas, document production and testimony) (collectively, "**Costs**") incurred by Client Indemnitees arising out of or in connection with any third party (including without limitation, government agencies) claims, suits, actions, proceedings, investigations and/or demands ("**Third Party Claims**") arising out of (a) the material breach of this Agreement or the applicable Work Order(s) by PAREXEL, its Affiliates or Subcontractors, and/or (b) any negligence or willful misconduct on the part of PAREXEL, its Affiliates or Subcontractors; provided, however, that PAREXEL shall have no obligation of indemnity hereunder with respect to any Third Party Claim to the extent Client is required to indemnify any PAREXEL Indemnitee (as defined below) for such Third Party Claim as set forth in Section 13.2 below.

13.2 Client will defend, indemnify and hold harmless PAREXEL, its Affiliates, and their respective directors, officers, and employees ("**PAREXEL Indemnitees**") from and against all Costs incurred by PAREXEL Indemnitees arising out of or in connection with any Third Party Claims arising out [*], (b) the material breach of this Agreement or the applicable Work Order(s) by Client, and/or (c) Client's negligence and/or willful misconduct; provided, however, that Client shall have no obligation of indemnity hereunder with respect to any Third Party Claim to the extent PAREXEL is required to indemnify any Client Indemnitee for such Third Party Claim as set forth in Section 13.1 above.

13.3 The party seeking indemnification for any Third Party Claim covered by this Section ("**Covered Claim**") will promptly notify the indemnifying party in writing of such Covered Claim. The indemnifying party will have sole control of the defense, settlement or compromise of the Covered Claim and the indemnified party will cooperate with the indemnifying party, at the indemnifying party's expense, in the defense, settlement or compromise of the Covered Claim. Neither party will settle any Covered Claim without the other party's prior written consent, which consent will not be unreasonably

withheld, conditioned or delayed. The failure of an indemnified party to promptly notify the indemnifying party of any Covered Claim will not relieve the indemnifying party of its obligations under this Section unless and to the extent the indemnifying party is materially prejudiced by such failure to provide notice. If the indemnifying party fails to inform the indemnified party of its intent to assume responsibility for the defense of a Covered Claim within a reasonable time period, and in any event before any response or other action is required to be made by the indemnified party, the indemnified party shall have the right to assume such responsibility, at the indemnifying party's expense.

13.4 Notwithstanding anything to the contrary contained in this Agreement, if a conflict of interest exists between the parties with respect to the Third Party Claim, or if the assumption and conduct of the defense by the indemnifying party would adversely affect the indemnified party in any manner or prejudice its ability to conduct a successful defense, then the indemnified party may be separately represented with respect to such Third Party Claim by legal counsel reasonably acceptable to the indemnifying party and at the indemnifying party's expense.

14 DISCLAIMER AND LIMITATION OF LIABILITY

14.1 PAREXEL MAKES NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO [*].

14.2 [*], the aggregate liability of each party and its Affiliates to the other party, regardless of the theory of liability, for any claim, breach or default under this Agreement, will be limited to [*] and, except as set forth in Section 3.2, shall not exceed [*]. In no event will either party or its Affiliates be liable for any lost profits, or for any special, incidental, punitive, exemplary, consequential or other indirect damages, regardless of whether a party has been advised of the possibility of such damages. The aforementioned limitations shall not apply to the extent such limitations are prohibited by Applicable Law or in connection with either party's indemnification obligations under this Agreement.

15 DELAYS

15.1 PAREXEL's performance under this Agreement or any Work Order may be contingent upon the performance of obligations by another party, including, but not limited to, Client itself, Client-Designated Vendors and other third parties who are not PAREXEL Affiliates or Subcontractors. To the extent that PAREXEL is delayed or unable to perform its obligations under this Agreement or any Work Order as a result of a failure by Client, or a third party who is not an Affiliate or Subcontractor of PAREXEL, to perform its material obligations, such delay or failure to perform by PAREXEL, to the limited extent solely attributable to such other party's failure to perform, will not be deemed a breach by PAREXEL. In that case, the parties to the Work Order will promptly cooperate in good faith to either update a CIS Log or negotiate and enter into a Change Order, as the case may be, pursuant to Section 2 above with respect to any required changes or additions to the description of Services, budget, estimated timelines, or payment schedule, or Client may terminate this Agreement or the applicable Work Order in accordance with Section 7.4.

15.2 Neither party to this Agreement and/or any Work Order will be responsible for any default under this Agreement or such Work Order by reason of strikes, riots, wars, acts of terrorism, fire, acts of God, acts in compliance with any Applicable Law, or any other cause beyond its reasonable control, provided that the affected party shall promptly give notice thereof to the other party, and shall take commercially reasonable steps to overcome the effects of such event as soon as possible, and such party's delay in performance shall be excused only for the period of delay caused by such event.

15.3 If Client delays or suspends the Services to be provided for a period of [*] or longer and desires to maintain Key Personnel or other staff assigned to the Services, the parties to the Work Order will agree in writing that certain PAREXEL staff, including Key Personnel, will continue to be

assigned to perform such Services. In such event, during the period of delay or suspension, Client will pay a monthly maintenance fee in an amount to be mutually agreed by the parties. If such delay or suspension lasts [*], then the parties will seek to amend the respective Work Order on mutually agreed terms to accommodate such delay or suspension, or either party will have the right to terminate the respective Work Order on [*] prior written notice.

16 PUBLICITY

16.1 Except as permitted under Section 8 or as necessary to perform the Services hereunder (including without limitation for purposes of recruitment of Study subjects or registration of clinical trials), Client and PAREXEL agree that they will obtain the other party's prior written approval before using each other's name, symbols and/or marks in any form of publicity.

INDEPENDENT CONTRACTOR

17.1 The relationship of the Client and PAREXEL to each other is that of independent contractors, and nothing contained herein will be construed to constitute, create, or in any way be interpreted as, a joint venture, partnership, or business organization of any kind. Except as expressly provided for in this Agreement, under no circumstances will the employees or agents of one party be considered employees or agents of the other party.

18 NON-SOLICITATION

18.1 During the term of this Agreement and for a period of [*] following any termination or expiration of this Agreement, [*] agrees, on behalf of itself and its Affiliates, not to solicit for employment, employ or otherwise retain any employee or consultant of the other party or its Affiliates providing (or who has provided) Services under any Work Order; provided that it will not be a violation of this Section if an employee or consultant of [*] responds to an indirect solicitation (e.g., advertisements in media of general circulation).

19 ASSIGNMENT

19.1 Either Client or PAREXEL may assign this Agreement without the other party's prior written consent to an Affiliate or a successor in interest by reason of merger, acquisition, partnership, license agreement or otherwise; provided that no assignment to a direct competitor of the other party will be permitted without such other party's prior written consent; and further provided that the assigning party shall, [*]. Except as expressly permitted by this Agreement or the applicable Work Order(s), neither party will have the right to assign this Agreement or any of its rights or obligations hereunder without the prior written consent of the other party, which consent will not be unreasonably withheld, conditioned or delayed. Any attempt at assignment in violation of this Section shall be null and void.

20 DISPUTE RESOLUTION

20.1 With the exception of any claim for equitable relief or a breach of Article 6 (Confidentiality and Privacy Compliance), if a dispute, claim or controversy arises between the parties relating to this Agreement or any Work Order or Exhibit hereto (a "**Dispute**"), the parties to this Agreement or such Work Order will promptly meet in the presence of at least one executive or corporate officer from each party, and attempt to resolve the Dispute in good faith. All such efforts at resolution shall be confidential and shall be treated as compromise and settlement negotiations for purposes of applicable rules of evidence. In the event the Dispute is not resolved through negotiation within [*] after said meeting, the parties will submit to confidential, non-binding mediation in accordance with the [*] then currently in effect. Unless the parties agree otherwise, the mediator will be selected from the [*]. Each party will designate at least one corporate officer with full authority to resolve the dispute

who will attend and participate in the mediation. If the Dispute is not resolved within [*] of the written request for mediation, there is no further obligation to mediate.

20.2 If the Dispute remains unresolved [*] after the written request for mediation, the Dispute shall be submitted, at the request of either party, to binding arbitration in accordance with the Commercial Arbitration Rules of the American Arbitration Association ("**AAA Rules**") then currently in effect, by a sole arbitrator to be appointed jointly by the Parties. If the parties cannot agree upon a sole arbitrator within [*] after commencement of the arbitration, the arbitrator shall be selected by the American Arbitration Association. Such arbitration shall be conducted in English at [*]. Judgment upon the award rendered by the arbitrator shall be binding and may be entered in any court having jurisdiction thereof. The award shall be rendered in US currency.

21 GENERAL

21.1 Notice. Any notice or communication required or permitted hereunder shall be in writing and shall be deemed received (a) on the date received if delivered by a reputable international overnight delivery service, or (b) [*] after the date postmarked if sent by first class, registered or certified mail, with return receipt requested. Notice given under this Section shall be sent to the parties at the following addresses (or such other address as the applicable party may provide by written notice):

To PAREXEL:	**To Client:**
PAREXEL International (IRL) Limited One Kilmainham Square Inchicore Road Kilmainham Dublin 8, Ireland ATTN: Legal Department **With copy to:** PAREXEL International 195 West Street Waltham, MA 02451 U.S.A. ATTN: [*]	Geron Corporation 149 Commonwealth Drive Menlo Park, CA 94025 ATTN: [*] **With a copy to:** Geron Corporation 149 Commonwealth Drive Menlo Park, CA 94025 U.S.A. ATTN: Legal Department Email: [*]

Failure to give notice in accordance with the terms set forth in this Section where notice in such form is expressly required by this Agreement shall result in such notice being deemed null and void.

21.2 Entire Agreement. This Agreement, including any Work Order(s) and attachments hereto, constitutes the entire understanding of Client and PAREXEL with respect to the subject matter hereof and supersedes and replaces all prior contracts, agreements, and understandings relating to the same subject matter, whether written or oral, including without limitation that certain (1) Letter of Agreement by and between Client and PAREXEL International LLC (" **PAREXEL International**"), an Affiliate of PAREXEL, dated August 1, 2018 (the "**LOA**") and (2) Mutual Confidential Disclosure Agreement, by and between Client and PAREXEL International dated March 21, 2018 (the "**CDA**"). The parties acknowledge and agree that the terms and conditions of this Agreement will apply to all Services performed by PAREXEL under the LOA. No waiver, consent, change or modification to this Agreement will be binding, unless in writing and signed by duly authorized representatives of PAREXEL and Client.

21.3 Severability. If any term of this Agreement is declared unenforceable, then the unenforceability thereof will not affect the remaining terms of this Agreement.

21.4 Waiver. Failure to enforce any of the terms or conditions of this Agreement will not constitute a waiver of any such terms or conditions, then or in the future, or of any other terms or conditions.

21.5 Governing Law and Forum; Compliance with Law. This Agreement will be governed by and construed in accordance with the laws of the state of New York, U.S.A. without regard to its conflict of laws provisions. Unless otherwise mutually agreed by the parties, Client and PAREXEL hereby consent to the exclusive jurisdiction of the courts located in New York, New York. Client and PAREXEL shall comply with all Applicable Law relating to the Projects and Services.

21.6 Good Faith. Both parties shall act only in good faith in the performance of their respective obligations and the exercise of their respective rights under this Agreement.

21.7 Survival. The following Sections of this Agreement shall survive the expiration or termination of this Agreement: 5.6, 6, 7, 8, 9, 10 (with respect to tail coverage), 11.3, 13, 14, 16, 18, 20 and 21.1 and 21.5, as well as any other provision that, in order to give proper effect to its intent, should survive such expiration or termination.

21.8 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original and all of which shall together be deemed to constitute one agreement. The parties agree that execution of this Agreement by industry standard electronic signature software and /or by exchanging PDF signatures shall have the same legal force and effect as the exchange of original signatures, and that in any proceeding arising under or relating to this Agreement, each party hereby waives any right to raise any defense or waiver based upon execution of this Agreement by means of such electronic signatures or maintenance of the executed agreement electronically.

[Signatures on following page]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement through their duly authorized representatives effective as of the Effective Date.

Geron Corporation		**PAREXEL International (IRL) Limited**	
By:	/s/ Andrew J. Grethlein	By:	/s/ Maria King
Name:	Andrew J. Grethlein, Ph.D.	Name:	Maria King
Title:	Executive Vice President, Development and Technical Operations	Title:	Senior Director
Date:	30 Jan 2019	Date:	Jan 30, 2019

ATTACHMENT A
FORM OF WORK ORDER

{24 pages omitted}

[*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

ATTACHMENT B
FORM OF CHANGE IN SCOPE LOG

Change In Scope Client Signature Page

	Protocol No.	0
	Client Name	0
	PAREXEL Project No.	0
	Project Manager	0
	CIS No.	

Item#	Date Requested and Requestor	CIS Task description	Service Fee (Contract Currency)	Investigator Fees	Pass Through Costs	Date Approved	Client Signature / Title

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

ATTACHMENT C
FORM OF CHANGE ORDER

Client Name:
Drug Name or Number:
Protocol Number:
PAREXEL Project Number:
Change Order Number:
Change Order Date:
PAREXEL Project Manager:

PAREXEL and Client signed a Work Order dated _____ [as amended]. The parties wish to amend said Work Order as applicable and hereby agree as follows:

1. The items listed on Change Log #_____, attached as Attachment 1 to this Change Order, dated Date shall be incorporated in said Work Order

2. The total contract value changes as follows:

	Previous Contract Value	**Change Order Value**	**New Contract Value**
Service Fees			
Estimated Investigator Fees			
Estimated Pass-Through Expenses			

3. The Payment Schedule shall be replaced in its entirety by the following Payment Schedule: / The following terms shall be added to the Payment Schedule:

No term or condition other than the above shall be amended by this Change Order.

[Insert Client Legal Name]	**PAREXEL International (IRL) Limited**
By:	By:
Name:	Name:
Title:	Title:
Date:	Date:

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

ATTACHMENT D
ADDITIONAL TERMS FOR CTSL SERVICES

The parties hereto agree that in those cases where PAREXEL is to provide clinical trial supplies and logistics services ("**CTSL Services**") to Client, the provision of such CTSL Services shall be governed (i) the applicable provisions of the Agreement; (ii) the additional provisions as set forth in this **Attachment D**; and (iii) the provisions set forth in an exhibit to the Work Order containing those details (as and if applicable) set forth in Exhibit D of the template Work Order.

1. DEFINITIONS

The defined terms used in the Agreement apply to this **Attachment D** and in addition:

"**Facility**" means PAREXEL's facility(ies) used for the storage and/or distribution of Study Materials, as further identified in the applicable Work Order.

"**Manufacture/Manufacturing**" means the processing or manufacturing of the Study Materials pursuant to such specifications as set out in the applicable Work Order.

"**Package/Packaging**" means the packaging and/or labelling of the Study Materials pursuant to such Specifications as set out in the applicable Work Order.

"**Territory**" means the countries set out in the applicable Work Order.

"Waste" means Pharmaceutical Waste as defined in Section 2.3 of the World Health Organization Handbook on Safe management of wastes from health-care activities (the "Handbook").

2. SERVICES

2.1. PAREXEL will provide to Client the CTSL Services set forth in the applicable Work Order, which shall include, but not be limited to: specific details of the CTSL Services to be provided; the Territory; the anticipated volume of Study Materials subject to the CTSL Services; and the applicable fees for the CTSL Services. In the event of any conflict between the documents comprising this Agreement, the parties will seek to harmonize the applicable documents to reflect the intent of the parties, but otherwise this **Attachment D**, together with the applicable Work Order exhibit incorporating the details (as and if applicable) of Exhibit D of the template Work Order, shall take precedence in respect of the CTSL Services but the Agreement shall take precedence in respect of any other Service.

2.2. For the avoidance of doubt, as set forth in Section 3.1 and Article 9 of the MSA, all right, title and interest in and to all of Client's Study Materials, whether in the possession of PAREXEL, its Affiliates, Subcontractors, Specialty Vendors or Client-Designated Vendors, shall at all times remain the sole property of Client. PAREXEL shall hold, and shall ensure that each of the foregoing entities holds, such Study Materials on a fiduciary basis as Client's bailee. In particular, PAREXEL shall ensure that all the Study Materials are stored separately and securely, and clearly distinguished from other stocks and supplies held by PAREXEL on behalf of itself or other customers. Unless required by Applicable Law to perform the CTSL Services hereunder, PAREXEL shall not destroy, deface or obscure any identifying mark or packaging on or relating to the Study Materials without Client's prior written consent.

2.3. If PAREXEL has not performed agreed upon CTSL Services at all or has not performed any part of the agreed upon CTSL Services in accordance with the requirements set out in this Agreement or an applicable Work Order, Client shall notify PAREXEL in writing within [*] of becoming aware of the non-performance or the faulty performance (as the case may be) and, if PAREXEL becomes aware of such non-performance or faulty performance by PAREXEL, PAREXEL shall notify Client in writing within [*] thereof. On receipt of such notification from or to Client, PAREXEL, may, [*]. Client may decline, in its sole discretion, to have PAREXEL [*], in which case the parties will [*]. If PAREXEL is in good faith unable to perform the CTSL Services, in whole or in part, for [*], if appropriate, any CTSL Services that were commenced. In the event of any of the foregoing circumstances, [*]. PAREXEL will effect such [*] within [*] of the termination of CTSL Services.

2.4. Where PAREXEL is acting as importer of record or exporter of record in connection with the CTSL Services, PAREXEL may use its preferred Subcontractors or Vendors and will reasonably consider, upon Client's request, but shall not be obligated to use, Client-Designated Vendors.

2.5. In the event that Client requires that PAREXEL use a Client-Designated Vendor in connection with any CTSL Service, and as a consequence, PAREXEL is required to qualify such Client-Designated Vendor, then Client will bear the commercially reasonable cost for the qualification by PAREXEL of such Client-Designated Vendor.

3. DELIVERY, ACCEPTANCE AND STORAGE OF PRODUCTS

3.1. Unless otherwise specified in a Work Order, Client shall deliver Study Materials to the Facility or Study Site(s) mutually agreed by PAREXEL and Client, in accordance with the Incoterms ("Incoterms 2010") as specified in the Work Order. In the event the CTSL Services involve PAREXEL purchasing Study Materials on behalf of Client, PAREXEL shall be responsible for obtaining the delivery of such Study Materials to the relevant Facility in accordance with the Incoterms 2010 established between PAREXEL and the seller, and Client shall reimburse PAREXEL for the costs and the expense of such Study Materials and shipment. If PAREXEL purchases Study Materials, in no event shall Client be [*].

3.2. In the event PAREXEL purchases Study Materials on behalf of the Client, any transfer of legal and economic ownership of such Study Materials shall transfer to Client upon allocation of such Study Materials to a Project under the applicable Work Order. Client shall retain all right, title and interest in and to Study Materials purchased by PAREXEL on behalf of Client, and except with respect to the responsibilities and obligations of PAREXEL set forth herein and in the applicable Work Order, responsibility for all costs, including applicable taxes and duties, and insurance associated with shipment of such items to the Facility shall be Client's responsibility. For the avoidance of doubt, with regards to the transfer of Study Materials to Client and any subsequent shipment of the Study Materials made in accordance with the Agreement and/or the applicable Work Order, Client shall (i) pay directly to the relevant tax authority, or (ii) reimburse PAREXEL for, any and all taxes and duties and insurance incurred in relation to such transfer of such Study Materials.

3.3. All deliveries of Study Materials by Client to PAREXEL shall be supported by delivery receipts or other documentation provided by Client indicating the following:

(a) a complete and comprehensive description of the Study Materials and the quantity of such Study Materials;

(b) manufacturer information, customs value, applicable codes, quantities, batch numbers, and expiration dates of the Study Materials as well as identification of whether the Study Materials are classified as dangerous goods;

(c) all other information, instructions and documents reasonably available to Client and necessary for PAREXEL to perform its CTSL Services with respect to the Study Materials under the applicable Work Order.

3.4. Client shall notify PAREXEL in writing prior to any delivery of Study Materials to PAREXEL's Facility for storage. The written notice shall state the expected date and time at which the Study Materials will be delivered to PAREXEL's Facility.

3.5. PAREXEL will visually inspect all Study Materials for damage or loss in transit, ascertain the quantities received, and if applicable, stop temperature monitoring devices, download readings and check the packaging of physical Study Materials against specifications in order to verify that the Study Materials appear to meet the requirements set forth in the applicable Work Order, and that no temperature excursions or other deviations have occurred in transit. In the event that any of the Study Materials do not appear to comply with the requirements or specifications, or appear to have experienced a temperature excursion or other deviation, PAREXEL shall promptly (but in no event more than [*]) notify Client in writing thereof and provide any other information reasonably requested by Client with respect to such Study Materials. Client will respond promptly (but in no event more than [*]) to PAREXEL with any questions regarding PAREXEL's assessment, and PAREXEL will cooperate with Client's requests for information and documents to enable Client to assess the status of the Study Materials. If Client concurs with PAREXEL's conclusion that such Study Materials are non-compliant, Client will promptly provide instructions as to any follow-up measures to be taken in connection with any such non-compliant Study Materials. If Client does not agree with PAREXEL's conclusion, the parties will promptly use commercially reasonable efforts to resolve such disagreement, commencing with efforts by the Executive Committee. If the Executive Committee is unsuccessful in resolving the disagreement as to whether a particular Study Material complies with the requirements set forth in the applicable Work Order, the dispute resolution provisions set forth Article 20 of this Agreement will apply.

3.6. PAREXEL acknowledges that some Study Materials may subsequently be sent to designated Sites for the performance of a Study. Unless otherwise stated in the applicable Work Order, at such time as requested by Client, PAREXEL shall ship the Study Materials as designated by Client in writing to the relevant location, and such shipment of the Study Materials shall be in accordance with Applicable Laws and this Agreement. The method of transport for shipments shall be determined and agreed to by the parties in an exhibit to the applicable Work Order incorporating the provisions (if and as applicable) of **Exhibit D** in the template Work Order. PAREXEL shall ensure that the Study Materials are properly prepared for shipment and delivered in a timely manner.

3.7. During the term of the applicable Work Order, PAREXEL shall:

(a) keep all Study Materials properly and securely stored against loss, damage or theft at its Facility in accordance with Applicable Laws and cGXPs and the conditions specified in the Work Order and as otherwise required by this Agreement and instructed by Client in the applicable Work Order;

(b) maintain accurate inventory and tracking records with respect to all Study Materials;

(c) be responsible for all the costs associated with maintaining and occupying the Facility;

(d) if required by the Work Order, collect Study Materials from Sites and return them to the Facility or other facility as may be advised in writing by Client, for storage until a written request is received from Client for their (a) subsequent destruction as Waste as per Section 4.1 of this Attachment D, (b) return to Client or (c) delivery to Client's agent; and

(e) comply with Applicable Laws and all specifications with respect to such Study Materials and production thereof stated in the Work Order to the extent that the CTSL Services include processing, Manufacturing, Packaging, storing, delivering, transferring or distributing Study Materials.

4. PRODUCT SECURITY

4.1. Waste. To the extent the CTSL Services include the handling or disposal of Waste as set out in the applicable Work Order, the following shall apply:

(a) Waste shall be destroyed by PAREXEL within a reasonable time (without jeopardizing the CTSL Services) and in accordance with Applicable Law, the terms of the Work Order and the instructions of Client. Until destruction has taken place, the Waste shall be stored and handled in a manner designed to prevent unauthorized access and possible misuse. If Client requires certain security measures to be taken with respect to Waste, they shall be discussed in advance and agreed to in the Work Order.

(b) All records and certificates concerning Waste shall be kept for a period of at least [*] (or longer if requested by Client and at Client's expense) and made available to Client upon request.

(c) If PAREXEL requests, in writing, from Client direction with respect to disposal of any inventories of Study Materials, and PAREXEL is unable to obtain a response from Client within a reasonable time period after making reasonable efforts to do so in accordance with the terms of the Agreement (such period not less than [*] after notice from PAREXEL), then PAREXEL shall be entitled in its sole discretion to (i) dispose of all such items in accordance with Applicable Law and guidance, including the Handbook, and (ii) offset all expenses incurred by and due to PAREXEL or any of its Affiliates from Client against any credits Client may hold with PAREXEL or any of its Affiliates. PAREXEL has the right, but not the obligation, to destroy all expired or obsolete Study Materials after giving written notice to Client of PAREXEL's intention to do so, if PAREXEL is unable to obtain a response from Client within a reasonable time period (not less than [*] after such written notice) after making reasonable efforts to do so in accordance with the terms of the Agreement.

4.2. Security.

(a) During the term of the applicable Work Order, PAREXEL shall employ all reasonable and necessary security measures and policies to safeguard the integrity, accessibility and confidentiality of the Study Materials and establish and maintain all necessary disaster and emergency recovery plans so as to avoid any disruption to the CTSL Services. Upon Client's reasonable request, PAREXEL will provide Client with copies of all relevant documentation of its security measures and policies as well as disaster and emergency recovery and response plans, including any material updates thereto, and will address in good faith any requests by Client for additional information.

(b) PAREXEL may only deliver the Study Materials to such persons who are authorized to receive the relevant Study Materials, as designated in writing by Client. PAREXEL may, however, transfer Study Materials to and among its Affiliates (including its depots), and to its Subcontractors and Specialty Vendors (if any) performing CTSL Services, to facilitate the CTSL Services and delivery of Study Materials to their ultimate destination as set forth in the applicable Work Order provided that PAREXEL provides Client with its written plan for such transfer to any Facility. During the term of the applicable Work Order, PAREXEL will maintain insurance coverage adequate to protect against loss or damage to Study Materials arising from negligence or willful misconduct by PAREXEL, its Affiliates or any Subcontractor or Specialty Vendor.

4.3. Rejected and Returned Study Materials.

(c) Any Study Materials that PAREXEL is considering rejecting on the basis of non-compliance with the requirements of the Applicable Work Order, and any rejected, surplus, obsolete or out of date Study Materials or those returned to PAREXEL shall be appropriately identified and kept physically separate in quarantine in a dedicated area, so as to avoid confusion with other goods and prevent the Study Materials being sent to any other person. At Client's request, such Study Materials shall be returned to Client or Client's designee.

(d) Where PAREXEL has any doubt about the compliance of Study Materials with the requirements set forth in the applicable Work Order, the parties will adhere to the process set forth in Section 3.5 to establish the compliance or non-compliance of the Study Materials. Obsolete or expired Study Materials shall, if not returned to Client or Client's designee by PAREXEL pursuant to Client's request, be destroyed by PAREXEL in accordance with this Agreement and Applicable Law in such way that eliminates the possibility of re-use, documents the destruction, and shall be kept in a secure manner until they have been destroyed.

(e) PAREXEL shall have in place and comply with a system that meets the requirements of Applicable Laws and including a written procedure to recall promptly and effectively Study Materials known or suspected to be defective, with a designated person(s) responsible for recalls. PAREXEL shall cooperate with Client in conducting any recall, and Client shall provide PAREXEL with written authorization to recall any Study Material. In the event of a recall, PAREXEL shall ensure that all recalled Study Materials at a PAREXEL-controlled site, or supplied by a Facility, are reconciled and shall provide Client with all requested information regarding the storage and warehousing of recalled Study Materials. PAREXEL shall ensure that recalled Study Materials under PAREXEL's control (including the control of its Affiliates and Subcontractors), are secured and are

subsequently destroyed if required or otherwise handled in accordance with this Agreement and Client's instructions.

5. PAYMENTS

5.1. In addition to all of the payments otherwise required under this Agreement, exclusive of any taxes imposed upon PAREXEL's net income, Client shall pay any and all taxes, duties, or excises, including but not limited to those taxes, duties or excises imposed upon (a) the CTSL Services, (b) the Study Materials or their Manufacture, Packaging, testing, production, storage, inventory, sale, distribution, import/export, transportation, delivery, use, or consumption, and (c) any payments made by PAREXEL hereunder to any Regulatory Authority, including without limitation any sales, use, service, value-added, withholding or similar taxes without any mark-up. PAREXEL will reasonably cooperate with requests by Client to provide information or documents within PAREXEL's control, at Client's expense, to enable to Client to recover Taxes related to the Services provided under a Work Order to the extent permitted by law.

6. TERM AND TERMINATION

6.1. Within [*] of termination of or expiration of the applicable Work Order, PAREXEL shall, as requested by Client, destroy, return to or transport to a location designated by Client all Study Materials. Any Study Materials returned or destroyed due to the expiration or termination of the applicable Work Order or at Client's express request shall be returned or destroyed at Client's cost and expense, unless termination was due to PAREXEL's default.

7. REPRESENTATIONS AND WARRANTIES

7.1. Client represents and warrants to PAREXEL that as of the commencement of CTSL Services under the applicable Work Order:

(a) Prior to delivery, it has, [*], provided to PAREXEL, all safe handling instructions, health and environmental information and Material Safety Data Sheets of Client applicable to the Investigational Product as well as to any Study Materials [*];

(b) It has produced, or had produced on its behalf, the Investigational Product in compliance with all Applicable Laws, and the Investigational Product shall comply with all applicable specifications, and shall not be adulterated, misbranded or mislabeled within the meaning of any Applicable Law prior to delivery to PAREXEL; and

(c) [*], it has provided accurate and complete information for all Study Materials to facilitate import/export activities, including but not limited to product description, customs values, manufacturer information and other applicable information provided by Client (collectively, "Trade Compliance Information") to facilitate import/export activities that will be conducted by PAREXEL pursuant to this Agreement and the applicable Work Order. Client acknowledges and agrees that PAREXEL will rely on such Trade Compliance Information in its communications with Regulatory Authorities.

ATTACHMENT E
DATA PRIVACY ADDENDUM

This Data Privacy Addendum (the "**Addendum**") forms part of the Master Service Agreement entered on January 30, 2019 (the "**MSA**") by and between Geron Corporation ("**Geron**"), a Delaware corporation with a principal place of business at 149 Commonwealth Drive, Menlo Park, CA 94025, United States, acting on its own behalf and as agent for any Geron Affiliate, and PAREXEL International (IRL) Limited ("**PAREXEL**"), a corporation organized under the laws of Ireland with a registered address at 70 Sir John Rogerson's Quay, Dublin 2, Ireland.

If the provisions of this Addendum and the MSA conflict, then the provisions of this Addendum shall control with respect to the personal data protection matters addressed herein. Capitalized terms not otherwise defined herein shall have the meaning given to them in the MSA.

1. Definitions

In this Addendum, the following terms shall have the meanings set out below and cognate terms shall be construed accordingly:

1.1 "**Affiliate**" means, with respect to a party, an entity that owns or controls, is owned or controlled by or is or under common control or ownership with such party, where control is defined as the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of an entity, whether through ownership of voting securities, by contract or otherwise.

1.2 **"Contracted Processor"** means PAREXEL, a PAREXEL Affiliate, or a Sub-Processor;

1.3 **"Data Protection Laws"** means all applicable laws (including decisions and guidance by relevant Supervisory Authorities) and regulations relating to data protection, the Processing of personal data and privacy applicable to PAREXEL and Geron in respect of the Processing of Subject Personal Data under the MSA and any Work Order, including the GDPR and any other laws and regulations of the European Union, the EEA and their member states relating to data protection.

1.4 **"Data Subject Request"** means a data subject's request to exercise that person's rights under applicable law in respect of that person's personal data, including, without limitation, the right to access, correct, amend, transfer, obtain a copy of, object to the Processing of, restrict the Processing of or delete such personal data.

1.5 **"EEA"** means the European Economic Area;

1.6 **"EU"** means the European Union;

1.7 "**GDPR**" means Regulation 2016/679 of the European Parliament and of the Council on the protection of natural persons with regard to the processing of Personal Data and on the free movement of such data, and references to "**Controller**", "**Data Subjects**", "**Processor**", "**Process**", "**Processed**" and "**Processing**" and "**Supervisory Authority**" shall have the meanings set out in, and will be interpreted in accordance with GDPR and any data protection legislation in a member country introduced to adopt, clarify and/or supplement GDPR from that date.

1.8 **"Personal Data"** means any information relating to an identified or identifiable natural person; an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person;

1.9 **"Privacy Shield"** means, collectively, the EU-U.S. Privacy Shield Framework and Swiss-U.S. Privacy Shield Framework self-certification programs operated by the U.S. Department of Commerce and approved by the European Commission pursuant to Decision C (2016)4176 dated July 12, 2016 and by the Swiss Federal Council on January 11, 2017 respectively.

1.10 **"Regulator"** means any regulatory, governmental or supervisory authority, including, without limitation, any European Supervisory Authority, with authority over all or any part of (a) the provision or receipt of the Services, (b) the Processing of personal data in connection with the Services or (c) a Contracted Processor's business or personnel relating to the Services.

1.11 **"Restricted Transfer"** means:

1.11.1 a transfer of Subject Personal Data from Geron to a Contracted Processor, or by a Contracted Processor to Geron; or

1.11.2 an onward transfer of Subject Personal Data from a Contracted Processor to a Contracted Processor, or between two establishments of a Contracted Processor, in each case, where such transfer would be prohibited by Data Protection Laws (or by the terms of data transfer agreements put in place to address the data transfer restrictions of Data Protection Laws) in the absence of a legally accepted transfer mechanism covered in Chapter V of the GDPR;

1.12 **"Security Incident"** means any Contracted Processors' personal data breach (as defined in GDPR) or other incident that has resulted, in any accidental, unauthorized or unlawful destruction, loss, alteration, disclosure of, access to or encryption of personal data.

1.13 **"Services"** means the services and other activities to be supplied to Geron by PAREXEL or by a Contracted Processor on behalf of PAREXEL, pursuant to the MSA;

1.14 **"Standard Contractual Clauses"** or **"SCC"** means the EU standard contractual clauses for Data Processors established in countries pursuant to the European Commission Decision (2010/87/EC) under the EU Directive (95/46/EC) for the transfer of personal data from an EEA established controller to processors established in third countries which do not ensure an adequate level of data protection, as set out in Schedule 2 or as may be updated or replaced from time to time.

1.15 **"Subject Personal Data"** means any Personal Data provided to a Contracted Processor by or on behalf of Geron in connection with the Services, or that is acquired, collected, generated or otherwise Processed by a Contracted Processor on behalf of Geron pursuant to or in connection with the MSA or any applicable Work Order;

1.16 **"Sub-Processor"** means any person or entity (including any third party and any PAREXEL Affiliate or Subcontractor) contracted with PAREXEL, or with any PAREXEL Affiliate, to perform Services involving the Processing of Subject Personal Data on behalf of Geron in connection with the MSA or any applicable Work Order; and

1.17 The word **"include"** shall be construed to mean include without limitation, and cognate terms shall be **Processing of Personal Data.**

2. Roles of the Parties. The parties acknowledge and agree that with regard to the Processing of Personal Data to provide Services in connection with the MSA and any applicable Work Order, Geron (and its Affiliates, where applicable) is the Controller, PAREXEL (and its Affiliates, where applicable) are the Processors and that PAREXEL or its Affiliates may engage Sub-Processors pursuant to the requirements set forth in Section 6 "Sub-Processors" below.

Processing of Subject Personal Data.

3.1 Each Contracted Processor shall comply with all applicable Data Protection Laws in the Processing of Subject Personal Data; shall treat Subject Personal Data as Confidential Information in accordance with the terms of the MSA and shall only Process Subject Personal Data on behalf of Geron, and in accordance with Geron's documented instructions for the following purposes: (i) Processing in accordance with the MSA and applicable Work Order and (ii) Processing to comply with other documented reasonable instructions provided by Geron (e.g., via email) where such instructions are consistent with the terms of the MSA and/or the applicable Work Order. Contracted Processors shall not perform Services in a manner that causes Geron to violate Data Protection Laws.

3.2 PAREXEL and its Affiliates shall notify Geron in writing [*] if they believe that any instruction given by Geron infringes Data Protection Laws.

3.3 Contracted Processors will maintain reasonably detailed records of all Processing activities.

3.4 Other than as expressly permitted by the MSA or required by law, no Contracted Processor shall disclose personal data to any third parties without Geron's prior consent.

4. Details of the Processing. The subject-matter of Processing of Subject Personal Data by PAREXEL is the performance of the Services pursuant to the MSA and the applicable Work Order. The duration of the Processing, the nature and purpose of the Processing, the types of Subject Personal Data and categories of Data Subjects Processed, as well as the location of the Processing performed under this Addendum are further specified in respective Work Orders with an attachment similar to **Schedule 1** (Details of Processing Activities) attached to this Addendum.

5. Rights of Data Subjects.

5.1 Data Subject Requests. PAREXEL or its Affiliates (if applicable) shall promptly (in any event without undue delay) notify Geron if any Contracted Processor receives a request from a Data Subject to exercise the Data Subject's right of access, right to rectification, restriction of Processing, erasure ("right to be forgotten"), data portability, object to the Processing, or its right not to be subject to an automated individual decision making, each such request being a "Data Subject Request". No Contracted Processor shall respond to such a request except on the documented written instruction of Geron or the relevant Geron Affiliate or as required by Applicable Laws or Regulator, in which case PAREXEL or its Affiliate shall inform Geron of that legal requirement before any Contracted Processor responds to the request. In addition, PAREXEL and its Affiliates shall, and shall cause any Sub-processors to, upon Geron's request provide such reasonable cooperation and assistance, and take such action as Geron may reasonably request (including assistance by appropriate technical and organizational measures) to allow Geron to fulfill its obligations to Data Subjects or under Data Protection Laws, in respect of such requests or complaints, including, without limitation, meeting any deadlines imposed by such obligations. To the extent legally

permitted, Geron shall be responsible for any reasonable costs arising from PAREXEL's provision of such assistance.

6. Processor Personnel.

6.1 Confidentiality. PAREXEL and each PAREXEL Affiliate shall ensure that all personnel of any Contracted Processor engaged in the Processing of Subject Personal Data are informed of the confidential nature of the Subject Personal Data, have received appropriate training on their responsibilities and have executed written confidentiality agreements or are subject to professional or statutory obligations of confidentiality, and that such confidentiality obligations survive the termination of the personnel engagement.

6.2 Reliability. PAREXEL shall take commercially reasonable steps to ensure the reliability of any Contracted Processor personnel engaged in the Processing of Subject Personal Data.

6.3 Limitation of Access. PAREXEL and its Affiliates shall ensure that access to Subject Personal Data is limited to those personnel performing Services who need to know/access the relevant Subject Personal Data, strictly as necessary for the purposes of and in accordance with the MSA or the applicable Work Order.

6.4 Data Protection Officer. PAREXEL and its Affiliates have appointed a data protection officer. The appointed person may be reached at: Mr. Uwe Fiedler, Chief Privacy Officer & VP, Data Protection & Privacy; Business phone: [*].

7. Sub-Processors.

7.1 Contracting with Sub-Processors. Geron acknowledges and agrees that, subject to the provisions set forth herein: (a) PAREXEL's Affiliates may be retained as Sub-Processors to perform PAREXEL's obligations to perform Services under the MSA and applicable Work Orders; and (b) PAREXEL and PAREXEL's Affiliates respectively may contract with third-party Sub-Processors to perform PAREXEL's obligations to perform Services under the MSA and applicable Work Orders. PAREXEL or a PAREXEL Affiliate shall enter into a written agreement with each Sub-Processor containing data protection obligations not less protective than those in this Addendum with respect to the protection of Subject Personal Data to the extent applicable to the nature of the Services provided by such Sub-Processor.

7.2 List of Current Sub-Processors. Each Work Order will identify any Sub-Processors to be used in connection with the Services provided therein. Without limitation to the terms and conditions of the MSA granting Geron the right to [*], and subject further to Sections 7.4 and 7.5 below, PAREXEL and its Affiliates may continue to use those Sub-Processors set forth in a Work Order and such Sub-Processors shall be deemed approved upon execution of the Work Order .

7.3 Notification/Objection Right for New Sub-Processors. PAREXEL shall give Geron [*] prior written notice of the desire to contractually engage any new Sub-Processor, including full details of the Processing to be undertaken by the Sub-Processor. Geron may object to PAREXEL's use of a new Sub-Processor by notifying PAREXEL promptly in writing within [*] after receipt of PAREXEL's notice. In the event Geron objects to a new Sub-Processor, as permitted in the preceding sentence, PAREXEL will work with Geron in good faith to provide the Services which avoids the use of that proposed Sub-Processor without unreasonably burdening Geron, or PAREXEL may propose another new Sub-Processor in accordance with this provision. If PAREXEL is unable to make available such change within a reasonable

period of time, which shall not exceed [*] after PAREXEL's receipt of Geron's objection notice, Geron may, notwithstanding anything to the contrary in the MSA or the applicable Work Order, [*] with respect to those Services which cannot be provided by PAREXEL without the use of the objected-to new Sub-Processor, or in its entirety if the Work Order cannot be performed without such Services, [*] (other than fees due and owing) to PAREXEL or its Affiliate for Services performed [*], by providing written notice to PAREXEL. PAREXEL will refund Geron any prepaid fees covering the remainder of the term of such Work Order following the [*].

7.4 With respect to each and every Sub-Processor, PAREXEL, or the relevant PAREXEL Affiliates shall:

7.4.1 before the Sub-Processor first Processes Subject Personal Data, carry out adequate due diligence to ensure that the Sub-Processor is capable of providing the level of protection for Subject Personal Data required by this Addendum;

7.4.2 ensure that the arrangement between on the one hand (a) PAREXEL., or (b) the relevant PAREXEL Affiliate, and on the other hand, the Sub-Processor, is governed by a written contract including terms which offer at least the same level of protection for Subject Personal Data as those set out in this Addendum and which meet the requirements of Article 28(3) of the GDPR;

7.4.3 if that arrangement involves a Restricted Transfer, ensure that PAREXEL's or its Affiliate's Privacy Shield applies.

7.5 **Liability.** PAREXEL and its Affiliates shall be [*] for the acts and omissions of any Sub-Processor to the [*] were performed by PAREXEL or its Affiliates.

8. Security.

8.1 **Controls for the Protection of Subject Personal Dat**a. PAREXEL (and its Affiliates and approved Sub-Processors) shall maintain and monitor appropriate technical and organizational measures for protection of the security (including protection against unauthorized or unlawful Processing and against accidental or unlawful destruction, loss or alteration or damage, unauthorized disclosure of, or access to, Subject Personal Data), confidentiality and integrity of Subject Personal Data, to ensure a level of security appropriate to that risk, including, as appropriate, access control to systems, access control to data, disclosure control, input control, job control, availability control, and segregation control. PAREXEL shall not (and shall require that its Affiliates and approved Sub-Processors do not) materially decrease the overall security given to Subject Personal Data at any time during the performance of the Services. Without limiting the generality of the foregoing, PAREXEL and its Affiliates shall comply, and shall require any Sub-Processors to comply with the requirements set out in Attachment 2 (*Security Terms*), including its obligation to notify Geron of any Security Incident.

8.2 **Audits.** Subject to Section 11 ("Audit") of the MSA and upon Geron's written request at reasonable intervals, and subject to the confidentiality obligations set forth in the MSA, PAREXEL and its Affiliates and any Sub-Processors providing Services) shall make available to Geron all information necessary to demonstrate compliance with this Addendum, and shall allow for audits, including inspections, by Geron (or Geron's authorized independent, third-party auditor which is not a competitor of PAREXEL and has executed proper confidentiality agreement before audits) in relation to the Processing of the Subject

Personal Data by the Contracted Process. Geron and its authorized third party auditors shall treat such information as confidential, and Contracted Processor may redact information that explicitly identifies any other Contracted Processor customer in order to preserve its confidentiality obligation to any such customer.

9. Security Incident Management and Notification.

PAREXEL shall notify Geron without undue delay of when PAREXEL, its Affiliate or Sub-Processor becomes aware of any Security Incident, and further, shall provide Geron with sufficient information to allow Geron to meet any statutory obligations to report or inform Data Subjects and/or Regulators of the Security Incident under the Data Protection Laws. The notification of the Security Incident to Geron shall be by e-mail to the email address(es) identified by Geron within the MSA or the applicable Work Order. Such notification shall include, where possible, the categories and approximate number of Data Subjects concerned, and approximate number of personal data records concerned, the likely consequences of the Security Incident, and the proposed corrective action taken by PAREXEL, its Affiliates or Sub-Processors. PAREXEL (and its Affiliates and Sub-Processors, as applicable) shall co-operate with Geron and take such reasonable commercial steps as are directed by Geron to assist in the investigation, mitigation and remediation of each such Security Incident.

10. Return and Deletion of Subject Personal Data.

10.1 Intentionally Omitted.

10.2 Geron may by written notice to PAREXEL, within [*] of the Cessation Date require PAREXEL, and each PAREXEL Affiliate (and Sub-Processor, as applicable) to (a) return a complete copy of all Subject Personal Data to Geron by secure file transfer in such format as is reasonably notified by Geron to PAREXEL; and (b) delete and procure the deletion of all other copies of Subject Personal Data Processed by any Contracted Processor. PAREXEL, and each PAREXEL Affiliate shall comply with any such written request within [*] of receipt of such notice, to the extent allowed by applicable Data Protection Laws. Each Contracted Processor may retain Subject Personal Data to the extent required by applicable Data Protection Laws and only to the extent and for such period as required by applicable Data Protection Laws and always provided that PAREXEL, and each PAREXEL Affiliate shall ensure the confidentiality of all such Subject Personal Data and shall ensure that such Subject Personal Data is only Processed as necessary for the purpose(s) specified in the Applicable Laws requiring its storage and for no other purpose.

11. Co-operation with Regulators and Conduct of Claims

11.1 PAREXEL and its Affiliates shall, and shall cause any approved Sub-Processors to, promptly and to the extent permitted by Applicable Law, notify Geron without undue delay upon receipt of any inquiry or request from a Regulator that any Contracted Processor receives which relates to the Processing of Subject Personal Data, the provision or receipt of the Services or either party's obligations under the MSA, any Work Order or this Addendum, unless prohibited from doing so by Applicable Law or by the Regulator. If any Contracted Processor or Geron receives such an inquiry or request from a Regulator, PAREXEL and its Affiliates (and any Sub-Processors, as applicable) shall promptly without undue delay provide Geron with such information as Geron may reasonably request to satisfy such inquiry or request.

11.2 Unless Geron notifies PAREXEL or its Affiliate (or an approved Sub-Processor, as applicable) that they will be responsible for handling a particular communication or correspondence with a Regulator or a Regulator requests in writing to engage directly with PAREXEL or its Affiliate (or approved

Sub-Processor, as applicable), Geron will handle all communications and correspondence relating to Subject Personal Data or the Services.

11.3 Geron shall have the right, at its sole discretion, to assume control of the defense and settlement of any governmental or regulatory proceeding or third-party claim that relates to the Processing of personal data, including claims against PAREXEL or its Affiliate (or approved Sub-Processor, as applicable), provided that Geron shall not enter into any compromise or settlement of such claim or compromise any such claim without the prior written consent of the Contracted Processor, which consent shall not be unreasonably withheld or delayed. Geron's exercise of such right under this clause 11.3 shall (a) not be construed to require Geron to bear the costs of such defense and settlement and (b) be without prejudice to its contractual, legal, equitable or other rights to seek recovery of such costs.

11.4 Where a Contracted Processor interacts directly with a Regulator in accordance with clause 11.2, it shall do so in an open and co-operative way at mutually agreed expense and in consultation with Geron. With respect to such interaction with a Regulator, such Contracted Processor shall (and shall cause its Personnel and any Sub-contractors to):

11.4.1 make itself readily available for meetings with the Regulator as reasonably requested;

11.4.2 subject to clause 11.4.3 below, answer the Regulator's questions truthfully, fully and promptly; and provide the Regulator with such information and co-operation as the Regulator may require; and

11.4.3 where permitted by law, notify Geron of any Regulator's request for information relating to Geron or the personal data Processed by Contracted Processors and before disclosing such requested information, co-operate with Geron's efforts to prevent the disclosure of, or obtain protective treatment for, such information, and comply with Geron's reasonable instructions regarding the response to such request.

11.5 Data Protection Impact Assessment. Prior to processing, if Geron reasonably believes that a Data Protection Impact Assessment per GDPR Article 35, and/or a Prior Consultation per GDPR Article 36 is/are necessary before processing, or Geron is required by Supervisory Authority to perform either one or both, Geron shall immediately notify PAREXEL in writing. Geron and PAREXEL shall discuss in good faith and reach agreement in respective Work Orders about reasonable service scope of such cooperation and its corresponding costs before processing. According to the WO, PAREXEL shall provide reasonable cooperation and assistance to Geron with any data protection impact assessments, and consultations with Regulators or other competent data privacy authorities, which Geron reasonably considers to be required of Geron by Article 35 or 36 of the GDPR or equivalent provisions of any other Data Protection Law.

12. Transfers Outside of the EEA.

12.1 Restrictions on Transfer. PAREXEL and its Affiliates (and any approved Sub-Processor, as applicable) shall not permit Subject Personal Data to be Processed outside the United States or EEA without Geron's prior written consent. PAREXEL and its Affiliates (and any approved Sub-Processor, as applicable) shall ensure that any processing of Subject Personal Data outside the United States or the EEA to which Geron consents complies with Section 12.2.

13. Indemnity. The terms and conditions of Article 13 of the MSA will apply to indemnification hereunder.

14. Liability. The terms and conditions of Section 14.2 of the MSA will apply to limitations of liability hereunder.

15. Term and Termination.

15.1 Any breach by a Contracted Processors of this Addendum shall be deemed a [*] of the MSA.

15.2 Upon any termination or expiration of the MSA, PAREXEL, its Affiliates, and any approved Sub-Processors shall cease all operation on Subject Personal Data and shall, at Geron's written direction, return or delete and procure the deletion, of all copies of Subject Personal Data.

15.3 The obligations of PAREXEL, its Affiliates and any approved Sub-Processors under this Addendum shall expressly survive termination or expiration of the MSA, for so long as PAREXEL Processes Subject Personal Data.

16. General Terms

16.1 Governing Law and Jurisdiction. The parties to this Addendum hereby submit to the choice of jurisdiction stipulated in the MSA with respect to any disputes or claims howsoever arising under this Addendum, including disputes regarding its existence, validity or termination or the consequences of its nullity; and this Addendum and all non-contractual or other obligations arising out of or in connection with it are governed by the laws of the country or territory stipulated for this purpose in the MSA.

16.2 Order of Precedence. Nothing in this Addendum reduces PAREXEL's or any PAREXEL Affiliate's obligations under the MSA in relation to the protection of Subject Personal Data or permits PAREXEL, or any PAREXEL Affiliate to Process (or permit the Processing of) Subject Personal Data in a manner which is prohibited by the MSA. Subject to the foregoing, with regard to the subject matter of this Addendum, in the event of inconsistencies between the provisions of this Addendum and any other agreements between the parties, including the MSA and including (except where explicitly agreed otherwise in writing, signed on behalf of the parties) agreements entered into or purported to be entered into after the date of this Addendum, the provisions of this Addendum shall prevail.

16.3 Changes in Data Protection Laws.

16.3.1 PAREXEL may, with at least [*] written notice to Geron, from time to time make any variations to the Standard Contractual Clauses, as they apply to Restricted Transfers which are subject to a particular Data Protection Law, which are required, as a result of any change in, or decision of a competent authority under, that Data Protection Law, to allow those Restricted Transfers to be made (or continue to be made) without breach of that Data Protection Law; and

16.3.2 Either Geron or PAREXEL may propose any other variations to this Addendum which such party reasonably considers to be necessary to address the requirements of any Data Protection Law.

Severance. Should any provision of this Addendum be invalid or unenforceable, then the remainder of this Addendum shall remain valid and in force. The invalid or unenforceable provision shall be either (i) amended as necessary to ensure its validity and enforceability, while preserving the parties' intentions as closely as possible or, if this is not possible, (ii) construed in a manner as if the invalid or unenforceable part had never been contained therein.

PAREXEL Project #[*]
[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

EXHIBIT 10.43

WORK ORDER #1

This Work Order #1 (the "**Work Order**") is by and between GERON Corporation ("**Client**") and PAREXEL International (IRL) Limited ("**PAREXEL**").

1. Governing Agreement. This Work Order incorporates the terms and conditions of the Master Services Agreement dated January 30, 2019, as may be amended from time to time, between Client and PAREXEL (the "**Agreement**"). Capitalized terms used in this Work Order and not defined herein shall have the same meanings ascribed to them in the Agreement. If any term in this Work Order conflicts with the Agreement, the Agreement will control except to the extent that this Work Order expressly states that such conflicting term prevails over the Agreement. To the extent that any Services relate to scientific matters, the Protocol will control the performance of such Services, and will take precedence over all other Study documents for such Services.

2. Term and Termination. This Work Order is made effective as of January 30, 2019 (the "**Effective Date**") and shall extend until the completion of all Services hereunder, unless otherwise terminated by either party in accordance with the terms of Article 7 of the Agreement.

3. Study. The "**Study**" is Client's Protocol number [*]; entitled:

"*A Study to Evaluate Imetelstat in Transfusion-Dependent Subjects with IPSS Low or Intermediate-1 Risk Myelodysplastic Syndrome (MDS) that is Relapsed/Refractory to Erythropoiesis-Stimulating Agent (ESA) Treatment*".

For purposes of this Work Order, wherever the term "Project" is used in the Agreement, it shall be read to mean "Study."

4. Prior Agreement. This Work Order once executed will supersede and replace in its entirety the Letter of Agreement dated [*] (the "**LOA**") between Client and PAREXEL related to the Study. The parties acknowledge and agree that all Services performed by PAREXEL under the LOA will be governed by the terms and conditions of the Agreement, including this Work Order.

5. Services. This Work Order details the full scope of Services PAREXEL will provide for Client based on the following:

A. Specifications and Assumptions set for in **Exhibit A**;

B. Tasks and Responsibilities Matrix set forth in **Exhibit B**;

C. Estimated Timelines set forth in **Exhibit C;**

D. Scope of Work/CTSL Services set forth in **Exhibit D;**

E. In the event that any Services will be performed at Sites located in the United Kingdom (including but not limited to PAREXEL's Clinical Pharmacology Unit), then the terms and conditions set forth in **Exhibit E** shall apply, and

F. Budget and Payment Terms set forth in **Exhibit F.**

Collectively, Exhibits A through D and F hereto, and any future Exhibits which may be added by amendment, including the addition of a TORO as described in Section 2.6 of the Agreement, are referred to as the "**Key Specifications**". For clarity, the parties agree to amend this Work Order to include a TORO upon Client's request.

6. Designated GERON Representatives. The following persons are GERON Representatives, as defined in Section 2.2(a) of the Agreement, for purposes of this Work Order:

Title	Name	Telephone Number	Email
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]

Pursuant to Section 2.2(a) of the Agreement, Client may change GERON Representatives by written update in its sole discretion.

7. PAREXEL Key Personnel. The following PAREXEL Key Personnel, as defined in Section 2.5 of the Agreement, are assigned to the Project covered by this Work Order:

Title	Name	Telephone Number	Email
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]

Title	Name	Telephone Number	Email
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]

All clinical study monitor assignments for each site will be made prior to the transition visit or site initiation visit (SIV), whichever comes first, and [*] to the fullest extent possible.

Any changes to Key Personnel shall be made pursuant to Section 2.5 of the Agreement.

8. PAREXEL Sub-Processors. The following PAREXEL Sub-Processors, as defined in **Attachment E** of the Agreement, are assigned to the Project:

- [*]

Any changes to Sub-Processors shall be made pursuant to Sections 7.4 and 7.5 of **Attachment E** to the Agreement.

9. Project Oversight. PAREXEL Key Personnel on the project team will meet [*] with GERON Representatives during the term of this Work Order to oversee the performance of the Services hereunder, to foster transparent communication between the parties, ensure quality of performance in alignment with expectations, SOPs and study timelines, Good Clinical Practices, federal regulations and guidelines, and to provide a mechanism for accountability and responsibility in relation to the Project. The parties shall draft and approve a charter or other governance document describing the operational aspects of joint project oversight, including, *without limitation*, structure and processes for meetings, a schedule for regular review of monitoring plans, assessment of other key performance metrics, and procedures for escalation and resolution of issues. The activities of parties at the project level will be directed toward optimizing the parties' ability to timely conduct the applicable Project, including PAREXEL's provision of the requisite deliverables in accordance with this Work Order and the Agreement. Issues which are not resolved at the Project level despite diligent efforts by the parties will be referred to the Executive Committee established under Section 2.5.1 of the Agreement. In addition, as otherwise may be determined to be necessary by GERON depending on a Project, the Executive Committee may operate at the Project level to oversee specific Project activities under this Work Order. The structure and function of the Executive Committee at the Project level shall be determined by the parties in view of Project.

10. Subcontractors, Client-Designated Vendors and Specialty Vendors:

10.1. As set out in Sections 5.1 through 5.3 of the Agreement, PAREXEL may use Subcontractors, Client-Designated Vendors and Specialty Vendors to perform the Services, as each is defined in the Agreement, and in accordance with the terms thereunder.

10.2. To the extent practicable, PAREXEL will require that Client is designated as a third party beneficiary [*]. PAREXEL will notify Client prior to the commencement of Services by any Subcontractors, Client-Designated Vendors or Specialty Vendors if it is [*] in PAREXEL's contract with such third party.

10.3. With respect to [*], PAREXEL will provide Client [*] will confirm that such Specialty Vendors are not debarred. If available, [*] for the prior [*] (or such lesser period as may be available to PAREXEL), [*], if any, for Client's review. In accordance with Section 5.4 of the Agreement, Client may request the [*] set forth herein. Subject to the foregoing, the following Specialty Vendors will be used in the Study:

10.4. The following Subcontractors, Client-Designated Vendors and Specialty Vendors will be used in the Study.

Specialty Vendors:

- [*]
- [*]
- [*]

Subcontractors:

- [*]

Client-Designated Vendors:

- [*]
- [*]
- [*]

10.5. It is understood and agreed by the parties that third party vendors that are providing services to PAREXEL that are purely administrative in nature and not unique to the Project are not included in the above categories and are not listed in this Work Order.

11. Data Privacy. In accordance with the Data Security and Privacy Addendum set forth in **Attachment E** to the Agreement, the Details of Processing under this Work Order are contained in **Exhibit H** to this Work Order. In the event of any Security Incident (as defined in Attachment E to the Agreement), notice shall be given to GERON in accordance with the notice provisions of Article 21 of the Agreement, and by email to [*] and [*].

12. Budget. The budget for this Work Order is set out in Exhibit F hereto and is based upon the Key Specifications as provided in **Exhibits A-E**. Pursuant to Section 2 of the Agreement, the parties will amend the budget for any changes to such Key Specifications, using the change in scope process described therein.

	Service Fees	Pass-Through Expenses	Investigator Fees	One Time Discount	Totals
Work Order	**$[*]**	**$[*]**	**$[*]**	**$[*]**	**$33,145,124**

Exhibits A through F attached hereto more fully describe this Work Order's Key Specifications, budget and payment terms, and are hereby incorporated in their entirety by reference into this Work Order.

[Signatures on following page]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

IN WITNESS WHEREOF, the parties have executed this Work Order through their duly authorized representatives effective as of the Effective Date.

GERON Corporation	**PAREXEL International (IRL) Limited**
By: /s/ Andrew J. Grethlein	By: /s/ Sharon Flynn
Name: Andrew J. Grethlein, Ph.D.	Name: Sharon Flynn
Title: Executive Vice President, Development and Technical Operations	Title: Manager
Date: 30 Jan 2019	Date: 31 Jan 2019
	PAREXEL International (IRL) Limited

EXHIBIT A
SPECIFICATIONS AND ASSUMPTIONS

{7 pages omitted}

[*]

EXHIBIT B
TASKS & RESPONSIBILITIES

{23 pages omitted}

[*]

EXHIBIT C
ESTIMATED TIMELINES

[*]

EXHIBIT D
SCOPE OF WORK/CTSL SERVICES

[*]

EXHIBIT E
ADDITIONAL TERMS WITH RESPECT TO SITES LOCATED IN THE UNITED KINGDOM

The parties acknowledge and agree that, notwithstanding anything in the Agreement to the contrary, the terms and conditions set forth below will apply with respect to the Services being performed in the United Kingdom (i.e., as of the Effective Date, the United Kingdom consists of England, Scotland, Wales, and Northern Ireland). The parties do not intend this **Exhibit E** to supersede the terms of the Agreement, and in the absence of conflict the Agreement is presumed to control. However, in the event of a direct conflict between the specific terms set forth in this **Exhibit E** and the Agreement or any other terms set forth in this Work Order, then solely with respect to those Services being performed in the United Kingdom, the terms of this **Exhibit E** will control. Capitalized terms not defined herein shall have the meaning set forth in the Agreement.

1. In addition to Client's obligations set forth in Article 3 of the Agreement, Client agrees it will [*]. If Client provides [*] to PAREXEL under this Work Order, Client further agrees that [*].

2. Except to the extent that PAREXEL is responsible under this Work Order for supplying Study Materials as part of the scope of Services, Client shall (a) [*] sufficient quantity of the Investigational Product drug, and (b) [*] a sufficient quantity of any marketed drug necessary to conduct the Study, as well as any other compounds, materials and information, which the Protocol specifies Client shall deliver or which Client deems necessary to conduct the Study. All such Investigational Product, compounds, materials and other information are and shall remain the sole property of Client at all times.

3. To the extent applicable, [*]

- [*]
- [*]
- [*]
- [*]
- [*]
- [*]
- [*]
- [*]

4. Client will inform PAREXEL promptly of any decision to recall the Investigational Product that has been supplied to PAREXEL by or on behalf of Client for the conduct of a Study under this Agreement. PAREXEL will reasonably assist Client in its investigation or implementation of a recall. PAREXEL will inform Client promptly of any issue relating to the Investigational Product that has been supplied by Client which might result in the need to consider a potential recall of the Investigational Product.

EXHIBIT F
BUDGET

Payments. Payments for Services by GERON to PAREXEL under this Work Order shall be made in accordance with the budget hereto and the applicable provisions of the Agreement, including, *without limitation,* Section 6 thereof. The Work Order Currency, as defined by Section 6.4 of the Agreement, shall be United States Dollars for this Work Order."

Pass-Through Expenses. As provided in Section 6.1 of the Agreement, the parties will include an estimated amount for Pass-Through Expenses in the budget [*]

Change in Scope Process. As provided under Section 2.2 of the Agreement, PAREXEL will generate and maintain a Change in Scope Log ("**CIS Log**") in accordance with the form attached as **Attachment B** to the Agreement, capturing the cost impact of changes to Key Specifications under this Work Order. The parties will follow the CIS Log approval and Change Order preparation process as provided under Section 2.2 of the Agreement. The CIS Log monetary threshold at which a Change Order will be prepared for this Work Order is $[*].

Inflation. PAREXEL's Service fees herein incorporate [*] inflationary adjustments to account for labor cost inflation during the estimated Project timeline. The budget will be amended for inflation [*]. In the event that the [*], Service fees may be [*] in accordance with the rate of inflation as specified by the Mercer Index for comparable services in the geographic region where such Services are provided, not to exceed [*] annually, except for [*], where the parties will [*], which will not exceed [*]. PAREXEL will notify Client in writing of any planned inflationary [*] due to a [*] at least [*] in advance of the application of [*] in rates and a description of the [*], unless such [*], in which case PAREXEL will provide notification as soon as reasonably practicable.

Use when CTSL is budgeted: Clinical Trial Supply & Logistics (CTSL). Pass-Through Expenses related to CTSL Services are estimates based on currently available project information and general assumptions (based on previous project experiences) and are subject to change, but shall not exceed the mutually agreed budget without a written amendment to this budget.

Client will be notified in writing of changes to estimated Pass-Through Expenses that are projected to have a material impact ([*]) on Pass-Through expenses as estimated at the proposal time.

Table 1 – Budget Grid begins on the next page.

PAREXEL Project #[*]

Table 1 - Budget Grid Summary

[*]	[*]	[*]	Total Costs (USD)
{14 rows omitted}			
[*]	**[*]**	**[*]**	**33,145,124**

Budget Grid - See file labeled: [*]

EXHIBIT G
PAYMENT TERMS

OPTION A ([*])

Service Fees. PAREXEL will invoice Client for Service fees as provided in the [*] below. The payment schedule is developed in conjunction with the budget and estimated timelines; therefore, any modifications to the foregoing may result in a modification to the payment schedule. The Advances paid by Client under the LOA, in the amount totaling $[*], shall be credited to [*] under this Work Order. PAREXEL will reconcile [*] vs [*]. The remaining amount to be invoiced under [*] will be [*]in accordance with the [*] set forth below.

{2 pages omitted}

[*]

Pass-Through Expenses (excluding Investigator Fees). PAREXEL will invoice Client each month for Pass-Through Expenses incurred. PAREXEL will invoice Pass-Through Expenses [*] following PAREXEL's receipt of a third-party invoice for such Pass-Through Expenses [*] after the expense was incurred. Upon execution of this Work Order, PAREXEL will invoice an advance payment of $[*] for Pass-Through Expenses. This advance payment will be reconciled against the final invoices for Pass-Through Expenses.

Investigator Fees. PAREXEL will invoice Client on a monthly for investigator fees incurred. PAREXEL will invoice Investigator fees [*] following PAREXEL's receipt of a third-party invoice for such Investigator grants, and [*] after the expense was incurred. To ensure PAREXEL has sufficient funds in hand to make investigator grant payments, [*], PAREXEL will invoice an advance payment of $[*] for investigator fees. This [*] will be reconciled against [*] for investigator grants.

INVOICE INSTRUCTIONS. PAREXEL WILL EMAIL INVOICES TO CLIENT AT [*]. CLIENT WILL PAY PAREXEL'S INVOICES IN ACCORDANCE WITH THE TERMS OF THE AGREEMENT AND WILL REMIT PAYMENTS [AS SPECIFIED BELOW]

Check Remittance Address:	For Wires/Electronic Funds Transfers (USD)
[*]	Bank Account Name: [*] Bank Account Number: [*] SWIF/BIC code: [*] Branch Name: [*] Branch Address: [*]

Client shall send the remittance advice information to the following email alias: [*]

Exhibit H

Details of Processing Activities

This Exhibit H includes certain details of the Processing of Subject Personal Data as required by Article 28(3) GDPR.

Nature and Purpose of Processing: PAREXEL will Process Subject Personal Data as necessary to perform the Services pursuant to the MSA and the applicable Work Order.

Subject Matter and Duration of Processing: The subject matter and duration of the Processing of the Subject Personal Data are set out in the MSA, the applicable Work Order and this Addendum.

Location(s) of Processing:

Categories of Data: In providing Services to GERON, PAREXEL may Process one or more of the following categories of data Study Subject Personal Data:

A. Study Subject Personal Data:

[*]

[*]

[*]

[*]

[*]

[*]

[*]

[*]

[*]

B. Special categories of data:

[*]

[*]

[*]

ATTACHMENT B
FORM OF CHANGE IN SCOPE LOG

Change In Scope Client Signature Page

	Protocol No.	0
	Client Name	0
	PAREXEL Project No.	0
	Project Manager	0
	CIS No.	

Item#	Date Requested and Requestor	CIS Task description	Service Fee (Contract Currency)	Investigator Fees	Pass Through Costs	Date Approved	Client Signature / Title

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

ATTACHMENT C
FORM OF CHANGE ORDER

Client Name:
Drug Name or Number:
Protocol Number:
PAREXEL Project Number:
Change Order Number:
Change Order Date:
PAREXEL Project Manager:

PAREXEL and Client signed a Work Order dated _____ [as amended]. The parties wish to amend said Work Order as applicable and hereby agree as follows:

1. The items listed on Change Log #_____, attached as Attachment 1 to this Change Order, dated _____ shall be incorporated in said Work Order

2. The total contract value changes as follows:

	Previous Contract Value	**Change Order Value**	**New Contract Value**
Service Fees			
Estimated Investigator Fees			
Estimated Pass-Through Expenses			

3. The Payment Schedule shall be replaced in its entirety by the following Payment Schedule: / The following terms shall be added to the Payment Schedule:

No term or condition other than the above shall be amended by this Change Order.

GERON Corporation	**PAREXEL International (IRL) Limited**
By:	By:
Name:	Name:
Title:	Title:
Date:	Date:

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the following Registration Statements:

1) Registration Statement (Form S-3, No. 333-225184) and in the related prospectuses and prospectus supplements,

2) Registration Statement (Form S-3, No. 333-171611) and in the related prospectuses and prospectus supplements,

3) Registration Statement (Form S-8 No. 333-228147) pertaining to the Directors' Market Value Stock Purchase Plan,

4) Registration Statement (Form S-8 No. 333-225190) pertaining to the 2018 Equity Incentive Plan,

5) Registration Statement (Form S-8, No. 333-196677) pertaining to the 2014 Employee Stock Purchase Plan,

6) Registration Statement (Form S-8, No. 333-174350) pertaining to the 2011 Incentive Award Plan, the 2002 Equity Incentive Plan, the 1996 Directors' Stock Option Plan and the 1992 Stock Option Plan,

7) Registration Statements (Forms S-8, No. 333-167349 and No. 333-161035) pertaining to the 2002 Equity Incentive Plan, and

8) Registration Statement (Form S-8, No. 333-136330) pertaining to the 2002 Equity Incentive Plan and the 2006 Directors' Stock Option Plan;

of our reports dated March 7, 2019, with respect to the financial statements of Geron Corporation and the effectiveness of internal control over financial reporting of Geron Corporation included in this Annual Report (Form 10-K) for the year ended December 31, 2018.

/s/ Ernst & Young LLP

Redwood City, California
March 7, 2019

EXHIBIT 31.1

CERTIFICATION PURSUANT TO
FORM OF RULE 13A-14(A)
AS ADOPTED PURSUANT TO
SECTION 302(A) OF THE SARBANES-OXLEY ACT OF 2002

I, John A. Scarlett, M.D., certify that:

1. I have reviewed this annual report on Form 10-K of Geron Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 7, 2019

/s/ John A. Scarlett
JOHN A. SCARLETT, M.D.
President, Chief Executive Officer and Chairman of the Board

EXHIBIT 31.2

CERTIFICATION PURSUANT TO
FORM OF RULE 13A-14(A)
AS ADOPTED PURSUANT TO
SECTION 302(A) OF THE SARBANES-OXLEY ACT OF 2002

I, Olivia K. Bloom, certify that:

1. I have reviewed this annual report on Form 10-K of Geron Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 7, 2019

/s/ Olivia k. Bloom
OLIVIA K. BLOOM
Executive Vice President, Finance,
Chief Financial Officer and Treasurer

EXHIBIT 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

Pursuant to 18 U.S.C. Section 1350, as created by Section 906 of the Sarbanes-Oxley Act of 2002, the undersigned officer of Geron Corporation (the "Company") hereby certifies, to such officer's knowledge, that:

(i) the accompanying annual report on Form 10-K of the Company for the year ended December 31, 2018 (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

(ii) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: March 7, 2019

/s/ John A. Scarlett
JOHN A. SCARLETT, M.D.
President, Chief Executive Officer and Chairman of the Board

This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.

EXHIBIT 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

Pursuant to 18 U.S.C. Section 1350, as created by Section 906 of the Sarbanes-Oxley Act of 2002, the undersigned officer of Geron Corporation (the "Company") hereby certifies, to such officer's knowledge, that:

(i) the accompanying annual report on Form 10-K of the Company for the year ended December 31, 2018 (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

(ii) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: March 7, 2019

/s/ Olivia K. Bloom
Olivia K. Bloom
Executive Vice President, Finance,
Chief Financial Officer and Treasurer

This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.