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, 2021

OR

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

FOR THE TRANSITION PERIOD FROM TO

Commission File Number: 001-36284

Biocept, Inc.

(Exact name of Registrant as specified in its Charter)

Delaware	**80-0943522**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
9955 Mesa Rim Road, San Diego, California	**92121**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (858) 320-8200

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.0001 per share	BIOC	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 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 whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definition 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 7(a)(2)(B) of the Securities Act. ☐

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

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the Registrant, based on the closing price of the shares of common stock on The Nasdaq Stock Market on June 30, 2021, was $59,935,440.

The number of shares of Registrant's Common Stock outstanding as of March 18, 2022 was 16,850,161.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement for the 2022 Annual Meeting of Stockholders, to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Form 10-K, are incorporated by reference in Part III, Items 10-14 of this Form 10-K. Except for the portions of the Proxy Statement specifically incorporated by reference in this Form 10-K, the Proxy Statement shall not be deemed to be filed as part hereof.

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K, or Annual Report, contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements included or incorporated by reference in this Annual Report other than statements of historical fact, are forward-looking statements. You can identify these and other forward-looking statements by the use of words such as "may," "will," "could," "anticipate," "expect," "intend," "believe," "continue" or the negative of such terms, or other comparable terminology. Forward-looking statements also include the assumptions underlying or relating to such statements. In addition, statements that "we believe" and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this Annual Report, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and investors are cautioned not to unduly rely upon these statements.

Our actual results could differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth below under the caption "Risk Factors" in Part I, Item 1A and "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of this Annual Report and elsewhere in this Annual Report. Moreover, we operate in an evolving environment. New risk factors and uncertainties emerge from time to time and it is not possible for us to predict all risk factors and uncertainties, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Readers are cautioned not to place undue reliance on forward-looking statements. The forward-looking statements speak only as of the date on which they are made and we undertake no obligation to update such statements to reflect events that occur or circumstances that exist after the date on which they are made except as required by law. Readers should, however, review the factors and risks we describe in this Annual Report and in the reports we subsequently file from time to time with the Securities and Exchange Commission, or the SEC.

RISK FACTOR SUMMARY

Below is a summary of the material factors that make an investment in our common stock speculative or risky. This summary does not address all of the risks that we face. Additional discussion of the risks summarized in this risk factor summary, and other risks that we face, can be found in this Annual Report on Form 10-K under the heading "Risk Factors" and should be carefully considered, together with other information in this Annual Report on Form 10-K and our other filings with the Securities and Exchange Commission before making investment decisions regarding our common stock.

- We are a molecular oncology diagnostics company with a history of net losses; we expect to incur net losses in the future, and we may never achieve sustained profitability.
- We need to raise additional capital to continue as a going concern.
- If we are unable to increase sales of our current products, assays and services or successfully develop and commercialize other products, assays and services, our revenues will be insufficient for us to achieve profitability.
- If we cannot develop products, assays and services to keep pace with rapid advances in technology, medicine and science, our operating results and competitive position could be harmed.
- If our sole laboratory facility becomes damaged or inoperable, or we are required to vacate the facility, our ability to sell and provide our products and diagnostic assays and pursue our research and development efforts may be jeopardized.
- Our business is subject to risks arising from pandemic and epidemic diseases, such as the COVID-19 pandemic.
- We expect to continue to incur significant expenses to develop and market products and diagnostic assays, which could make it difficult for us to achieve and sustain profitability.
- Clinical utility studies are important in demonstrating to both customers and payers an assay's clinical relevance and value. If we are unable to identify collaborators willing to work with us to conduct clinical utility studies, or the results of those studies do not demonstrate that an assay provides clinically meaningful information and value, commercial adoption of such assay may be slow, which would negatively impact our business.
- The loss of key members of our executive management team could adversely affect our business.
- Our failure to continue to attract, hire and retain a sufficient number of qualified sales professionals would hamper our ability to increase demand for our products and diagnostic assays, to expand geographically and to successfully commercialize any other products or assays we may develop.
- We depend on third parties for the supply of blood samples and other biological materials that we use in our research and development efforts. If the costs of such samples and materials increase or our third-party suppliers terminate their relationship with us, our business may be materially harmed.
- We currently rely on third-party suppliers for our SCTs, shipping kits, and critical materials needed to perform our current assays, as well as our planned future products, assays and services, and any problems experienced by them could result in a delay or interruption of their supply to us.
- Our commercial success could be compromised if hospitals or other clients do not pay our invoices or if third-party payers, including managed care organizations and Medicare, do not provide coverage and reimbursement, breach, rescind or modify their contracts or reimbursement policies or delay payments for our current assays and our planned future assays.
- We expect to depend on Medicare and a limited number of private payers for a significant portion of our revenues and if these or other payers stop providing reimbursement or decrease the amount of reimbursement for our current assays and our planned future assays, our revenues could decline.
- Because of certain Medicare billing policies, we may not receive complete reimbursement for assays provided to Medicare patients. Medicare reimbursement revenues are an important component of our business model, and

private payers sometimes look to Medicare determinations when making their own payment determinations; therefore, incomplete or inadequate reimbursement from Medicare would negatively affect our business.

- Long payment cycles of Medicare, Medicaid and/or other third-party payers, or other payment delays, could hurt our cash flows and increase our need for working capital.
- If we were required to conduct additional clinical studies or trials before continuing to offer assays that we have developed or may develop as LDTs, those studies or trials could lead to delays or failure to obtain necessary regulatory approval, which could cause significant delays in commercializing any future products and harm our ability to achieve sustained profitability.
- If we are unable to maintain effective proprietary rights for our products or services, we may not be able to compete effectively in our markets.
- If we fail to maintain proper and effective internal control over financial reporting, our ability to produce accurate financial statements on a timely basis could be impaired and our public reporting may be unreliable.

PART I

Item 1. Business

Overview

We are a molecular oncology diagnostics company that develops and commercializes proprietary clinical diagnostic laboratory assays designed to identify rare tumor cells and cell-free tumor DNA from blood and cerebrospinal fluid, or CSF. The identification of tumor cells and cell-free tumor DNA in CSF has become our principal development focus following our early commercial expansion into CSF in 2020. This product was branded and trademarked as CNSide™ in April 2021.

The identification of circulating tumor cells, or CTCs, and circulating cell-free tumor DNA and RNA, or ctDNA and ctRNA, deriving from solid tumors such as breast cancer or lung cancer using a standard blood sample has been described as a "liquid biopsy." This term reflects the ease with which peripheral blood can be drawn compared to performing a surgical biopsy, but this technology is not limited to a peripheral blood approach.

In January 2020, we adapted and validated our proprietary blood-based liquid biopsy technology for commercial and clinical research use in CSF to identify tumor cells that have metastasized to the central nervous system, or CNS, in patients with advanced lung cancer or breast cancer. CNSide has been designed to improve the clinical management of patients with suspected metastatic cancer involving the CNS by enabling the quantitative analysis and molecular characterization of tumor cells and ctDNA and ctRNA in the CSF. Since then, we have worked extensively with leading neuro-oncologists and other cancer experts to further define and characterize the use of this unique assay.

Our efforts have culminated in the presentation of our early clinical experience at several leading academic forums, including most recently the Society of Neuro-Oncology, or SNO, Brain Metastases meeting in August 2021, as well as the Annual Society of Neuro-Oncology meeting in November 2021 and the San Antonio Breast Cancer Symposium, or SABCS, in December 2021. We believe these presentations have illustrated the feasibility of this assay to inform three critical questions important for the care of patients with suspected or confirmed metastatic cancer involving the CNS: Is there tumor (diagnosis)? Is there target (presence of a biomarker to aid treatment selection)? Is there trend (a response to therapy)?

The question "Is there tumor?" is essential for the diagnostic work-up of these patients. Tumor cells in the blood can shed from either primary or metastatic tumors. They can be rapidly removed in the capillary beds of the spleen, liver, kidneys, lungs and other organs, so they are rarely found. They are the defining feature of metastasis to the leptomeningeal space within the CNS and hence define the presence or absence of leptomeningeal metastasis, or LM. To distinguish tumor cells derived from CSF and blood we often refer to tumor cells in CSF as CSF Tumor Cells, or CSFTCs, rather than CTCs.

Regarding the second clinical question, "Is there target?" our CNSide assay provides a vehicle for several different diagnostic assay profiles which combined with our molecular test menu can identify tumor cell biomarkers that are intended to help physicians make decisions related to the evolution or course of metastatic tumor that may inform treatment decisions. Cancer cells typically acquire genetic alterations which differ from that of normal cells. Metastatic cancers often acquire additional genetic alterations which distinguish them from the primary tumor site. This marked genetic variation between areas of tumor growth is termed "genetic heterogeneity," and findings related to this were featured in our SABCS presentation in December 2021 illustrating the value of CNSide in identifying "genetic heterogeneity" of a targetable biomarker called HER2.

Finally, regarding the third clinical question, "Is there trend?" over the past year we have gained considerable experience with cases that had been sampled multiple times over the course of a patient's treatment. The association of quantitative CSF tumor cell counts with response to treatment has been noted in both lung and breast cancer, as well as other tumors examined. In August 2021, at the SNO Brain Metastases meeting, we presented data obtained from a single institution experience showing how serial monitoring of CSFTCs by CNSide was used to determine the response to treatment in patients with Non-Small Cell Lung Cancer having LM. In addition, in November 2021 at SNO, we presented the early findings of several patients with breast cancer having LM which had been followed with multiple CSF samples drawn at different time points on each patient. The downward progression of tumor cell counts has been noted by several treating physicians to correlate with response to treatment and resolution of symptoms. Serial monitoring of genetic alterations present in CSF tumor cells may create opportunities to change the therapy of certain patients throughout treatment. These observations presented in abstracts and

poster presentations in 2021 have informed our clinical study strategy which is the basis for our 2022 efforts to further explore these observations in a prospective clinical trial.

COVID-19 Pandemic Response Summary

In June 2020, to respond to a national public health emergency precipitated by the COVID-19 pandemic, we introduced molecular testing for SARS-CoV2, the virus responsible for COVID-19, using a United States Food and Drug Administration, or FDA, Emergency Use Authorization, or EUA, based "RT-PCR" method developed by Thermo-Fisher.

In November 2021, we launched a combined COVID-19/Influenza A/Influenza B assay manufactured by Thermo-Fisher which broadened our assay menu to meet the rising demand related to winter testing with emergence of new COVID-19 variants such as Delta (summer 2021) and Omicron (fall/winter 2021-22).

Since launch of our COVID-19 testing program, we have performed more than 800,000 assays for customers. We have primarily marketed our COVID-19 testing services to skilled nursing facilities in the western United States and also to certain community colleges within California

Our COVID-19 testing services were responsible for most of our revenues during 2020 and 2021. However, as a result of increased vaccination and immunization levels, as well as decreased COVID-19 hospitalizations, reported cases and mandatory COVID-19 testing, we are currently seeing reduced demand for our COVID-19 testing services and expect this trend to continue absent a negative and sustained turn in the course of the pandemic.

Additional Oncology Testing Services

In addition to CNSide, our current blood-based testing includes our Target Selector™ technologies which enable detection of specific gene mutations, such as EGFR, KRAS or BRAF, in cell-free ctDNA from blood samples, as well as specific protein and gene alterations, such as HER2 amplification, in CTCs isolated from blood. We believe our multi-modality combination of a proprietary cell capture and analysis method with a proprietary cell-free tumor DNA approach provides both high-sensitivity and specificity and is applicable to a broad range of diagnostic applications in patients with metastatic carcinoma.

In January 2019, we began offering research use only, or RUO, liquid biopsy kits containing our patented and proprietary ctDNA Target Selector molecular (PCR-based) testing for certain specific cancer genes to laboratories and researchers worldwide. In March 2020, we released an update for our RUO EGFR Target Selector Kit which expanded the sample types validated to include both ctDNA in peripheral blood and formalin-fixed paraffin-embedded, or FFPE. In March 2020, we also released a RUO BRAF Target Selector assay kit validated for both ctDNA and FFPE.

At our corporate headquarters facility located in San Diego, California, we operate a clinical laboratory that is CLIA-certified, CAP accredited and licensed by the California Department of Public Health. In this facility we also develop novel assays that are part of our project pipeline for future commercial launch and we manufacture our microfluidic channels and various assay reagents and products used in our testing processes. We also work closely with external manufacturers to outsource certain products such as collection tubes and to manufacture items that we intend to use in the near future to reduce costs and improve efficiency.

The assays we offer and intend to offer are classified as CLIA laboratory developed tests, or LDTs, under CLIA regulations. CLIA certification and state licensure in California and certain other states under the supervision of a qualified laboratory medical director is required before any clinical laboratory, including ours, may perform testing on human specimens for the purpose of obtaining information for the diagnosis, prevention, or treatment of disease or the assessment of health. In addition, we participate in and have received CAP accreditation, which includes rigorous bi-annual laboratory inspections and requires adherence to specific quality standards.

Commercial Strategy

Our primary sales strategy is to engage neuro-oncologists, oncologists and other physicians in the United States at private and group practices, hospitals, laboratories and cancer centers to educate them about our unique products and services. In addition, we market our clinical trial and research services to pharmaceutical and biopharmaceutical companies and clinical research

organizations. We also market and sell molecular assay kits which enable laboratories other than Biocept to perform our testing in house. Sales of these kits began in the first quarter of 2019. Further, sales to laboratory supply distributors of our proprietary specimen collection tubes, or SCTs, commenced in June 2018, which allow for the intact transport of liquid biopsy samples for research use only from regions around the world.

Our revenue generating efforts are focused in the following areas:

- providing laboratory services to neuro-oncologists, oncologists and other physicians or healthcare providers treating patients with cancer who use the biomarker information we provide in order to determine the best treatment plan for their patients;
- providing laboratory services using both our CTC and ctDNA and ctRNA assays to help pharmaceutical and biopharmaceutical companies run clinical studies establishing the use of novel drug therapies used to treat cancer;
- licensing our proprietary technology and selling our distributed products, including our SCTs and assay kits, to partners in the United States and abroad; and
- performing COVID-19 testing.

We plan to grow our business by directly offering our CNSide and Target Selector liquid biopsy CTC and molecular assays to neuro-oncologists, oncologists and other physicians or heath care providers who treat patients with cancer. Based on our product development data, as well as discussions with our key collaborators, we believe that our planned future assays, particularly those related to CSF, should provide important information and clinical value to physicians.

We believe our ability to rapidly translate insights about the utility of cytogenetic, immunocytochemical and molecular biomarkers to provide information to neuro-oncologists, oncologists and other physicians for treatment decisions in the clinical setting will improve patient treatment and management, and that these assays will become a key component of the standard of care for personalized cancer treatment.

Market Overview

Cancer Market Overview

Despite many advances in the treatment of cancer, it remains one of the greatest areas of unmet medical need. According to the U.S. Centers for Disease Control and Prevention, the incidence of new cancer cases reported in United States was 1,708,921 in 2018, and 599,265 people died from cancer. According to the World Health Organization, or WHO, female breast cancer surpassed lung cancer as the most commonly diagnosed cancer (11.7% and 11.4% respectively), followed by colorectal (10%), prostate (7.3%), and stomach (5.6%) cancer. Lung cancer remained the leading cause of cancer death in 2020, followed by colorectal (9.4%), liver (8.3%, stomach (7.7%) and female breast (6.9%) cancer. The incidence of, and deaths caused by, the major cancers are staggering, with over 3.9 million patients who have had a diagnosis of these cancers and are either living with these diseases and are undergoing treatment or are being monitored. For example, in breast cancer, many women have been deemed cancer-free, but continue to undergo periodic monitoring to assure there has been no disease recurrence. In addition to the human toll, the financial cost of cancer is overwhelming. An independent study published in 2010 and conducted jointly by the WHO ranked cancer as the most economically devastating cause of death in the world - estimated to be as high as $1.1 trillion globally. According to the National Cancer Institute, the direct cost of cancer care in the United States in 2030 is forecasted to be $246.0 billion.

Metastatic Brain Cancer Overview

Metastasis of cancers to the CNS (brain and spinal cord) constitutes a major complication of malignant disease associated with significant clinical symptoms and poor outcomes.

Wen et al (ONCOLOGY 13(7):961, 1999) estimated that brain metastases will develop in 10% to 30% of adults and 6% to 10% of children with cancer. Most frequently, CNS metastasis occurs in tumors of the lung, breast, and melanoma, but also tumors of the gastro-esophageal junction, pancreas, biliary system, ovaries and head and neck, amongst many others. Certain subtypes of these solid tumors, such as triple negative breast cancer, HER2 positive breast cancer, small cell lung cancer, EGFR mutated non-small cell lung cancer and invasive BRAF positive melanoma are most likely to reach the CNS typically causing significant morbidity and subsequent mortality within a short period of time.

Several types of brain metastasis occur, most typically involving the brain parenchyma and forming a solid lesion that is visible on radiologic studies such as MRI. Other sites of metastasis such as in the leptomeninges, a membranous lining around the brain, are more subtle and difficult to diagnose. LM, also known as leptomeningeal disease , or LMD, is usually diagnosed with a combination of clinical evaluation (symptoms), radiology (MRI or CT) and cytology (examination of CSF under the microscope by a pathologist).

A recently completed large scale, quantitative market research project commissioned by us and conducted by a third-party organization concluded that the total addressable market for the CNSide assay is estimated to be $1.2 billion annually in the United States, with a $415.0 million opportunity in LM, and $744.0 million in parenchymal brain metastasis. This research included a survey of 150 randomly sampled U.S.-based medical oncologists as well as an exhaustive literature review to orthogonally assess the number of patients for whom CNSide would be clinically appropriate. From this effort, we estimated the total worldwide addressable market for CNSide is in excess of $2.0 billion, annually.

Procedural approach to metastatic cancers in the CNS

Our CNSide assay can be performed on a CSF sample obtained either by “lumbar puncture” or via an intraventricular catheter inserted into one of the lateral ventricles of the brain. These catheters are commonly known as an Ommaya reservoir.

With easy access to the CSF from an Ommaya reservoir, these samples may be obtained many times over the course of a patient’s treatment for LM. Innovative methods of treating LM have significantly improved expected survival for many of these patients with survival of a year or more often achieved in patients who would otherwise die within a few weeks if untreated. These may be performed at various times over the course of a patient’s life with cancer to help manage these patients.

Clinical need for CNSide

Diagnosing metastasis in the CNS, supporting the selection of an appropriate treatment, and establishing treatment response all require identification of tumor cells in the CSF at multiple time points during a patient’s illness. Clinical urgency may also require the evaluation of CSF to avoid the need for surgical biopsy. It is often necessary to perform repeated sampling of the CSF to establish a diagnosis of metastases due to the use of less sensitive, conventional techniques such as cytology. At the time of progression or recurrence there may be insufficient time and/or an urgent or precarious clinical status which does not favor a surgical approach to obtain diagnostic material. Additionally, many studies have shown that cancers frequently mutate during the course of treatment as cancer progresses, so genomic information from the initial tumor tissue may not be able to best inform later treatment decisions at the time of metastasis. We believe CNSide can be particularly advantageous when the patient has advanced disease and brain metastasis but is not a good candidate for surgery or other invasive diagnostic methods such as CT guided needle biopsy.

Cancer is a Heterogeneous Disease

Cancer constitutes a heterogeneous class of diseases, characterized by uncontrolled cell growth that results from a combination of both environmental and hereditary risk factors. Many different tissue types can become malignant, such as breast, lung, liver, and skin, and even within a particular tumor there is heterogeneity, with certain cancer cells in a patient bearing specific cellular or genetic biomarkers which others lack. Only in recent years has technology progressed sufficiently to enable researchers to understand many cancers at a cellular and molecular level, attribute specific cancers to associated genetic changes, and determine the extent to which these changes are seen in a patient’s tumor.

Cancer cells contain genetic alterations compared to normal human cells. Common genetic abnormalities correlated to cancer include gains or losses of genetic material on specific chromosomal regions, or loci, or changes in specific genes, or mutations, which ultimately result in detrimental cellular changes followed by cancerous or pre-cancerous conditions. For example, multiple gains or losses on various chromosomes, and the rearrangement of genetic material among chromosomes, or chromosomal translocations, have been observed in different cancer types, such as *HER2* in breast cancer and anaplastic lymphoma kinase, or ALK, rearrangements in non-small cell lung cancer, or NSCLC. In addition, mutations within gene sequences, or single nucleotide variations, can give rise to aberrant proteins that do not perform their functions correctly, leading to uncontrolled cell growth. Such genetic alterations can be a result of multiple factors, including genetic predisposition, environmental or lifestyle factors or viral infections. Importantly, these genetic changes or aberrant proteins can be used as biomarkers to help guide appropriate treatment. Detecting these biomarkers, particularly those representing drug targets, or those indicative of responsiveness or resistance of a tumor’s cells to specific therapies, helps clinicians to select drugs, design

treatment regimens and optimize patient care and management. Assays that provide such predictive information have the potential to dramatically improve treatment outcomes for patients suffering from cancer.

Limitations of Traditional Cancer Diagnostic and Profiling Approaches

Cancer is difficult to diagnose and manage due to its heterogeneity at morphologic, genetic and clinical levels. Traditional methods of diagnosis for solid tumors, routinely used as the initial step in cancer detection, involve a tissue biopsy followed by a pathologist examining a thin slice of potentially cancerous tissue under a microscope. A recently obtained tissue sample is used in combination with chemical staining techniques to enable analysis of the biopsy. After staining, the pathologist determines through visual inspection whether the biopsy contains normal or cancerous cells, with those that are deemed cancerous being graded on a level of aggressiveness. Often an analysis of biomarkers relevant to that tumor type is also performed on the tissue, ranging from immunohistochemistry, or IHC, to fluorescence in situ hybridization, or FISH, to mutation analysis by various means such as microarrays and sequencing. After the diagnosis, a clinical workup is performed according to established guidelines for the specific cancer type. From there, the physician determines the stage of progression of the cancer based on a series of clinical measures, such as size, grade, metastasis risk, symptoms and patient history, and decides on a treatment plan that may include surgery, watchful waiting, radiation, chemotherapy, or stem cell transplantation.

This type of analysis is dependent on the availability of a recently obtained tissue biopsy for the pathologist to analyze. Such a biopsy is often not available. A tumor may not be readily accessible for biopsy, a patient's condition may be such that a biopsy is not advised, and for routine periodic patient monitoring to evaluate potential progression or recurrence, a biopsy is a fairly invasive procedure and not typically performed. As the length of time between when the original biopsy, diagnosis or surgery is conducted to the current evaluation of the patient increases, the likelihood that an original biopsy specimen is truly representative of the current disease condition declines, as does the usefulness of the original biopsy for making treatment decisions. This risk intensifies in situations where a drug therapy is being administered, because the drug can put selective pressure on the tumor cells to adapt and change.

Similarly, the heterogeneity referred to above means that different parts or areas of the same tumor can have different molecular features or properties. In evaluating a biopsy specimen, the pathologist will take a few thin slices of the tumor for microscopic review rather than exhaustively analyzing the whole tumor mass. The pathologist can only report on the tumor sections analyzed and if other parts of the tumor have different features, such as biomarkers corresponding to specific treatments, they can be missed. A more representative analysis of the entire tumor, as well as any metastases if they are present, is very helpful.

CTCs, ctDNA, ctRNA and Cancer

CTCs are cancer cells that have detached from the tumor matrix and entered the patient's blood or other bodily fluids. These cells are representative of the tumor and its metastases and can function as their surrogates. Testing CTCs or tumor cells in the CSF can complement pathologic information drawn from a biopsy or resected tissue sample, helping to ensure that the analysis is comprehensive and not biased by tumor heterogeneity and sampling issues. They can also provide critical data when a biopsy is not possible. Clinical studies have demonstrated that the presence and number of CTCs in blood provides information on the likely course of certain types of disease for the cancer patient, or in other words they are considered "prognostic." Since CTCs in blood and tumor cells in CSF are representative of the tumor, they can also be used for biomarker analysis, such as helping to guide therapy selection. Such analyses are "predictive" in that they offer insight into the likely responsiveness or resistance to particular therapies. After surgery and during any subsequent therapy or monitoring period, blood samples can periodically be drawn in a standard manner and analyzed to evaluate a therapy's continuing effectiveness, as well as to detect other biomarkers such as new genetic mutations that may arise as a result of selection pressure by a particular therapy or by chance. Physicians can use this information to determine which therapy is most likely to benefit their patients at particular times through the course of their disease. Treatment decisions based on patient-specific information are the foundation of personalized medicine, and assays that guide a physician in the selection of individualized therapy for a patient are termed "predictive assays."

ctDNA and ctRNA are nucleic acids that are released into blood by dying tumor cells. Cell death occurs in all tissues, especially those that are rapidly dividing, and in cancer, where cell growth is not only rapid but also uncontrolled. Parts of tumors often outgrow their blood supply, resulting in cell death. Tumor cells dying as a result of therapy also release nucleic acid into blood. As a consequence, ctDNA is common in cancer patients and scientists believe that like CTCs, it may be more representative of a patient's entire tumor than a few thin sections from a tissue biopsy, thus reducing the heterogeneity problem. ctDNA is found in the plasma component of blood and is readily accessible in a standard blood sample. Analyzing ctDNA for mutations that are used as biomarkers for therapy selection shows great promise. One of the strengths of this approach, in addition to not

requiring a tissue biopsy, is that it is not dependent on capturing rare tumor cells from blood to provide a sample for testing. The difficulty with this approach is that the cellular context is lost since the ctDNA is mixed with a much larger amount of circulating DNA from normal cells that are continuously dying and being replaced in the body, thus making analysis challenging. This requires a mutation detection methodology with enhanced sensitivity and specificity, to distinguish mutations in particular gene regions in cancer cells from the normal gene sequence present in those same genes in normal cells which co-exist in blood as normal cells die and are replaced in the body. Our Target Selector technology provides this necessary sensitivity and specificity and creates an opportunity for ctDNA analysis to complement CTC analysis, or potentially to serve as the platform for stand-alone assays.

Given the incidence of cancer in the United States, with an estimated 1.8 million new cases in 2020 for the major solid tumors targeted by our current and planned future assay products, the markets for our diagnostic assays are very large. Furthermore, these market opportunities are enhanced due to the benefits of CTC and ctDNA testing, including not only the ability to offer physicians a simple way to augment an initial tumor biopsy analysis but also to provide a means for relatively frequent monitoring of the tumor's molecular status, utilizing a standard blood or other fluid sample such as CSF as a "liquid biopsy." The latter application enables the physician to determine if or how a tumor is changing over time or is responding to therapy and what the next treatment should be. For example, in the United States, the American Cancer Society estimates there will be approximately 340,000 new cases of breast cancer alone diagnosed in the United States in 2022 and the prevalence of this disease is over 3.8 million (the number of women with a history of breast cancer in the United States, including women being treated and women who have finished treatment). If a CTC assay were performed at the time of initial diagnosis, at the time of surgery, or in lieu of, or as an adjunct to, a PET/CT scan (as a CTC assay has the potential to identify a single tumor cell in a blood sample, while a scan requires a tumor mass of millions of cells to be detectable), to monitor disease progression or test for recurrence, thousands of assays, in breast cancer alone, could be performed per year with still relatively low market penetration.

Use of CTC- and ctDNA-Derived Biomarker Data in Cancer Treatment

CTCs and ctDNA are derived from, and are understood to be representative of, a solid tumor and its metastases and can be analyzed as adjuncts to or in place of the tumor, especially when a recent tumor biopsy is not available. This is also referred to as a liquid biopsy. In theory, almost any analysis that can be performed on tumor tissue can also be performed on CTCs, or tumor cells in CSF, while ctDNA in blood or CSF, because it is only nucleic acid, is more limited. We have focused our analysis of CTCs and ctDNA in blood and tumor cells and ctDNA in CSF on known biomarkers associated with specific therapies to support treatment decisions and therapy selection made by physicians. The biomarkers we analyze consist of proteins or protein modifications that can be identified by immunocytochemical means, cytogenetic or chromosomal aberrations, which are detected by FISH. Gene expression changes or molecular alterations in CTCs or ctDNA are often detected by molecular diagnostic assays, including Target Selector techniques such as immunocytochemical, or ICC, FISH and gene sequencing. Specific examples include (i) for ICC, the detection of the estrogen receptor protein in breast cancer, indicative of the likely responsiveness to hormonal therapies like tamoxifen, often sold under the trade name Nolvadex®, (ii) for FISH, the presence of an amplified *HER2* gene in breast cancer, indicative of the likely responsiveness to *HER2*-targeted agents like trastuzumab, often sold under the trade name Herceptin®, and (iii) for mutation detection, the presence of an EGFR activating mutation in NSCLC like L858R, indicative of the likely responsiveness to EGFR-targeted agents like Erlotinib®. All of these biomarkers are currently tested on tumor tissue and can be tested on CTCs in blood or tumor cells in the CSF, and in the latter case on ctDNA. The resulting information could then be used to guide patient care, and specifically treatment selection.

To date, these types of molecular and genetic detection methods have been successfully utilized to provide predictive information for several cancers including breast, colon, NSCLC, melanoma and others in the form of companion diagnostics, typically performed on tumor tissue. CTC and ctDNA assays, which analyze the same biomarkers in a more convenient standard blood sample test that also permits periodic monitoring, could be used in the same way. In CSF, we are using similar methods to analyze tumor biomarkers and cell counts over the course of treatment, which we consider a prototypic form of quantitative and genetic treatment response monitoring for patients with CNS metastasis (see abstracts presented at SNO Brain Metastasis meeting in August 2021 and SNO annual meeting in November 2021).

Our Business Strategy

We provide neuro-oncologists, oncologists and other physicians and health care providers that treat cancer with a means to profile and characterize the genomic alterations of their patients' tumors by analyzing tumor cells and ctDNA found in standard blood draws or CSF obtained by lumbar puncture or through an Ommaya reservoir, avoiding the need for surgical tissue biopsy or other more inconvenient or invasive methods. Our assays are designed to address three principal clinical questions:

Is there tumor? We believe that our technology, which provides information on the presence of CTCs in blood and tumor cells in the CSF can be used to diagnose the progression of disease, in particular, tumor cells in the CSF can be used to confirm suspected CNS metastasis of lung or breast cancer.

Is there target? Our technology can be used to assess molecular biomarkers in tumor cells or ctDNA, that can provide information to physicians to help guide the selection of more effective targeted therapies where available.

Is there trend? Our CSF tumor cell assays can be used to follow the response to therapy, by providing a more sensitive and quantitative measure of tumor burden than other methods such as CSF cytology or radiologic imaging.

Our goal is to become the standard of care for cancer patients with advanced disease. Our approach is to develop and commercialize CTC and ctDNA assays and services that enable us to offer actionable information from a standard blood or CSF sample for a range of solid tumor types so that oncologists can make treatment decisions which improve patient care. To achieve this, we intend to:

- Develop and commercialize a portfolio of proprietary CTC and ctDNA and ctRNA assays that enable physicians to personalize cancer treatment. Our predictive biomarker assays are designed to provide a more complete profile of a patient's disease than other current liquid biopsy tests that are based on either CTCs or ctDNA and ctRNA alone. Other CTC assays on the market lack molecular biomarker capability. Other ctDNA assays on the market lack information regarding the presence of tumor cells which can inform treatment decisions in suspected CNS metastasis. In the case of CSF specimens, our combined CTC and ctDNA and ctRNA assays are expected to offer enhanced sensitivity and specificity compared to CSF cytology alone, based on our initial studies.
- Scale our sales and marketing capabilities. Our direct sales force with specialized experience in cancer diagnostic testing focuses on key identified territories in order to provide geographic coverage throughout the United States. At December 31, 2021, we had 13 sales representatives. This number may adapt as our business grows and evolves. This team will educate physicians directly on the benefits of our assays and the clinical data supporting them, as well as provide support to and serve as technical specialists for our partners. In addition to our internal efforts, we are actively seeking commercial partnerships that can increase our market reach.
- Develop and expand our collaborations with leading university hospitals and research centers. We currently collaborate with key thought leaders, physicians and clinical researchers across the country, including those at Sarah Cannon Research Institute, University of Colorado, Northwestern University Lurie Cancer Center, Stanford University, Penn State University, University of California, San Diego, St John's Cancer Institute at Santa Monica (formerly John Wayne Cancer Institute), Columbia University, Emory University, Johns Hopkins Medical Institute, University of Texas Southwestern Medical Center, Yale University, Ohio State University, Vanderbilt University, Georgetown University and many others. Our collaborations enable us to conduct Institutional Review Board approved clinical studies, test new technologies, validate the effectiveness and utility of our planned future assays in a clinical setting and provide us access to clinically well-characterized and highly annotated patient data. These samples and data accelerate our validation process and facilitate the testing and refinement of our planned new assays.
- Increase our efforts to provide biopharmaceutical companies and clinical research organizations with our current and planned CTC and ctDNA and ctRNA assays and services. To improve the outcome of clinical trials and accelerate the development of advanced neuro-oncology focused therapeutics, with advanced assays that specifically address the needs of neuro-oncology focused clinical trials. These include CTC and ctDNA and ctRNA assays that provide the ability to characterize patient-specific biomarkers in the CSF and monitor CNS tumor changes over time. There are over 5,000 active trials in the United States for breast, lung, colorectal, prostate and gastric cancers and melanoma according to clinicaltrials.gov. We expect to increase our sales and marketing focus in this business as well as seek additional collaborations and partnerships with diagnostic, pharmaceutical and biopharmaceutical companies.
- Become an enabling technology to neuro-oncology directed targeted therapies. Biopharmaceutical companies will increasingly focus on the personalized cancer diagnostic as the prevalence of molecularly targeted neuro-oncology therapies approved by the FDA increases, thus necessitating the need for companion diagnostics. As targeted therapies move into their next phase, the market is beginning to see next generation cancer drugs such as AstraZeneca's Tagrisso® (Osimertinib) approved for CNS indications. With these drugs, because of tumor heterogeneity, the molecular status of the tumor might change from the original tissue biopsy, so the patient must undergo a re-biopsy procedure so the current molecular profile of the patient can be assessed. In many cases, re-biopsy is not medically feasible and CSF-based assays that identify molecular targets offer a more cost effective and safer alternative in this application. Another area of interest for the pharmaceutical industry is in immuno-oncology. Immunotherapies help the body counter the cancer cell's ability

to evade the immune system. Several protein-based tests have been developed in tissue to work as complimentary or companion diagnostics to these new and promising drugs, but the use of these tests will be limited in CNS as a result of limitations with tissue biopsies in the CNS. Our solution is to test for these proteins with a CSF liquid biopsy-based test rather than relying on tissue biopsies.

- Continue to enhance our current and planned future CTC and ctDNA and ctRNA assays and reduce the costs associated with providing them through internal research and development and partnering with leading technology developers and reagent suppliers. We intend to work closely with select key technology developers and suppliers to further automate the optical interpretation of our current assays and our planned additional CTC assays, including enumeration, immunocytochemical biomarker staining and FISH. We have and currently utilize an automation system that significantly reduces the hands-on time of our cytogenetic technologists for microfluidic channel analysis while increasing the uniformity of the data we generate. This system is also expected to provide the ability to evaluate multiple fluorescent signals of different wavelengths simultaneously for multiplexed analysis, further enhancing efficiency.

Our Competitive Advantages

We believe that the competitive advantages of our molecular assays, including our assays which are still under development, would include the following.

- *Our current CNSide and Target Selector molecular assays enable, and we anticipate our planned future CTC and ctDNA and ctRNA assays will each enable, detailed analysis of a patient's cancer utilizing a standard blood or CSF sample, facilitating testing at any time, including when a biopsy is not available or inconclusive, offering real-time monitoring of the cancer and the response of the cancer therapy, and allowing medical oncologists, neuro-oncologists, surgical oncologists, pulmonologists, urologists, integrative oncologists, and pathologists and other physicians to select timely modifications to treatment regimens.* Because CTCs and ctDNA and ctRNA are derived from the primary tumor or its metastases, they function as surrogates for the tumor, with the advantage of being readily accessible in a standard blood or CSF sample. This is especially important in situations where a biopsy is not available or advised. The simplicity of obtaining a standard blood or CSF sample permits repeat testing in a monitoring mode to detect recurrence or progression and to offer information on treatment modifications based on a current assessment of the cancer's properties. A key advantage to using Biocept is our ability to interrogate both tumor cell and ctDNA and ctRNA biomarker targets.

- *Our current CNSide and Target Selector assays each provide, and we anticipate our planned future assays will each provide more information than competitors' existing tests, as a result of being able to provide biomarker results for both ctDNA, ctRNA and CTCs or CSF tumor cells.* We anticipate that such additional biomarker information will enable a physician to develop a personalized treatment plan. By including biomarker information in our analysis, in addition to tumor cell enumeration, our current assays and our planned future assays are designed to provide a more complete profile of a patient's disease than other existing cell-based assays or ctDNA and ctRNA. We intend for our assays to contain actionable information to assist physicians in selecting appropriate therapies for individual patients. Our ctDNA and ctRNA assays are expected to offer enhanced sensitivity and specificity based on our patented technology, enabling earlier detection of therapy-associated mutation targets or resistance markers, again supporting treatment decisions.

- *Our current CNSide and Target Selector assays and our planned future assays are designed to detect and characterize tumor cells in CSF and blood better than other existing tests such as CSF cytology and to be applicable to, or quickly modifiable for, a wide range of cancer types.* Our antibody capture cocktail includes antibodies targeting not only the traditional epithelial CTC capture antigen, or EpCAM, utilized in the CellSearch® system and in other platforms, but also other epithelial antigens as well as mesenchymal and cancer stem cell antigens, indicative of cells having undergone the epithelial-to-mesenchymal transition. These cells may be more relevant for metastasis. Our detection methods include cellular staining for cytokeratin and other protein biomarkers with a broader range of applications than existing CTC tests. We believe that through our enhanced capture and staining, more tumor cells in CSF will be identified than by the CSF cytology alone, resulting in fewer non-informative cases and more information for physicians.

- *Our current and planned CTC and ctDNA Target Selector assays will be flexible and readily configurable to accommodate new biomarkers with clinical relevance as they are identified.* In theory, our platforms permit essentially any analysis that is currently performed on tumor tissue to be performed on CTCs, including immunocytochemical

staining, FISH and molecular analysis. As new therapies are approved, and to the extent that they are targeted therapies for which knowledge of a particular gene amplification event, mutation or presence, absence or modification, such as phosphorylation, of a protein are indicative of likely response or resistance to that therapy, we will be able to include them in our assays with minimal changes. This is attractive to pharmaceutical and biotechnology companies that are developing such therapies or seeking ways to make their clinical trials more efficient, as this flexibility enables them to focus on patients more likely to respond to a particular therapy and demonstrate a benefit from that therapy.

- *Collaborative relationships with physicians including key opinion leaders at several nationally recognized health and research institutions and other leading strategic partners and accounts.* We have worked closely with dozens of physicians on various collaborative projects in different cancer types including breast, NSCLC, prostate, colorectal, ovarian, bladder and endometrial. These projects provide us access to leading researchers, clinicians and key opinion leaders, access to valuable patient samples and insight into clinical applications for our assays. Some of these projects have resulted in publications in leading journals, such as Cancer Discovery and Cancer Medicine, which enhances our standing in the oncology community and supports our marketing efforts.

- *Our planned Target Selector mutation assays would not be platform dependent. These assays are being designed to be able to be performed on almost any molecular instrument, which will provide flexibility in laboratory operations*. To the extent we elect to develop these assays as in vitro diagnostics, or IVDs, including by pursuing CE marks for such assays to be marketed outside the United States, the ability to rapidly deploy them on different approved instrument platforms already in many laboratories should greatly simplify their distribution and commercialization.

Our Assays, Products and Services

Assays, Products and Services

We currently offer and conduct our commercialized diagnostic assays and offer our clinical trial services at our CLIA-certified, CAP-accredited and California state-licensed laboratory. We have commercialized our CNSide and Target Selector assays for detecting and characterizing many different "carcinomas" derived from epithelial cells of solid organs such as: breast cancer, NSCLC, gastric cancer, colorectal cancer, prostate cancer, pancreaticobiliary cancer, and ovarian cancer. These assays utilize our dual cellular and ctDNA and ctRNA technology platforms and provide biomarker analysis from a patient's blood sample. In addition, we launched RT-PCR COVID-19 testing at our laboratory during the second quarter of 2020.

Our current assays and clinical trial services include:

- *CSF tumor cell and ctDNA and ctRNA Testing*. Our current CSF and blood based assays and our other planned cancer diagnostic assays are based on our Target Selector technologies. After completing testing, we or our partners provide our customers with an easy-to-understand report that describes the results of the analyses performed, which is designed to help medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians make better decisions about the treatment of their patients. We introduced a CNSide specific report in 2021 and have recently improved this to include a serial report feature.
- *Clinical Trial Services.* We plan to utilize our clinical laboratory and translational research capabilities to provide clinical trial and research services to pharmaceutical companies, biopharmaceutical companies and clinical research organizations to improve the efficiency and economic viability of their clinical studies. Our clinical studies and translational research services could leverage our knowledge of CTCs and ctDNA and ctRNA and our ability to develop and implement new cytogenetic, immunocytochemical and molecular diagnostic assays. Our current assays can, and our other planned cancer diagnostic assays and biomarker assays are anticipated to be able to, help optimize clinical trial patient selection and/or monitor cancer drivers during the course of treatment or disease progression. Demonstration of clinical utility of our assays would more easily enable these tests to be adopted in standard clinical practice, helping physicians select the most appropriate therapy for their patients.

- *RT-PCR COVID-19 Testing*. We are currently performing RT-PCR testing for COVID-19 and have received more than 800,000 samples for processing to date. We are currently seeing reduced demand for our COVID-19 testing services and expect this trend to continue absent a negative and sustained turn in the course of the pandemic.

In the case of our breast and gastric cancer offerings, biomarker analysis involves FISH for the detection and quantitation of the HER2 gene copy number as well as ICC techniques for the analysis of estrogen receptor, or ER, protein, progesterone

receptor, or PR, protein, in breast cancer and androgen receptor, or AR, protein in prostate cancer. All of these tests are currently available commercially. We have also validated and offer Next Generation Sequencing, or NGS, assays for use in lung and breast cancer, or for the detection of mutations seen in the cell-free DNA or other tumor types. A patient's HER2 status provides the physician with information about the appropriateness of therapies such as Herceptin® or Tykerb®. ER and PR status provides the physician with information about the appropriateness of endocrine therapies such as tamoxifen and aromatase inhibitors.

Our lung cancer biomarker analysis offering currently includes FISH testing for other tumor biomarkers such as ALK, ROS1, RET, MET and fibroblast growth receptor 1, or FGFR1, gene rearrangements, as well as analysis for the T790M, Deletion 19, and L858R mutations of EGFR, as well as BRAF and KRAS. The L858R mutation of the EGFR gene and Exon 19 deletions as activators of EGFR kinase activity. For lung cancer, we also offer a resistance profile assay consisting of the biomarkers MET, HER2 (both of which we perform using our technology for CTCs), KRAS, and T790M (both of which are performed using ctDNA in plasma). These assays can be used by physicians to identify the mechanism causing disease progression for patients with NSCLC who are being treated with tyrosine kinase inhibitor, or TKI, therapy and therefore may qualify patients for inclusion in a clinical trial. We have also validated and offer a NGS assay for use in NSCLC.

FGFR1 amplification is offered by FISH on our cell-based assays. FGFR1 is present in several tumor types, including both NSCLC and small cell lung cancer, or SCLC, and has been shown to be a prognostic indicator of progression. FGFR1 is also a key target for several drugs undergoing clinical development.

We analytically validated PD-L1 testing utilizing our CTC technology in 2016. PD-L1 is a biomarker that is informative for immuno-oncology therapies currently marketed for lung cancer and melanoma, as well as therapies in development for other tumor types. We collaborated with David Rimm, M.D., Ph.D., a pathologist at Yale Medical School and a scientific advisor to us, on the analytical development of this assay.

In August 2017, we announced that we had executed a distribution agreement for our proprietary SCTs with VWR International, LLC which can preserve intact cells (such as CTCs) for up to 96 hours and ctDNA for up to 8 days, allowing for the intact transport of RUO liquid biopsy samples from regions around the world.

We intend to continue to commercialize cancer diagnostic assays in the United States as LDTs performed in our CLIA-certified, CAP-accredited, and state-licensed laboratory. We plan to evaluate potential opportunities for the commercialization of our products in other countries. We believe the Target Selector technology can be used for molecular biomarker screening, marketed as RUO test kits.

We launched the first of our RUO Target Selector kit products, ctDNA EGFR, in January 2019. Additionally, we plan to evaluate opportunities for licensing of our products and proprietary technologies to partners in the United States and abroad.

We launched our RT-PCR COVID-19 testing business during the second quarter of 2020. We have received more than 800,000 samples for processing through our RT-PCR technology at our laboratory through the date of filing. We are currently seeing reduced demand for our COVID-19 testing services and expect this trend to continue absent a negative and sustained turn in the course of the pandemic.

In December 2018, we entered into a Software License and Laboratory Data Supply Agreement with Prognos, Inc., or Prognos, an innovator in predicting disease by applying artificial intelligence, or AI, to clinical laboratory diagnostics. Under the agreement, we will supply de-identified data from our liquid biopsy testing to Prognos, which will leverage its AI capabilities to help its pharmaceutical clients ensure that the right patients receive the right therapies. Since the agreement went into effect, we have received quarterly revenue sharing payments.

In May 2019, we announced the launch of the Target Selector NGS lung cancer panel. We are working to gain payment for our assay with Palmetto GBA, LLC, or Palmetto, which is contracted with Centers for Medicare & Medicaid Services, or CMS, to administer the Molecular Diagnostic Services, or MolDx, to vet new technologies and assays. This means that they must determine that our test is reasonable and necessary for the care of patients diagnosed with late-stage NSCLC. This is the first step in gaining reimbursement for a proprietary test, and we are in the process of negotiating coding and pricing. Once that is finalized, Noridian Healthcare Solutions, LLC, or Noridian, the Medicare carrier for our region, must review and accept the recommendation for payment from Palmetto. If they agree with the recommendation from Palmetto MolDx, then Noridian

will adopt the payment and reimbursement recommendation or develop their own, and we can then receive payment from Medicare for our lung cancer panel.

In June 2019, we announced launch of the Target Selector NGS breast cancer panel, a multi-gene liquid biopsy panel specifically developed for breast cancer. This panel is being marketed to physicians and cancer researchers for the detection and monitoring of actionable genomic biomarkers associated with breast cancer.

In November 2019, we announced launch of our liquid biopsy test to detect the pan-tyrosine receptor kinase, or TRK, protein biomarker in the blood of patients diagnosed with cancer. Identification of TRK protein enables physicians to rapidly and cost-effectively identify the potential presence of neurotrophic tyrosine receptor kinase, or NTRK, fusions used to inform on treatment options. We have subsequently launched FISH assays for NTRK1 and NTRK3 fusion genes in our cell-based assays to accompany and/or substitute for the TRK protein assay.

In April 2020, we announced the availability of RUO kits that can allow molecular laboratories around the world to utilize Biocept's Target Selector molecular assay kits to detect key oncogene mutations through the analysis of both Formalin-Fixed Paraffin-Embedded, or FFPE, tissue gained from surgical biopsies as well as ctDNA gained from blood-based liquid biopsies. In addition, we announced the award of Conformité Européene-IVD Mark, or CE-IVD Mark, for European and global ex-US distribution of our Target Selector molecular assay EGFR kit and CEE-Sure SCTs where applicable.

In May 2020, we announced the availability of a Target Selector molecular assay RUO kit for the detection of BRAF mutations in ctDNA and FFPE samples.

We launched our RT-PCR COVID-19 testing business during the second quarter of 2020 and have received more than 800,000 samples for processing through our RT-PCR technology at our laboratory to date. We are currently seeing reduced demand for our COVID-19 testing services and expect this trend to continue absent a negative and sustained turn in the course of the pandemic.

In April 2021, we announced full commercial launch of our CNSide cerebrospinal fluid assay to address unmet needs of patients with metastatic brain cancer. The CNSide cerebrospinal fluid assay is designed to detect and manage treatment of metastatic cancers involving the CNS.

In June 2021, we announced a collaboration with Quest Diagnostics, or Quest to provide laboratory testing services to Quest patients using our Target Selector NGS-based liquid biopsy targeted lung cancer panel. Quest is the leading provider of diagnostic information services, including advanced diagnostics. Quest launched the test on December 15, 2021.

In July 2021, we received a positive final Local Coverage Determination that expands Medicare coverage for use of our Target Selector assay to identify the HER2 biomarker from CTCs. This coverage determination from the CMS Molecular Diagnostics Program (MolDX®) was effective July 4, 2021.

Pharmaceutical, Research and Health Economic Collaborations

We continue to execute on our strategies intended to expand our business globally, as well as to engage with pharmaceutical companies on clinical trials and assay development. We have preferred provider agreements in place in Mexico with Quest to support testing for AstraZeneca.

With our cooperation, researchers at Columbia University published a study in the journal *Clinical and Translational Oncology* in January 2015. The study demonstrated the high correlation (79%) of circulating tumor cells, primary tumor tissue biopsy and metastatic tumor tissue biopsy in the determination of hormone receptor status, or ER/PR, of breast cancer patients. The investigators also found that this high correlation was strongest when comparing metastatic tissue biopsy to CTCs (83%). The conclusion of the study was that determining ER/PR status in CTCs using our platform is feasible, with high concordance in ER/PR between tumor tissue (as determined with IHC) and CTCs (as determined with ICC). The authors suggest a larger trial to determine the prognostic significance of these findings.

In September 2015, we presented the clinical validation data of our ctDNA assay in collaboration with the University of California, San Diego. The results demonstrated a very high level of concordance to tissue results (88%), together with >95%

analytical sensitivity and 99% analytical specificity, supporting our offering of a validated, robust non-invasive solution for mutation identification and monitoring in patients with lung cancer. Subsequent FDA approval of Tagrisso®, a third-generation tyrosine kinase inhibitor, presented an opportunity for patients to be monitored using a ctDNA and ctRNA assay.

In April 2016, we announced a study collaboration with Dr. Giuseppe Giaccone at the MedStar Georgetown University Hospital to assess resistance biomarkers in NSCLC patients treated with EGFR inhibitors or chemotherapy. Later in 2016, we announced another collaboration involving a study presented at the European Society for Medical Oncology Annual Congress in October 2016, evaluating the detection of EGFR alterations (del19, L858R and T790M) by our Target Selector liquid biopsy. Subsequent to this study, we have earned business in both Mexico and Columbia for EGFR gene mutation testing in blood to qualify patients for a pharmaceutical company's targeted therapy. The relationship also resulted in a study initiated during the following year that includes peripheral blood CTC assessment of PD-L1 protein expression in patients undergoing chemotherapy as a monotherapy or in combination with a checkpoint inhibitor.

In December 2016, we announced a clinical study agreement with Columbia University Medical Center to evaluate the clinical utility of our Target Selector platform to diagnose LM in breast cancer patients. This work was expanded in the fourth quarter of 2018 to include patients with other primary solid tumor types. Dr. Kevin Kalinsky leads this study to test CTCs in CSF and blood where CTC analysis will be compared to standard methods for confirming LM diagnosis. In September 2020, Dr. Kalinsky moved to Emory University in Atlanta, but his work with Columbia University on this project continues.

In May 2017, we entered into a clinical study agreement with the University of Texas Southwestern Medical Center. Led by recognized oncologist and ALK alteration researcher, Dr. Saad Khan, the study is designed to evaluate the clinical utility of our Target Selector platform for patients diagnosed with ALK-positive NSCLC and treated with ALK-inhibitor therapy. A second arm of the study evaluated patients with rare cancers such as anaplastic thyroid cancer to determine if genetic drivers such as ALK gene rearrangements can be identified and treated with targeted therapy to improve patient outcomes.

Two complementary posters on the highly sensitive Target Selector ctDNA assays were presented in 2018. The first poster entitled "Biocept Study Shows Incorporation of Thermo Fisher QuantStudio 5 PCR Instrument into Target Selector Platform Improves Sensitivity and Specificity in Detection of Lung Cancer Biomarkers" was presented in January 2018 at the Fifth AACR-IASLC International Joint Conference: Lung Cancer Translational Science from the Bench to the Clinic. The related poster, entitled "Validation of highly sensitive TargetSelector ctDNA assays for EGFR, BRAF, and KRAS mutations" was presented at the April 2018 American Association for Cancer Research annual meeting. Together, these posters highlight improvements to the Target Selector ctDNA platform, enabling more sensitive mutation detection down to a single copy, thereby increasing the likelihood of identifying actionable molecular drivers towards guiding targeted therapy decisions and better management of a patient's cancer.

In collaboration with Dr. Shilpa Gupta from the Masonic Cancer Center at the University of Minnesota, a poster was presented at the April 2018 American Association for Cancer Research annual meeting. The results demonstrated proof-of-concept use of our Target Selector CTC platform, correlating CTC count with clinical responses in refractory testicular cancer patients undergoing therapy. This work is part of a Phase 2 clinical trial of brentuximab vedontin (an anti-CD-30 antibody) with bevacizumab in refractory CD-30 + germ cell tumors. The capability for our Target Selector CTC platform to monitor this rare cancer type presents the potential for a precision medicine-based approach to guide treatment decisions for these patients.

During the first half of 2018, three key case studies were published in peer-reviewed journals. In April, the 2018 Spring issue of *Oncology & Hematology Review* featured a case report demonstrating the clinical utility of our CTC platform whereby identification of an ALK rearrangement enabled sequential targeted therapy and improved quality of life in a patient with NSCLC. This case illustrated the use of our technology to monitor therapeutic response and early detection of drug resistance to manage patient disease through the course of treatment with various ALK inhibitors. A Letter to the Editor in the May 2018 issue of *Journal of Thoracic Oncology* described the identification of a ROS1 rearrangement by Biocept CTC analysis using FISH. The ROS1 translocation was concordant with tissue biopsy. In contrast, next-generation sequencing analysis of plasma by another vendor failed to detect the genetic alteration in the patient with lung cancer. Also, in May 2018, a case report describing the application of our CTC technology in the management of metastatic breast cancer was published in *Clinics in Oncology.* This work described a patient with recurrent breast cancer where numerous tissue-based evaluations of the individual's bone-only metastases had repeated challenges or inclusive results. HER2 amplification detected in CTCs from blood provided crucial information towards changing treatment strategies to include anti-HER therapy, consequently extending and improving the patient's quality of life. Each of the three published cases provide real-life examples in lung and breast

cancer towards establishing the importance of liquid biopsy to identify and monitor clinically actionable biomarkers to improve outcomes of patients with cancer.

In July 2018, we announced a collaboration involving two studies with the University of California, San Diego. Each of the two studies will enroll 100 patients with solid tumors, for a total of 200 patients. One study will assess the feasibility of using our CTC and ctDNA methodologies to predict post-resection disease recurrence in patients with Stage II or III cancer, and the other study will use our technology to predict response to therapy in patients with metastatic disease. Dr. Rebecca Shatsky and Dr. Razelle Kurzrock are the investigators key to both studies.

In August 2018, we announced a Quality Improvement Initiative with Highmark Health to help improve molecular testing rates of NCCN Category I Guidelines for NSCLC. The Initiative aims to improve health outcomes by using liquid biopsy to more rapidly assess a patient's actionable biomarker status towards selecting appropriate therapy, while reducing the overall cost of care. The project will evaluate at least 100 patients in the Highmark Health-affiliated Allegheny Health Network Cancer Institute. Patients will receive our CTC and ctDNA testing in addition to tissue biopsy with the goal of obtaining biomarker status results for a higher percentage of patients compared to standard testing.

Two scientific posters featuring the Target Selector CTC and ctDNA platforms were presented in September 2018 at the International Association for the Study of Lung Cancer, or IASLC, 19th World Conference on Lung Cancer. Data from these clinical studies demonstrate the ability of our technology to detect and monitor CTC counts and actionable biomarkers in both blood and CSF of patients with advanced NSCLC. The first poster described interim results of a collaboration with Dr. Janakiraman Subramanian at the Saint Luke's Cancer Institute in Kansas City, Missouri. This study evaluates CTC enumeration in advanced stage NSCLC patients before and during the course of chemotherapy. Interim data suggest that CTC counts may have prognostic and predictive potential to assess therapeutic benefit. The second poster was in collaboration with Kadmon Corporation, featuring CTC and ctDNA analyses and monitoring in the CSF of NSCLC patients with LM who were treated with tesevatinib in Kadmon's clinical trial KD019-206. In this study, alterations detected in the CSF of patients were concordant with original tissue biopsies, and serial monitoring of CTCs and ctDNA biomarkers in CSF were consistent with the overall clinical.

A case series was published in the January 2019 issue of the peer reviewed journal, *Clinics in Oncology*. The work highlights the clinical utility of liquid biopsy to stratify patients who may benefit from targeted therapy, describing three patients with metastatic NSCLC for whom tissue biopsy was insufficient for molecular profiling. In all three cases, our ctDNA liquid biopsy analyses detected an activating EGFR mutation. EGFR tyrosine kinase inhibitor therapy subsequently was initiated. Complete response lasting approximately two years was observed in one patient. For two patients, our ctDNA testing was performed at signs of clinical progression and Osimertinib was administered upon our liquid biopsy identification of the EGFR T790M resistance marker. In sum, patient survival was dramatically extended in all cases presented where targeted therapies were prescribed based on liquid biopsy results.

In April 2019, we presented a poster at the annual meeting of the American Association for Cancer Research. The work describes analytical validation of Target Selector ESR1 Next Generation Sequencing, or NGS, ctDNA assays with single copy mutant detection. The assays have a limit of detection 0.03% or better, with >99% sensitivity for mutant allele fractions ranging from greater than 5% down to 0.03%. ESR1 gene mutations are associated with acquired drug resistance in up to 55% of patients with ER positive metastatic breast cancer, or mBC, who received anti-estrogen treatment. Detection of ESR1 mutations may enable the prediction of treatment failure and disease progression in these patients. As new therapies are developed that antagonize ER activity by mechanisms that differ from current drug treatments, ESR1 mutation testing can be a helpful tool to identify patients who may benefit from these alternative agents.

In October 2019, we announced the publication of a peer-reviewed journal article featuring the analytical validation results demonstrating the high sensitivity of our Target Selector testing for EGFR, BRAF, and KRAS mutation in plasma ctDNA. The article was published in the journal, *PLOS ONE, Volume 14, October 2019*, included as part of a special collection of topical articles, entitled *Targeted Anticancer Therapies and Precision Medicine In Cancer*.

In November 2019, we presented clinical data highlighting performance of our Target Selector tests and kits for detecting actionable oncology biomarkers at the 2019 Association for Molecular Pathology Annual Meeting held at the Baltimore Convention Center, in Baltimore, MD. These abstracts were published in *The Journal of Molecular Diagnostics* that accompanied this meeting.

In December 2019, we presented clinical data supporting the use of our Target Selector CTC platform as an aid in the monitoring and treatment of breast cancer in a poster session at the 2019 San Antonio Breast Cancer Symposium, or SABCS. The data demonstrated the Target Selector platform's ability to accurately detect, enumerate, and interrogate CTCs in a cohort of over 1,500 patients, representing various clinical and treatment stages of breast cancer.

In March 2020, we announced publication of clinical data in the peer-reviewed *Journal of Clinical Pathology* that further validates the Company's Target Selector qPCR Assay using "Switch Blocker" technology to identify cancer-related mutations in liquid biopsy samples. The study examined 127 clinical assays for mutations commonly associated with cancer found in the EGFR, BRAF and KRAS genes. Each Target Selector assay in the study demonstrated extremely high accuracy, sensitivity and specificity when compared to results obtained from tissue samples, showing a 93%-96% concordance to blinded tissue samples across all assays.

In October 2020, we announced results from a prospective study comparing our Target Selector CSF testing to conventional cytology in patients with NSCLC and LM showing that our Target Selector CSF testing may provide a more robust method for detecting lung cancer metastasis in CSF than the current standard of cytology analysis.

In November 2020, we announced results of a study analyzing CSF samples in patients with primary lung or breast cancer with either brain or LM disease. The findings indicate that Target Selector CSF assays are a viable and sensitive platform for CTC detection and molecular analysis compared to the current standard of care, CSF cytology, which is typically used to establish or confirm LM disease when cytology imaging findings are suspicious or equivocal.

In December 2020, we announced results from a prospective study showing Target Selector was highly accurate in monitoring HER2 alterations in patients with metastatic breast cancer. The results were featured in a poster presentation at the virtual 2020 SABCS.

In February 2021, we presented data at the Molecular Med Tri-Con Virtual Conference, showing that our Target Selector molecular assay kit detects mutations in up to 50% of tissue biopsy specimens, from patients diagnosed with NSCLC that were deemed quantity not sufficient by conventional methods.

In February 2021, we announced establishing a research collaboration with Protean BioDiagnostics, Inc. to research the ability of our Target Selector molecular assay to determine EGFR status in NSCLC patients.

In August 2021, we presented data at the SNO Brain Metastasis conference related to our CNSide experience on several NSCLC cases from one institution, the University of Utah. Recently, we had other abstracts accepted for poster presentation at the upcoming annual November meeting of the SNO in Boston and the annual SABCS in December.

In November 2021 we presented a poster at the annual SNO meeting in Boston on our experience with longitudinal (or serial) therapy monitoring of CSF tumor cells in patients from four different institutions.

In December 2021, in a spotlight poster presentation at the SABCS, we presented our experience with genetic heterogeneity of HER2 in CSF tumor cells evaluated in patients with breast cancer that had metastasized to the CNS.

In February 2022, at the Molecular TriConference for Precision Medicine in San Diego, we presented a brief summary of our collective experience evaluating CSF tumor cells for purposes of evaluating metastatic cancer involving the CNS to determine targets for therapy and quantify the response to treatment over time.

Provider Agreements

In January 2017, we announced that we had secured an in-network provider agreement with Blue Cross Blue Shield of Texas, the largest provider of health benefits in Texas. In addition, we entered into a national master business agreement with the Blue Cross Blue Shield Association, a not-for-profit trade association that provides multiple services for its 38-member Blue Cross and Blue Shield health plan companies across the U.S., including forming national strategic vendor partnerships. We were selected by the Blue Cross Blue Shield Association based on a rigorous request-for-proposal progress. This agreement establishes pricing for our Target Selector liquid biopsy testing service through the Blue Cross Blue Shield Association's group purchasing organization, CareSourcing Workgroup. The pricing offered by the CareSourcing Workgroup group purchasing

organization is available to those Blue Cross and Blue Shield member health plans that have, or may seek, in-network agreements with us.

In June 2017, we entered into a participating provider agreement with MediNcrease Health Plans, LLC and a preferred provider agreement with Scripps Health Plan Services, Inc., both establishing pricing for our Target Selector liquid biopsy testing service.

In December 2017, we signed an agreement with Wellmark, Inc., or Wellmark, the largest health insurer in Iowa and South Dakota. The agreement marks our third Blue Cross Blue Shield contract and enables patients diagnosed with cancer the ability to access our proprietary testing services in-network under their Wellmark health plan.

In August 2018, we entered into a quality initiative program with Highmark and Alleghany Health Network as a result of the Caresourcing Workgroup. The focus is to improve access to molecular testing to members with a diagnosis of lung cancer. Enrollment began in August 2018 and has been steadily increasing.

In July 2019, we announced that we entered into a Laboratory Services Provider Agreement with Beacon Laboratory Benefit Solutions, Inc., a nationally recognized premier provider of laboratory benefit management technology solutions to health and managed care companies in the United States.

In February 2020, we announced that we entered into an agreement with a California-based independent physician association, or IPA, to provide our liquid biopsy testing services to physicians and patients in their network. Our Target Selector offering includes the choice of individual biomarker tests or a larger liquid biopsy panel, enabling physicians to select the best approach for each patient.

In June 2020, we announced that we entered into a managed care provider agreement with Medical Cost Containment Professional LLC, or MCCP, to process out-of-network claims for our Target Selector liquid biopsy testing. MCCP is a reference-based pricing insurance network that includes more than 150,000 providers nationwide.

In August 2020, we announced the expansion of our agreement with MultiPlan, Inc., or MultiPlan, to include COVID-19 testing services at a pre-negotiated price per test. MultiPlan is a healthcare cost management company offering payment integrity, network-based and analytics-based services. With the expanded agreement, our RT-PCR COVID-19 testing, in addition to our liquid biopsy oncology testing services, are now accessible to consumers who have access to the PHCS and MultiPlan Networks, MultiPlan's national primary and complementary networks. More than 1 million healthcare providers participate in MultiPlan's networks and 60 million health plan members have access to the company's services.

In addition, in August 2020, we entered into an agreement with a healthcare group to provide RT-PCR COVID-19 testing to skilled nursing facilities. The group operates and supports more than 50 facilities in multiple states, with most located in California.

In September 2020, we announced that Highmark, America's fourth largest Blue Cross Blue Shield affiliate, has made a positive coverage determination that our Target Selector liquid biopsy assay has been accepted for medical coverage for use in the diagnosis and treatment of patients with NSCLC. In addition, we announced that we entered into an agreement with Health Net Federal Services LLC to be an in-network provider for Target Selector liquid biopsy oncology platform testing for cancer patients in the TRICARE West, or TriWest, region network. TriWest provides healthcare services to approximately 3 million members of the U.S. military and their families.

In December 2020, we announced entering into laboratory services agreements with two Southern California regional IPAs providing physicians and patients in-network access to our full array of Target Selector liquid biopsy assays and services. Both IPAs are headquartered in San Diego and combined they serve more than 70,000 covered lives in the Southern California region.

We are currently contracted with nine preferred provider organization networks, three large health plans, and five regional independent physician associations, and expect to continue to gain contracts to be considered as an "in-network" provider with additional plans.

Laboratory Testing

From our CLIA-certified laboratory in San Diego, California, we provide test results from our current and planned CTC and ctDNA assays to medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians in community hospitals, cancer centers, group practices and offices. At the federal level, clinical laboratories, such as ours, must be certified under CLIA in order for us to perform testing on human specimens. Our laboratory is also accredited by CAP, which is one of six accreditation organizations approved by CMS under CLIA. Our clinical laboratory is located in California and we hold the requisite license from the California Department of Public Health to operate our laboratory. In addition, we hold licenses issued by the states of Maryland, Pennsylvania and Rhode Island to test specimens from patients in those states or received from ordering physicians from those states. In addition, our clinical reference laboratory is required to be licensed on a product-specific basis by New York as an out of state laboratory and our products, as LDTs, must be approved by the New York State Department of Health before they are offered in New York. As part of this process, the State of New York requires validation of our assays. We currently do not have the necessary New York license, but we are in the process of addressing the requirements for licensure in New York. Our medical director holds a New York Certificate of Qualification applicable to the evaluation of tumor biomarkers.

Clinical Study Biomarker Testing Services

Industry research has revealed that many promising drugs have produced disappointing results in clinical trials. For example, a study by Princess Margaret Hospital in Toronto estimated that over a five-year study period 85% of the new therapies for solid tumors which were tested in early clinical trials in the United States, Europe and Japan failed, and that of those that survive through to Phase III trials, only a third will be approved. Given such a high failure rate of oncology drugs in clinical development, combined with constrained budgets for pharmaceutical and biopharmaceutical companies, there is a significant need for drug developers to utilize molecular diagnostics to help decrease these failure rates. For specific molecular-targeted therapeutics, the identification of appropriate biomarkers may help to optimize clinical trial patient selection and success rates by helping clinicians identify patients that are most likely to benefit from a therapy based on their individual genetic profile.

In addition to testing for physicians and their patients, we offer liquid biopsy testing services to help increase the efficiency and economic viability of biomarker analysis pertinent to clinical trials conducted by pharmaceutical and biopharmaceutical companies and clinical research organizations. Our liquid biopsy testing services are aimed at developing customizable assays and techniques utilizing CTC and ctDNA technologies to provide sensitive, real-time characterization of an individual patient's tumors using a standard blood sample. These assays may be useful as, and ultimately developed into, companion diagnostics associated with a specific therapeutic. Additionally, through our services, we may gain further insights into biomarkers for disease progression and drug resistance, as well as those associated with current drug development efforts, which we can incorporate into assays.

Assay Development Process

Our Target Selector assays were, and our planned additional CTC and molecular assays are being, developed and validated in conjunction with leading academic and clinical research centers to ensure that the needs of the clinical community are being met with the latest research on key biomarkers that affect patient care. We utilize a research and validation process to help ensure that we are providing diagnostic, prognostic and predictive information that is clinically relevant and accurate. The timeframe for this process from design through development and market launch is dependent upon, among other things, the biomarkers in question having been discovered and validated before we incorporate them in an assay, the specific clinical claims we plan to pursue, and the availability of high-quality samples for validation. Our development protocol calls for us to monitor and review the process in four stages as detailed below:

- **Stage 1, Research**. We review known, validated biomarkers, preferably associated with a specific therapeutic or other high value treatment decision and discuss with clinical collaborators and key thought leaders to characterize the opportunity, the specific clinical setting and the product profile of the candidate assay.

- **Stage 2, Assay Development**. We design the assay, which typically has two parts: efficient capture of CTCs and/or isolation of ctDNA from the targeted cancer type and development of the biomarker assays that will be included. For example, the first part may involve modification of the antibody capture cocktail and the second could include development of specific Target Selector mutation assays or testing of FISH probes. Assay development utilizes contrived analytical samples, normal control specimens and ultimately clinical samples to assure performance. The assay development process includes defining the performance characteristics of the assay as well as developing standard protocols for our CLIA-certified, CAP accredited, and state-licensed laboratory, where the assay will ultimately be performed. This assessment includes such features as accuracy, precision (inter-assay, intra-assay, inter-operator, inter-instrument, etc.), sensitivity, and specificity.
- **Stage 3, Clinical Validation**. When the assay is performing as desired it undergoes a rigorous validation process which includes both analytical and clinical validation. Clinical accuracy is performed and validated against an orthogonal reference for that biomarker, which is typically tumor tissue analysis. Depending on the tumor type and specimen requirement, samples are collected from patients through collaborators, or in the case of molecular assays, from commercial sample banks, where clinical information on the patients, including outcomes, is already available. We create standard operating procedures, quality assurance and quality control measures to ensure reproducibility and high standards of quality.
- **Stage 4, Availability for Commercialization**. Upon the completion of clinical validation and before launch, we take several steps to prepare an assay for marketing as an LDT. We create standard operating procedures and quality assurance and quality control measures to ensure repeatability and high standards of quality. We train both our commercial and laboratory staff on the interpretation and use of the data. Licenses and approvals for our laboratory to perform or use LDTs have been obtained from the appropriate regulatory authorities, such as CMS, which oversees CLIA, and different state regulatory bodies.

We currently offer 25 assays that are available for clinical use that have completed all four stages of the development protocol. Other assays for both CTCs and blood and CSF molecular testing are in earlier stages of development. Markers for such assays include, but are not limited to, ESR1, PSA, CD68, NTRK2, NTRK3, MSI and a multiplexed assay.

We may be required to seek FDA clearance or approval to expand the commercial use of assays to other laboratories and testing sites in the United States. We may also need to complete additional activities to submit each of these assays for regulatory clearance or approval before commercialization in each of the international markets where introduction is planned.

If the FDA finalizes its current draft guidance on a risk-based framework for regulation of LDTs, our process would also need to allow for obtaining FDA review, clearance or approval, as applicable, which would add delay, expense and risk to our current assay development process. In November 2016, the FDA put the process to review and issue this guidance on hold and has not yet provided further information as to when the process will move forward.

Technology Development

In addition to developing new CTC and molecular assays for different cancers to be offered through our CLIA laboratory and adapting additional predictive biomarkers to these assays as their importance is demonstrated by the scientific and clinical research communities, we continue to focus on improving the base technologies underlying our assays and processes. We are exploring various ways to improve CTC capture efficiency and detection, as well as approaches to sub-categorize CTCs into different populations that may have clinical relevance. For example, by determining which antigens individual CTCs expressed that enabled their capture, we could differentiate, and enumerate, various CTC phenotypes, for example, epithelial versus mesenchymal. We are also working to simplify the assay process, and in general to provide a broader range of useful data on a patient's cancer to assist the physician in determining an appropriate treatment. Some of these projects and initiatives include:

- **Improve Ability to Capture CTCs**

  Continued modification and optimization of our microfluidic channel as a way to further enhance CTC capture efficiency. Capture efficiency directly impacts sensitivity, informative rate, and the ability to perform accurate and reliable biomarker analyses on the CTCs, all of which increase the value of our offering. We are utilizing some of our early research experience to improve CTC capture rates and reduce background contamination from normal white blood cells.

- **Automation of Assay Process**

  Development of automation throughout the assay process, but particularly at the visual evaluation steps, which include enumeration, any ICC for biomarkers beyond those used to identify CTCs, for example protein biomarkers, and FISH analysis, is a way to drive efficiencies, reduce costs, speed up turnaround time, and generate more reliable, uniform, and in some cases more sensitive data. We have implemented an automation solution for the visual analysis, which has been validated and implemented in our CLIA laboratory. We have also developed automated systems for the separation, processing and washing steps before running a sample on the microfluidic channel, which has also been validated and implemented in the CLIA laboratory. We are currently implementing further steps in automation, including running the microfluidic channels and performing FISH. We believe these measures will reduce costs and time as well as allow for higher throughput as sample volumes increase.

- **Development of Second-Generation Platform for CTC Testing**

  We are continuing to evaluate and develop techniques for CTC capture that take advantage of our antibody enrichment cocktail and our staining technology to modify our current CTC process into a simpler IVD testing kit format. In addition to reducing internal costs, such an advance would enable us to offer a testing kit format that can access the worldwide CTC testing market. We believe that the distribution of such kits could create a new business opportunity for us.

- **Utilization of ctDNA Technology for Highly Multiplexed Mutation Testing**

  The ctDNA technology should enable us to multiplex mutation testing such that larger panels of genes can be analyzed in a single step and interfaced with genetic sequencing. This should position us for the analysis at the molecular level of whole signaling pathways or enzyme cascades. We plan to take advantage of the sensitivity and specificity of the ctDNA technology and leverage interest in the clinical research community for detecting any actionable biomarker in a particular tumor, as opposed to only those that are known to occur at relatively higher frequencies in that type of tumor. Such multiplexed mutation assays, relying on our ctDNA technology, could provide a more global evaluation of a tumor through analysis of either CTCs or ctDNA. This would offer a broader range of potential treatment options as well as enable the monitoring of the effectiveness of those treatments over time.

- **Development of Single Cell CTC Isolation Techniques for Molecular Analysis**

  Tumor heterogeneity is a well-recognized problem for tissue analysis and is in part addressed by focusing on CTCs, which may provide a more universal sampling of a tumor. One result of this can be a diverse population of CTCs in a sample, with different phenotypes and genotypes represented. We are working with a collaborator on techniques for subsequent sorting of our highly enriched CTC samples released from our microfluidic channels into pools of CTCs with similar phenotypes, and ultimately to single CTCs, for molecular analysis.

Translational/Clinical Research

In the course of our research and validation studies, we have processed and analyzed thousands of normal control and cancer patient samples. Our initial focus has been on breast cancer, where validation studies for our CTC assay, including enumeration of CTCs on the Biocept platform compared to the CellSearch® system, and HER2 FISH performed on CTCs and compared with HER2 analysis performed on tumor tissue from the same patients, involved over 120 patient samples. The results of our validation studies, and the demonstration of a reliable and reproducible method for CTC capture and analysis using our platform were published in a paper entitled “Novel Platform for the Detection of Cytokeratin Positive (CK+) and Cytokeratin Negative (CK-) CTCs” appearing in the December 2011 issue of *Cancer Discovery* and a paper entitled “Efficient capture of circulating tumor cells with a novel immunocytochemical microfluidic device” appearing in the September 2011 issue of *BioMicrofluidics*.

Additional studies were conducted in breast and other tumor types, including lung, prostate and colorectal cancers, utilizing patient samples for comparison to the CellSearch® system. In head-to-head studies, our system detected cytokeratin positive CTCs in comparable numbers of breast cancer patients, and in considerably more patients in the other cancer types (*Cancer Discovery*, December 2011). Moreover, the results clearly demonstrated that the use of our antibody enrichment cocktail enabled recovery of more CTCs compared to using only anti-EpCAM antibodies. These data served as a clinical validation study for CTC enumeration. When our staining is applied to detect cytokeratin-negative CTCs, we expect to see far more CTCs based on preliminary studies reported in a paper entitled “Detection of EpCAM-Negative and Cytokeratin-Negative CTCs in Peripheral Blood” appearing in the 2011 issue of the *Journal of Oncology*.

Our system has the added advantage of post-capture immunofluorescent, cytogenetic and molecular genomic analyses of the CTCs. Cells captured by Biocept's proprietary Target Selector system can be analyzed directly within the microfluidic channel, removing the need to re-deposit cells on a slide and thereby minimizing cell loss or damage. Furthermore, given the transparency of the microfluidic channel, captured cells can be immediately analyzed on a microscope. Together, these two important features allow for a very efficient process that is well suited for a LDT performed in a CLIA laboratory. The post-capture analyses directed towards evaluation of biomarkers, are particularly important and valuable to physicians and patients since they focus on actionable information related to therapy selection. We have performed several clinical research studies in collaboration with The University of Texas MD Anderson Cancer Center investigators involving various tumor types, including breast, ovarian, endometrial, lung, colorectal, bladder and prostate cancers.

In a collaboration with physicians and researchers at The University of Texas MD Anderson Cancer Center, we evaluated matched samples of tumor tissue, blood for CTCs, and bone marrow for metastatic tumor cells in recently diagnosed breast cancer patients to identify HER2 amplification. Positive HER2 status would indicate eligibility for HER2-targeted therapies like Herceptin®, a potentially life-saving treatment. These results were presented at both the 2011 and 2012 annual meetings of the American Society of Clinical Oncology. In a 95-patient study published in *Cancer Medicine* (2013, 2(2) 226-233), HER2 positive CTCs and/or DTCs were identified in 18.9% of cases in which the primary tumor was HER2 negative. In the same cohort of patients, only 12.6% were HER2 positive in their primary tumor. In other words, beyond the 12 (of 95) patients for whom traditional tumor tissue analysis had indicated benefit from Herceptin-based therapy, the Target Selector assay detected HER2 gene amplification in 18 (of 95) patients who (despite the fact they were identified as being HER2 negative by primary-tumor testing) could benefit from Herceptin-based therapy. Patients classified as HER2 negative based on tumor tissue and found to have HER2 positive CTCs and/or DTCs were subsequently monitored by our collaborators at The University of Texas MD Anderson Cancer Center to assess their overall and progression-free survival. Tumor heterogeneity is one likely cause of the discordance for HER2 status between tumor tissue and our assay performed on blood and bone marrow samples. Tumor heterogeneity indicates an important clinical application for the CTC analysis with the Target Selector assay. Our technology can use a standard blood sample to confirm and crosscheck tissue analysis performed by the pathologist at the time of biopsy or surgery, especially if HER2 negative.

Our Target Selector platform is well suited towards blood-based analysis of breast cancer biomarkers. A 24-patient study published with Columbia University (*Clinical and Translational Oncology*, 2015, 17(7):539-46) demonstrated the feasibility of CTC testing to evaluate ER and PR status in mBC patients. Results showed a concordance of 83% and 68% in ER/PR status between CTCs vs. metastatic tissue tumor, and CTCs vs. primary tissue, respectively. More recently, a December 2016 SABCS poster presentation featured the evaluation of 74 mBC patients. This collaborative work with the Sarah Cannon Research Institute, demonstrated detection of CTCs in 99% of mBC patient samples. In addition, ER protein expression concordance was 84% in cytokeratin positive cells and 18% in cytokeratin negative cells. FISH-based analysis of captured CTCs displayed tissue concordances of 93% and 68% for HER2 gene amplification in cytokeratin positive CTCs and cytokeratin negative CTCs, respectively; FGFR1 amplification concordances to tissue were 79% and 67% for cytokeratin positive CTCs and cytokeratin negative CTCs, respectively. While further investigation is needed to elucidate the significance of cytokeratin negative cells as a possible prognostic indicator to evaluate ER, HER2 and FGFR1 biomarkers in mBC patients, our ability to assess cytokeratin positive and negative CTCs affords a distinct advantage over other CTC technologies that rely solely upon characterization of cytokeratin positive CTCs.

We have also developed proprietary and robust technology to detect and quantify mutant ctDNA in plasma originating from the same blood sample that is used for the previously described CTC analyses. In collaboration between Mexico's Instituto Nacional de Cancerologia and AstraZeneca, a clinical evaluation of blood-based liquid biopsy mutational profiling using our service was performed on 60 advanced-stage non-small cell lung cancer patients. Target Selector assays are highly sensitive with the ability to detect EGFR mutations down to one mutant copy per milliliter of plasma. The high concordance of ctDNA versus tissue exhibited in this work highlights Target Selector plasma ctDNA assays as a viable and practical means to detect EGFR activating and acquired resistance mutations relevant for guiding targeted therapy decisions.

Clinical utility studies, which demonstrate the specific clinical setting in which a particular CTC or ctDNA assay is used, and how to use the information generated for medical, specifically treatment-related, decision making is a key part of our strategy and research and development plan. Data resulting from such studies is critical not only in the sales and marketing process, but also for reimbursement, as many health plans and government payers now ask for peer-reviewed publications describing such studies and results before agreeing to coverage of a specific assay. We are involved in and plan to become involved in numerous studies to further demonstrate the clinical utility of our assays.

Sales and Marketing

On December 31, 2021, our sales organization consisted of 13 field sales personnel allocated to strategic geographies around the country that have high concentrations of cancer patients. This number may adapt as our business grows and evolves. We have defined sales territories and have hired sales professionals with extensive successful experience in clinical oncology sales or oncology diagnostic testing sales from leading biopharmaceutical, pharmaceutical or specialty reference laboratory companies. This specialized, oncology-focused sales force is supported by clinical specialists who bring significant technical knowledge in the use of CTC and ctDNA assays.

Finally, we have invested in market access experts to pursue favorable payment and coverage for our liquid biopsy testing services. The key value proposition for these customers will include clinical utility and cost savings by offering our assays as a complement and/or alternative to expensive surgeries when tumor biopsy tissue is insufficient or not available.

Our sales and marketing efforts are and will be based on a five-part marketing strategy:

- work with neuro-oncologists, oncologists, other physicians and group practices at community hospitals and academic cancer centers to educate them on the advantages and opportunities that CTC and ctDNA assays provide for better information, allowing them to select the most appropriate therapy for their patients, and how and when these assays are most effectively used;
- build relationships with key opinion leaders in oncology, specifically in the cancer types for which we are offering or plan to offer assays, to educate and support oncologists and neuro-oncologists;
- collaborate with leading research universities and institutions that enable the validation of our new assays, as well as the generation of clinical utility data;
- partner with biopharmaceutical and pharmaceutical companies for clinical trial work focusing on CTC and ctDNA testing and analysis; and
- add value for the payer community by delivering clinically actionable information and providing a cost-effective alternative to access clinically actionable information using a simple blood or CSF-based test.

We also take advantage of customary marketing channels commonly used by the diagnostic and pharmaceutical industries, such as medical meetings, broad-based publication of our scientific and clinical data, and the internet. In addition, we provide easy-to-access information to our customers through our website and a data portal for physicians who wish to access test results electronically. Our customers value secure and easily accessible information in order to quickly review their patients' information and begin developing a treatment protocol.

Outside the United States

Outside the United States, where a central laboratory business model is less developed, we will evaluate opportunities with our existing and other partners for the conversion and/or development of our current and planned CTC and ctDNA assays into test systems or IVDs, and related strategies to develop and serve such regional oncology markets. We also plan to sell our clinical trial services to biopharmaceutical companies and research organizations outside the United States.

We plan to cooperate with partners on accessing markets internationally. We plan for this to be accomplished either through partnerships with local groups and distributors or the development of test kits.

Competition

As a cancer diagnostics company focused on current and planned assays for CTCs and ctDNA from standard blood samples, we rely extensively on our ability to combine novel technology and biomarker information with high-quality, state-of-the art clinical laboratory testing. We believe that we compete principally on the basis of:

- our ability to utilize standard blood and CSF samples, enabling frequent testing of patients through the course of their disease as well as, without a biopsy, thereby reducing cost and trauma, saving time, and providing real-time information on the status of the tumor;

- our ability to include biomarker information in our analysis, in addition to CTC enumeration, thereby providing a more complete profile of a patient's disease than existing CTC tests. This clinically actionable information can assist physicians in selecting more personalized treatment plans for individual patients;
- our current and planned future CTC assays' ability to capture and detect a broader range of CTC phenotypes than existing tests, and potentially at earlier stages of disease, resulting in fewer non-informative cases and more information for physicians. For example, our antibody capture cocktail targets not only EpCAM but also other epithelial antigens as well as mesenchymal and cancer stem cell antigens, indicative of cells having undergone the epithelial-to-mesenchymal transition. These cells may be more relevant for metastasis;
- our ability to rapidly integrate new biomarkers, either validated in academic laboratories or of interest to pharmaceutical and biopharmaceutical companies in the context of their new therapies, into our current and planned future assays, facilitating the expansion of actionable information for medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians;
- our research and clinical collaborations with key academic and clinical study groups, which enhance our research and development resources and, by enhancing our standing in the oncology community, support our marketing efforts; and
- our current and planned ctDNA assays based on our patented technology, which currently offer and are expected to continue to offer enhanced sensitivity and specificity in detecting mutation targets or resistance markers, again supporting treatment decisions.

We believe that we compete favorably with respect to these factors, although we cannot assure you that we will be able to continue to do so in the future or that new products or assays that perform better than our current and planned future assays and services will not be introduced. We believe that our continued success depends on our ability to:

- expand and enhance our current and planned Target Selector and CNSide assays to provide clinically meaningful information in additional cancers;
- work with clinicians to design and implement clinical studies that demonstrate the clinical utility of our products;
- continue to innovate and maintain scientifically advanced technology including development and regulatory approvals;
- successfully market and sell assays;
- continue to comply with regulatory guidelines and obtain appropriate regulatory approvals in the United States and abroad as applicable;
- continue to validate our pipeline of assays;
- conduct or collaborate with clinical utility studies to demonstrate the application and medical value of our assays;
- continue to seek to obtain positive coverage and reimbursement decisions from Medicare and private third-party payers;
- continue to enter into sales and marketing partnerships;
- maintain existing and enter into new research and clinical collaborations with key academic and clinical study groups;
- continue to attract and retain skilled scientific, clinical, laboratory, and marketing personnel;
- continue to participate in and gain clinical trial work through biopharma partnerships;
- receive payment for the testing we provide for patients;
- obtain patents or other protection for our technologies, assays and services; and
- obtain and maintain our clinical reference laboratory accreditations and licenses.

Our principal competition comes from established molecular diagnostic clinical testing services and products, used by medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians, which are based on tumor tissue analysis. It may be difficult to change established clinical practices and behavior of medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians to get them to adopt the use of our blood-based CTC and ctDNA assays, in their practices in conjunction with or instead of molecular diagnostic tests from tissue biopsies.

Blood or liquid biopsy molecular tests based on CTC and ctDNA assays for oncology applications represent a new area of science and medicine and we cannot predict what products or assays others will develop that may compete with or provide results similar or superior to the results we are able to achieve with the products or assays we develop.

We face competition from specialty oncology diagnostic companies that are conducting research and development to develop proprietary CTC or ctDNA based assays and assay test panels for use in genomic profiling and monitoring solid tumor cancers. Competitors developing ctDNA bases assays and assay panels include but are not limited to companies such as Guardant Health, Foundation Medicine, Tempus Laboratories, NeoGenomics, Invitae, Natera, Inivata and Biodesix. EPIC Sciences, Menarini Silicon Biosystems, Biofluidica and Angle PLC offer CTC-based assays. These companies, in addition to operating research and development laboratories, have established CLIA-certified testing laboratories and have developed LDTs that they market directly to oncologists and pathologists. A few of these companies, like Guardant Health and Foundation Medicine, have achieved FDA clearance for their proprietary laboratory tests.

There are a number of national and regional specialty diagnostic companies, such as Caris Life Sciences and CSI, which are focused on the oncology diagnostic market, who while not currently offering CTC or ctDNA assays are selling to oncologists and pathologists and could develop or offer ctDNA or CTC or assays. In addition large laboratory services companies such as Quest and LabCorp which provide a broad array of cancer diagnostic assays and testing services could also offer CTC or ctDNA based clinical testing services.

Another new area of science and medicine is CTC and ctDNA assays performed from CSF samples for neuro-oncology applications. There is currently limited competition for our CSF-based CTC and ctDNA assays. There are no known specialty oncology diagnostic companies or large laboratory services companies that offer CSF-based CTC and ctDNA tests for neuro-oncology applications as a standard commercial clinical testing service. A few academic based pathology labs such as Memorial Sloan Kettering Cancer Center offer CSF-based testing mainly for research purposes.

There are a number of companies which are focused on the oncology diagnostic market, who while not currently offering CTC or ctDNA assays are selling to the medical oncologists and pathologists and could develop or offer CTC or ctDNA assays. Large laboratory services companies such as Quest and LabCorp provide more generalized cancer diagnostic assays and testing but could also offer a CTC or ctDNA assay service. Companies like Abbott, Danaher and others could develop equipment or reagents in the future as well. Currently, companies like Streck, Roche and Exact Sciences offer SCTs, and in the future, companies like Covidien, Beckton Dickinson, Thermo Fisher, and other large medical device companies may develop SCTs as well.

There are a number of life science technology companies that are focused on the oncology diagnostic market, such as Thermo Fisher Scientific, Illumina, Abbott Molecular, Bio-Rad, Sysmex, Qiagen, and Roche Diagnostics, that are selling equipment and reagents kits for ctDNA assays and assay panels. These companies compete with our ctDNA assay kit products and SCTs. Menarini Silicon Biosystems sells equipment and reagents kits for CTC assays. These companies market their products to specialty laboratories that offer molecular based testing for oncology applications, including national reference laboratories, regional laboratories and pathology laboratories that are part of academic medical centers and hospital systems. These laboratories may purchase these products and developed ctDNA and CTC based laboratory developed tests that are marketed to medical oncologists and pathologists that compete with our lab services.

Some of our present and potential competitors have widespread brand recognition and substantially greater financial and technical resources and development, production and marketing capabilities than we do. Others may develop lower-priced, less complex assays that payers, medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians could view as functionally equivalent to our current or planned future assays, which could force us to lower the list price of our assays and impact our operating margins and our ability to achieve and maintain profitability. In addition, technological innovations that result in the creation of enhanced products or diagnostic tools that are more sensitive or specific or offer more content than our tests may enable other clinical laboratories, hospitals, physicians or medical providers to provide specialized products or diagnostic assays similar to ours in a more patient-friendly, efficient or cost-effective manner than is currently possible. If we cannot compete successfully against current or future competitors, we may be unable to increase or create market acceptance for sales of our current or planned future products or assays, which could prevent us from increasing or sustaining our revenues or achieving or sustaining profitability.

We expect that biopharmaceutical companies will increasingly focus resources on development of targeted oncology therapies that may require a companion diagnostic test approved by the FDA. We may face increasing competition from companies that offer CTC or ctDNA assays or products that are approved by the FDA as an IVD for companion diagnostic uses.

Additionally, projects related to cancer diagnostics and particularly genomics have received increased government funding, both in the United States and internationally. As more information regarding cancer genomics becomes available to the public, we anticipate that more products aimed at identifying targeted treatment options will be developed and that these products may compete with ours. In addition, competitors may develop their own versions of our current or planned future products or assays in countries where we did not apply for patents or where our patents have not issued and compete with us in those countries, including encouraging the use of their product or assay by physicians or patients in other countries.

Third-Party Suppliers and Manufacturers

Some of the components used in our current or planned future products are currently sourced from a supplier for which alternative suppliers exist, but we have not validated the products of such alternative suppliers, and substitutes for these components might not be able to be obtained easily or may require substantial design or manufacturing modifications. Any significant problem experienced by any one of our suppliers may result in a delay or interruption in the supply of components to us until that supplier cures the problem or an alternative source of the component is located and qualified. Any delay or interruption would likely lead to a delay or interruption in our manufacturing operations. The inclusion of substitute components must meet our product specifications and could require us to qualify the new supplier with the appropriate government regulatory authorities.

Patents and Technology

The proprietary nature of, and protection for, our products, services, processes, and know-how are important to our business. Our success depends in part on our ability to protect the proprietary nature of our products, services, technology, and know-how, to operate without infringing on the proprietary rights of others, and to prevent others from infringing our proprietary rights. We seek patent protection in the United States and internationally for our products, services and other technology. Our policy is to patent or in-license the technology, inventions and improvements that we consider important to the development of our business.

We also rely on trade secrets, know-how, and continuing innovation to develop and maintain our competitive position. We cannot be certain that patents will be granted with respect to any of our pending patent applications or with respect to any patent applications filed by us in the future, nor can we be sure that any of our existing patents or any patents granted to us in the future will be commercially useful in protecting our technology.

Our success depends on an intellectual property portfolio that supports our future revenue streams and erects barriers to our competitors. We are maintaining and building our patent portfolio through filing new patent applications, prosecuting existing applications, and licensing and acquiring new patents and patent applications.

We have been issued patents with broad claims covering our SCT, antibody cocktail approach, microchannel, CTC detection methodologies, and ctDNA analysis. In addition to issued patents in the U.S., we have patents for our proprietary microchannel in China, South Korea, Europe, Hong Kong, Canada and Japan, and for our antibody cocktail in Australia, Europe, Canada, China, Hong Kong and Japan. Our patent estate continues to evolve, and in addition to the broad patent estate around our CTC platform, we also have issued patents in the U.S., Australia, Brazil, Europe, Hong Kong, Japan, China and South Korea for our novel switch blocker technology, solidifying our proprietary enrichment methodology for detecting ctDNA with very high sensitivity. We also have recently issued patents in the U.S. Australia, and Japan for a unique primer switch technology which can be used for detecting rare genetic alterations, and for improving the performance of PCR based amplification assays. Our CTC platform patents were filed from 2005 through 2012, and we expect to have patent protection into the 2030s. Our CTC patents and applications cover not only cancer as a target, but also prenatal and other rare cells of interest. Recently granted patents in the U.S. cover the capture of any target of interest on any solid surface using our antibody capture approach. The patent for our proprietary SCTs expires in 2031, and the patents for our ctDNA technology expire in the early 2030s.

As of December 31, 2021, we owned 53 issued patents and have 11 patent applications pending. Of these, 17 were issued U.S. patents and four were pending patent applications in the U.S., and one was a pending PCT application, while 36 were issued patents in non-U.S. territories and six were pending patent applications in non-U.S. territories.

Microfluidic Channels. As of December 31, 2021, we had three issued U.S. patents as well as granted patents in Europe, Japan, Hong Kong, Canada, China, South Korea which cover our microfluidic channel technology. A further U.S. patent application is pending.

Specimen collection tubes. In 2015, we received a U.S. patent related to our SCTs, which contain reagents designed to prevent clumping of blood cells and CTCs that could clog the microfluidic channels and disrupt our assays. The patent is currently under a reexamination procedure in the U.S. Patent Office.

Antibody Enrichment Cocktail. As of December 31, 2021, we had three issued U.S. patents and one pending U.S. patent application, and two European patents, as well as other corresponding foreign patent applications directed to our antibody capture cocktail technology. This technology includes using antibodies to a number of tumor-associated antigens from cancer cells of both epithelial and mesenchymal phenotype, as well as cancer stem cells.

Enhanced Staining. As of December 31, 2021, we had one issued U.S. patent, as well as issued patents in Europe, Canada, China, and Japan directed to this technology.

Target Selector Mutation Detection Technology. As of December 31, 2021, we co-owned two issued U.S. patents and two pending U.S. applications, two issued Australian patents, one issued Chinese patent, two issued Japanese patents, and one issued European (seven countries) patent, with Aegea Biotechnologies, Inc., or Aegea. Under our agreement with Aegea, we have certain exclusive rights for oncology clinical testing and diagnostics as well as limited rights for oncology basic and clinical research.

Coronavirus (COVID-19) Pandemic

The COVID-19 pandemic continues to evolve, and the extent to which COVID-19 may impact our business will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of the pandemic, the emergence and impact of variants, vaccinations, travel restrictions and social distancing in the United States and other countries, business closures or business disruptions, and the effectiveness of actions taken in the United States and other countries to contain and treat the disease. We are continuing to vigilantly monitor the situation with our primary focus on the health and safety of our employees and clients.

In April 2020, we announced that we validated a COVID-19 molecular diagnostic test and that we would begin accepting physician-ordered testing requests. The testing volume was initially limited by the national shortage of specimen collection kits. On June 22, 2020, we announced the availability of 10,000 specimen collection kits for COVID-19 testing for physician ordering. Collected specimens are shipped to our high-complexity, CLIA-certified, CAP-accredited and BSL-2 safety level laboratory in San Diego with results returned to ordering physicians in an estimated 24 to 48 hours. We have received more than 800,000 samples for processing through our RT-PCR technology at our laboratory to date. We are currently seeing reduced demand for our COVID-19 testing services and expect this trend to continue absent a negative and sustained turn in the course of the pandemic.

In January 2021, we signed an agreement with the Foundation for California Community Colleges to make COVID-19 testing available to the 116 California community colleges and their more than 2.1 million students. Through the Foundation's CollegeBuys program, our PCR-based COVID-19 test is now available for community colleges to purchase for students, faculty and staff.

In June 2021, we announced a collaboration with CLEARED4, a market leader in pandemic health and safety solutions, to develop a system for tracking and managing COVID-19 testing requirements and test results for our customers.

Operations and Production Facilities

Our research and development laboratory, our CLIA-certified, CAP accredited, and state-licensed diagnostic testing laboratory, and our manufacturing facility are located in our San Diego, California headquarters. The laboratories employ commercial state-of-the-art equipment as well as custom-made components specific to our CTC process that are generated in a small in-

house engineering shop. The manufacturing facility used for the production of our microfluidic channels is a Class 10,000 suite in which polydimethylsiloxane, or PDMS, is formed into the base of our proprietary microfluidic channels in a molding process. A glass cover slip suitable for optical analysis is added to seal the channels and make them watertight. Plasma activation is utilized to bond the PDMS with other functional groups typically leaving an amine functional group for binding. The inside of the microfluidic channels is subsequently chemically derivatized to enable the attachment of binding elements that strongly bind to antibody-tagged (fluorescently conjugated) or coated CTCs. Because the microfluidic channels have micrometer dimensions, and we are seeking individual cells in a blood sample to interact with the surface of the microfluidic channel, dust particles and other microscopic debris that could clog the channel need to be avoided. Humidity is also a factor that affects binding capability especially in the plasma activation step.

The process of performing our assays is straightforward. When a health care professional takes a standard venous blood sample or a CSF specimen from a lumbar puncture or Ommaya reservoir from a patient for CTC or ctDNA testing, he or she will place the sample in our SCTs, complete a requisition form, and package the specimen in our shipping kit for direct shipment to us. Once we receive the specimen at our laboratory and we enter all pertinent information about the specimen into our clinical laboratory information system, our laboratory technologists prepare the specimen for processing and analysis. Laboratory technologists, including clinical laboratory technologists and clinical laboratory scientists then conduct the analysis, including enumeration of CTCs and biomarker analysis such as FISH. Usage of fluorescent tags enables colored imaging in this process to increase the biomarker analysis capability. The data, including images and the processed cells, are sent to our in-house or contracted pathologists or a commercialization partner's pathologists who are experienced in the analysis and evaluation requested by the referring oncologist or pathologist.

After analysis, our in-house or contracted pathologists or a commercialization partner's pathologists use laboratory information systems to prepare a comprehensive report, which may include selected relevant images associated with the specimen. Our Internet reporting portal allows a referring oncologist or pathologist to access his or her patient's test results in real time in a secure manner that we believe to be compliant with the Health Insurance Portability and Accountability Act, or HIPAA, and other applicable standards. The reports are generated in industry standard .pdf formats which allows for high-definition color images to be reproduced clearly. We send the results to the ordering physician and bill the payer using third-party medical billing software.

Quality Management Program

We have established a Quality Management Program for our research, development and CLIA certified testing laboratories. This program is designed to help ensure accurate and timely test results, to produce consistent high-quality testing services, as well as procedures which allow for the continual improvement of established and new operations. Our Quality Management Program foundation is built upon a rigorous documentation program which allows transparent quality assurance and performance improvement plans, necessary to ensure the highest quality of diagnostic testing services. This program is designed to satisfy the requirements of local and state licensures, as well as those for accreditation by CAP. The CAP accreditation program involves unannounced on-site inspections of our laboratories. CAP is an independent, non-governmental organization of board-certified pathologists that accredits laboratories nationwide on a voluntary basis and that has been recognized by the CMS as an accreditation organization to inspect laboratories to determine adherence to CLIA standards.

We are committed to providing reliable and accurate diagnostic testing to our customers. Accurate specimen sample management, timely communication of test results, and strict adherence to patient privacy policies are a critical core competency of our company. We monitor and improve our performance through our internal audit program, which investigates any abhorrent results, continually track performance indicators, perform internal proficiency testing and host external quality audits, primarily conducted by CAP.

In addition to the compulsory proficiency programs and external inspections required by CMS and other regulatory agencies, we have developed a variety of internal systems and procedures to emphasize, monitor and continuously improve the quality of our operations. We maintain internal quality controls by routinely processing specimens with known diagnoses in parallel with patient specimens. We also have an internally administered proficiency program for specimen testing.

Third-Party Payer Reimbursement

Revenues from our clinical laboratory testing are derived from several different sources. Depending on the billing arrangement, instructions of the ordering physician and applicable law, parties that reimburse us for our services include:

- Third-party payers that provide coverage to the patient, such as an insurance company, a managed care organization or a governmental payer program;
- physicians or other authorized parties, such as hospitals or independent laboratories, that order the testing service or otherwise refer the services to us;
- patients in cases where the patient has no insurance, has insurance that partially covers and reimburses the testing, or owes a co-payment, co-insurance or deductible amount;
- collaboration partners; or
- biopharmaceutical companies, universities or researchers for clinical trial work.

We are reimbursed for two categories of testing, anatomic pathology, which includes cell staining and the enumeration component of CTC assays, FISH, ICC and immunofluorescence, and molecular pathology, which includes mutation analysis. Reimbursement under the Medicare program for the diagnostic services that we offer is based on either the Medicare Physician Fee Schedule, or PFS, or the Medicare Clinical Laboratory Fee Schedule, or CLFS, each of which is subject to geographic adjustments and is updated annually. Medical services provided to Medicare beneficiaries that require a degree of physician supervision, judgment or other physician involvement, such as pathology services, are generally reimbursed under the PFS, whereas clinical diagnostic laboratory tests are generally reimbursed under the CLFS. Some of the services that we provide are genetic and molecular testing, which are reimbursed as clinical diagnostic laboratory tests.

Regardless of the applicable fee schedule, Medicare payment amounts are established for each Current Procedural Terminology, or CPT, code. In addition, under the CLFS, Medicare also sets a cap on the amount that it will pay for any individual assay. This cap, usually referred to as the National Limitation Amount, is set at a percentage of the median of all the contractor fee schedule amounts for each billing code.

Medicare also has policies that may limit when we can bill directly for our services and when we must instead bill another provider, such as a hospital. When the testing that we perform is done on a specimen that was collected while the patient was in the hospital, as either an inpatient or outpatient, we may be required to bill the hospital for clinical laboratory services and for the technical component of pathology services. Which party is to be billed depends primarily on whether the service was ordered at least 14 days after the patient's discharge from the hospital. Complying with these requirements is complex and time-consuming and may affect our ability to collect for our services. In addition, hospitals may refuse to pay our invoices or may demand pricing that negatively affects our profit margin.

Medicare generally requires a beneficiary to pay a 20% co-insurance amount for most services billed under the PFS. Medicare covers the remaining 80% in such circumstances. There is currently no patient co-payment or co-insurance amount applicable to testing billed under the CLFS. Patients often have supplemental insurance policies that cover the co-insurance amount for physician services.

Medicare has coverage policies that can be national or regional in scope. Coverage means that assay is approved as a benefit for Medicare beneficiaries. If there is no coverage, neither the supplier nor any other party, such as a reference laboratory, may receive reimbursement from Medicare for the service. There is currently no national coverage policy regarding the CTC enumeration portion of our testing. Because our laboratory is in California, the regional Medicare Administrative Contractor, or MAC, for California is the relevant MAC for all our testing. The previous MAC for California, Palmetto, which is contracted with CMS to administer the MolDx program that sets guidelines for coding, coverage and reimbursement of molecular diagnostic assays, adopted a negative coverage policy for CTC enumeration. The current MAC for California, Noridian Healthcare Solutions, LLC, is adopting the coverage policies from Palmetto. Therefore, the enumeration portion of our testing is not currently covered, and we will receive no payment from Medicare for this portion of the service unless and until the coverage policy is changed. Although approximately 86% of all billable oncology cases received during the year ended December 31, 2020 related to our Target Selector biomarker assays and 92% for the year ended December 31, 2021, we continue to receive orders for our traditional enumeration testing, which counts disease burden, and therefore the enumeration testing receives no payment from Medicare based upon the existing coverage decision. The CTC enumeration counts disease burden and is a prognostic test, and although oncologists find the information valuable, it does not currently meet many of the

medical necessity requirements of Medicare and the payers. We intend to pursue payment for the capture portion of our CTC technology that allows us to run our diagnostic testing for some of our Target Selector assays.

Reimbursement rates paid by private third-party payers can vary based on whether we are considered to be an "in-network" provider, a participating provider, a covered provider, an "out-of-network" provider or a non-participating provider. These definitions can vary among payers, but we are generally considered an "out-of-network" or non-participating provider by most private third-party payers. An in-network provider usually has a contract with the payer or benefits provider. This contract governs, among other things, service-level agreements and reimbursement rates. In certain instances, an insurance company may negotiate an in-network rate for our testing. An in-network provider may have rates that are lower per assay than those that are out-of-network, and that rate can vary widely. The rate varies based on the payer, the testing type and often the specifics of the patient's insurance plan. If a laboratory agrees to contract as an in-network provider, it generally expects to receive quicker payment and access to additional covered patients.

Billing and Billing Codes for Third-Party Payer Reimbursement

CPT codes are the main billing code set used by physicians, hospitals, laboratories and other health care professionals to report separately payable clinical laboratory and pathology services for reimbursement purposes. The CPT coding system is maintained and updated on an annual basis by the American Medical Association. We believe there are existing codes that describe nearly all the steps in our testing process. We currently use a combination of codes to bill for our testing and analysis.

In order to ensure our coding is compliant, we have engaged industry experts to provide guidance on the proper coding of our assays. These experts include consultants at Senergene Solutions, LLC, Codemap, LLC and ADVI Health, LLC. However, coding can be complex, and payers may require differing codes for a given assay to effect payment. Changes in coding and reimbursement could adversely impact our revenues going forward, or payers could request that we reimburse them for payments we have already received. There can be no guarantees that Medicare and other payers will establish new positive or adequate coverage policies or reimbursement rates, or not change existing positive coverage policies, in the future.

We are moving forward with plans to obtain reimbursement coverage for the capture components of our assays. For other tests, we are able to utilize existing CPT codes from the PFS and CLFS. For these established CPT codes (for example, the codes for molecular testing, FISH and ICC), positive coverage determinations have been adopted as part of national Medicare policy or under applicable Local Coverage Determinations. Specific codes for our assays, however, do not assure an adequate coverage policy or reimbursement rate. Please see the section entitled "Legislative and Regulatory Changes Impacting Clinical Laboratory Tests" for further discussion of certain legislative and regulatory changes to these billing codes and the anticipated impact on our business.

Coverage and Reimbursement for our Current Assays and our Planned Future Assays

Our Medicare Administrative Contractor has issued a negative coverage determination for the enumeration component of all CTC assays. We have received reimbursement for the enumeration component of our assays from some private payers, including major private third-party payers, based on submission of standard CPT codes. FISH, ICC and Molecular Testing CPT codes are the subject of positive coverage national or local Medicare determinations. We believe these codes can be used to bill for the analysis components of our current and planned future CTC assays, however, CMS, Palmetto or Noridian could adopt specific negative coverage policies for CTCs or ctDNA analysis in the future.

We expect these analysis components to have a significantly greater reimbursement value than the enumeration components of our current and anticipated CTC assays, based on a comparison of what we believe CellSearch® enumeration reimbursement rates currently are, versus existing reimbursement rates for analysis components such as FISH and ICC analysis and molecular testing.

Additionally, on March 16, 2018 CMS issued a final determination decision memo for Next-Generation Sequencing, or NGS, tests for Medicare Beneficiaries with Advanced Cancer (CAG-00450N). Under this final determination, NGS tests that gain FDA approval or clearance as a companion diagnostic will receive coverage, and the final determination of coverage for NGS tests that are LDTs will be left up to the local MAC. Currently, only two of our CLIA validated assays are NGS-based; however, we plan to offer additional NGS assays in the future. To gain coverage for those assays, we will need to apply to Palmetto, which is the MAC that evaluates and recommends payment coverage or denial for molecular testing in our jurisdiction.

We believe, based on research showing that approximately 54% of new cancers occur in persons age 65 and older and that almost all Americans age 65 and older are enrolled in Medicare that a substantial portion of the patients for whom we would expect to perform cancer diagnostic assays will have Medicare as their primary medical insurance. We cannot assure you that, even if our current and our planned future assays are otherwise successful, reimbursement for the currently Medicare-covered portions of our current and our planned future assays would, without Medicare reimbursement for the enumeration portion, produce sufficient revenues to enable us to reach profitability and achieve our other commercial objectives.

Where there is a private or governmental third-party payer coverage policy in place, we bill the payer and the patient in accordance with the established policy. Where there is no coverage policy in place, we pursue reimbursement on a case-by-case basis. Our efforts in obtaining reimbursement based on individual claims, including pursuing appeals or reconsiderations of claims denials, could take a substantial amount of time, and bills may not be paid for many months, if at all. Furthermore, if a third-party payer denies coverage after final appeal, payment may not be received at all. We are working to decrease risks of nonpayment by implementing a revenue cycle management system.

We cannot predict whether, or under what circumstances, payers will reimburse for all components of our assays. Payment amounts can also vary across individual policies. Full or partial denial of coverage by payers, or reimbursement at inadequate levels, would have a material adverse impact on our business and on market acceptance of our assays.

Legislative and Regulatory Changes Impacting Clinical Laboratory Tests

From time to time, Congress has revised the Medicare statute and the formulas it establishes for both the CLFS, and the PFS. Annually, CMS releases the payment amounts under the Medicare fee schedules. The rates are important because they not only determine our reimbursement under Medicare, but those payment amounts are also often used as a basis for payment amounts set by other governmental and private third-party payers. For example, state Medicaid programs are prohibited from paying more than the Medicare fee schedule limit for clinical laboratory services furnished to Medicaid recipients.

In accordance with Section 1833 (h)(2)(A)(i) of the Social Security Act, the annual update to the CLFS for calendar year 2022 is 5.4% (see 42 CFR405.509(b)(1)). With respect to our diagnostic services for which we expect to be reimbursed under PFS, CMS issues a Final Rule on an annual basis. Since 2015, the PFS Final Rules have included both increases and decreases in certain relative value units and geographic adjustment factors used to determine reimbursement for a number of codes used in our current assays and our planned future assays. These codes describe services that we must perform in connection with our assays and we bill for these codes in connection with the services that we provide.

Additionally, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively the ACA, enacted in March 2010, made a number of substantial changes in the way health care is financed by both governmental and private insurers.

Although some of these provisions may negatively impact payment rates for clinical laboratory tests, the ACA also extended coverage to over 30 million previously uninsured people, which resulted in an increase in the demand for certain diagnostic assays. There have been executive, judicial and congressional challenges to certain aspects of the ACA. For example, President Trump signed several executive orders and other directives designed to delay, circumvent, or loosen certain requirements mandated by the ACA. Concurrently, Congress considered legislation to repeal or repeal and replace all or part of the ACA. While Congress has not passed comprehensive repeal legislation, it has enacted laws that modify certain provisions of the ACA such as removing penalties effective January 1, 2019, for not complying with the ACA's individual mandate to carry health insurance and eliminating the implementation of certain ACA-mandated fees, including but not limited the Medical Device Excise Tax. On June 17, 2021, the U.S. Supreme Court dismissed a challenge on procedural grounds that argued the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress. Thus, the ACA will remain in effect in its current form. Further, prior to the U.S. Supreme Court ruling, on January 28, 2021, President Biden issued an executive order to initiate a special enrollment period for purposes of obtaining health insurance coverage through the ACA marketplace. The executive order also instructs certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the ACA. It is possible that the ACA will be subject to judicial or congressional challenges in the future. It is unclear how such challenges and the healthcare reform measures of the Biden Administration will impact the ACA.

Moreover, other legislative changes have been proposed and adopted since the ACA was enacted. The Protecting Access to Medicare Act of 2014, or PAMA, was signed to law, which, among other things, significantly altered the current payment methodology under the CLFS. Under the law, applicable clinical laboratories must report laboratory test payment data for each Medicare-covered clinical diagnostic laboratory test that it furnishes during the specified time period. The reported data must include the payment rate (reflecting all discounts, rebates, coupons and other price concessions) and the volume of each test that was paid by each private payer (including health insurance issuers, group health plans, Medicare Advantage plans and Medicaid managed care organizations). Effective January 1, 2018, the Medicare payment rate for each clinical diagnostic laboratory test is equal to the weighted median amount for the test from the most recent data collection period. The payment rate applies to laboratory tests furnished by a hospital laboratory if the test is separately paid under the hospital outpatient prospective payment system. PAMA's reporting obligations began in 2017 and occur every three years thereafter (or annually in the case of advanced diagnostic laboratory tests). Reporting of payment data under PAMA for clinical diagnostic laboratory tests has been delayed on numerous occasions. Based on current law, between January 1, 2023 and March 31, 2023, applicable laboratories will be required to report on data collected during January 1, 2019 and June 30, 2019. This data will be utilized to determine 2024 to 2026 CLFS rates. In addition, CMS updated the statutory phase-in provisions such that the rates for clinical diagnostic laboratory tests in 2020 could not be reduced by more than 10% of the rates for 2019. Pursuant to the CARES Act, the statutory phase-in of payment reductions has been extended through 2024, with a 0% reduction cap for 2021-2022 and a 15% reduction cap for 2023 through 2025. The PAMA rate changes did not materially affect our payments beginning in 2018; however, we cannot predict how this may affect future payment in coming years. Also, under PAMA, CMS is required to adopt temporary billing codes to identify new tests and new advanced diagnostic laboratory tests that have been cleared or approved by the FDA. For an existing test that is cleared or approved by the FDA and for which Medicare payment is made as of April 1, 2014, CMS is required to assign a unique billing code if one has not already been assigned by the agency. In addition to assigning the code, CMS is required to publicly report payment for the tests. Further, under PAMA, CMS is required to adopt temporary billing codes to identify new tests and new advanced diagnostic laboratory tests that have been cleared or approved by the FDA.

Additionally, the Budget Control Act of 2011, among other things, created the Joint Select Committee on Deficit Reduction to recommend proposals in spending reductions to Congress. The Joint Select Committee did not achieve its targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers and suppliers of up to 2% per fiscal year, starting in 2013, and, due to subsequent legislative amendments to the statute, will remain in effect through 2031 unless additional congressional action is taken. COVID-19 relief legislation suspended the 2% Medicare sequester from May 1, 2020 through March 31, 2022. Under current legislation, the actual reduction in Medicare payments will vary from 1% in 2022 to up to 3% in the final fiscal year of this sequester. In addition, the Middle-Class Tax Relief and Job Creation Act of 2012, or MCTRJCA, mandated an additional change in Medicare reimbursement for clinical laboratory tests. Congress is considering additional health reform measures as part of other reform initiatives.

In April 2020, the CMS announced that it would increase the reimbursement for certain COVID-19 molecular tests making use of high-throughput technologies developed by the private sector that allow for increased testing capacity, faster results, and more effective means of combating the spread of the virus to $100 per test, effective April 14, 2020. However, beginning January 1, 2021, Medicare changed the base reimbursement rate for COVID-19 diagnostic tests run on high-throughput technologies to $75 per test with an additional payment of $25 per test if certain additional requirements are met. Moreover, federal COVID-19 relief funding for uninsured individuals to receive testing and treatment for COVID-19 has sunset, and it is unclear whether Congress will take additional action to extend this funding program.

Further, with respect to the Medicare program, Congress has proposed on several occasions to impose a 20% coinsurance charge on patients for clinical laboratory tests reimbursed under the CLFS, which would require us to bill patients for these amounts. Because of the relatively low reimbursement for many clinical laboratory tests, in the event that Congress were to ever enact such legislation, the cost of billing and collecting for these services would often exceed the amount actually received from the patient and effectively increase our costs of billing and collecting.

Some of our Medicare claims may be subject to policies issued by Palmetto and Noridian Healthcare Solutions, our former and current MACs for California, respectively. Palmetto has issued a Local Coverage Determination, whereby Palmetto will not cover many molecular diagnostic assays, such as the enumeration component of our current assays, unless the test is expressly included in a National Coverage Determination issued by CMS or a Local Coverage Determination or coverage article issued by Palmetto. Currently, laboratories may submit coverage determination requests to Palmetto for consideration and apply for a unique billing code for each assay (which is a separate process from the coverage determination). In the event that a non-

coverage determination is issued, the laboratory must wait six months following the determination to submit a new request. Palmetto currently has a negative coverage determination for the enumeration component of CTC assays, but there is no such negative coverage determination for the analysis component of such CTC assays. Denial (or continuation of denial) of coverage for the enumeration component of our current and anticipated CTC assays by Palmetto or its successor MAC, Noridian Healthcare Solutions, which adopts coverage policies set by the MolDx program, or reimbursement at inadequate levels, would have a material adverse impact on our business and on market acceptance of our current assays and our planned future assays. Noridian Healthcare Solutions intends to follow, for CTC assays, the positive or negative coverage determinations which from time-to-time Palmetto makes as well as any coverage policy changes set by the MolDx program. On November 27, 2013, Palmetto denied our request for coverage for the enumeration/detection portion of our testing. We have not received any other indications to suggest that the negative coverage determination will be reversed. The CTC enumeration counts disease burden and is a prognostic test, and although oncologists find this information valuable, it does not meet many of the medical necessity requirements of Medicare and the payers. We intend to pursue payment for the capture portion of our CTC technology that allows us to run our diagnostic testing for some of our Target Selector assays.

Additionally, the Centers for Disease Control and Prevention, CMS and the Office of Civil Rights issued a final rule in February 2014 to amend both the HIPAA and CLIA regulations. The final rule amended the HIPAA privacy rule to remove the CLIA laboratory exceptions, and as a result, HIPAA-covered laboratories are now required to provide individuals, upon request, with access to their completed test reports. Similarly, the final rule amended CLIA to state that CLIA laboratories and CLIA-exempt laboratories may provide copies of the patient's completed rest reports that, using the laboratory's authentication process, can be identified as belonging to that patient.

Further, it is possible that additional governmental action is taken in response to the COVID-19 pandemic.

Governmental Regulations

Clinical Laboratory Improvement Amendments of 1988 and State Regulation

As a provider of laboratory testing on human specimens for the purpose of diagnosis, prevention, or treatment, we are required to hold certain federal, state and local licenses, certifications and permits to conduct our business. In 1988, Congress enacted CLIA, which established quality standards for all laboratories providing testing to ensure the accuracy, reliability and timeliness of patient test results regardless of where the test was performed. Our laboratory holds a CLIA certificate of accreditation from CAP, and is in good standing. As to state laws, we are required to meet certain laboratory licensing and other requirements. Our laboratory holds the required licenses from the applicable state agencies in which we operate. For more information on state licensing requirements, see the sections entitled see the section entitled "Governmental Regulations—California State Laboratory Licensing" and "Governmental Regulations—Other States' Laboratory Licensing."

Under CLIA, a laboratory is defined as any facility which performs laboratory testing on specimens derived from humans for the purpose of providing information for the diagnosis, prevention or treatment of disease, or the impairment of, or assessment of health of human beings. CLIA also requires that we hold a certificate applicable to the complexity of the categories of testing we perform and that we comply with certain standards. CLIA further regulates virtually all clinical laboratories by requiring they comply with various operational, personnel, facilities administration, quality and proficiency testing requirements intended to ensure that their clinical laboratory testing services are accurate, reliable and timely. CLIA certification is also a prerequisite to be eligible to be reimbursed for services provided to state and federal health care program beneficiaries. CLIA is user-fee funded. Therefore, all costs of administering the program must be covered by the regulated facilities, including certification and survey costs.

We are subject to survey and inspection every two years to assess compliance with program standards and may be subject to additional unannounced inspections. Laboratories performing high-complexity testing are required to meet more stringent requirements than laboratories performing less complex tests. In addition, a laboratory like ours that is certified as "high complexity" under CLIA may obtain analyte-specific reagents, which are used to develop laboratory developed tests, or LDTs.

In addition to CLIA requirements, we must comply with the standards set by CAP, which accredits our laboratory. Under CMS requirements, accreditation by CAP is sufficient to satisfy the requirements of CLIA. Therefore, because we are accredited by CAP, we are deemed to also comply with CLIA. CLIA also provides that a state may adopt laboratory regulations that are more stringent than those under federal law, and certain states have implemented their own more stringent laboratory regulatory schemes.

Federal, State and Foreign Fraud and Abuse Laws

A variety of federal and state laws prohibit fraud and abuse regarding the preparation and submissions of claims for services as well as avoiding unlawful inducements in our relations with those who may refer patients to our laboratory. These laws are interpreted broadly and enforced aggressively by various state and federal agencies, including CMS, the Department of Justice, the Office of Inspector General for the U.S. Department of Health and Human Services, or HHS, and various state agencies. In addition, the Medicare and Medicaid programs increasingly use a variety of contractors to review claims data and to identify improper payments as well as fraud and abuse. These contractors include Recovery Audit Contractors, Medicaid Integrity Contractors and Zone Program Integrity Contractors. In addition, CMS conducts Comprehensive Error Rate Testing audits, the purpose of which is to detect improper Medicare payments. In addition, many private insurers as well as other managed care organizations have their own internal auditing programs to ensure against any false claims being submitted. Any overpayments identified must be repaid unless a favorable decision is obtained on appeal. In some cases, these overpayments can be used as the basis for an extrapolation, by which the error rate is applied to a larger universe of claims, and which can result in even higher repayments.

The federal Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting, receiving, or providing remuneration, directly or indirectly, to induce or in return for either the referral of an individual, or the furnishing, recommending, or arranging for the purchase, lease or order of any health care item or service reimbursable, in whole or in part, under a federal health care program. The definition of "remuneration" has been broadly interpreted to include anything of value, including gifts, discounts, credit arrangements, payments of cash, ownership interests and providing anything at less than its fair market value. Recognizing that the federal Anti-Kickback Statute is broad and may technically prohibit many innocuous or beneficial arrangements within the health care industry, the Office of Inspector General for HHS has issued a series of regulatory "safe harbors." These safe harbor regulations set forth certain requirements that, if met, will assure immunity from prosecution under the federal Anti-Kickback Statute. Although full compliance with these provisions protects against prosecution under the federal Anti-Kickback Statute, the failure of a transaction or arrangement to fit within a specific safe harbor does not necessarily mean that the transaction or arrangement is illegal or that prosecution under the federal Anti-Kickback Statute will be pursued. For further discussion of the impact of federal and state health care fraud and abuse laws and regulations on our business, see the section entitled "Risk Factors—Regulatory Risks Relating to Our Business." We are subject to federal and state health care fraud and abuse laws and regulations and could face substantial penalties if we are unable to fully comply with such laws.

In addition, the Health Insurance Portability and Accountability Act of 1996, or HIPAA, also created new federal civil and criminal penalties, regarding health care fraud and false statements relating to health care matters. The health care fraud statute prohibits knowingly and willfully executing or attempting to execute a scheme to defraud any health care benefit program, including private third-party payers. A violation of this statute is a felony and may result in fines, imprisonment or exclusion from federal health care programs, such as the Medicare and Medicaid programs. The false statements statute prohibits 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 health care benefits, items or services. A violation of this statute is a felony and may result in fines, imprisonment or exclusion from federal health care programs.

Another development affecting the health care industry is the increased enforcement of the federal False Claims Act and, in particular, actions brought pursuant to the False Claims Act's "whistleblower" or "*qui tam*" provisions. The False Claims Act imposes liability on any person or entity that, among other things, knowingly presents, or causes to be presented, a false or fraudulent claim for payment to the federal government. The *qui tam* provisions of the False Claims Act allow a private individual to bring actions on behalf of the federal government and permit such individuals to share in any amounts paid by the entity to the government in fines or settlement. In addition, various states have enacted false claim laws analogous to the federal False Claims Act, and some of these state laws apply where a claim is submitted to any third-party payer. When an entity is determined to have violated the False Claims Act, it may be required to pay up to three times the actual damages sustained by the government, plus significant civil monetary penalties.

Further, the Eliminating Kickbacks in Recovery Act of 2018, or EKRA, prohibits payments for referrals to recovery homes, clinical treatment facilities, and laboratories. EKRA's reach extends beyond federal health care programs to include private insurance (i.e., it is an "all payer" statute). The full scope of such law is uncertain and is subject to a variety of interpretations.

Additionally, the civil monetary penalties statute imposes penalties against any person or entity that, among other things, is determined to have presented or caused to be presented a claim to a federal health program that the person knows or should know is for an item or service that was not provided as claimed or is false or fraudulent.

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 certain exceptions) to report annually to CMS, information related to payments or other transfers of value made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), other healthcare professionals (such as physicians assistants and nurse practitioners), and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members. However, at this time, such reporting requirements do not extend to clinical laboratories such as ours.

Also, many states have laws similar to those listed above that may be broader in scope and may apply regardless of payer.

Additionally, in Europe various countries have adopted anti-bribery laws providing for severe consequences, in the form of criminal penalties and/or significant fines for individuals and/or companies committing a bribery offence. Violations of these anti-bribery laws, or allegations of such violations, could have a negative impact on our business, results of operations and reputation. For instance, in the United Kingdom, under the Bribery Act 2010, a bribery occurs when a person offers, gives or promises to give a financial or other advantage to induce or reward another individual to improperly perform certain functions or activities, including any function of a public nature. Bribery of foreign public officials also falls within the scope of the Bribery Act 2010. Under the new regime, an individual found in violation of the Bribery Act 2010 faces imprisonment of up to 10 years. In addition, the individual can be subject to an unlimited fine, as can commercial organizations for failure to prevent bribery.

Despite our implementation of a robust healthcare compliance program, we may be subject, from time to time, to inspections, investigations, and other enforcement actions by governmental authorities. If we are found not to be in compliance with applicable laws or regulations, the applicable governmental authority can impose significant civil, criminal and administrative penalties, such as fines, delay, suspend, or revoke regulatory approvals, institute proceedings to recoupment of monies, impose marketing or operating restrictions, enjoin future violations, imprisonment, exclusion from government funded healthcare programs such as Medicare and Medicaid, integrity oversight and reporting obligations, and assess similar significant penalties against our officers or employees.

Physician Self-Referral Prohibitions

Under a federal law directed at "self-referral," commonly known as the "Stark Law", there are prohibitions, with certain exceptions, on Medicare and Medicaid payments for laboratory tests referred by physicians who personally, or through a family member, have a "financial relationship"—including an investment or ownership interest or a compensation arrangement—with the clinical laboratory performing the tests. Several Stark Law exceptions are relevant to arrangements involving clinical laboratories, including: (1) fair market value compensation for the provision of items or services; (2) payments by physicians to a laboratory for clinical laboratory services; (3) certain space and equipment rental arrangements that satisfy certain requirements, (4) personal services arrangements that satisfy certain requirements; and (v) ownership in certain publicly traded companies. The laboratory cannot submit claims to the Medicare Part B program for services furnished in violation of the Stark Law, and Medicaid reimbursements may be at risk as well. Penalties for violating the Stark Law include significant civil, criminal and administrative penalties, such as the return of funds received for all prohibited referrals, fines, civil monetary penalties exclusion from the federal health care programs integrity oversight and reporting obligations, and imprisonment. Many states have comparable laws that are not limited to Medicare and Medicaid referrals.

Corporate Practice of Medicine

A number of states, including California, do not allow business corporations to employ physicians to provide professional services to patients. This prohibition against the "corporate practice of medicine" is aimed at preventing corporations such as us from exercising control over the medical judgments or decisions of physicians in treating patients. The state licensure statutes and regulations and agency and court decisions that enumerate the specific corporate practice rules vary considerably from state to state and are enforced by both the courts and regulatory authorities, each with broad discretion. If regulatory authorities or other parties in any jurisdiction successfully assert that we are engaged in the unauthorized corporate practice of medicine, we could be required to restructure our contractual and other arrangements. In addition, violation of these laws may result in

significant civil, criminal and administrative penalties, such as sanctions imposed against us and/or the professional through licensure proceedings, and exclusion from state and federal health care programs. However, it is important to note that laboratories may contract with physicians to act as medical directors for their company as long as none of the compensation is for professional services rendered to patients.

Direct Billing Laws and Other State Law Restrictions on Billing for Laboratory Services

Laws and regulations in certain states prohibit laboratories from billing physicians or other purchasers directly for testing that they order. Some of those laws and regulations apply only to anatomic pathology services while others extend to other types of testing. Some states may allow laboratories to bill physicians directly but may prohibit the physician (and, in some cases, other purchasers) from charging more than the purchase price for the services (or may allow only for the recovery of acquisition costs) or may require disclosure of certain information on the invoice. In some cases, and if not prohibited by law or regulation, we may bill physicians, hospitals and other laboratories directly for the services that they order. An increase in the number of states that impose similar restrictions could adversely affect us by encouraging physicians to perform laboratory services in-house or by causing physicians to refer services to other laboratories that are not subject to the same restrictions.

CMS promulgated in 2009, a revision to the regulation that prohibits the mark up of purchased diagnostic services 42 C.F.R. §414.50 (the "Anti-Markup Rule"). The Anti-Markup Rule prohibits a physician or other supplier from marking up the price paid for the technical or professional component of a diagnostic test that was ordered by the billing physician or supplier and which was performed by a physician who does not share a practice with the billing physician or supplier. The billing physician is prohibited from billing the Medicare program an amount greater than the lesser of: (i) the performing supplier's net charge to the billing physician; (ii) the billing physician's actual charge; or (iii) the fee schedule amount for the test that would be allowed if the performing supplier billed directly.

Physician Licensing

A number of the states where specimens originate require that the physician interpreting those specimens for a primary diagnostic purpose be licensed by that particular state. Physicians who fail to comply with these licensure requirements could face fines or other penalties for practicing medicine without a license and we could be required to pay those fines on behalf of our pathologists or subject to liability under the federal False Claims Act and similar state laws if we bill for services furnished by unlicensed pathologists. We do not believe that the services our pathologists perform in overseeing CLIA laboratory operations or releasing results generated by our laboratory on behalf of referring physicians from other states who diagnose and treat patients with cancer under their care constitutes the practice of medicine in any state in which our pathologists are not licensed. Our physicians are licensed in the state of California where our CLIA laboratory is located and are engaged in the practice of laboratory medicine in California per requirements established by the California Department of Health Laboratory Field Services Office and evaluated by the College of American Pathologists, or CAP, which is a principal accrediting organization for laboratories around the world.

In addition, many states also prohibit the splitting or sharing of fees between physicians and non-physician entities. We do not believe that our contractual arrangements with physicians, physician group practices or hospitals will subject us to claims under such regulations. However, changes in the laws may necessitate modifications in our relationships with our clients.

California State Laboratory Licensing

Our laboratory is licensed and in good standing under the State of California Department of Public Health standards. Our current licenses permit us to receive specimens obtained in California.

California state laws and regulations also establish standards for the day-to-day operations of clinical laboratories, including physical facility requirements and equipment, quality control and proficiency testing requirements. If we are found to be out of compliance with California statutory or regulatory standards, we may be subject to suspension, restriction or revocation of our laboratory license or assessed civil money penalties. The operator of a noncompliant laboratory may also be found guilty of a misdemeanor under California law. A finding of noncompliance, therefore, may result in harm to our business.

Other States' Laboratory Licensing

Several states require the licensure of out-of-state laboratories that accept specimens from those states. We hold licenses from the states of Maryland, Pennsylvania and Rhode Island to test specimens from patients in those states or received from ordering physicians in those states. We are currently in the process of addressing the requirements for licensure in New York.

From time to time, other states may require out of state laboratories to obtain licensure in order to accept specimens from such states. If we identify any other state with such requirements or if we are contacted by any other state advising us of such requirements, we intend to follow instructions from the state regulators as to how we should comply with such requirements.

U.S. Food and Drug Administration

We perform our laboratory tests as LDTs. Historically, the FDA has exercised enforcement discretion with respect to most LDTs and has not required laboratories that offer LDTs to comply with the agency's requirements for medical devices (e.g., establishment registration, device listing, quality systems regulations, premarket clearance or premarket approval, and post-market controls). In recent years, however, the FDA has stated it intends to end its policy of enforcement discretion and regulate certain LDTs as medical devices. To this end, on October 3, 2014, the FDA issued two draft guidance documents, entitled "Framework for Regulatory Oversight of Laboratory Developed Tests (LDTs)" and "FDA Notification and Medical Device Reporting for Laboratory Developed Tests (LDTs)", respectively, that set forth a proposed risk-based regulatory framework that would apply varying levels of FDA oversight to LDTs. The FDA has indicated that it does not intend to modify its policy of enforcement discretion until the draft guidance documents are finalized. In January 2017, the FDA announced that final guidance on the oversight of LDTs would allow for further public discussion. On January 13, 2017, the FDA issued a "Discussion Paper on Laboratory Developed Tests (LDTs)," which states that the material in the document does not represent a final version of the LDT draft guidance documents that were published in 2014 or position of the FDA; rather, the document is a method to encourage additional dialogue. The timing of when, if at all, the draft guidance documents will be finalized is unclear, and even then, the new regulatory requirements are proposed to be phased-in consistent with the schedule set forth in the guidance. Nevertheless, the FDA may decide to regulate certain LDTs on a case-by-case basis at any time. LDTs with the same intended use as a cleared or approved companion diagnostic are defined in FDA's draft guidance as "high-risk LDTs (Class III medical devices)" for which premarket review would be first to occur.

We provide our Target Selector Kit Product, ctDNA, EGFR, for research use only, or RUO, applications, although our customers may use these products to develop their own products that are subject to regulation by the FDA. RUO products fall under the FDA's jurisdiction if they are used for clinical rather than research purposes. Consequently, our products are labeled "For Research Use Only." The FDA's 2013 Guidance for Industry and Food and Drug Administration Staff on "Distribution of In Vitro Diagnostic Products Labeled for Research Use Only or Investigational Use Only," explains that the FDA will review the totality of the circumstances when evaluating whether equipment and testing components are properly labeled as RUO. Merely including a labeling statement that a product is intended for research use only will not necessarily exempt the device from the FDA's 510(k) clearance, premarket approval, or other requirements, if the circumstances surrounding the distribution of the product indicate that the manufacturer intends its product to be used for clinical diagnostic use. These circumstances may include written or verbal marketing claims or links to articles regarding a product's performance in clinical applications, a manufacturer's provision of technical support for clinical validation or clinical applications, or solicitation of business from clinical laboratories, all of which could be considered evidence of intended uses that conflict with RUO labeling.

Failure to comply with applicable FDA regulatory requirements may trigger a range of enforcement actions by the FDA including warning letters, civil monetary penalties, injunctions, criminal prosecution, recall or seizure, operating restrictions, partial suspension or total shutdown of production, and denial of or challenges to applications for clearance or approval, as well as significant adverse publicity.

Other Regulatory Requirements

Our laboratory is subject to federal, state and local regulations relating to the handling and disposal of regulated medical waste, hazardous waste and biohazardous waste, including chemical, biological agents and compounds, blood and bone marrow samples and other human tissue. Typically, we use outside vendors who are contractually obligated to comply with applicable laws and regulations to dispose of such waste. These vendors are licensed or otherwise qualified to handle and dispose of such waste.

The Occupational Safety and Health Administration has established extensive requirements relating to workplace safety for health care employers, including requirements to develop and implement programs to protect workers from exposure to blood-borne pathogens by preventing or minimizing any exposure through needle stick or similar penetrating injuries.

Compliance Program

The health care industry is highly regulated and scrutinized with respect to fraud, abusive billing practices and improper financial relationships between health care companies and their referral sources. The Office of the Inspector General of HHS, or OIG, has published compliance guidance, including the Compliance Program Guidance for Clinical Laboratories in August of 1998, and advisory opinions. The Company has implemented a robust Compliance Program, which is overseen by our Board of Directors. Its objective is to ensure compliance with the myriad of federal and state laws, regulations and governmental guidance applicable to our business. Our program consists of training/education of employees and monitoring and auditing Company practices. The Board of Directors has formed a Compliance Committee of the Board, which meets regularly to discuss all compliance-related issues that may affect the Company. The Company reviews its policies and procedures as new regulations and interpretations come to light to comply with applicable regulations. The Chief Compliance Officer reports directly to the Compliance Committee.

Hotline

As part of its Compliance Program, the Company provides a hotline for employees who wish to anonymously or confidentially report suspected violations of our codes of conduct, policies/procedures, or laws and regulations. Employees are strongly encouraged to report any suspected violation if they do not feel the problem can be appropriately addressed through the normal chain of command. The hotline does not replace other resources available to our employees, including supervisors, managers and human resources staff, but is an alternative channel available. The hotline forwards all reports to the Compliance Officer who is responsible for investigating, reporting to the Compliance Committee, and documenting the disposition of each report. The hotline forwards any calls pertaining to the financial statements or financial issues to the Chairman of the Audit Committee. The Company does not allow any retaliation against an employee who reports a compliance related issue in good faith.

Confidentiality and Security of Personal Health Information

The Health Insurance Portability and Accountability Act of 1996, as amended ("HIPAA"), contains provisions that protect individually identifiable health information from unauthorized use or disclosure by "covered entities," such as certain healthcare providers, health plans, and healthcare clearinghouses and their respective "business associates," as well as their covered subcontractors, that perform services for them, which involve the creation, receipt, use, maintenance, transmission or disclosure of, individually identifiable health information for or on behalf of a covered entity. The Office for Civil Rights of HHS, the agency responsible for enforcing HIPAA, has published regulations to address the privacy, or the Privacy Rule, and security, or the Security Rule, of protected health information, or PHI. The Company is a covered entity under HIPAA and has adopted policies and procedures to comply with the Privacy Rule and the Security Rule and HIPAA. The health care facilities and providers that refer specimens to the Company are also bound by HIPAA. HIPAA also requires that all providers who transmit claims for health care goods or services electronically utilize standard transaction and data sets and use standardized national provider identification codes. The Company endeavors to comply with HIPAA regulations, utilizes standard transaction data sets, and has obtained and implemented national provider identifiers, or NPIs, as the standard unique health identifier in filing and processing health care claims and other transactions.

The American Recovery and Reinvestment Act, or ARRA, enacted the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH, which extends the scope of HIPAA to permit enforcement against business associates for a violation, establishes new requirements to notify the Office for Civil Rights of a breach of PHI, and allows the Attorneys General of the states to bring actions to enforce violations of HIPAA. Rules implementing various aspects of HIPAA are continuing to be promulgated. With respect to these rules, CMS requires all HIPAA-covered entities such as the Company to conduct electronic claim submissions and related electronic transactions under the HIPAA transaction standard called Version 5010.

In addition to the HIPAA Privacy Rule and Security Rule described above, the Company is subject to state laws regarding the handling and disclosure of patient records and patient health information. The HIPAA Privacy Rule and Security Rule regulations do not supersede state laws that may be more stringent; therefore, we are required to comply with both federal privacy and security regulations and varying state privacy and security laws and regulations. These laws vary widely. Penalties for violation include sanctions against a laboratory's licensure as well as civil or criminal penalties. Additionally, private individuals may have a right of action against the Company for a violation of a state's privacy laws. We endeavor to comply

with current state laws regarding the confidentiality of health information and will continue to monitor new or changing state laws.

Employees

As of December 31, 2021, we had a total of 177 full-time employees, seven of whom hold doctorate degrees and 16 of whom are engaged in full-time research and development activities, as well as three part-time and 12 temporary employees. None of our employees are represented by a labor union.

Available Information

Our website address is www.biocept.com. We post links to our website to the following filings as soon as reasonably practicable after they are electronically filed with or furnished to the Securities and Exchange Commission, or the SEC: annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy statements, and any amendments to those reports filed or furnished pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended. All such filings are available through our website free of charge. The SEC also maintains an internet site at www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC.

Company Information

Our principal executive offices and our laboratory operations are located at 9955 Mesa Rim Road, San Diego, California 92121. Our telephone number is (858) 320-8200 and our website address is www.biocept.com. The information contained in, or that can be accessed through, our website is not incorporated into and is not part of this annual report. We were incorporated in California on May 12, 1997 and reincorporated as a Delaware corporation on July 30, 2013.

Item 1A. Risk Factors

An investment in our securities involves a high degree of risk. You should consider carefully the risks described below, together with all of the other information included in this Annual Report, as well as in our other filings with the SEC, in evaluating our business. If any of the following risks actually occur, our business, financial condition, operating results and future prospects could be materially and adversely affected. In that case, the trading price of our common stock may decline and you might lose all or part of your investment. The risks described below are not the only ones we face. Additional risks that we currently do not know about or that we currently believe to be immaterial may also impair our business, financial condition, operating results and prospects. Certain statements below are forward-looking statements. For additional information, see the information included under the heading "Special Note Regarding Forward-Looking Statements."

Risks Relating to Our Financial Condition and Capital Requirements

We are a molecular oncology diagnostics company with a history of net losses; we expect to incur net losses in the future, and we may never achieve sustained profitability.

We have historically incurred substantial net losses, including a net loss of approximately $2.8 million for the year ended December 31, 2021. Due to revenue from our COVID-19 testing services, we generated net income in the fourth quarter of 2020 and the first quarter of 2021. However, we are currently seeing reduced demand for our COVID-19 testing services and expect this trend to continue absent a negative and sustained turn in the course of the pandemic. Without high demand for our COVID-19 testing services, we will continue to incur net losses and negative cash flows from operations for the foreseeable future. At December 31, 2021, our accumulated deficit was approximately $266.4 million. Before 2008, we were pursuing a business plan relating to fetal genetic disorders and other fields, all of which were unrelated to cancer diagnostics. The portion of our accumulated deficit that relates to the period from inception through December 31, 2007, is approximately $66.5 million.

We expect our losses to continue as a result of costs relating to our laboratory operations as well as increased sales and marketing costs and ongoing research and development expenses. These losses have had, and will continue to have, an adverse effect on our working capital, total assets and stockholders' equity. Because of the numerous risks and uncertainties associated with our commercialization efforts, we are unable to predict when we will become profitable, and we may never become profitable. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our inability to achieve and then maintain profitability would negatively affect our business, financial condition, results of operations and cash flows.

We need to raise additional capital to continue as a going concern.

We expect to continue to incur losses for the foreseeable future and will have to raise additional capital to fund our planned operations and to meet our long-term business objectives. Although COVID-19 testing revenue during 2020 and 2021 provided us with increased levels of cash inflows from operations, we are currently seeing reduced demand for our COVID-19 testing services and expect this trend to continue absent a negative and sustained turn in the course of the pandemic. Until we can generate significant cash from operations, including product and assay revenues, we expect to continue to fund our operations with the proceeds from offerings of our equity securities or debt, or transactions involving product development, technology licensing or collaboration. We can provide no assurances that any sources of a sufficient amount of financing will be available to us on favorable terms, if at all. General market conditions resulting from global supply chain issues, the Russia-Ukraine conflict, the COVID-19 pandemic, and other macroeconomic factors, as well as market conditions affecting companies in the life sciences industry in general, may make it difficult for us to obtain financing from the capital markets on attractive terms, or at all. Failure to raise additional capital in sufficient amounts would significantly impact our ability to continue as a going concern. The actual amount of funds that we will need and the timing of any such investment will be determined by many factors, some of which are beyond our control.

Risks Relating to Our Business and Strategy

If we are unable to increase sales of our current products, assays and services or successfully develop and commercialize other products, assays and services, our revenues will be insufficient for us to achieve profitability.

Other than our COVID-19 testing revenue, we currently derive substantially all of our revenues from sales of diagnostic assays. We began offering our assays through our Clinical Laboratory Improvement Amendments of 1988, or CLIA, certified CAP accredited, and state-licensed laboratory in 2014. Additionally, the sale of our proprietary specimen collection tubes, or SCTs commenced in June 2018, which allow for the intact transport of liquid biopsy samples for research use only, or RUO, from regions around the world. We are in varying stages of research and development for other products and diagnostic assays that we may offer. If we are unable to increase sales of our existing products and diagnostic assays or successfully develop and commercialize other products and diagnostic assays, we will not produce sufficient revenues to become profitable.

If we are unable to execute our sales and marketing strategy for our products and diagnostic assays and are unable to gain acceptance in the market, we may be unable to generate sufficient revenue to sustain our business.

We are an early-stage molecular oncology diagnostics company and have engaged in only limited sales and marketing activities for the diagnostic assays we currently offer through our CLIA-certified, CAP accredited, and state-licensed laboratory. Except for net income generated in the fourth quarter of 2020 and the first quarter of 2021 as a result of our COVID-19 testing revenue, our revenue has been insufficient to fund operations.

Although we believe that our current assays and our planned future assays, our molecular kits as well as our blood and viral collection tube product, represent a promising commercial opportunity, our products or assays may never gain significant acceptance in the marketplace and therefore may never generate substantial revenue or profits for us. We will need to establish a market for our products and diagnostic assays and build that market through physician education, awareness programs and the publication of clinical trial results. Gaining acceptance in medical communities requires, among other things, publications in leading peer-reviewed journals of results from studies using our current products, assays and services and/or our planned future products, assays and services. The process of publication in leading medical journals is subject to a peer review process and peer reviewers may not consider the results of our studies sufficiently novel or worthy of publication. Failure to have our studies published in peer-reviewed journals would limit the adoption of our current products, assays and services and our planned future products, assays and services.

Our ability to successfully market the products and diagnostic assays that we have developed, and may develop in the future, will depend on numerous factors, including:

- conducting clinical utility studies of such assays in collaboration with key thought leaders to demonstrate their use and value in important medical decisions such as treatment selection;
- whether our current or future partners, vigorously support our offerings;
- the success of our sales force;

- whether healthcare providers believe such diagnostic assays provide clinical utility;
- whether the medical community accepts that such diagnostic assays are sufficiently sensitive and specific to be meaningful in-patient care and treatment decisions;
- our ability to continually source raw materials, SCTs, shipping kits and other products that we sell or consume in our manufacturing process that are of sufficient quality and supply;
- our ability to continue to fund planned sales and marketing activities; and
- whether private health insurers, government health programs and other third-party payers will adopt liquid biopsy-based assays in their guidelines, or cover such diagnostic assays and, if so, whether they will adequately reimburse us.

Failure to achieve widespread market acceptance of our current products, assays and services, as well as our planned future products, assays and services, would materially harm our business, financial condition and results of operations.

If we cannot develop products, assays and services to keep pace with rapid advances in technology, medicine and science, our operating results and competitive position could be harmed.

In recent years, there have been numerous advances in technologies relating to the diagnosis and treatment of cancer. Several new cancer drugs have been approved, and a number of new drugs in clinical development may increase patient survival time. There have also been advances in methods used to identify patients likely to benefit from these drugs based on analysis of biomarkers. We must continuously develop new products and diagnostic assays and enhance any existing products, assays and services to keep pace with evolving standards of care. Our current products, assays and services and our planned future products, assays and services could become obsolete unless we continually innovate and expand them to demonstrate benefit in the diagnosis, monitoring or prognosis of patients with cancer. New cancer therapies typically have only a few years of clinical data associated with them, which limits our ability to develop products and diagnostic assays based on, for example, biomarker analysis related to the appearance or development of resistance to those therapies. If we cannot adequately demonstrate the applicability of our current products, assays and services and our planned future products, assays and services to new treatments, by incorporating important biomarker analysis, sales of our products, assays and services could decline, which would have a material adverse effect on our business, financial condition and results of operations.

If our current products, assays and services and our planned future products, assays and services do not continue to perform as expected, our operating results, reputation and business will suffer.

Our success depends on the market's confidence that we can continue to provide reliable, high-quality products and assay results. We believe that our customers are likely to be particularly sensitive to product or assay defects and errors. As a result, the failure of our current or planned future products or assays to perform as expected, including with respect to our ability to maintain the sensitivity, specificity, concordance or reproducibility of such assays, would significantly impair our reputation and the public image of our products and cancer assays, and we may be subject to legal claims arising from any defects or errors. This could also impact our ability to get paid or the amount we are paid.

If our sole laboratory facility becomes damaged or inoperable, or we are required to vacate the facility, our ability to sell and provide our products and diagnostic assays and pursue our research and development efforts may be jeopardized.

Other than our COVID-19 testing revenue, we currently derive our revenues from our diagnostic assays conducted in our CLIA-certified, CAP accredited, and state-licensed laboratory. We do not have any clinical reference laboratory facilities other than our facility in San Diego, California. We completed the process of moving our operations and equipment to our new laboratory facility in San Diego in December 2020. Our new facilities and equipment could be harmed or rendered inoperable by natural or man-made disasters, including fire, earthquake, flooding and power outages, which may render it difficult or impossible for us to sell our products or perform our diagnostic assays for some period of time. The inability to sell our current or planned future products, or to perform our current assays and our planned future assays, or the backlog of assays that could develop if our facility is inoperable for even a short period of time, may result in the loss of customers or harm to our reputation or relationships with scientific or clinical collaborators, and we may be unable to regain those customers or repair our reputation in the future. Furthermore, our facilities and the equipment we use to perform our research and development work could be costly and time-consuming to repair or replace.

The San Diego area periodically experiences serious fires and power outages and is considered to lie in an area with earthquake risk.

Additionally, a key component of our research and development process involves using biological samples as the basis for our diagnostic assay development. In some cases, these samples are difficult to obtain. If the parts of our current or future laboratory facility where we store these biological samples were damaged or compromised, our ability to pursue our research and development projects, as well as our reputation, could be jeopardized. We carry insurance for damage to our property and the disruption of our business, but this insurance may not be sufficient to cover all of our potential losses and may not continue to be available to us on acceptable terms, if at all.

Further, if our current or future CLIA-certified, CAP accredited, and state-licensed laboratory becomes inoperable or unqualified in any way we may not be able to license or transfer our technology to another facility with the necessary qualifications, including state licensure and CLIA certification, under the scope of which our current assays and our planned future assays could be performed. Even if we find a facility with such qualifications to perform our assays, it may not be available to us on commercially reasonable terms.

Our business is subject to risks arising from pandemic and epidemic diseases, such as the COVID-19 pandemic.

A pandemic, including COVID-19 or other public health epidemic, poses the risk that we or our employees, contractors, suppliers, courier delivery services and other partners may be prevented from conducting business activities for an indefinite period of time, including due to spread of the disease within these groups or due to shutdowns that may be requested or mandated by governmental authorities. The continued spread of COVID-19 and the measures taken by state and local governments could disrupt the supply chain of material needed for our assays, interrupt our ability to receive samples, impair our ability to perform or deliver the results from our tests, impede patient movement or interrupt healthcare services causing a decrease in test volumes, delay coverage decisions from Medicare and third party payers, delay ongoing and planned clinical trials involving our tests and have a material adverse effect on our business, financial condition and results of operations. The ongoing COVID-19 pandemic has resulted in a number of restrictions to reduce the spread of the disease, including executive orders in California, and several other state and local orders across the country, which, among other things, directed individuals to shelter at their places of residence, directed schools, businesses and governmental agencies to cease non-essential operations at physical locations, prohibited certain non-essential gatherings, and ordered cessation of non-essential travel. In some places, these orders have been lifted whereas other locations continue to be subject to restrictions. The emergence of new variants of the SARS-CoV-2 virus raises the possibility that recurring cycles of restrictions will be imposed in the future, notwithstanding vaccination efforts. The effects of state and local stay-at-home orders and our work-from-home policies may negatively impact productivity, disrupt our business and delay our development programs and regulatory timelines and negatively impact our commercial activities, the magnitude of which will depend, in part, on the length and severity of the restrictions and other limitations on our ability to conduct our business in the ordinary course. These and similar, and perhaps more severe, disruptions in our operations due to the COVID-19 pandemic could negatively impact our business, operating results and financial condition.

The spread of COVID-19, which has caused a broad impact globally, may materially affect us economically. While the potential economic impact brought by, and the duration of, the COVID-19 pandemic may be difficult to assess or predict, the pandemic continues to have the potential for disruption of global financial markets. This disruption, if sustained or recurrent, could make it more difficult for us to access capital, which could negatively affect our liquidity. In addition, a recession or market correction resulting from the spread of COVID-19 could materially affect our business and the value of our common stock.

The ultimate impact of the COVID-19 pandemic or a similar health pandemic or epidemic is highly uncertain and subject to change. We do not yet know the full extent of potential delays or impacts on our business, commercialization efforts, healthcare systems or to the global economy as a whole. These effects could have a material impact on our financial condition and operations. We will continue to monitor the COVID-19 situation closely.

Our RT-PCR COVID-19 testing business revenues will likely decline.

We launched our RT-PCR COVID-19 testing business during the second quarter of 2020. We have received more than 800,000 samples for processing through our RT-PCR technology at our laboratory to date. During the years ended December 31, 2020 and 2021, we saw a significant increase in our net revenues due to our substantial COVID-19 testing volumes during those periods. As a result of increased vaccination and immunization levels, as well as decreased COVID-19 hospitalizations,

reported cases and mandatory COVID-19 testing, we are currently seeing reduced demand for our COVID-19 testing services and expect this trend to continue absent a negative and sustained turn in the course of the pandemic. In addition, our RT-PCR COVID-19 testing is done pursuant to an Emergency Use Authorization which will be revoked when the public health emergency is no longer in effect, and we will no longer be able to offer the test under the EUA after such revocation.

If we cannot compete successfully with our competitors, we may be unable to increase or sustain our revenues or achieve and sustain profitability.

Our principal competition comes from established molecular diagnostic clinical testing services and products, used by medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians, which are based on tumor tissue analysis. It may be difficult to change established clinical practices and behavior of medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians to get them to adopt the use of our blood-based CTC and ctDNA assays, in their practices in conjunction with or instead of molecular diagnostic tests from tissue biopsies.

Blood or liquid biopsy molecular tests based on CTC and ctDNA assays for oncology applications represent a new area of science and medicine and we cannot predict what products or assays others will develop that may compete with or provide results similar or superior to the results we are able to achieve with the products or assays we develop.

We face competition from specialty oncology diagnostic companies that are conducting research and development to develop proprietary CTC or ctDNA based assays and assay test panels for use in genomic profiling and monitoring solid tumor cancers. Competitors developing ctDNA bases assays and assay panels include but are not limited to companies such as Guardant Health, Foundation Medicine, Tempus Laboratories, NeoGenomics, Invitae, Natera, Inivata and Biodesix. EPIC Sciences, Menarini Silicon Biosystems and Angle PLC offer CTC-based assays. These companies, in addition to operating research and development laboratories, have established CLIA-certified testing laboratories and have developed LDT (lab developed tests) that they market directly to oncologists and pathologists. A few of these companies, like Guardant Health, have achieved FDA clearance for their proprietary laboratory tests.

There are a number of national and regional specialty diagnostic companies, such as Caris Life Sciences and CSI, which are focused on the oncology diagnostic market, who while not currently offering CTC or ctDNA assays are selling to oncologists and pathologists and could develop or offer ctDNA or CTC or assays. In addition large laboratory services companies such as Quest and LabCorp which provide a broad array of cancer diagnostic assays and testing services could also offer CTC or ctDNA based clinical testing services. In June 2021, we announced a collaboration with Quest Diagnostics to provide laboratory testing services to Quest patients for our Target Selector NGS-based liquid biopsy targeted lung cancer panel. However, this collaboration does not prevent Quest from offering or providing testing services that are competitive with our panel.

Another new area of science and medicine is CTC and ctDNA assays performed from cerebrospinal fluid (CSF) samples for neuro-oncology applications and there is currently limited competition for our CSF-based CTC and ctDNA assays. There are no known specialty oncology diagnostic companies or large laboratory services companies that offer CSF-based CTC and ctDNA tests for neuro-oncology applications as a standard commercial clinical testing service. A few academic based pathology labs such as Memorial Sloan Kettering Cancer Center offer CSF-based testing mainly for research purposes.

There are a number of companies which are focused on the oncology diagnostic market, who while not currently offering CTC or ctDNA assays are selling to the medical oncologists and pathologists and could develop or offer CTC or ctDNA assays. Large laboratory services companies such as Quest and LabCorp provide more generalized cancer diagnostic assays and testing but could also offer a CTC or ctDNA assay service. Companies like Abbott, Danaher and others could develop equipment or reagents in the future as well. Currently, companies like Streck, Roche and Exact Sciences offer SCTs, and in the future, companies like Covidien, Beckton Dickinson, Thermo Fisher, and other large medical device companies may develop SCTs as well.

There are a number of life science technology companies that are focused on the oncology diagnostic market, such as Thermo Fisher Scientific, Illumina, Abbott Molecular, Bio-Rad, Sysmex, Qiagen, and Roche Diagnostics, that are selling equipment and reagents kits for ctDNA assays and assay panels. These companies compete with our ctDNA assay kit products and SCTs. Menarini Silicon Biosystems sells equipment and reagents kits for CTC assays. These companies market their products to specialty laboratories that offer molecular based testing for oncology applications, including national reference laboratory, regional laboratories and pathology laboratories that are part of academic medical centers and hospital systems. These

laboratories may purchase these products and developed ctDNA and CTC based laboratory developed tests that are marketed to medical oncologists and pathologists that compete with our lab services.

Some of our present and potential competitors have widespread brand recognition and substantially greater financial and technical resources and development, production and marketing capabilities than we do. Others may develop lower-priced, less complex assays that payers, medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians could view as functionally equivalent to our current or planned future assays, which could force us to lower the list price of our assays and impact our operating margins and our ability to achieve and maintain profitability. In addition, technological innovations that result in the creation of enhanced products or diagnostic tools that are more sensitive or specific or offer more content than ours may enable other clinical laboratories, hospitals, physicians or medical providers to provide specialized products or diagnostic assays similar to ours in a more patient-friendly, efficient or cost-effective manner than is currently possible. If we cannot compete successfully against current or future competitors, we may be unable to increase or create market acceptance and sales of our current or planned future products or assays, which could prevent us from increasing or sustaining our revenues or achieving or sustaining profitability.

We expect that biopharmaceutical companies will increasingly focus resources on development of targeted oncology therapies that may require a companion diagnostics test approved by the FDA. Biocept may face increasing competition from companies that offer CTC or ctDNA assays or products that are approved by the FDA as an IVD for companion diagnostic uses.

Additionally, projects related to cancer diagnostics and particularly genomics have received increased government funding, both in the United States and internationally. As more information regarding cancer genomics becomes available to the public, we anticipate that more products aimed at identifying targeted treatment options will be developed and that these products may compete with ours. In addition, competitors may develop their own versions of our current or planned future products or assays in countries where we did not apply for patents or where our patents have not issued and compete with us in those countries, including encouraging the use of their product or assay by physicians or patients in other countries.

We expect to continue to incur significant expenses to develop and market products and diagnostic assays, which could make it difficult for us to achieve and sustain profitability.

In recent years, we have incurred significant costs in connection with the development of our products and diagnostic assays. For the years ended December 31, 2020 and 2021, our research and development expenses were $5.2 million and $5.0 million, respectively, and our sales and marketing expenses were $6.4 million and $8.3 million, respectively. We expect our expenses to continue to increase for the foreseeable future as we conduct studies of our current products, assays and services and our planned future products, assays and services, continue to establish our sales and marketing organization, drive adoption of and reimbursement for our products and diagnostic assays and develop new products, assays and services. As a result, we need to generate significant revenues in order to achieve sustained profitability.

If medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians decide not to order our current or planned future assays, or if laboratory supply distributors or their customers decide not to order our current or planned future products, we may be unable to generate sufficient revenue to sustain our business.

To generate demand for our current products, assays and services and our planned future products, assays and services, we will need to educate medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists, and other physicians and other health care professionals, as well as laboratory and medical equipment suppliers, on the clinical utility, benefits and value of the products, assays and services we provide through published papers, presentations at scientific conferences, educational programs and one-on-one education sessions by members of our sales force. In addition, we need to educate medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians of our ability to obtain and maintain coverage and adequate reimbursement from third-party payers. We need to hire additional commercial, scientific, technical and other personnel to support this process. Unless an adequate number of medical practitioners order our current assays and our planned future assays, or unless an adequate number of laboratory supply distributors order our current and planned future products, we will likely be unable to create demand in sufficient volume for us to achieve sustained profitability. Our ability to interface with physicians and other medical professionals has been, and may in the future be, impacted by the ongoing COVID-19 pandemic.

Clinical utility studies are important in demonstrating to both customers and payers an assay's clinical relevance and value. If we are unable to identify collaborators willing to work with us to conduct clinical utility studies, or the results of those studies do not demonstrate that an assay provides clinically meaningful information and value, commercial adoption of such assay may be slow, which would negatively impact our business.

Clinical utility studies show when and how to use a clinical test or assay and describe the particular clinical situations or settings in which it can be applied and the expected results. Clinical utility studies also show the impact of the test or assay results on patient care and management. Clinical utility studies are typically performed with collaborating oncologists or other physicians at medical centers and hospitals, analogous to a clinical trial, and generally result in peer-reviewed publications. Sales and marketing representatives use these publications to demonstrate to customers how to use a clinical test or assay, as well as why they should use it. These publications are also used with payers to obtain coverage for a test or assay, helping to assure there is appropriate reimbursement.

We need to conduct additional studies for our assays, increase assay adoption in the marketplace and obtain coverage and adequate reimbursement. Should we not be able to perform these studies, or should their results not provide clinically meaningful data and value for medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians, adoption of our assays could be impaired, and we may not be able to obtain coverage and adequate reimbursement for them.

The loss of key members of our executive management team could adversely affect our business.

Our success in implementing our business strategy depends largely on the skills, experience and performance of key members of our executive management team and others in key management positions. The collective efforts of each member of the executive team and others working with them as a team are critical to us as we continue to develop our technologies, products, services, assays and research and development and sales programs. As a result of the difficulty in locating qualified new management, the loss or incapacity of existing members of our executive management team could adversely affect our operations. If we were to lose one or more of these key employees, we could experience difficulties in finding qualified successors, competing effectively, developing our technologies and implementing our business strategy. Our executive management team each have employment agreements, however, the existence of an employment agreement does not guarantee retention of members of our executive management team and we may not be able to retain those individuals for the duration of or beyond the end of their respective terms. We do not maintain "key person" life insurance on any of our employees.

In addition, we rely on collaborators, consultants and advisors, including scientific and clinical advisors, to assist us in formulating our research and development and commercialization strategy. Our collaborators, consultants and advisors are generally employed by employers other than us and may have commitments under agreements with other entities that may limit their availability to us.

The loss of a key employee, the failure of a key employee to perform in his or her current position or our inability to attract and retain skilled employees could result in our inability to continue to grow our business or to implement our business strategy.

There is a scarcity of experienced professionals in our industry. If we are not able to retain and recruit personnel with the requisite technical skills, we may be unable to successfully execute our business strategy.

The specialized nature of our industry results in an inherent scarcity of experienced personnel in the field. Our future success depends upon our ability to attract and retain highly skilled personnel, including scientific, technical, commercial, business, regulatory and administrative personnel, necessary to support our anticipated growth, develop our business and perform certain contractual obligations. Given the scarcity of professionals with the scientific knowledge that we require and the competition for qualified personnel among life science businesses, we may not succeed in attracting or retaining the personnel we require to continue and grow our operations.

Our failure to continue to attract, hire and retain a sufficient number of qualified sales professionals would hamper our ability to increase demand for our products and diagnostic assays, to expand geographically and to successfully commercialize any other products or assays we may develop.

To succeed in selling our products and diagnostic assays and any other products or assays that we are able to develop, we must expand our sales force in the United States and/or internationally by recruiting additional sales representatives with extensive

experience in oncology and established relationships with medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists, oncology nurses, and other physicians and hospital personnel, as well as laboratory supply distributors. To achieve our marketing and sales goals, we will need to continue to build our sales and commercial infrastructure. Sales professionals with the necessary technical and business qualifications are in high demand, and there is a risk that we may be unable to attract, hire and retain the number of sales professionals with the right qualifications, scientific backgrounds and relationships with decision-makers at potential customers needed to achieve our sales goals. We expect to face competition from other companies in our industry, some of whom are much larger than us and who can pay greater compensation and benefits than we can, in seeking to attract and retain qualified sales and marketing employees. If we are unable to hire and retain qualified sales and marketing personnel, our business will suffer.

Our dependence on commercialization partners for sales of products, assays and services could limit our success in realizing revenue growth.

We intend to grow our business through the use of commercialization partners for the sales, marketing and commercialization of our current products, assays and services, as well as our planned future products, assays and services, and to do so we must enter into agreements with these partners to sell, market or commercialize our products, assays and services. These agreements may contain exclusivity provisions and generally cannot be terminated without cause during the term of the agreement. We may need to attract additional partners to expand the markets in which we sell products or assays. These partners may not commit the necessary resources to market and sell our products and diagnostics assays to the level of our expectations, and we may be unable to locate suitable alternatives should we terminate our agreement with such partners or if such partners terminate their agreement with us.

If current or future commercialization partners do not perform adequately, or we are unable to locate commercialization partners, we may not realize revenue growth.

We depend on third parties for the supply of blood samples and other biological materials that we use in our research and development efforts. If the costs of such samples and materials increase or our third-party suppliers terminate their relationship with us, our business may be materially harmed.

We have relationships with suppliers and institutions that provide us with blood samples and other biological materials that we use in developing and validating our current assays and our planned future assays. If one or more suppliers terminate their relationship with us or are unable to meet our requirements for samples, we will need to identify other third parties to provide us with blood samples and biological materials, which could result in a delay in our research and development activities and negatively affect our business. In addition, as we grow, our research and academic institution collaborators may seek additional financial contributions from us, which may negatively affect our results of operations. To the extent that the third parties supplying us with blood samples or other biological materials are impacted by the COVID-19 pandemic or other supply chain issues, our costs and availability of such supplies may be impacted.

We currently rely on third-party suppliers for our SCTs, shipping kits, and critical materials needed to perform our current assays, as well as our planned future products, assays and services, and any problems experienced by them could result in a delay or interruption of their supply to us.

We currently purchase our SCTs and raw materials for our microfluidic channels and assay reagents under purchase orders and do not have long-term contracts with most of the suppliers of these materials. If suppliers were to delay or stop producing our SCTs, shipping kits, materials or reagents, or if the prices they charge us were to increase significantly, or if they elected not to sell to us, we would need to identify other suppliers. We could experience delays in obtaining SCTs and shipping kits, manufacturing the microfluidic channels, or performing assays while finding another acceptable supplier, which could impact our results of operations. The changes could also result in increased costs associated with qualifying the new SCTs, shipping kits, materials or reagents and in increased operating costs. Further, any prolonged disruption in a supplier's operations could have a significant negative impact on our ability to perform diagnostic assays in a timely manner and sell our products. If our third-party suppliers' operations are impacted by the COVID-19 pandemic, or other supply chain issues, we may experience supply delays or interruptions.

Some of the components used in our current or planned future products are currently sourced from a supplier for which alternative suppliers exist but we have not validated the products of such alternative suppliers, and substitutes for these components might not be able to be obtained easily or may require substantial design or manufacturing modifications. Any

significant problem experienced by any one of our suppliers may result in a delay or interruption in the supply of components to us until that supplier cures the problem or an alternative source of the component is located and qualified. Any delay or interruption would likely lead to a delay or interruption in our manufacturing operations or product sales. The inclusion of substitute components must meet our product specifications and could require us to qualify the new supplier with the appropriate government regulatory authorities.

If we were sued for product liability or professional liability, we could face substantial liabilities that exceed our resources.

The marketing, sale and use of our products and current assays, as well our planned future products, assays and services, could lead to the filing of product liability claims against us if someone alleges that our products or assays failed to perform as designed. We may also be subject to liability for errors in the assay results we provide to physicians or for a misunderstanding of, or inappropriate reliance upon, the information we provide. A product liability or professional liability claim could result in substantial damages and be costly and time-consuming for us to defend.

Although we believe that our existing product and professional liability insurance is adequate, our insurance may not fully protect us from the financial impact of defending against product liability or professional liability claims. Any product liability or professional liability claim brought against us, with or without merit, could increase our insurance rates or prevent us from securing insurance coverage in the future. Additionally, any product liability lawsuit could damage our reputation, result in the recall of products or assays, or cause current partners to terminate existing agreements and potential partners to seek other partners, any of which could impact our results of operations.

If we use biological and hazardous materials in a manner that causes injury, we could be liable for damages.

Our activities currently require the controlled use of potentially harmful biological materials and chemicals. We cannot eliminate the risk of accidental contamination or injury to employees or third parties from the use, storage, handling or disposal of these materials. In the event of contamination or injury, we could be held liable for any resulting damages, and any liability could exceed our resources or any applicable insurance coverage we may have. Additionally, we are subject to, on an ongoing basis, federal, state and local laws and regulations governing the use, storage, handling and disposal of these materials and specified waste products. The cost of compliance with these laws and regulations may become significant and could have a material adverse effect on our financial condition, results of operations and cash flows. In the event of an accident or if we otherwise fail to comply with applicable regulations, we could lose our permits or approvals or be held liable for damages or penalized with fines.

We may acquire other businesses or form joint ventures or make investments in other companies or technologies that could harm our operating results, dilute our stockholders' ownership, increase our debt or cause us to incur significant expense.

As part of our business strategy, we may pursue acquisitions of businesses and assets. We also may pursue strategic alliances and joint ventures that leverage our core technology and industry experience to expand our offerings or distribution. We have no experience with acquiring other companies and limited experience with forming strategic alliances and joint ventures. We may not be able to find suitable partners or acquisition candidates, and we may not be able to complete such transactions on favorable terms, if at all. If we make any acquisitions, we may not be able to integrate these acquisitions successfully into our existing business, and we could assume unknown or contingent liabilities. Any future acquisitions also could result in significant write-offs or the incurrence of debt and contingent liabilities, any of which could have a material adverse effect on our financial condition, results of operations and cash flows. Integration of an acquired company also may disrupt ongoing operations and require management resources that would otherwise focus on developing our existing business. We may experience losses related to investments in other companies, which could have a material negative effect on our results of operations. We may not identify or complete these transactions in a timely manner, on a cost-effective basis, or at all, and we may not realize the anticipated benefits of any acquisition, technology license, strategic alliance or joint venture.

To finance any acquisitions or joint ventures, we may choose to issue shares of our common stock as consideration, which would dilute the ownership of our stockholders. If the price of our common stock is low or volatile, we may not be able to acquire other companies or fund a joint venture project using our stock as consideration. Alternatively, it may be necessary for us to raise additional funds for acquisitions through public or private financings. Additional funds may not be available on terms that are favorable to us, or at all.

If we cannot support demand for our current products, assays and services, as well as our planned future products, assays and services, including successfully managing the evolution of our laboratory service, our business could suffer.

As our product and assay volume grows, we will need to increase our assay capacity, implement automation, increase our scale and related processing, customer service, billing, collection and systems process improvements and expand our internal quality assurance program and technology to support assays on a larger scale. Examples of challenges we may face include, but are not limited to, maintaining the same validated sensitivity in our assays for both CTC and ctDNA analysis as our assay volume increases. We will also need additional clinical laboratory scientists and other scientific and technical personnel to process these additional assays. Any increases in scale, related improvements and quality assurance may not be successfully implemented and appropriate personnel may not be available. As additional products, assays and services are commercialized, we may need to bring new equipment online, implement new systems, technology, controls and procedures and hire personnel with different qualifications. Failure to implement or maintain necessary procedures or to hire the necessary personnel could result in a higher cost of processing or an inability to meet market demand. We cannot assure you that we will be able to perform assays on a timely basis, or procure SCTs, shipping kits or other materials we sell, at a level consistent with demand, that our efforts to scale our commercial operations will not negatively affect the quality of our assay results, or that we will respond successfully to the growing complexity of our operations. If we encounter difficulty meeting market demand or quality standards for our current products, assays and services and our planned future products, assays and services, including with respect to our assays our ability to maintain the sensitivity, specificity, concordance and reproducibility of such assays, our reputation could be harmed, and our future prospects and business could suffer, which may have a material adverse effect on our financial condition, results of operations and cash flows.

Billing for our diagnostic assays is complex, and we must dedicate substantial time and resources to the billing process to be paid.

Billing for clinical laboratory assay services is complex, time-consuming and expensive. Depending on the billing arrangement and applicable law, we bill various payers, including Medicare, insurance companies and patients, all of which have different billing requirements. We generally bill third-party payers for our diagnostic assays and pursue reimbursement on a case-by-case basis where pricing contracts are not in place. To the extent laws or contracts require us to bill patient co-payments or co-insurance, we must also comply with these requirements. We may also face increased risk in our collection efforts, including potential write-offs of doubtful accounts and long collection cycles, which could adversely affect our business, results of operations and financial condition.

Several factors make the billing process complex, including:

- differences between the list price for our assays and the reimbursement rates of payers;
- compliance with complex federal and state regulations related to billing Medicare;
- risk of government audits related to billing Medicare;
- disputes among payers as to which party is responsible for payment;
- differences in coverage and in information and billing requirements among payers, including the need for prior authorization and/or advanced notification;
- the effect of patient co-payments or co-insurance;
- changes to billing codes and/or coverage policies that apply to our assays;
- incorrect or missing billing information; and
- the resources required to manage the billing and claims appeals process.

We use standard industry billing codes, known as Current Procedural Terminology, or CPT, codes, to bill for our diagnostic assays. These codes can change over time. When codes change, there is a risk of an error being made in the claim adjudication process. These errors can occur with claims submission, third-party transmission or in the processing of the claim by the payer. Claim adjudication errors may result in a delay in payment processing or a reduction in the amount of the payment received. Coding changes, therefore, may have an adverse effect on our revenues. There can be no assurance that payers will recognize these codes in a timely manner or that the process of transitioning to such a code and updating their billing systems and ours will not result in errors, delays in payments and a related increase in accounts receivable balances.

As we introduce new assays, we will need to add new codes to our billing process as well as our financial reporting systems. Failure or delays in effecting these changes in external billing and internal systems and processes could negatively affect our collection rates, revenue and cost of collecting.

Additionally, our billing activities require us to implement compliance procedures and oversight, train and monitor our employees, challenge coverage and payment denials, assist patients in appealing claims, and undertake internal audits to evaluate compliance with applicable laws and regulations as well as internal compliance policies and procedures. Payers also conduct external audits to evaluate payments, which add further complexity to the billing process. If the payer makes an overpayment determination, there is a risk that we may be required to return some portion of prior payments we have received. These billing complexities, and the related uncertainty in obtaining payment for our assays, could negatively affect our revenue and cash flow, our ability to achieve profitability, and the consistency and comparability of our results of operations.

We rely on third-party billing provider software, and an in-house billing function, to transmit claims to payers, and any delay in transmitting claims could have an adverse effect on our revenue.

While we manage the overall processing of claims, we rely on third-party billing provider software to transmit the actual claims to payers based on the specific payer billing format. We have previously experienced delays in claims processing when our third-party provider made changes to its invoicing system. Additionally, coding for diagnostic assays may change, and such changes may cause short-term billing errors that may take significant time to resolve. If claims are not submitted to payers on a timely basis or are erroneously submitted, or if we are required to switch to a different software provider to handle claim submissions, we may experience delays in our ability to process these claims and receipt of payments from payers, or possibly denial of claims for lack of timely submission, which would have an adverse effect on our revenue and our business.

We may encounter manufacturing problems or delays that could result in lost revenue.

We currently manufacture our proprietary microfluidic channels at our San Diego facility and intend to continue to do so. We believe we currently have adequate manufacturing capacity for our microfluidic channels. If demand for our current products, assays and services and our planned future products, assays and services increases significantly, we will need to either expand our manufacturing capabilities or outsource to other manufacturers. If we or third-party manufacturers engaged by us fail to manufacture and deliver our microfluidic channels or certain reagents in a timely manner, our relationships with our customers could be seriously harmed. We cannot assure you that manufacturing, or quality control problems will not arise as we attempt to increase the production of our microfluidic channels or reagents or that we can increase our manufacturing capabilities and maintain quality control in a timely manner or at commercially reasonable costs. If we cannot manufacture our microfluidic channels consistently on a timely basis because of these or other factors, it could have a significant negative impact on our ability to perform assays and generate revenues. We may encounter supply chain constraints in obtaining the raw materials needed to manufacture our products for a variety of reasons, including events outside of our control such as the COVID-19 pandemic and geopolitical events.

International expansion of our business would expose us to business, regulatory, political, operational, financial and economic risks associated with doing business outside of the United States.

Our business strategy is to pursue increased international expansion, including partnering with academic and commercial testing laboratories, and introducing our technology outside the United States as part of in vitro diagnostic, or IVD, test kits and/or testing systems utilizing our technologies. Doing business internationally involves a number of risks, including:

- multiple, conflicting and changing laws and regulations such as tax laws, export and import restrictions, employment laws, regulatory requirements and other governmental approvals, permits and licenses;
- failure by us or our distributors to obtain regulatory approvals for the sale or use of our current products or assays and our planned future products or assays in various countries;
- difficulties in managing foreign operations;
- complexities associated with managing government payer systems, multiple payer-reimbursement regimes or self-pay systems;
- logistics and regulations associated with shipping blood samples, including infrastructure conditions and transportation delays;

- limits on our ability to penetrate international markets if our current products or assays and our planned future products or assays cannot be processed by an appropriately qualified local laboratory;
- financial risks, such as longer payment cycles, difficulty enforcing contracts and collecting accounts receivable and exposure to foreign currency exchange rate fluctuations;
- reduced protection for intellectual property rights, or lack of them in certain jurisdictions, forcing more reliance on our trade secrets, if available;
- natural disasters, political and economic instability, including wars, invasions, other military actions, terrorism and political unrest, outbreak of disease, boycotts, curtailment of trade and other business restrictions; and
- failure to comply with the Foreign Corrupt Practices Act, including its books and records provisions and its anti-bribery provisions, by maintaining accurate information and control over sales activities and distributors' activities.

Any of these risks, if encountered, could significantly harm our future international expansion and operations and consequently, have a material adverse effect on our financial condition, results of operations and cash flows.

General economic or business conditions may have a negative impact on our business.

The global economy, including credit and financial markets, has experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates, increases in inflation rates and uncertainty about economic stability. For example, the COVID-19 pandemic resulted in increased unemployment, economic slowdown and extreme volatility in the capital markets. Similarly, the current Russia-Ukraine conflict has created extreme volatility in the global capital markets and is expected to have further global economic consequences, including disruptions of the global supply chain and energy markets. Continuing concerns over United States health care reform legislation have also contributed to increased volatility. Any such volatility and disruptions may have adverse consequences on us or the third parties on whom we rely. If the equity and credit markets deteriorate, including as a result of political unrest or war, it may make any necessary debt or equity financing more difficult to obtain in a timely manner or on favorable terms, more costly or more dilutive.

If our information technology systems or data, or those of third parties upon which we rely, are or were compromised, we could experience adverse consequences, including, without limitation, regulatory investigations or actions, litigation, interruption to our operations, harm to our reputation, fines, penalties, liability, or a loss of revenues, customers or sales, or other adverse consequences.

In the ordinary course of our business, we may process proprietary, confidential and sensitive information, personal data (including health information), intellectual property, trade secrets, and other sensitive business information owned or controlled by ourselves or other parties (collectively, sensitive information). In addition, we rely upon third-party service providers and technologies to operate critical business systems to process sensitive information in a variety of contexts, including without limitation, assay processing, sample tracking, quality control, customer service and support, billing and reimbursement, research and development activities and our general and administrative activities. Our ability to monitor these third parties' information security practices is limited, and these third parties may not have adequate information security measures in place. We may share or receive sensitive information with or from third parties.

Despite the implementation of security measures, we and the third parties upon whom we rely (including the Internet and related systems) may be vulnerable to cyberattacks, malicious internet-based activity and online and offline fraud, which are becoming increasingly prevalent and difficult to detect. These threats come from a variety of sources, including traditional computer "hackers," threat actors, personnel misconduct or error, employee theft or misuse, sophisticated nation-state and nation-state supported actors. Some actors now engage and are expected to continue to engage in cyberattacks, including without limitation nation-state actors for geopolitical reasons and in conjunction with military conflicts and defense activities. During times of war and other major conflicts, we and the third parties upon which we rely may be vulnerable to a heightened risk of these attacks, including cyberattacks, that could materially disrupt our systems and operations, supply chain, and ability to produce, sell and distribute our products.

We and the third parties upon whom we rely are subject to a variety of evolving threats, including but are not limited to social engineering attacks, software bugs, malicious code (such as viruses and worms), denial-of-service attacks (such as credential

stuffing), ransomware attacks, supply chain attacks, malware installation, server malfunction, software or hardware failures, loss of data or other computer assets, adware, physical break-ins, fires, telecommunications or network failures, malicious human acts, natural disasters, or other similar issues. Ransomware attacks, including those from organized criminal threat actors, nation-states, and nation-state supported actors, are becoming increasingly prevalent and severe and can lead to significant interruptions, delays, or outages in our operations, disruption of clinical trials, loss of sensitive information (including data related to clinical trials), loss of income, significant extra expenses to restore data or systems, reputational loss and the diversion of funds. To alleviate the financial, operational and reputational impact of a ransomware attack, it may be preferable to make extortion payments, but we may be unwilling or unable to do so (including, for example, if applicable laws or regulations prohibit such payments). Similarly, supply chain attacks have increased in frequency and severity, and we cannot guarantee that third parties and infrastructure in our supply chain have not been compromised or that they do not contain exploitable defects or bugs that could result in a breach of or disruption to our platform, systems and networks or the systems and networks of third parties that support us and our services. Despite the security controls we have in place, such attacks are very difficult to avoid.

Any of the aforementioned threats and other similar attacks, disruptions or accidents could cause a security incident, which, in turn, could result in unauthorized access to, damage to, disablement or encryption of, use or misuse of, disclosure of, modification of, destruction of, or loss of our sensitive information, or disrupt our ability to provide our platform or our service providers' ability to support our services or develop or deliver our products. We may expend significant resources, fundamentally change our business activities and practices, or modify our operations in an effort to protect against security incidents and to mitigate, detect and address actual and potential vulnerabilities. Certain data privacy and security obligations may require us to implement and maintain specific, industry-standard or reasonable security measures to protect our information technology systems and sensitive information. Despite the precautionary measures we have taken to try to prevent a security incident, there can be no assurance that these measures will be effective. We may be unable in the future to detect vulnerabilities in our information technology systems because such threats and techniques change frequently, are often sophisticated in nature, and may not be detected until after a security incident has occurred. Despite our effects to identify and address vulnerabilities, if any, in our information technology systems, our efforts may not be successful. Further, we may experience delays in developing and deploying remedial measures designed to address any such identified vulnerabilities.

Applicable data privacy and security obligations may require us to notify relevant stakeholders of security incidents. Such disclosures are costly, and the disclosure of any security incident or the failure to comply with such requirements could lead to adverse consequences. Any disruption or loss of information technology or telecommunications systems on which critical aspects of our operations depend could have an adverse effect on our business, such as preventing us from processing assays; providing assay results to medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists, and other physicians; billing payers; processing reimbursement appeals; handling patient or physician inquiries; conducting research and development activities and managing the administrative aspects of our business.

Furthermore, if we or any third party upon whom we rely experience a security incident, or are perceived to have experienced a security incident, it could result in: government enforcement actions that could include investigations, fines, penalties, audits and inspections; additional reporting requirements and/or oversight; restrictions on processing personal data or sensitive information (which could impact our ability to conduct tests or develop our products); litigation (including class claims); indemnification obligations; negative publicity; reputational harm; monetary fund diversions; interruptions in our operations; financial loss; and other similar harms.

Furthermore, there can be no assurance that our contracts contain limitations of liability, and even where they do, such limitations may not be enforceable, adequate or otherwise protect us from liabilities or damages if we fail to comply with obligations related to security incidents. We cannot be sure that our insurance coverage will be adequate or sufficient to protect us from or mitigate liabilities arising out of our privacy and security practices, that such coverage will continue to be available on commercial reasonable terms or at all, or that such coverage will pay future claims.

Regulatory Risks Relating to Our Business

Healthcare policy changes, including recently enacted legislation reforming the U.S. health care system, may have a material adverse effect on our financial condition, results of operations and cash flows.

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively the ACA, enacted in March 2010, made a number of substantial changes in the way health care is financed by both governmental and private insurers.

Although some of these provisions may negatively impact payment rates for clinical laboratory tests, the ACA also extends coverage to over 30 million previously uninsured people, which resulted in an increase in the demand for our current assays and our planned future assays. There have been executive, judicial and congressional challenges to certain aspects of the ACA. For example, President Trump signed several executive orders and other directives designed to delay, circumvent, or loosen certain requirements mandated by the ACA. Concurrently, Congress considered legislation that would repeal or repeal and replace all or part of the ACA. While Congress has not passed repeal legislation, it has enacted laws that modify certain provisions of the ACA such as removing penalties effective January 1, 2019, for not complying with the ACA's individual mandate to carry health insurance and eliminating the implementation of certain ACA-mandated fees, including but not limited the Medical Device Excise Tax. On June 17, 2021, the U.S. Supreme Court dismissed a challenge on procedural grounds that argued the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress. Thus, the ACA will remain in effect in its current form. Further, prior to the U.S. Supreme Court ruling, on January 28, 2021, President Biden issued an executive order that initiated a special enrollment period for purposes of obtaining health insurance coverage through the ACA marketplace. The executive order also instructed certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the ACA. It is possible that the ACA will be subject to judicial or congressional challenges in the future. It is unclear how such challenges and the healthcare reform measures of the Biden administration will impact the ACA.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. The Protecting Access to Medicare Act of 2014, or PAMA, was signed to law, which, among other things, significantly altered the current payment methodology under the Medicare Clinical Laboratory Fee Schedule, or CLFS. Beginning in 2017 and every three years thereafter (or annually in the case of advanced diagnostic laboratory tests), applicable clinical laboratories must report laboratory test payment data for each Medicare-covered clinical diagnostic laboratory test that it furnishes during the specified time period. The reported data must include the payment rate (reflecting all discounts, rebates, coupons and other price concessions) and the volume of each test that was paid by each private payer (including health insurance issuers, group health plans, Medicare Advantage plans and Medicaid managed care organizations). Effective January 1, 2018, the Medicare payment rate for each clinical diagnostic laboratory test is equal to the weighted median amount for the test from the most recent data collection period. The payment rate applies to laboratory tests furnished by a hospital laboratory if the test is separately paid under the hospital outpatient prospective payment system. The PAMA rate changes did not materially affect our payments beginning in 2018; however, we cannot predict how this may affect future payment in coming years. Reporting of payment data under PAMA for clinical diagnostic laboratory tests has been delayed on numerous occasions. Based on current law, between January 1, 2023 and March 31, 2023, applicable laboratories will be required to report on data collected during January 1, 2019 and June 30, 2019. This data will be utilized to determine 2024 to 2026 CLFS rates. In addition, CMS updated the statutory phase-in provisions such that the rates for clinical diagnostic laboratory tests in 2020 could not be reduced by more than 10% of the rates for 2019. Pursuant to the CARES Act, the statutory phase-in of the payment reductions has been extended through 2024, with a 0% reduction cap for 2021-2022 and a 15% reduction cap for 2023 through 2025. It is unclear what impact new quality and payment programs or new pricing structures, such as those adopted under PAMA, may have on our business, financial condition, results of operations, or cash flows.

Also, under PAMA, CMS is required to adopt temporary billing codes to identify new tests and new advanced diagnostic laboratory tests that have been cleared or approved by the FDA. For an existing test that is cleared or approved by the FDA and for which Medicare payment is made as of April 1, 2014, CMS is required to assign a unique billing code if one has not already been assigned by the agency. In addition to assigning the code, CMS is required to publicly report payment for the tests. Further, under PAMA, CMS is required to adopt temporary billing codes to identify new tests and new advanced diagnostic laboratory tests that have been cleared or approved by the FDA. We cannot determine at this time the full impact of PAMA, including its implementing regulations, on our business, financial condition and results of operations.

Additionally, the Budget Control Act of 2011, among other things, created the Joint Select Committee on Deficit Reduction to recommend proposals in spending reductions to Congress. The Joint Select Committee did not achieve its targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers and suppliers of up to 2% per fiscal year, starting in 2013, and, due to subsequent legislative amendments to the statute, will remain in effect through 2031 unless additional congressional action is taken. COVID-19 relief legislation suspended the 2% Medicare sequester from May 1, 2020 through March 31, 2022. Under current legislation, the actual reduction in Medicare payments will vary from 1% in 2022 to up to 3% in the final fiscal year of this sequester. The full impact on our business the sequester law is uncertain. In addition, the Middle-Class Tax Relief and Job Creation Act of 2012, or MCTRJCA, mandated an additional change in Medicare reimbursement for clinical laboratory tests. In addition, Congress is considering additional health reform measures as part of other reform initiatives.

In April 2020, the CMS announced that it would increase the reimbursement for certain COVID-19 molecular tests making use of high-throughput technologies developed by the private sector that allow for increased testing capacity, faster results, and more effective means of combating the spread of the virus to $100 per test, effective April 14, 2020. However, beginning January 1, 2021, Medicare changed the base reimbursement rate for COVID-19 diagnostic tests run on high-throughput technologies to $75 per test with an additional payment of $25 per test if certain additional requirements are met. Moreover, federal COVID-19 relief funding for uninsured individuals to receive testing and treatment for COVID-19 has sunset, and it is unclear whether Congress will take additional action to extend this program. We are currently reviewing how these reimbursement policies will impact laboratories and the patients we serve.

Some of our laboratory assay business is subject to the Medicare Physician Fee Schedule and, under the current statutory formula, the rates for these services are updated annually. For the past several years, the application of the statutory formula would have resulted in substantial payment reductions if Congress failed to intervene. In the past, Congress passed interim legislation to prevent the decreases. If Congress fails to intervene to prevent the negative update factor in future years, the resulting decrease in payment may adversely affect our revenue and results of operations. If in future years Congress does not adopt interim legislation to block or offset, and/or CMS does not moderate, any substantial CMS-proposed reimbursement reductions, the resulting decrease in payments from Medicare could adversely impact our revenues and results of operations.

In addition, it is possible that additional governmental action is taken in response to the COVID-19 pandemic.

We cannot predict whether future health care initiatives will be implemented at the federal or state level. For example, based on a recent executive order, the Biden administration expressed its intent to pursue certain policy initiatives to reduce drug prices. The expansion of government's role in the U.S. health care industry, and changes to the reimbursement amounts paid by Medicare and other payers for our current assays and our planned future assays, may reduce our profits, if any, and have a materially adverse effect on our business, financial condition, results of operations and cash flows. Moreover, Congress has proposed on several occasions to impose a 20% coinsurance payment requirement on patients for clinical laboratory tests reimbursed under the CLFS, which would require us to bill patients for these amounts. In the event that Congress were to ever enact such legislation, the cost of billing and collecting for our assays could often exceed the amount actually received from the patient.

Our commercial success could be compromised if hospitals or other clients do not pay our invoices or if third-party payers, including managed care organizations and Medicare, do not provide coverage and reimbursement, breach, rescind or modify their contracts or reimbursement policies or delay payments for our current assays and our planned future assays.

Medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians may not order our current assays and our planned future assays unless third-party payers, such as managed care organizations and government payers (e.g., Medicare and Medicaid), pay a substantial portion of the assay price. Coverage and reimbursement by a third-party payer may depend on a number of factors, including a payer's determination that assays using our technologies are:

- not experimental or investigational;
- medically necessary;
- appropriate for the specific patient;
- cost-effective;

- supported by peer-reviewed publications; and
- included in clinical practice guidelines.

Uncertainty surrounds third-party payer coverage and adequate reimbursement of any test incorporating new technology, including tests developed using our technologies. Technology assessments of new medical tests conducted by research centers and other entities may be disseminated to interested parties for informational purposes. Third-party payers and health care providers may use such technology assessments as grounds to deny coverage for a test or procedure. Technology assessments can include evaluation of clinical utility studies, which define how a test is used in a particular clinical setting or situation.

Because each payer generally determines for its own enrollees or insured patients whether to cover or otherwise establish a policy to reimburse our diagnostic assays, seeking payer approvals is a time-consuming and costly process. We cannot be certain that coverage for our current assays and our planned future assays will be provided in the future by additional third-party payers or that existing agreements, policy decisions or reimbursement levels will remain in place or be fulfilled under existing terms and provisions. If we cannot obtain coverage and adequate reimbursement from private and governmental payers such as Medicare and Medicaid for our current assays, or new assays or assay enhancements that we may develop in the future, our ability to generate revenues could be limited, which may have a material adverse effect on our financial condition, results of operations and cash flow. Further, we may experience delays and interruptions in the receipt of payments from third-party payers due to missing documentation and/or other issues, which could cause delay in collecting our revenue.

In addition, to the extent that our assays are ordered for Medicare inpatients and outpatients, only the hospital may receive payment from the Medicare program for the technical component of pathology services and any clinical laboratory services that we perform, unless the testing is ordered at least 14 days after discharge and certain other requirements are met. We therefore must look to the hospital for payment for these services under these circumstances. If hospitals refuse to pay for the services or fail to pay in a timely manner, our ability to generate revenues could be limited, which may have a material adverse effect on our financial condition, results of operations and cash flow.

We expect to depend on Medicare and a limited number of private payers for a significant portion of our revenues and if these or other payers stop providing reimbursement or decrease the amount of reimbursement for our current assays and our planned future assays, our revenues could decline.

Approximately 51% and 56% of total net revenues during the years ended December 31, 2020 and 2021, respectively, were associated with Medicare and CARES Act reimbursement. Approximately 20% and 17% of total net revenues during the years ended December 31, 2020 and 2021, respectively, were associated with Blue Cross Blue Shield reimbursement. We cannot assure you that, even if our current assays and our planned future assays are otherwise successful, reimbursement for the currently Medicare and Blue Cross Blue Shield covered-portions of our current assays and our planned future assays would, without such contracted payer reimbursement for the capture/enumeration portion, produce sufficient revenues to enable us to reach profitability and achieve our other commercial objectives.

Medicare and other third-party payers may change their coverage policies or cancel future contracts with us at any time, review and adjust the rate of reimbursement or stop paying for our assays altogether, which would reduce our total revenues. Payers have increased their efforts to control the cost, utilization and delivery of health care services. In the past, measures have been undertaken to reduce payment rates for and decrease utilization of clinical laboratory testing generally. Because of the cost-trimming trends, third-party payers that currently cover and provide reimbursement for our current assays and our planned future assays may suspend, revoke or discontinue coverage at any time, or may reduce the reimbursement rates payable to us. Any such action could have a negative impact on our revenues, which may have a material adverse effect on our financial condition, results of operations and cash flows.

In addition, we are currently considered a “non-contracted provider” by many private payers because we have not entered into a specific contract to provide diagnostic assays to their insured patients at specified rates of reimbursement. Additionally, a significant amount of our non-Medicare business (private payers) has historically not been contracted, and reimbursement for this business has historically not been at “in network” rates and has therefore been inconsistent. We first began to contract private payer networks in 2015, and since then our number of accessions treated as “in network” has increased as we continue to execute additional contracts, and reimbursement is improving. We are currently contracted with nine preferred provider organization networks, three large health plans, and five regional independent physician associations, and expect to continue to gain contracts in order to be considered as an “in-network” provider with additional plans. If we were to become a contracted

provider with additional payers in the future, the amount of overall reimbursement we receive would likely decrease because we could be reimbursed less money per assay performed at a contracted rate than at a non-contracted rate, which could have a negative impact on our revenues. Further, we typically are unable to collect payments from patients beyond that which is paid by their insurance and will continue to experience lost revenue as a result.

Because of certain Medicare billing policies, we may not receive complete reimbursement for assays provided to Medicare patients. Medicare reimbursement revenues are an important component of our business model, and private payers sometimes look to Medicare determinations when making their own payment determinations; therefore, incomplete or inadequate reimbursement from Medicare would negatively affect our business.

Medicare has coverage policies that can be national or regional in scope. Coverage means that assay is approved as a benefit for Medicare beneficiaries. If there is no coverage, neither the supplier nor any other party, such as a reference laboratory, may receive reimbursement from Medicare for the service. There is currently no national coverage policy regarding the CTC enumeration portion of our assays. Because our laboratory is in California, the regional Medicare Administrative Contractor, or MAC, for California is the relevant MAC for all our assays. The previous MAC for California, Palmetto, which is contracted with CMS to administer the Molecular Diagnostic Services, or MolDx, program that sets guidelines for coding, coverage and reimbursement of molecular diagnostic assays, adopted a negative coverage policy for CTC enumeration. The current MAC for California, Noridian Healthcare Solutions, LLC, is adopting the coverage policies from Palmetto. Therefore, the enumeration portion of our assays is not currently covered, and we will receive no payment from Medicare for this portion of the service unless and until the coverage policy is changed. Although approximately 92% of all billable cases received during the years ended December 31, 2020 and 2021 relate to our Target Selector biomarker assays, we continue to receive orders for traditional enumeration testing, which counts disease burden, and therefore the enumeration testing receives no payment from Medicare based upon the existing coverage decision. The CTC enumeration counts disease burden and is a prognostic assay, and although valuable, it does not meet many of the medical necessity requirements of Medicare and the payers. We intend to pursue payment for the capture portion of our CTC technology that allows us to run our diagnostic testing for some of our Target Selector assays.

We cannot assure you that, even if our current assays and our planned future assays are otherwise successful, reimbursement for the currently Medicare, Blue Cross Blue Shield, and United Healthcare-covered portions of our current assays and our planned future assays would, without such contracted payer reimbursement for the capture/enumeration portion, produce sufficient revenues to enable us to reach profitability and achieve our other commercial objectives.

The processing of Medicare claims is subject to change at CMS' discretion at any time. Cost containment initiatives may be a threat to Medicare reimbursement levels (including for the covered components of our current assays and our planned future assays, including FISH analysis and molecular assays) for the foreseeable future.

We may not receive breakthrough device designation by the FDA for our Target Selector CSF Assay, and even if we do, such designation may not lead to a faster development, regulatory review or clearance process, and it may not increase the likelihood that the assay will receive marketing authorization from the FDA.

Following the full commercial launch of our CSF assay, CNSide, we submitted an initial application for Breakthrough Device Designation to the FDA in the second quarter of 2021. While that initial submission was denied, we intend to continue to pursue Breakthrough Device Designation for CNSide and are gathering data based on the feedback provided by the FDA to further support the submission. The FDA's breakthrough devices program is a voluntary program for certain medical devices that provide for more effective treatment or diagnosis of life-threatening or irreversibly debilitating diseases or conditions. The goal of the program is to provide patients and healthcare providers with timely access to these medical devices by speeding up their development, assessment and review, while preserving the statutory standards for premarket approval, 510(k) clearance and de novo marketing authorization, consistent with the FDA's mission to protect and promote public health.

Even if received, breakthrough device designation may not result in a faster development process, review or clearance compared to conventional FDA procedures and does not assure ultimate marketing authorization by the FDA. In addition, even if a product qualifies as a breakthrough device, the FDA may later decide that the product no longer meets the conditions for qualification and revoke such designation.

Long payment cycles of Medicare, Medicaid and/or other third-party payers, or other payment delays, could hurt our cash flows and increase our need for working capital.

Medicare and Medicaid have complex billing and documentation requirements that we must satisfy in order to receive payment, and the programs can be expected to carefully audit and monitor our compliance with these requirements. We must also comply with numerous other laws applicable to billing and payment for healthcare services, including, for example, privacy laws. Failure to comply with these requirements may result in, among other things, non-payment, refunds, exclusion from government healthcare programs, and civil or criminal liabilities, any of which may have a material adverse effect on our revenues and earnings. In addition, failure by third-party payers to properly process our payment claims in a timely manner could delay our receipt of payment for our products and services, which may have a material adverse effect on our cash flows.

Complying with numerous regulations pertaining to our business is an expensive and time-consuming process, and any failure to comply could result in substantial penalties.

We are subject to CLIA, a federal law regulating clinical laboratories that perform testing on specimens derived from humans for the purpose of providing information for the diagnosis, prevention or treatment of disease. Our clinical laboratory must be certified under CLIA in order for us to perform testing on human specimens. CLIA is intended to ensure the quality and reliability of clinical laboratories in the United States by mandating specific standards in the areas of personnel qualifications, administration, and participation in proficiency testing, patient test management, quality control, quality assurance and inspections. We have a current certificate of accreditation under CLIA to perform high complexity testing, and our laboratory is accredited by one of the CLIA-approved accreditation organizations. To renew this certificate, we are subject to survey and inspection every two years. Moreover, CLIA and CAP inspectors may make periodic inspections of our clinical laboratory outside of the renewal process. The failure to comply with CLIA or CAP requirements can result in enforcement actions, including the revocation, suspension, or limitation of our CLIA and/or CAP certificate of accreditation, as well as a directed plan of correction, state on-site monitoring, civil money penalties, civil injunctive suit and/or criminal penalties. We must maintain CLIA compliance and certification to be eligible to bill for assays provided to Medicare beneficiaries. If we were to be found out of compliance with CLIA program requirements and subjected to sanctions, our business and reputation could be harmed. Even if it were possible for us to bring our laboratory back into compliance, we could incur significant expenses and potentially lose revenue in doing so.

In addition, our laboratory is located in California and is required by state law to have a California state license; as we expand our geographic focus, we may need to obtain laboratory licenses from additional states. California laws establish standards for operation of our clinical laboratory, including the training and skills required of personnel and quality control. In addition, we hold licenses from the states of Pennsylvania, Maryland and Rhode Island to test specimens from patients in those states or received from ordering physicians in those states. In addition, our clinical reference laboratory is required to be licensed on a product-specific basis by New York as an out of state laboratory and our products, as LDTs, must be approved by the New York State Department of Health before they are offered in New York. As part of this process, the State of New York requires validation of our assays. We currently do not have the necessary New York license, but we are in the process of addressing the requirements for licensure in New York. Other states may have similar requirements or may adopt similar requirements in the future. Finally, we may be subject to regulation in foreign jurisdictions if we seek to expand international distribution of our assays outside the United States.

If we were to lose our CLIA certification or California or other state laboratory license, whether as a result of a revocation, suspension or limitation, we would no longer be able to offer our assays, which would limit our revenues and harm our business. If we were to lose, or fail to obtain, a license in any other state where we are required to hold a license, we would not be able to test specimens from those states. If we were to lose our CAP accreditation, our reputation for quality, as well as our business, financial condition and results of operations, could be significantly and adversely affected.

If the FDA were to begin requiring approval or clearance of our current products or assays and our planned future products or assays, we could incur substantial costs and time delays associated with meeting requirements for pre-market clearance or approval or we could experience decreased demand for, or reimbursement of, our assays.

We provide our assays as LDTs. Historically; the FDA has exercised enforcement discretion with respect to most LDTs and has not required laboratories that offer LDTs to comply with the agency's requirements for medical devices (e.g., establishment registration, device listing, quality systems regulations, premarket clearance or premarket approval, and post-market controls). In recent years, however, the FDA has stated it intends to end its policy of enforcement discretion and regulate certain LDTs

as medical devices. To this end, on October 3, 2014, the FDA issued two draft guidance documents, entitled "Framework for Regulatory Oversight of Laboratory Developed Tests (LDTs)" and "FDA Notification and Medical Device Reporting for Laboratory Developed Tests (LDTs)", respectively, that set forth a proposed risk-based regulatory framework that would apply varying levels of FDA oversight to LDTs. The FDA has indicated that it does not intend to modify its policy of enforcement discretion until the draft guidance documents are finalized. In January 2017, the FDA announced that final guidance on the oversight of LDTs would allow for further public discussion. On January 13, 2017 the FDA issued a "Discussion Paper on Laboratory Developed Tests (LDTs)," which states that the material in the document does not represent a final version of the LDT draft guidance documents that were published in 2014 or position of the FDA; rather, the document is a method to encourage additional dialogue. The timing of when, if at all, the draft guidance documents will be finalized is unclear, and even then, the new regulatory requirements are proposed to be phased-in consistent with the schedule set forth in the guidance. Nevertheless, the FDA may decide to regulate certain LDTs on a case-by-case basis at any time. LDTs with the same intended use as a cleared or approved companion diagnostic are defined in FDA's draft guidance as "high-risk LDTs (Class III medical devices)" for which premarket review would be first to occur.

FDA review, if required and successfully accomplished, would be expected to have some advantages. Certain health insurance payers have paid higher amounts over LDT prices for FDA approved or cleared tests, recognizing the additional costs of bringing a test through regulatory review. Some payers also accept FDA approval or clearance as a presumptive evidence of an assay's analytic validity and clinical validity, which can reduce the barriers to coverage since the payer can focus its review on clinical utility.

The container we provide for collection and transport of blood samples from a health care provider to our clinical laboratory, as well as our SCTs, may be medical devices subject to the FDA regulation but are currently exempt from pre-market review by the FDA. While we believe that we are currently in material compliance with applicable laws and regulations, we cannot assure you that the FDA or other regulatory agencies would agree with our determination, and a determination that we have violated these laws, or a public announcement that we are being investigated for possible violations of these laws, could adversely affect our business, prospects, results of operations or financial condition.

Some of the materials we use for our current products, assays and services and may use in our planned future products, assays and services are labeled for RUO. In November 2013, the FDA finalized guidance regarding the sale and use of products labeled for research or investigational use only. Among other things, the guidance advises that the FDA continues to be concerned about distribution of research or investigational use only products intended for clinical diagnostic use and that the manufacturer's objective intent for the product's intended use will be determined by examining the totality of circumstances, including advertising, instructions for clinical interpretation, presentations that describe clinical use, and specialized technical support, surrounding the distribution of the product in question. The FDA has advised that if evidence demonstrates that a product is inappropriately labeled for research or investigational use only, the device would be misbranded and adulterated within the meaning of the Federal Food, Drug and Cosmetic Act. Some of the materials and reagents obtained by us from suppliers for use in our current products, assays and services and our planned future products, assays and services are currently labeled as research or investigational use only products. If the FDA were to undertake enforcement actions, some of our suppliers might cease selling research or investigational use products to us, and any failure to obtain an acceptable substitute could significantly and adversely affect our business, financial condition and results of operations, including increasing the cost of materials or reagents used in our current products, assays and services or planned future products, assays and services or delaying, limiting or prohibiting the purchase of materials or reagents necessary to sell our current products or planned future products or to perform our current assays or our planned future assays.

Our SCTs and Target Selector kits are marketed for RUO and distributed and sold to end users, some of which will be researchers and institutions while other end users could be labs performing clinical testing that will create their own LDTs. Some end users may assert that our ROU products caused their assays to perform inadequately or give erroneous results. If that was the case, we could potentially incur additional liabilities.

Further, the Department of Health and Human Services, or HHS, requested that its Advisory Committee on Genetics, Health and Society make recommendations about the oversight of genetic testing. A final report was published in April 2008. If the report's recommendations for increased oversight of genetic testing were to result in further regulatory burdens, they could negatively affect our business and delay the commercialization of assays in development.

Additionally, on March 16, 2018 CMS issued a final determination decision memo for Next-Generation Sequencing, or NGS, tests for Medicare Beneficiaries with Advanced Cancer (CAG-00450N). Under this final determination, NGS tests that gain

FDA approval or clearance as a companion diagnostic will receive coverage, and the final determination of coverage for NGS tests that are LDTs will be left up to the local MAC. Currently, only 1 of our 15 CLIA validated assays is NGS-based; however, we plan to offer additional NGS assays in the future. To gain coverage for those assays, we will need to apply to Palmetto, which is the MAC that evaluates and recommends payment coverage or denial for molecular testing in our jurisdiction. Historically, Palmetto has offered a path to reimbursement by providing coverage while data is being gathered known as Coverage with Data Development, or CDD. Going forward, the extent to which CDD will be continued, if at all, or to the extent that a process will be available in its place, if any, are unclear.

The requirement of pre-market review could negatively affect our business until such review is completed and clearance to market or approval is obtained. The FDA could require that we stop selling our products or diagnostic assays pending pre-market clearance or approval. If the FDA allows our products or assays to remain on the market but there is uncertainty about our products or assays, if they are labeled investigational by the FDA or if labeling claims the FDA allows us to make are very limited, orders from laboratory supply distributors and physicians, or reimbursement from third-party payers, may decline. The regulatory approval process may involve, among other things, successfully completing additional clinical trials and making a 510(k) submission or filing a pre-market approval application with the FDA. If the FDA requires pre-market review, our products or assays may not be cleared or approved on a timely basis, if at all. We may also decide voluntarily to pursue FDA pre-market review of our products or assays if we determine that doing so would be appropriate.

If we were required to conduct additional clinical studies or trials before continuing to offer assays that we have developed or may develop as LDTs, those studies or trials could lead to delays or failure to obtain necessary regulatory approval, which could cause significant delays in commercializing any future products and harm our ability to achieve sustained profitability.

If the FDA decides to require that we obtain clearance or approvals to commercialize our current assays or our planned future assays, we may be required to conduct additional pre-market clinical testing before submitting a regulatory notification or application for commercial sales. In addition, as part of our long-term strategy we may plan to seek FDA clearance or approval, so we can sell our assays outside our CLIA laboratory; however, we would need to conduct additional clinical validation activities on our assays before we can submit an application for FDA approval or clearance. Clinical trials must be conducted in compliance with FDA regulations or the FDA may take enforcement action or reject the data. The data collected from these clinical trials may ultimately be used to support market clearance or approval for our assays. It may take two years or more to conduct the clinical studies and trials necessary to obtain approval from the FDA to commercially launch our current assays and our planned future assays outside of our clinical laboratory. Even if our clinical trials are completed as planned, we cannot be certain that their results will support our assay claims or that the FDA or foreign authorities will agree with our conclusions regarding our assay results. Success in early clinical trials does not ensure that later clinical trials will be successful, and we cannot be sure that the later trials will replicate the results of prior clinical trials and studies. If we are required to conduct pre-market clinical trials, whether using prospectively acquired samples or archival samples, delays in the commencement or completion of clinical testing could significantly increase our assay development costs and delay commercialization. Many of the factors that may cause or lead to a delay in the commencement or completion of clinical trials may also ultimately lead to delay or denial of regulatory clearance or approval. The commencement of clinical trials may be delayed due to insufficient patient enrollment, which is a function of many factors, including the size of the patient population, the nature of the protocol, the proximity of patients to clinical sites and the eligibility criteria for the clinical trial. Moreover, the clinical trial process may fail to demonstrate that our current assays and our planned future assays are effective for the proposed indicated uses, which could cause us to abandon an assay candidate and may delay development of other assays.

We may find it necessary to engage contract research organizations to perform data collection and analysis and other aspects of our clinical trials, which might increase the cost and complexity of our trials. We may also depend on clinical investigators, medical institutions and contract research organizations to perform the trials properly. If these parties do not successfully carry out their contractual duties or obligations or meet expected deadlines, or if the quality, completeness or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols or for other reasons, our clinical trials may have to be extended, delayed or terminated. Many of these factors would be beyond our control. We may not be able to enter into replacement arrangements without undue delays or considerable expenditures. If there are delays in testing or approvals as a result of the failure to perform by third parties, our research and development costs would increase, and we may not be able to obtain regulatory clearance or approval for our current assays and our planned future assays. In addition, we may not be able to establish or maintain relationships with these parties on favorable terms, if at all. Each of these outcomes would harm our ability to market our assays or to achieve sustained profitability.

We are subject to federal and state healthcare fraud and abuse laws and regulations and could face substantial penalties if we are unable to fully comply with such laws.

We are subject to health care fraud and abuse regulation and enforcement by both the federal government and the states in which we conduct our business. These health care laws and regulations include, for example:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from soliciting, receiving, offering or providing remuneration, directly or indirectly, overtly or covertly, in cash or in kind, in return for or to induce either the referral of an individual for, or the purchase, lease, order or recommendation of, any good, facility, item or services for which payment may be made under a federal health care program such as the Medicare and Medicaid programs;
- the federal physician self-referral prohibition, commonly known as the Stark Law, which prohibits physicians from referring Medicare or Medicaid patients to providers of "designated health services" with whom the physician or a member of the physician's immediate family has an ownership interest or compensation arrangement, unless a statutory or regulatory exception applies;
- the Eliminating Kickbacks in Recovery Act of 2018, or EKRA, which prohibits payments for referrals to recovery homes, clinical treatment facilities, and laboratories. EKRA's reach extends beyond federal health care programs to include private insurance (i.e., it is an "all payer" statute);
- HIPAA, which established additional federal civil and criminal liability for, among other things, knowingly and willfully executing or attempting to execute a scheme to defraud any health care benefit program or making false statements in connection with the delivery of or payment for health care benefits, items or services;
- HIPAA, as amended by HITECH, and its implementing regulations, which imposes certain requirements relating to the privacy, security and transmission of individually identifiable health information on "covered entities," including certain healthcare providers, health plans, and healthcare clearinghouses, as well as their respective "business associates" that create, receive, maintain or transmit individually identifiable health information for or on behalf of a covered entity, and their subcontractors that use, disclose or otherwise process individually identifiable health information;
- federal false claims and civil monetary penalties laws, which, prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, false or fraudulent claims for payment to the federal government;
- the federal Physician Payments Sunshine Act requirements under the ACA, which require certain manufacturers of drugs, devices, biologics and medical supplies to report to CMS information related to payments and other transfers of value made to or at the request of covered recipients, such as physicians, (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), other healthcare professionals (such as physicians assistants and nurse practitioners), and teaching hospitals, and certain physician ownership and investment interests held by physicians and their immediate family members; and
- state law equivalents of each of the above federal laws, such as anti-kickback and false claims laws, which may apply to items or services reimbursed by any third-party payer, including commercial insurers.

Further, the ACA, among other things, amended the intent requirement of the federal Anti-Kickback Statute and certain criminal health care fraud statutes. Where the intent requirement has been lowered, a person or entity no longer needs to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation. In addition, the government may now assert that 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 false claims statutes. Any action brought against us for violation of these laws or regulations, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. If our operations are found to be in violation of any of these laws and regulations, we may be subject to any applicable penalty associated with the violation, including, among others, significant administrative, civil and criminal penalties, damages and fines, imprisonment, integrity oversight and reporting obligations, and exclusion from participation in government funded healthcare programs such as Medicare, Medicaid programs, including the California Medical Assistance Program (Medi-Cal-the California Medicaid program) or other state or federal health care programs. Additionally, we could be required to refund payments received by us, and we could be required to curtail or cease our operations. Any of the foregoing consequences could seriously harm our business and our financial results.

We are or may become subject to stringent and changing U.S. and foreign laws, regulations, rules, standards, policies, contractual obligations and other obligations related to data privacy and security, including laws and regulations related to

health information. Our failure or perceived failure to comply with such obligations could result in regulatory investigations or actions, enforcement or litigation, fines and penalties), a disruption of the development or delivery of our products and services, reputational harm, loss of revenue or profits, or other adverse effects.

We collect, receive, store, process, use, generate, transfer, disclose, make accessible, protect, secure, dispose of, transmit and share (commonly known as processing) personal data and other sensitive information, including but not limited to proprietary and confidential business information, trade secrets, intellectual property, health information and sensitive third-party information. Accordingly, we are, or may become, subject to numerous federal, state, local and foreign data privacy and security laws, regulations, guidance and industry standards, including laws that specifically regulate health information, as well as external and internal privacy and security policies, contracts and other obligations that apply to the processing of personal data by us and on our behalf.

In the United States, federal, state, and local governments have enacted numerous data privacy and security laws, including data breach notification laws, personal data privacy laws, and consumer protection laws. For example, HIPAA, as amended by HITECH, and the respective implementing regulations, imposes limitations on certain entities' processing of individual health information, and also grants individuals rights with respect to their health information. HITECH also made significant increases in the penalties for improper processing of an individual's health information under HIPAA and extended enforcement authority to state attorneys general.

As another example, the California Consumer Privacy Act of 2018, or CCPA, imposes several obligations on covered businesses, including requiring specific disclosures related to a business's processing of personal data, new operational practices, and requirements to respond to certain requests from California residents related to their personal data. The CCPA provides for significant civil penalties as well as a private right of action for data breaches and statutory damages. Although there are limited exemptions for clinical trial data and some other health data under the CCPA, the CCPA and other similar laws may impact our business activities and increase our compliance costs. In addition, it is anticipated that the California Privacy Rights Act of 2020, or CPRA, effective January 1, 2023, will expand the CCPA. The CPRA will, among other things, give California residents the ability to limit use of certain sensitive personal data, establish restrictions on the retention of personal data, expand the types of data breaches subject to the CCPA's private right of action, and establish a new California Privacy Protection Agency to implement and enforce the new law. In addition, other states have enacted or proposed data privacy laws, which could further complicate the legal landscape. For example, Virginia recently passed the Consumer Data Protection Act, and Colorado recently passed the Colorado Privacy Act, both of which differ from the CPRA and become effective in 2023. Other data privacy and security laws have also been proposed at the federal, state, and local levels, and may be enacted.

Additionally, outside the United States, an increasing number of laws, regulations, and industry standards apply to data privacy and security. For example, the European Union's General Data Protection Regulation, or EU GDPR, governs the processing of personal data of European persons, and sets out extensive compliance requirements. The EU GDPR provides for fines up to the greater of €20 million (£17.5 million) or 4% of global turnover. Additionally, we may be subject to the United Kingdom's GDPR or UK GDPR, which largely mirrors the EU GDPR in UK national law. In addition, privacy advocates and industry groups have proposed, and may propose, standards with which we may be legally or contractually bound to comply.

Certain jurisdictions have enacted data localization laws and cross-border personal data transfer laws, which could make it more difficult to transfer information across jurisdictions (such as transferring or receiving personal data that originates in the EU or in other foreign jurisdictions). Existing mechanisms that facilitate cross-border personal data transfers may change or be invalidated. The more reliant our business is on the ability to effectuate cross-border data transfers, the more impact we may experience in light of any changes in the legal landscape.

The number and scope of obligations related to data privacy and security, including but not limited to the complex requirements of HIPAA and GDPR, are rapidly evolving, subject to change and potentially in conflict with each other. As a result, preparing for and complying with these obligations requires significant resources and potentially significant changes to our technologies, systems and practices, as well as those of any third-party collaborators, service providers, contractors, consultants or other third parties that process personal data on our behalf, any of which could have a negative impact on our operations. Our business model materially depends on our ability to process personal data, so we are particularly exposed to the risks associated with the rapidly changing legal landscape. Adding to the complexity is that our operations are evolving, and these laws will apply differently depending on our operations, for example whether we electronically bill for our services.

Although we endeavor to comply with all applicable data privacy and security obligations, we may at times fail to do so or may be perceived to have failed to do so. Moreover, despite our efforts, we may not be successful in achieving compliance if our employees, partners, third-party collaborators, service providers, contractors or consultants fail to comply with such obligations. If we fail, or are perceived to have failed, to address or comply with obligations related to data privacy and security, we could face significant consequences, including but not limited to foreign, federal, state, or local government enforcement actions that could include investigations, fines, penalties, audits and inspections; litigation; additional reporting requirements and/or oversight; temporary or permanent bans on all or some processing of personal data; and orders to destroy or not use personal data. Any of these events could have a material adverse effect on our reputation, business, or financial condition, including but not limited to loss of actual or prospective customers, collaborators or partners; interruption or stoppage in clinical trials; inability to process personal data or to operate in certain jurisdictions; limit our ability to develop or commercialize our products; or require us to revise or restructure our operations. Moreover, such claims, even if we are not found liable, could be expensive and time-consuming to defend and could divert management's attention and cause adverse publicity that could harm our business or have other material adverse effects.

Clinical research is heavily regulated and failure to comply with human subject protection regulations may disrupt our research program leading to significant expense, regulatory enforcement, private lawsuits and reputational damage.

Clinical research is subject to federal, state and, for studies conducted outside of the United States, foreign regulation. At the federal level, the FDA imposes regulations for the protection of human subjects and requirements such as initial and ongoing institutional review board review; informed consent requirements, adverse event reporting and other protections to minimize the risk and maximize the benefit to research participants. Many states impose human subject protection laws that mirror or in some cases exceed federal requirements. HIPAA also regulates the use and disclosure of protected health information in connection with research activities. Research conducted overseas is subject to a variety of national protections such as mandatory ethics committee review, as well as laws regulating the use, disclosure and cross-border transfer of personal data. For example, if we obtain certain personal information regarding residents in the European Union, we may be subject to the GDPR. The costs of compliance with these laws may be significant and compliance with regulatory requirements may result in delay of our clinical research and other business operations. Noncompliance may disrupt our research and result in data that is unacceptable to regulatory authorities, data lock or other sanctions that may significantly disrupt our operations.

Violation of a state's prohibition on the corporate practice of medicine could result in a material adverse effect on our business.

A number of states, including California, do not allow business corporations to employ physicians to provide professional services. This prohibition against the "corporate practice of medicine" is aimed at preventing corporations such as us from exercising control over the medical judgments or decisions of physicians. The state licensure statutes and regulations and agency and court decisions that enumerate the specific corporate practice rules vary considerably from state to state and are enforced by both the courts and regulatory authorities, each with broad discretion. If regulatory authorities or other parties in any jurisdiction successfully assert that we are engaged in the unauthorized corporate practice of medicine, we could be required to restructure our contractual and other arrangements. In addition, violation of these laws may result in significant civil, criminal and administrative penalties imposed against us and/or the professional through licensure proceedings, and exclusion from state and federal health care programs.

Intellectual Property Risks Related to Our Business

If we are unable to obtain and maintain effective patent rights for our products or services, we may not be able to compete effectively in our markets.

We rely upon a combination of patents, trade secret protection, and confidentiality agreements to protect the intellectual property related to our technologies, products and services. Our success depends in large part on our ability to obtain and maintain patent and other intellectual property protection in the United States and in other countries with respect to our proprietary technology and products.

We have sought to protect our proprietary position by filing patent applications in the United States and abroad related to our novel technologies and products that are important to our business. This process is expensive and time consuming, and we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. The

possibility exists that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection.

The patent position of diagnostic companies generally is highly uncertain and involves complex legal and factual questions for which legal principles remain unsolved. The patent applications that we own, or in-license, may fail to result in issued patents with claims that cover our products or services in the United States or in other foreign countries. There is no assurance that all potentially relevant prior art relating to our patents and patent applications has been found, which can invalidate a patent or prevent a patent from issuing from a pending patent application. Even if patents do successfully issue, and even if such patents cover our products and services, third parties may challenge their validity, enforceability, or scope, which may result in such patents being narrowed, found unenforceable or invalidated. Furthermore, even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property, provide exclusivity for our products and services, or prevent others from designing around our claims. Any of these outcomes could impair our ability to prevent competition from third parties, which may have an adverse impact on our business.

We, independently or together with our licensors, have filed several patent applications covering various aspects of our products and services. We cannot offer any assurances about which, if any, patents will issue, the breadth of any such patent or whether any issued patents will be found invalid and unenforceable or will be threatened by third parties. For example, our U.S. patent related to our SCTs is currently under a reexamination procedure in the U.S. Patent Office. Any successful opposition to these patents or any other patents owned by or licensed to us after patent issuance could deprive us of rights necessary for the successful commercialization of any products and services that we may offer. Further, if we encounter delays in regulatory approvals, the period of time during which we could market a product or service under patent protection could be reduced.

Patent policy and rule changes could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents.

Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection. The laws of foreign countries may not protect our rights to the same extent as the laws of the United States. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. We therefore cannot be certain that we or our licensors were the first to make the invention claimed in our owned and licensed patents or pending applications, or that we or our licensor were the first to file for patent protection of such inventions. Assuming the other requirements for patentability are met, in the United States prior to March 15, 2013, the first to make the claimed invention is entitled to the patent, while outside the United States, the first to file a patent application is entitled to the patent. After March 15, 2013, under the Leahy-Smith America Invents Act, or the Leahy-Smith Act, enacted on September 16, 2011, the United States has moved to a first to file system. The Leahy-Smith Act also includes a number of significant changes that affect the way patent applications will be prosecuted and may also affect patent litigation. The effects of these changes are currently unclear as the United States Patent and Trademark Office, or USPTO, must still implement various regulations, the courts have yet to address any of these provisions and the applicability of the act and new regulations on specific patents discussed herein have not been determined and would need to be reviewed. In general, the Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business and financial condition.

If we are unable to maintain effective proprietary rights for our products or services, we may not be able to compete effectively in our markets.

In addition to the protection afforded by patents, we rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable or that we elect not to patent, processes for which patents are difficult to enforce and any other elements of our products and services that involve proprietary know-how, information or technology that is not covered by patents. However, trade secrets can be difficult to protect. We seek to protect our proprietary technology and processes, in part, by entering into confidentiality agreements with our employees, consultants, scientific advisors, and contractors. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have conducted commercially reasonable due diligence on these individuals, organizations and systems, our agreements with such partners or our or their security measures may nevertheless be breached, and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors.

Although we expect all of our employees and consultants to assign their inventions to us, and all of our employees, consultants, advisors, and any third parties who have access to our proprietary know-how, information, or technology to enter into confidentiality agreements, we cannot provide any assurances that all such agreements have been duly executed or that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Misappropriation or unauthorized disclosure of our trade secrets could impair our competitive position and may have a material adverse effect on our business. Additionally, if the steps taken to maintain our trade secrets are deemed inadequate, we may have insufficient recourse against third parties for misappropriating the trade secret.

Third-party claims of intellectual property infringement may prevent or delay our development and commercialization efforts.

Our commercial success depends in part on our avoiding infringement of the patents and proprietary rights of third parties. There have been many lawsuits and other proceedings involving patent and other intellectual property rights in the biotechnology and pharmaceutical industries, including patent infringement lawsuits, interferences, oppositions, and reexamination proceedings before the USPTO and corresponding foreign patent offices. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are developing products and services. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our products and services may be subject to claims of infringement of the patent rights of third parties.

Third parties may assert that we are employing their proprietary technology without authorization. There may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture, or methods for treatment related to the use or manufacture of our products and services. We have conducted freedom to operate analyses with respect to only certain of our products and services, and therefore we do not know whether there are any third-party patents that would impair our ability to commercialize these products and services. We also cannot guarantee that any of our analyses are complete and thorough, nor can we be sure that we have identified each and every patent and pending application in the United States and abroad that is relevant or necessary to the commercialization of our products and services. Because patent applications can take many years to issue, there may be currently pending patent applications that may later result in issued patents that our products or services may infringe.

For example, in August 2016, we received a letter from MolecularMD Corp. offering a license to two U.S. Patents owned by the Memorial Sloan-Kettering Cancer Center, and licensed to MolecularMD Corp., that are relevant to one of the biomarkers we detect in our Liquid Biopsy Non-Small Cell Lung Cancer Profile Target Selector assay and our Liquid Biopsy Lung Cancer Resistance Profile Target Selector assay. One of the two patents is expected to expire in 2026. The other patent is expected to expire in 2028. Although we believe that the claims of both patents relevant to our assays would likely be held invalid, we cannot provide any assurances that a court or an administrative agency would agree with our assessment. If the validity of the relevant claims in question is upheld upon a validity challenge, then we may be liable for past damages and would need a license in order to continue commercializing our Liquid Biopsy Non-Small Cell Lung Cancer Profile Target Selector Assay and our Liquid Biopsy Lung Cancer Resistance Profile Target Selector Assay in the United States. However, such a license may not be available on commercially reasonable terms or at all, which could materially and adversely affect our business.

In addition, we are aware of a U.S. Patent owned by Amgen, Inc. that is relevant to one of the biomarkers we detect in our Liquid Biopsy Non-Small Cell Lung Cancer Profile Target Selector assay and our Liquid Biopsy Lung Cancer Resistance Profile Target Selector assay. The patent is expected to expire in 2028. Although we believe that the claims of the patent relevant to our assays would likely be held invalid, we cannot provide any assurances that a court or an administrative agency would agree with our assessment. If the validity of the relevant claims in question is upheld upon a validity challenge, then we may be liable for past damages and would need a license in order to continue commercializing our Liquid Biopsy Non-Small Cell Lung Cancer Profile Target Selector assay and our Liquid Biopsy Lung Cancer Resistance Profile Target Selector assay in the United States. However, such a license may not be available on commercially reasonable terms or at all, which could materially and adversely affect our business.

We are also aware of a U.S. Patent owned by Genentech, Inc. that is relevant to one of the biomarkers we detect in our Liquid Biopsy Lung Cancer Resistance Profile Target Selector assay and our Liquid Biopsy Colon Cancer Profile Target Selector assay. The patent is expected to expire in 2025. Although we believe that the claims of the patent relevant to our assays would likely be held invalid, we cannot provide any assurances that a court or an administrative agency would agree with our assessment. If the validity of the relevant claims in question is upheld upon a validity challenge, then we may be liable for past

damages and would need a license in order to continue commercializing our Liquid Biopsy Lung Cancer Resistance Profile Target Selector assay and our Liquid Biopsy Colon Cancer Profile Target Selector assay in the United States. However, such a license may not be available on commercially reasonable terms or at all, which could materially and adversely affect our business.

In addition, in December 2020, we received a communication from counsel for RavGen, Inc., or RavGen, offering to discuss licensing terms for certain patents owned by RavGen, which RavGen's communication alleged are relevant to Biocept's Target Selector Liquid Biopsy test kits and panels. If we are unable to secure a license on commercially reasonable terms, and if RavGen subsequently files suit and a court or jury makes a determination that our test kits and panels infringe any valid RavGen patent claims, then we may be liable for damages, and our business could be materially and adversely affected. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents. If any third-party patents were held by a court of competent jurisdiction to cover aspects of our products or services, the holders of any such patents may be able to block our ability to commercialize such products or services unless we obtained a license under the applicable patents, or until such patents expire or are finally determined to be invalid or unenforceable. Such a license may not be available on commercially reasonable terms or at all.

Parties making claims against us may obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize one or more of our products or services. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, pay royalties, redesign our infringing products or obtain one or more licenses from third parties, which may be impossible or require substantial time and monetary expenditure.

We may not be successful in obtaining or maintaining necessary rights to our products or services through acquisitions and in-licenses.

We currently have rights to the intellectual property, through licenses from third parties and under patents that we own, to develop our products and services. Because our programs may require the use of proprietary rights held by third parties, the growth of our business will likely depend in part on our ability to acquire, in-license, or use these proprietary rights. We may be unable to acquire or in-license any compositions, methods of use, processes, or other third-party intellectual property rights from third parties that we identify as necessary for our products or services. The licensing and acquisition of third-party intellectual property rights is a competitive area, and a number of more established companies are also pursuing strategies to license or acquire third-party intellectual property rights that we may consider attractive. These established companies may have a competitive advantage over us due to their size, cash resources, and greater clinical development and commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. We also may be unable to license or acquire third-party intellectual property rights on terms that would allow us to make an appropriate return on our investment.

We sometimes collaborate with U.S. and foreign institutions to accelerate our research or development under written agreements with these institutions. Typically, these institutions provide us with an option to negotiate a license to any of the institution's rights in technology resulting from the collaboration. Regardless of such option, we may be unable to negotiate a license within the specified timeframe or under terms that are acceptable to us. If we are unable to do so, the institution may offer the intellectual property rights to other parties, potentially blocking our ability to pursue our program.

If we are unable to successfully obtain rights to required third-party intellectual property rights or maintain the existing intellectual property rights we have, we may have to abandon development of that program and our business and financial condition could suffer.

Although we are not currently involved in any litigation, we may be involved in lawsuits to protect or enforce our patents or the patents of our licensors, which could be expensive, time consuming, and unsuccessful.

Competitors may infringe our patents or the patents of our licensors. Although we are not currently involved in any litigation, if we or one of our licensing partners were to initiate legal proceedings against a third-party to enforce a patent covering one of our products or services, the defendant could counterclaim that the patent covering our product or service is invalid and/or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements,

including lack of novelty, obviousness, or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO, or made a misleading statement, during prosecution. The outcome following legal assertions of invalidity and unenforceability is unpredictable.

Interference proceedings provoked by third parties or brought by us or declared by the USPTO may be necessary to determine the priority of inventions with respect to our patents or patent applications or those of our licensors. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. Our defense of litigation or interference proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. In addition, the uncertainties associated with litigation could have a material adverse effect on our ability to raise sufficient capital to continue our research programs, license necessary technology from third parties, or enter into development partnerships that would help commercialize our products or services.

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

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

We employ certain individuals who were previously employed at universities or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees, consultants, and independent contractors do not use the proprietary information or know-how of others in their work for us, and we are not currently subject to any claims that our employees, consultants, or independent contractors have wrongfully used or disclosed confidential information of third parties, we may in the future be subject to such claims. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel, which could adversely impact our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

We may be subject to claims challenging the inventorship of our patents and other intellectual property.

Although we are not currently experiencing any claims challenging the inventorship of our patents or ownership of our intellectual property, we may in the future be subject to claims that former employees, collaborators or other third parties have an interest in our patents or other intellectual property as an inventor or co-inventor. For example, we may have inventorship disputes arise from conflicting obligations of consultants or others who are involved in developing our products or services. Litigation may be necessary to defend against these and other claims challenging inventorship. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

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

As is the case with other biopharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biotechnology industry involves both technological and legal complexity. Therefore, obtaining and enforcing biotechnology patents is costly, time consuming, and inherently uncertain. In addition, the United States has recently enacted and is currently implementing wide-ranging patent reform legislation. Recent U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on future actions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in

unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

We may not be able to protect our intellectual property rights throughout the world.

Filing, prosecuting, and defending patents on products and services in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and may also export infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our products and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets, and other intellectual property protection, particularly those relating to biotechnology products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions, whether or not successful, could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Our collaborators may assert ownership or commercial rights to inventions we develop from our use of the biological materials which they provide to us, or otherwise arising from the collaboration.

We collaborate with several institutions, physicians and researchers in scientific matters. We do not have written agreements with certain of such collaborators, or the written agreements we have do not cover intellectual property rights. Also, we rely on numerous third parties to provide us with blood samples and biological materials that we use to develop assays. If we cannot successfully negotiate sufficient ownership and commercial rights to any inventions that result from our use of a third-party collaborator's materials, or if disputes arise with respect to the intellectual property developed with the use of a collaborator's samples, or data developed in a collaborator's study, we may be limited in our ability to capitalize on the market potential of these inventions or developments.

Risks Relating to Our Common Stock

The price of our common stock may be volatile.

Market prices for our common stock have historically been volatile. The factors that may cause the market price of our common stock to fluctuate include, but are not limited to:

- progress, or lack of progress, in performing, developing and commercializing our current assays and our planned future assays;
- favorable or unfavorable decisions about our assays from government regulators, insurance companies or other third-party payers;
- our ability to recruit and retain qualified research and development personnel;
- changes in investors' and securities analysts' perception of the business risks and conditions of our business;
- changes in our relationship with key collaborators;
- changes in the market valuation or earnings of our competitors or companies viewed as similar to us;
- changes in key personnel;

- depth of the trading market in our common stock;
- changes in our capital structure, such as future issuances of securities or the incurrence of additional debt;
- disruptions caused by geopolitical conflicts (such as the current Russia-Ukraine conflict) man-made or natural disasters or public health pandemics or epidemics or other business interruptions, including, for example, the COVID-19 pandemic;
- changes in the structure of healthcare payment systems;
- the granting or exercise of employee stock options or other equity awards;
- realization of any of the risks described herein; and
- general market and economic conditions.

In addition, the equity markets have experienced significant price and volume fluctuations that have affected the market prices for the securities of public companies for a number of reasons, including reasons that may be unrelated to our business or operating performance. These broad market fluctuations may result in a material decline in the market price of our common stock and you may not be able to sell your shares at prices you deem acceptable. In the past, following periods of volatility in the equity markets, securities class action lawsuits have been instituted against public companies. Such litigation, if instituted against us, could result in substantial cost and the diversion of management attention.

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

If we fail to satisfy the continued listing requirements of The Nasdaq Capital Market, such as the corporate governance requirements, the minimum closing bid price requirement, or the minimum stockholders' equity requirement, Nasdaq may take steps to de-list our common stock. For example, in May 2016, we received a letter from Nasdaq indicating that we are not in compliance with the minimum stockholders' equity requirement of Nasdaq Listing Rule 5550(b)(1), and in each of June 2016, November 2016, January 2018 and September 2019, we received letters from Nasdaq indicating that we were not in compliance with the minimum bid price requirement of Nasdaq Listing Rule 5550(a)(2), which requires that companies listed on The Nasdaq Capital Market maintain a minimum closing bid price of at least $1.00 per share. Although we were able to regain compliance with the Nasdaq continued listing requirements discussed in the May 2016, June 2016, November 2016, January 2018 and September 2019 letter, there can be no assurance that we will be able to maintain compliance with the continued listing requirements of the Nasdaq Capital Market. If we fail to maintain compliance with Nasdaq's continued listing requirements, Nasdaq may take steps to de-list our common stock. Such a de-listing would likely have a negative effect on the price of our common stock and would impair your ability to sell or purchase our common stock when you wish to do so. In the event of a de-listing, we would take actions to restore our compliance with Nasdaq's listing requirements, but we can provide no assurance that any such action taken by us would allow our common stock to become listed again, stabilize the market price or improve the liquidity of our common stock, or prevent future non-compliance with Nasdaq's listing requirements.

Our quarterly operating results may fluctuate significantly.

We expect our operating results to be subject to quarterly fluctuations. Our net loss and other operating results will be affected by numerous factors, including:

- the rate of adoption and/or continued use of our current assays and our planned future assays by healthcare practitioners;
- variations in the level of expenses related to our development programs;
- addition or reduction of resources for sales and marketing;
- addition or termination of clinical utility studies;
- any intellectual property infringement lawsuit in which we may become involved;
- the impact of the ongoing COVID-19 pandemic on our core oncology business;
- reduced demand for our RT-PCR COVID-19 testing services due to increased vaccination and immunization levels, as well as decreased COVID-19 hospitalizations, reported cases and mandatory COVID-19 testing;

- third-party payer coverage and reimbursement determinations affecting our assays; and
- regulatory developments affecting our assays.

If our quarterly operating results fall below the expectations of investors or securities analysts, the price of our common stock could decline substantially. Furthermore, any quarterly fluctuations in our operating results may, in turn, cause the price of our stock to fluctuate substantially.

Future sales of our common stock or other securities, or the perception that future sales may occur, may cause the market price of our common stock to decline, even if our business is doing well.

Sales of substantial amounts of our common stock or other securities, or the perception that these sales may occur, could materially and adversely affect the price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. For example, in May 2020, the SEC declared effective a shelf registration statement filed by us. This shelf registration statement allows us to issue any combination of our common stock, preferred stock, debt securities and warrants from time to time for an aggregate initial offering price of up to $100 million. In May 2021, we entered into a Controlled Equity Offering℠ Sales Agreement, or the Sales Agreement, with Cantor Fitzgerald & Co., or the Sales Agent, under which we may issue and sell from time to time up to $25,000,000 of our common stock through or to the Sales Agent, as sales agent or principal. Any sale of shares of our common stock under the Sales Agreement will be made under our shelf registration statement on Form S-3. Sales of our common stock under the Sales Agreement are made at market prices by any method that is deemed to be an "at the market offering" as defined in Rule 415(a)(4) under the Securities Act of 1933, as amended. As of December 31, 2021, $10.2 million of our common stock remained available for sale under the Sales Agreement. Depending on a variety of factors, including market liquidity of our common stock, the sale of shares under this shelf registration statement may cause the trading price of our common stock to decline. The sale of a substantial number of shares of our common stock under this shelf registration statement, or anticipation of such sales, could cause the trading price of our common stock to decline or make it more difficult for us to sell equity or equity-related securities in the future at a time and at a price that we might otherwise desire.

We had outstanding 16,849,805 shares of common stock as of December 31, 2021, most of which are not subject to resale restrictions under Rule 144 of the Securities Act. In addition, as of December 31, 2021, we had outstanding preferred stock convertible into 46,541 shares of our common stock, options to purchase 2,413,194 shares of our common stock, 36 shares of common stock were issuable upon the settlement of outstanding restricted stock units, or RSUs, and 868,372 shares of our common stock were issuable upon the exercise of outstanding warrants. Shares issued upon the exercise of stock options or upon the settlement of outstanding RSUs generally will be eligible for sale in the public market, except that affiliates will continue to be subject to volume limitations and other requirements of Rule 144 under the Securities Act. The issuance or sale of such shares could depress the market price of our common stock.

In the future, we also may issue our securities if we need to raise additional capital. The number of new shares of our common stock issued in connection with raising additional capital could constitute a material portion of the then-outstanding shares of our common stock.

If we fail to maintain proper and effective internal control over financial reporting, our ability to produce accurate financial statements on a timely basis could be impaired and our public reporting may be unreliable.

Effective internal controls over financial reporting are necessary for us to provide reliable financial reports and, together with adequate disclosure controls and procedures, are designed to prevent fraud. In connection with the restatement of our condensed financial statements as of, and for the three and nine months ended, September 30, 2021, we determined that we had a material weakness as of September 30, 2021, namely that our review control over the completeness and accuracy of our accounts payable did not operate effectively, resulting in a material error in the financial statements. Additionally, management subsequently determined that a deficiency related to the methods used to develop certain estimates and the timely review of such estimates existed. A material weakness means a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of a company's annual or interim financial statements will not be prevented or detected on a timely basis.

We have implemented a plan to remediate the material weakness in our internal control over financial reporting, including steps to design and implement new controls and expand the review of any potential unrecorded liabilities. However, we cannot assure you that these efforts will remediate our material weakness in a timely manner, or at all, or that we will be able to maintain effective controls and procedures even if we remediate our material weakness. If we are unable to successfully remediate our

material weakness, implement and maintain effective controls and procedures, or identify any future material weaknesses, the accuracy and timing of our financial reporting may be adversely affected, we may be unable to maintain compliance with securities law requirements regarding timely filing of periodic reports and we may experience a loss of public confidence, which could have an adverse effect on our business, financial condition and the market price of our common stock.

We are required to disclose changes made in our internal control procedures on a quarterly basis and our management is required to assess the effectiveness of these controls annually. However, for as long as we are a "non-accelerated filer", our independent registered public accounting firm will not be required to attest to the effectiveness of our internal control over financial reporting pursuant to Section 404. An independent assessment of the effectiveness of our internal controls could detect problems that our management's assessment might not. Undetected material weaknesses in our internal controls could lead to future financial statement restatements and require us to incur additional expenses of remediation.

Anti-takeover provisions of our certificate of incorporation, our bylaws and Delaware law could make an acquisition of us, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove the current members of our board and management.

Certain provisions of our amended certificate of incorporation and amended and restated bylaws could discourage, delay or prevent a merger, acquisition or other change of control that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares. Furthermore, these provisions could prevent or frustrate attempts by our stockholders to replace or remove members of our Board of Directors. For example, Delaware law provides that if a corporation has a classified board of directors, stockholders cannot remove any director during his or her term without cause. These provisions also could limit the price that investors might be willing to pay in the future for our common stock, thereby depressing the market price of our common stock. Stockholders who wish to participate in these transactions may not have the opportunity to do so. These provisions, among other things:

- classify our Board of Directors into three classes of equal (or roughly equal) size, with all directors serving for a three-year term and the directors of only one class being elected at each annual meeting of stockholders, so that the terms of the classes of directors are "staggered";
- allow the authorized number of directors to be changed only by resolution of our Board of Directors;
- authorize our Board of Directors to issue, without stockholder approval, preferred stock, the rights of which will be determined at the discretion of the Board of Directors and that, if issued, could operate as a "poison pill" to dilute the stock ownership of a potential hostile acquirer to prevent an acquisition that our Board of Directors does not approve;
- establish advance notice requirements for stockholder nominations to our Board of Directors or for stockholder proposals that can be acted on at stockholder meetings; and
- limit who may call a stockholders meeting.

In addition, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, or DGCL, which may, unless certain criteria are met, prohibit large stockholders, in particular those owning 15% or more of the voting rights on our common stock, from merging or combining with us for a prescribed period of time.

Because we do not expect to pay cash dividends for the foreseeable future, you must rely on appreciation of our common stock price for any return on your investment. Even if we change that policy, we may be restricted from paying dividends on our common stock.

We do not intend to pay cash dividends on shares of our common stock for the foreseeable future. Any determination to pay dividends in the future will be at the discretion of our Board of Directors and will depend upon results of operations, financial performance, contractual restrictions, restrictions imposed by applicable law and other factors our Board of Directors deems relevant. Accordingly, you will have to rely on capital appreciation, if any, to earn a return on your investment in our common stock. Investors seeking cash dividends in the foreseeable future should not purchase our common stock.

Changes in tax laws or regulations that are applied adversely to us or our customers may have a material adverse effect on our business, cash flow, financial condition or results of operations.

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, which could adversely affect our business operations and financial performance. Further, existing tax laws, statutes, rules, regulations or ordinances could be interpreted, changed, modified or applied adversely to us. For example, the Biden administration and Congress have proposed various U.S. federal tax law changes, which if enacted could have a material impact on our business, cash flow, financial condition or results of operations. In addition, it is uncertain if and to what extent various states will conform to federal tax laws. Future tax reform legislation could have a material impact on the value of our deferred tax assets, could result in significant one-time charges, and could increase our future U.S. tax expense.

Our effective tax rate may fluctuate, and we may incur obligations in tax jurisdictions in excess of accrued amounts.

We are subject to taxation in numerous U.S. states and territories. As a result, our effective tax rate is derived from a combination of applicable tax rates in the various places that we operate. In preparing our financial statements, we estimate the amount of tax that will become payable in each of such places. Nevertheless, our effective tax rate may be different than experienced in the past due to numerous factors, including the results of examinations and audits of our tax filings, our inability to secure or sustain acceptable agreements with tax authorities, changes in accounting for income taxes and changes in tax laws. Any of these factors could cause us to experience an effective tax rate significantly different from previous periods or our current expectations and may result in tax obligations in excess of amounts accrued in our financial statements.

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

Under current law, federal net operating losses incurred in tax years beginning after December 31, 2017, may be carried forward indefinitely, but the deductibility of such federal net operating losses in tax years beginning after December 31, 2020, is limited to 80% of taxable income. It is uncertain if and to what extent various states will conform to federal tax laws. In addition, under Sections 382 and 383 of the Code, if a corporation undergoes an "ownership change," generally defined as a cumulative change in its equity ownership by "5-percent shareholders" of greater than 50 percentage points (by value) over a three-year period, the corporation's ability to use its estimated pre-change net operating loss carryforwards and certain other tax attributes (such as research tax credits) to offset its post-change taxable income and taxes, as applicable, may be limited. As of December 31, 2021, we had estimated federal and state net operating loss carryforwards of approximately $75.5 million and $41.5 million, respectively, and estimated federal and California research and development tax credits of approximately $0.8 million and $0.6 million, respectively, which could be limited if we have experienced or do experience any "ownership changes." We have not completed a study to assess whether an ownership change has occurred or whether there have been multiple ownership changes since our formation, due to the complexity and cost associated with such a study, and the fact that there may be additional ownership changes in the future. We believe, however, that multiple ownership changes have likely occurred. In addition, at the state level, there may be periods during which the use of net operating loss carryforwards is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed. We have estimated that the use of our net operating loss is limited and the amounts above remain fully offset by a valuation allowance.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because early-stage life sciences companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business.

General Risk Factors

We have incurred and will continue to incur significant costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives.

As a public company, we are subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, the Dodd-Frank Wall Street Reform and Consumer Protection Act, or the Dodd-Frank Act, the listing requirements of The Nasdaq Stock Market and other applicable securities rules and regulations. Compliance with these rules and regulations includes significant legal and financial compliance costs, makes some activities more difficult, time-consuming or costly, and increases demand on our systems and resources. The Sarbanes-Oxley Act requires, among other things, that we maintain effective

disclosure controls and procedures and internal control over financial reporting. In order to maintain and, if required, improve our disclosure controls and procedures and internal control over financial reporting to meet this standard, significant resources and management oversight may be required. As a result, management's attention may be diverted from other business concerns, which could harm our business and operating results. Stockholder activism, the current political environment and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact the manner in which we operate our business in ways we cannot currently anticipate.

In addition, changing laws, regulations and standards relating to corporate governance and public disclosure are creating uncertainty for public companies, increasing legal and financial compliance costs and making some activities more time consuming. These laws, regulations and standards are subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices. We intend to invest resources to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management's time and attention from revenue-generating activities to compliance activities. If our efforts to comply with new laws, regulations and standards differ from the activities intended by regulatory or governing bodies due to ambiguities related to practice, regulatory authorities may initiate legal proceedings against us and our business may be harmed.

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

The trading market for our common stock will depend in part on the research and reports that equity research analysts publish about us, our business and our competitors. We do not control these analysts or the content and opinions or financial models included in their reports. Securities analysts may elect not to provide research coverage of our company, and such lack of research coverage may adversely affect the market price of our common stock. The price of our common stock could also decline if one or more equity research analysts downgrade our common stock or if those analysts issue other unfavorable commentary or cease publishing reports about us or our business. If one or more equity research analysts cease coverage of our company, we could lose visibility in the market, which in turn could cause our stock price to decline.

Item 1B. Unresolved Staff Comments.

Not applicable.

Item 2. Properties.

We have a lease for approximately 39,600 square feet of space in San Diego, California for use as a clinical reference laboratory and corporate headquarters, including manufacturing and research laboratories. As of December 31, 2021, the average rent for the remaining lease period is approximately $148,000 per month. This lease expires in June 2031. We believe that our existing facilities are adequate for our current and reasonably foreseeable future needs.

Item 3. Legal Proceedings.

In the normal course of business, we may be involved in legal proceedings or threatened legal proceedings. We are not party to any legal proceedings or aware of any threatened legal proceedings which are expected to have a material adverse effect on our financial condition, results of operations or liquidity.

We are currently in discussions with a former employee and certain current employees regarding disputed claims for certain sales commissions. We are not in agreement with their interpretations or claims and are unable to predict the outcome of this matter.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

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

Market Information

Our common stock is traded on The Nasdaq Capital Market under the symbol "BIOC."

Holders of Record

As of March 18, 2022, there were 11 holders of record of our common stock. The actual number of common stockholders is greater than the number of record holders, and includes stockholders who are beneficial owners, but whose shares are held in street name by brokers and other nominees. This number of holders of record also does not include stockholders whose shares may be held in trust by other entities.

Dividend Policy

We have never declared dividends on our equity securities, and currently do not plan to declare dividends on shares of our common stock in the foreseeable future. We expect to retain our future earnings, if any, for use in the operation and expansion of our business. Subject to the foregoing, the payment of cash dividends in the future, if any, will be at the discretion of our Board of Directors and will depend upon such factors as earnings levels, capital requirements, our overall financial condition and any other factors deemed relevant by our Board of Directors. Additionally, any payment of a dividend would require the prior approval of our lender.

Securities Authorized for Issuance under Equity Compensation Plans

Information about our equity compensation plans is incorporated herein by reference to Part III, Item 12 of this Annual Report.

Item 6. [Reserved]

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

The following discussion of our financial condition and results of operations should be read together with our financial statements and related notes included elsewhere in the Annual Report. This discussion contains forward-looking statements based upon our current plans, estimates, beliefs and expectations that involve risks, uncertainties and assumptions. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth under the sections entitled "Risk Factors," "Special Note Regarding Forward-Looking Statements" and elsewhere in this Annual Report.

We are a molecular oncology diagnostics company that develops and commercializes proprietary clinical diagnostic laboratory assays designed to identify rare tumor cells and cell-free tumor DNA from blood and cerebrospinal fluid, or CSF. The identification of tumor cells and cell-free tumor DNA in CSF has become our principal development focus following our early commercial expansion into CSF in 2020. This product was branded and trademarked as CNSide™ in April 2021.

The identification of circulating tumor cells, or CTCs, and circulating cell-free tumor DNA and RNA, or ctDNA and ctRNA, deriving from solid tumors such as breast cancer or lung cancer using a standard blood sample has been described as a "liquid biopsy." This term reflects the ease with which peripheral blood can be drawn compared to performing a surgical biopsy, but this technology is not limited to a peripheral blood approach.

In January 2020, we adapted and validated our proprietary blood-based liquid biopsy technology for commercial and clinical research use in CSF to identify tumor cells that have metastasized to the central nervous system, or CNS, in patients with advanced lung cancer or breast cancer. CNSide has been designed to improve the clinical management of patients with suspected metastatic cancer involving the CNS by enabling the quantitative analysis and molecular characterization of tumor cells and ctDNA and ctRNA in the CSF. Since then, we have worked extensively with leading neuro-oncologists and other cancer experts to further define and characterize the use of this unique assay.

Our efforts have culminated in the presentation of our early clinical experience at several leading academic forums, including most recently the Society of Neuro-Oncology, or SNO, Brain Metastases meeting in August 2021, as well as the Annual Society of Neuro-Oncology meeting in November 2021 and the San Antonio Breast Cancer Symposium, or SABCS, in December 2021. We believe these presentations have illustrated the feasibility of this assay to inform three critical questions important for the care of patients with suspected or confirmed metastatic cancer involving the CNS: Is there tumor (diagnosis)? Is there target (presence of a biomarker to aid treatment selection)? Is there trend (a response to therapy)?

The question "Is there tumor?" is essential for the diagnostic work-up of these patients. Tumor cells in the blood can shed from either primary or metastatic tumors. They can be rapidly removed in the capillary beds of the spleen, liver, kidneys, lungs and other organs, so they are rarely found. They are the defining feature of metastasis to the leptomeningeal space within the CNS and hence define the presence or absence of leptomeningeal metastasis, or LM. To distinguish tumor cells derived from CSF and blood we often refer to tumor cells in CSF as CSF Tumor Cells, or CSFTCs, rather than CTCs.

Regarding the second clinical question, "Is there target?" our CNSide assay provides a vehicle for several different diagnostic assay profiles which combined with our molecular test menu can identify tumor cell biomarkers that are intended to help physicians make decisions related to the evolution or course of metastatic tumor that may inform treatment decisions. Cancer cells typically acquire genetic alterations which differ from that of normal cells. Metastatic cancers often acquire additional genetic alterations which distinguish them from the primary tumor site. This marked genetic variation between areas of tumor growth is termed "genetic heterogeneity," and findings related to this were featured in our SABCS presentation in December 2021 illustrating the value of CNSide in identifying "genetic heterogeneity" of a targetable biomarker called HER2.

Finally, regarding the third clinical question, "Is there trend?" over the past year we have gained considerable experience with cases that had been sampled multiple times over the course of a patient's treatment. The association of quantitative CSF tumor cell counts with response to treatment has been noted in both lung and breast cancer, as well as other tumors examined. In August 2021, at the SNO Brain Metastases meeting, we presented data obtained from a single institution experience showing how serial monitoring of CSFTCs by CNSide was used to determine the response to treatment in patients with Non-Small Cell Lung Cancer having LM. In addition, in November 2021 at SNO, we presented the early findings of several patients with breast cancer having LM which had been followed with multiple CSF samples drawn at different time points on each patient. The downward progression of tumor cell counts has been noted by several treating physicians to correlate with response to treatment and resolution of symptoms. Serial monitoring of genetic alterations present in CSF tumor cells may create

opportunities to change the therapy of certain patients throughout treatment. These observations presented in abstracts and poster presentations in 2021 have informed our clinical study strategy which is the basis for our 2022 efforts to further explore these observations in a prospective clinical trial.

COVID-19 Pandemic Response Summary

In June 2020, to respond to a national public health emergency precipitated by the COVID-19 pandemic, we introduced molecular testing for SARS-CoV2, the virus responsible for COVID-19, using a United States Food and Drug Administration, Emergency Use Authorization, based "RT-PCR" method developed by Thermo-Fisher.

In November 2021, we launched a combined COVID-19/Influenza A/Influenza B assay manufactured by Thermo-Fisher which broadened our assay menu to meet the rising demand related to winter testing with emergence of new COVID-19 variants such as Delta (summer 2021) and Omicron (fall/winter 2021-22).

Since launch of our COVID-19 testing program, we have performed more than 800,000 assays for customers. We have primarily marketed our COVID-19 testing services to skilled nursing facilities in the western United States and also to certain community colleges within California.

Our COVID-19 testing services were responsible for most of our revenues during 2020 and 2021. However, as a result of increased vaccination and immunization levels, as well as decreased COVID-19 hospitalizations, reported cases and mandatory COVID-19 testing, we are currently seeing reduced demand for our COVID-19 testing services and expect this trend to continue absent a negative and sustained turn in the course of the pandemic.

Additional Oncology Testing Services

In addition to CNSide, our current blood-based testing includes our Target Selector™ technologies which enable detection of specific gene mutations, such as EGFR, KRAS or BRAF, in cell-free ctDNA from blood samples, as well as specific protein and gene alterations, such as HER2 amplification, in CTCs isolated from blood. We believe our multi-modality combination of a proprietary cell capture and analysis method with a proprietary ctDNA approach provides both high-sensitivity and specificity and is applicable to a broad range of diagnostic applications in patients with metastatic carcinoma.

In January 2019, we began offering research use only, or RUO, liquid biopsy kits containing our patented and proprietary ctDNA Target Selector molecular (PCR-based) testing for certain specific cancer genes to laboratories and researchers worldwide. In March 2020, we released an update for our RUO EGFR Target Selector Kit which expanded the sample types validated to include both blood and CSF. In March 2020, we also released a RUO BRAF Target Selector assay validated for ctDNA.

At our corporate headquarters facility located in San Diego, California, we operate a clinical laboratory that is CLIA-certified, CAP accredited and licensed by the California Department of Public Health. In this facility we also develop novel assays that are part of our project pipeline for future commercial launch and we manufacture our microfluidic channels and various assay reagents and products used in our testing processes. We also work closely with external manufacturers to outsource certain products such as collection tubes and to manufacture items that we intend to use in the near future to reduce costs and improve efficiency.

The assays we offer and intend to offer are classified as CLIA laboratory developed tests, or LDTs, under CLIA regulations. CLIA certification and state licensure in California and certain other states under the supervision of a qualified laboratory medical director is required before any clinical laboratory, including ours, may perform testing on human specimens for the purpose of obtaining information for the diagnosis, prevention, or treatment of disease or the assessment of health. In addition, we participate in and have received CAP accreditation, which includes rigorous bi-annual laboratory inspections and requires adherence to specific quality standards.

Commercial Strategy

Our primary sales strategy is to engage neuro-oncologists, oncologists and other physicians in the United States at private and group practices, hospitals, laboratories and cancer centers to educate them about our unique products and services. In addition,

we market our clinical trial and research services to pharmaceutical and biopharmaceutical companies and clinical research organizations. We also market and sell molecular assay kits which enable laboratories other than Biocept to perform our testing in house. Sales of these kits began in the first quarter of 2019. Further, sales to laboratory supply distributors of our proprietary specimen collection tubes, or SCTs, commenced in June 2018, which allow for the intact transport of liquid biopsy samples for research use only from regions around the world.

. Our revenue generating efforts are focused in the following areas:

- providing laboratory services to neuro-oncologists, oncologists and other physicians or healthcare providers treating patients with cancer who use the biomarker information we provide in order to determine the best treatment plan for their patients;
- providing laboratory services using both our CTC and ctDNA and ctRNA assays in order to help pharmaceutical and biopharmaceutical companies run clinical studies establishing the use of novel drug therapies used to treat cancer;
- licensing our proprietary technology and selling our distributed products, including our SCTs and assay kits, to partners in the United States and abroad; and
- Performing COVID-19 testing.

We plan to grow our business by directly offering our CNSide and Target Selector liquid biopsy CTC and molecular assays to neuro-oncologists, oncologists and other physicians or heath care providers who treat patients with cancer. Based on our product development data, as well as discussions with our key collaborators, we believe that our planned future assays, particularly those related to CSF, should provide important information and clinical value to physicians.

We believe our ability to rapidly translate insights about the utility of cytogenetic, immunocytochemical and molecular biomarkers to provide information to neuro-oncologists, oncologists and other physicians for treatment decisions in the clinical setting will improve patient treatment and management, and that these assays will become a key component of the standard of care for personalized cancer treatment.

Key Factors Affecting our Results of Operations and Financial Condition

Our overall long-term growth plan depends on our ability to continue to develop and commercialize products and assays through our CLIA-certified, CAP-accredited, and state-licensed laboratory. We have commercialized our Target Selector assays for breast cancer, non-small cell lung cancer, or NSCLC, gastric cancer, colorectal cancer, prostate cancer, pancreaticobiliary cancer, and ovarian cancer, and plan to continue to launch a series of cancer diagnostic assays for different predictive biomarkers assays in the United States as LDTs performed in our laboratory and enhance revenue for these products through the efforts of our sales and marketing organization. Our sales strategy is to engage medical oncologists, neuro-oncologists, surgical oncologists, urologists, pulmonologists, pathologists and other physicians in the United States at private and group practices, hospitals and cancer centers. We also plan to continue to evaluate potential opportunities for the commercialization of our products and assays in other countries. Additionally, sales of our proprietary SCTs which allow for the intact transport of liquid biopsy samples for research use only, or RUO, from regions around the world, commenced during 2018. In addition to testing for physicians and their patients, we offer clinical trials testing and research services to help increase the efficiency and economic viability of clinical trials for pharmaceutical and biopharmaceutical companies and clinical research organizations both within and outside of the United States. We are currently exploring the possibility of introducing ctDNA technology outside the United States as part of IVD test kits and/or testing systems utilizing our Target Selector technologies. We plan to continue to cooperate with partners on accessing markets internationally either through partnerships with local groups and distributors or through the development of IVDs and/or test systems, including instrumentation. We also have a research and development program focused on technology enhancements, novel platform development, and evaluating clinical applications for our cancer diagnostic tests in different cancer types and clinical settings.

To facilitate market adoption of our products and assays, we anticipate having to successfully complete additional clinical utility studies with clinical samples to generate clinical utility data and then publish our results in peer-reviewed scientific journals. Our ability to complete such clinical studies is dependent upon our ability to leverage our collaborative relationships with leading institutions to facilitate our research, to conduct the appropriate clinical studies and to obtain favorable clinical data. We currently collaborate with key thought leaders, physicians and clinical researchers across the country, including those at Sarah Cannon Research Institute, University of Colorado, Northwestern University Lurie Cancer Center, Stanford

University, Penn State University, University of California, San Diego, St John's Cancer Institute at Santa Monica (formerly John Wayne Cancer Institute), Columbia University, Emory University, Johns Hopkins Medical Institute, University of Texas Southwestern Medical Center, Yale University, Ohio State University, Vanderbilt University, Georgetown University and many others and plan to expand our collaborative relationships to include other key thought leaders at other institutions for the cancer types we target with our Target Selector commercialized assays and our planned future assays, as well as for our current and planned future products. Such relationships help us develop and validate the effectiveness and utility of our products, commercialized assays and our planned future assays in specific, clinical settings and provide us access to patient samples and data.

We believe that the factors discussed in the following paragraphs have had and are expected to continue to have a material impact on our results of operations and financial condition.

Revenues

The Company's commercial revenues are generated from diagnostic services provided to patient's physicians and billed to third-party insurance payers such as managed care organizations, Medicare and Medicaid and patients for any deductibles, coinsurance or copayments that may be due. The Company recognizes revenue in accordance with Accounting Standards Code 606, Revenue from Contracts with Customers, or ASC 606, which requires that an entity recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services.

We bill third-party payers on a fee-for-service basis at our list price and third-party commercial revenue is recorded net of contractual discounts, payer-specific allowances and other reserves. Our development services revenues are supported by contractual agreements and generated from assay development services provided to entities, as well as certain other diagnostic services provided to physicians. Diagnostic services are completed upon the delivery of assay results to the prescribing physician, at which time we bill for the service.

Our gross commercial revenues billed are subject to estimated deductions for such contractual discounts, payer-specific allowances and other reserves to arrive at reported net revenues, which relate to differences between amounts billed and corresponding amounts estimated to be subsequently collected. These third-party payer discounts and sales allowances are estimated based on a number of assumptions and factors, including historical payment trends, seasonality associated with the annual reset of patient deductible limits on January 1 of each year, and current and estimated future payments. The estimates of amounts that will ultimately be realized from commercial diagnostic services require significant judgment by us. Patients do not enter into direct agreements with us that commit them to pay any portion of the cost of the tests in the event that they have not met their annual deductible limit under their insurance policy, if any, or if their insurance otherwise declines to reimburse us. Adjustments to the estimated payment amounts are recorded at the time of final collection and settlement of each transaction as an adjustment to commercial revenue.

Costs and Expenses

We classify our costs and expenses into four categories: cost of revenues, research and development, sales and marketing, and general and administrative. Our costs and expenses principally consist of facility costs and overhead, personnel costs, outside services and consulting costs, laboratory consumables, development costs, and legal fees.

Cost of Revenues. Our cost of revenues consists principally of facility costs and overhead, personnel costs, and laboratory and manufacturing supplies and materials. We are pursuing various strategies to reduce and control our cost of revenues, including automating aspects of our processes, developing more efficient technology and methods, and attempting to negotiate improved terms and volume discounts with our suppliers.

Research and Development Expenses. We incur research and development expenses principally in connection with our efforts to develop and improve our tests. Our primary research and development expenses consist of direct personnel costs, laboratory equipment and consumables, and overhead expenses. We anticipate that research and development expenses will increase in the near-term, principally to develop and validate tests in our pipeline and to perform work associated with clinical utility studies and development collaborations. In addition, we expect that our costs related to collaborations with research and academic institutions will increase. All research and development expenses are charged to operations in the periods in which they are incurred.

Sales and Marketing Expenses. Our sales and marketing expenses consist principally of personnel and related overhead costs for our sales team and their support personnel, travel and entertainment expenses, and other selling costs including sales collaterals and trade shows. We anticipate sales and marketing expenses to increase as we work on generating higher revenues and marketing additional offerings.

General and Administrative Expenses. General and administrative expenses consist principally of personnel-related expenses, professional fees, such as legal, accounting and business consultants, insurance costs, and other general expenses. We expect that our general and administrative expenses will increase as we expand our business operations. We further expect that general and administrative expenses will increase due to increased information technology, legal, insurance, accounting and financial reporting expenses associated with expanded commercial activities.

Critical Accounting Policies and Significant Judgments and Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reported periods. While we believe these estimates are reasonable and consistent, they are by their very nature estimates of amounts that will depend on future events. Accordingly, actual results could differ from these estimates. Our Audit Committee periodically reviews our significant accounting policies. Our critical accounting policies arise in conjunction with the following:

- revenue recognition;
- stock-based compensation; and
- going concern.

Revenue Recognition

We initiate a revenue transaction when we receive a requisition order to perform a diagnostic test. The information provided on the requisition form is used to determine the party that will be billed for the testing performed and the expected reimbursement. We recognize revenue and satisfy our performance obligation for services rendered when the testing process is complete, and associated results are reported. Revenues flow from clients, patients, Medicare and Medicaid and other third-party payers. We consider negotiated discounts and anticipated adjustments, including historical collection experience for the payer portfolio, when revenues are recorded.

The following are descriptions of our payers:

Clients

Client payers represent the portion of revenue related to physicians, hospitals, health systems, accountable care organizations, employers and other entities where payment is received exclusively from the entity ordering the testing service.

Patients

Patient revenues include revenue from uninsured patients and member cost-share for insured patients (e.g., coinsurance, deductibles and non-covered services). Uninsured patients are billed based upon our fee schedules. We bill insured patients as directed by their health plan and after consideration of the fees and terms associated with an established health plan contract.

Medicare and Medicaid

Medicare and Medicaid revenues are received from traditional Medicare and Medicaid programs. Net revenue from these programs is based on the fee schedule established by the related government authority. In addition, other adjustments including anticipated payer denials are considered when determining net revenue. Any remaining adjustments to revenue are recorded at the time of final collection and settlement. These adjustments are not material to our results of operations in any period presented.

Third Party

Third party includes revenue related to insurance companies. Most of our third-party revenue is reimbursed on a fee-for-service basis. These payers are billed based on our established list price and revenue is recorded net of contractual discounts. Revenues are recorded based upon contractually negotiated fee schedules, with revenues for non-contracted managed care organizations recorded based on historical reimbursement experience.

Revenue Recognition and Related Reserves

Our commercial revenues are generated from diagnostic services provided to patient's physicians and billed to third-party insurance payers such as managed care organizations, Medicare and Medicaid and patients for any deductibles, coinsurance or copayments that may be due. We recognize revenue in accordance with ASC 606, Revenue from Contracts with Customers, or ASC 606, which requires that an entity recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services.

Contracts

For our commercial revenues, while we market directly to physicians, our customer is the patient. Patients do not enter into direct agreements with us, however, a patient's insurance coverage requirements would dictate whether or not any portion of the cost of the tests would be patient responsibility. Accordingly, we establish a contract with a commercial patient in accordance with other customary business practices, as follows:

- Approval of a contract is established via the order and accession, which are submitted by the patient's physician.
- We are obligated to perform our diagnostic services upon receipt of a sample from a physician, and the patient and/or applicable payer are obligated to reimburse us for services rendered based on the patient's insurance benefits.
- Payment terms are a function of a patient's existing insurance benefits, including the impact of coverage decisions with CMS and applicable reimbursement contracts established between us and payers, unless the patient is a self-pay patient, whereby we bill the patient directly after the services are provided.
- Once we deliver a patient's assay result to the ordering physician, the contract with a patient has commercial substance, as we are legally able to collect payment and bill an insurer and/or patient, regardless of payer contract status or patient insurance benefit status.
- Consideration associated with commercial revenues is considered variable and constrained until fully adjudicated, with net revenues recorded to the extent that it is probable that a significant reversal will not occur.

Our development services revenues are supported by contractual agreements and generated from assay development services provided to entities, as well as certain other diagnostic services provided to physicians, and revenues are recognized upon delivery of the performance obligations in the contract.

Performance Obligations

A performance obligation is a promise in a contract to transfer a distinct good or service, or a bundle of goods or services, to the customer. For commercial and development services revenues, our contracts have a single performance obligation, which is satisfied upon rendering of services, which culminates in the delivery of a patient's assay result(s) to the ordering physician or entity. The duration of time between test order receipt and delivery of a valid assay result to the ordering physician or entity is typically less than two weeks, and for our RT-PCR COVID-19 testing, typically 48 hours or less. Accordingly, we elected the practical expedient and therefore, we do not disclose the value of unsatisfied performance obligations.

Transaction Price

The transaction price is the amount of consideration that we expect to collect in exchange for transferring promised goods or services to a customer, excluding amounts collected on behalf of third parties, such as sales taxes. The consideration expected from a contract with a customer may include fixed amounts, variable amounts, or both. Our gross commercial revenues billed, and corresponding gross accounts receivable, are subject to estimated deductions for such allowances and reserves to arrive at reported net revenues, which relate to differences between amounts billed and corresponding amounts estimated to be subsequently collected and is deemed to be variable although the variability is not explicitly stated in any contract. Rather, the implied variability is due to several factors, such as the payment history or lack thereof for third-party payers, reimbursement rate changes for contracted and non-contracted payers, any patient co-payments, deductibles or compliance incentives, the

existence of secondary payers and claim denials. We estimate the amount of variable consideration using the most likely amount approach to estimating variable consideration for third-party payers, including direct patient bills, whereby the estimated reimbursement for services are established by payment histories on CPT codes for each payer, or similar payer types. When no payment history is available, the value of the account is estimated at Medicare rates, with additional other payer-specific reserves taken as appropriate. Collection periods for billings on commercial revenues range from less than 30 days to several months, depending on the contracted or non-contracted nature of the payer, among other variables. The estimates of amounts that will ultimately be realized from commercial diagnostic services for non-contracted payers require significant judgment by management.

We limit the amount of variable consideration included in the transaction price to the unconstrained portion of such consideration. Revenue is recognized up to the amount of variable consideration that is not subject to a significant reversal until additional information is obtained or the uncertainty associated with the additional payments or refunds is subsequently resolved. Differences between original estimates and subsequent revisions, including final settlements, represent changes in the estimate of variable consideration and are included in the period in which such revisions are made. We monitor our estimates of transaction price to depict conditions that exist at each reporting date. If we subsequently determine that we will collect more than we originally estimated for a contract with a customer, we will account for the change as an increase in the estimate of the transaction price in the period identified as an increase to revenue. Similarly, if we subsequently determine that the amount we expect to collect from a customer is less than originally estimated, we will generally account for the change as a decrease in the estimate of the transaction price in the period identified as a decrease to revenue, provided that such downward adjustment does not result in a significant reversal of cumulative revenue recognized. Revenue recognized from changes in transaction prices was not significant during the year ended December 31, 2020, however, transaction prices decreased 18% for the year ended December 31, 2021 due to a decline in COVID-19 reimbursement rates. Further, although the Company believes that its estimate for contractual allowances and other reserves is appropriate, it is possible that the Company will experience an impact on cash collections as a result of the impact of the COVID-19 pandemic.

Allocate Transaction Price

For our commercial revenues, the entire transaction price is allocated to the single performance obligation contained in a contract with a customer. For our development services revenues, the contracted transaction price is allocated to each single performance obligation contained in a contract with a customer as performed.

Point-in-time Recognition

Our single performance obligation is satisfied at a point in time, and that point in time is defined as the date a patient's successful assay result is delivered to the patient's ordering physician or entity. We consider this date to be the time at which the patient obtains control of the promised diagnostic assay service.

Contract Balances

The timing of revenue recognition, billings and cash collections results in accounts receivable recorded in our balance sheets. Generally, billing occurs subsequent to delivery of a patient's test result to the ordering physician or entity, resulting in an account receivable.

Practical Expedients

We do not adjust the transaction price for the effects of a significant financing component, as at contract inception, we expect the collection cycle to be one year or less.

We expense sales commissions when incurred because the amortization period is one year or less, which are recorded within sales and marketing expenses.

We incur certain other costs that are incurred regardless of whether a contract is obtained. Such costs are primarily related to legal services and patient communications. These costs are expensed as incurred and recorded within general and administrative expenses.

Stock-Based Compensation

We account for stock-based compensation under the provisions of ASC 718, Compensation—Stock Compensation, which requires the measurement and recognition of compensation expense for all stock-based awards made to employees and directors based on estimated fair values on the grant date. We estimate the fair value of stock option awards on the date of grant using the Black-Scholes option pricing model, or Black-Scholes valuation model. The fair value of RSUs is determined by the price of our common stock on the date of grant. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service periods using the straight-line method. We estimate forfeitures at the time of grant and revise our estimates in subsequent periods if actual forfeitures differ from those estimates.

Going Concern

We assess and determine our ability to continue as a going concern under the provisions of ASC Topic 205-40, Presentation of Financial Statements—Going Concern, which requires us to evaluate whether there are conditions or events that raise substantial doubt about our ability to continue as a going concern within one year after the date that our annual and interim financial statements are issued. Certain additional financial statement disclosures are required if such conditions or events are identified. If and when an entity's liquidation becomes imminent, financial statements should be prepared under the liquidation basis of accounting.

Determining the extent, if any, to which conditions or events raise substantial doubt about our ability to continue as a going concern, or the extent to which mitigating plans sufficiently alleviate any such substantial doubt, as well as whether or not liquidation is imminent, requires significant judgment by us. We have determined that it is not probable based on projected cash flows that substantial doubt about the Company's ability to continue as a going concern exists for the one-year period following the date that the financial statements for the year ended December 31, 2021 were issued.

COVID-19 Pandemic

The COVID-19 pandemic continues to evolve, and the extent to which COVID-19 may impact our business will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of any outbreaks, travel restrictions and social distancing in the United States and other countries, government-funding for COVID-19 testing, business closures or business disruptions, and the effectiveness of actions taken in the United States and other countries to contain and treat the disease. We estimate that the COVID-19 pandemic led to an approximate 15% to 25% decline in commercial volume from current customers for the year ended December 31, 2020, and also impacted opportunities for us to gain new customers with the closing of many physician offices and labs. For the year ended December 31, 2021, the volume of our oncology business was reduced by approximately 3% from the previous year. We are continuing to vigilantly monitor the situation with our primary focus on the health and safety of our employees and clients.

In April 2020, we announced that we validated a COVID-19 molecular diagnostic test and that we would begin accepting physician-ordered testing requests. The testing volume was initially limited by the national shortage of specimen collection kits. In June 2020, we announced the availability of 10,000 specimen collection kits for COVID-19 testing for physician ordering. Collected specimens are shipped to our high-complexity, CLIA-certified, CAP-accredited and BSL-2 safety level laboratory in San Diego with results returned to ordering physicians in an estimated 24 to 48 hours. We have received more than 800,000 samples for processing through our RT-PCR technology at our laboratory to date. We are currently seeing reduced demand for our COVID-19 testing services and expect this trend to continue absent a negative and sustained turn in the course of the pandemic.

Results of Operations

Years Ended December 31, 2020 and 2021

The following table sets forth certain information concerning our results of operations for the periods shown (in thousands):

	For the years ended December 31,		Change	
	2020	2021	$	%
Net revenues	$ 27,461	$ 61,249	$ 33,788	123%
Costs and expenses:				
Cost of revenues	21,337	37,764	16,427	77%
Research and development expenses	5,220	4,960	(260)	(5%)
General and administrative expenses	9,973	12,614	2,641	26%
Sales and marketing expenses	6,400	8,320	1,920	30%
Total costs and expenses	42,930	63,658	20,728	48%
Loss from operations	(15,469)	(2,409)	13,060	(84%)
Other income/(expense):				
Interest expense, net	(236)	(290)	(54)	23%
Warrant inducement expense	(2,102)	-	2,102	*
Total other income/(expense):	(2,338)	(290)	2,048	(88%)
Loss before income taxes	(17,807)	(2,699)	15,108	(85%)
Income tax expense	-	(125)	(125)	*
Net loss and comprehensive loss	(17,807)	(2,824)	14,983	(84%)
Deemed dividend related to warrants down round provision	(3)	0	3	*
Net loss attributable to common shareholders	$ (17,810)	$ (2,824)	$ 14,986	(84%)

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* Not meaningful.

Net Revenues

Net revenues were approximately $61.2 million for the year ended December 31, 2021, compared with approximately $27.5 million for the year ended December 31, 2020. The composition of our net revenues recognized during the years ended December 31, 2021 and 2020, disaggregated by source and upon delivery, are as follows (in thousands):

	For the year ended December 31,			
	2020	2021	Change	%
Net revenues from non-contracted payers	$ 12,793	$ 25,671	$ 12,878	101%
Net revenues from contracted payers*	14,070	35,260	21,190	151%
Net commercial revenues	26,863	60,931	34,068	127%
Development services revenues	177	147	(30)	(17%)
Kits and Specimen Collection Tubes (SCTs)	421	171	(250)	(59%)
Total net revenues	$ 27,461	$ 61,249	$ 33,788	123%

*Includes Medicare and Medicare Advantage as reimbursements are fixed.

The 127% increase in net commercial revenues was attributable to overall accession volumes related to significant RT-PCR COVID-19 testing that was launched during the second quarter of 2020 and continued through 2021. Total commercial accessions delivered for the years ended December 31, 2021 and 2020 were 532,520 and 191,461, respectively, of which 528,917 and 187,764, respectively, were related to RT-PCR COVID-19 testing.

Estimated revenue per commercial accession delivered during the year ended December 31, 2021 was $115 per commercial accession delivered while during the year ended December 31, 2020 it was approximately $140 per commercial accession delivered. The decrease in revenue per commercial accession delivered, as compared to the prior year, is primarily the result of lower reimbursement rates related to our RT-PCR COVID-19 testing. Approximately 57% of our contracted payers reduced their reimbursement rates and we increased our accounts receivable reserves by approximately $7.2 million for the year ended December 31, 2021.

The following table sets forth certain information regarding commercial accessions and development services cases delivered during the years ended December 31, 2021 and 2020, as follows:

	Year ended December 31,		Change	
	2020	2021	# / $	%
# Commercial accessions delivered	191,461	532,520	341,059	178%
$ Value estimated per commercial accession delivered	$ 140	$ 115	$ (25)	(18%)

	Year ended December 31,		Change	
	2020	2021	# / $	%
# Development services cases delivered	459	468	9	2%
$ Value estimated per development accession delivered	$ 386	$ 314	$ (72)	(19%)

Development revenues remained relatively flat as the development services cases delivered only increased by 9 cases for the year ended December 31, 2021 and the revenue per development services accession did not increase compared to the same period in the prior year. Kits and SCT revenues decreased by approximately $0.3 million for the year ended December 31, 2021, which includes product distribution of Target Selector RUO kits, CEE-Sure® SCTs and research and development reimbursement revenues. Approximately $0.1 million of the decrease is due to our completing a co-development contract with Aegea which was focused on developing a highly sensitive PCR-based assay designed by Aegea for detecting the COVID-19 virus and the remaining variance is due to a decrease in the Target Selector RUO and molecular assay kits to research and development customers as a result of the customers completing their research and development projects.

Costs and Expenses

Cost of Revenues. Cost of revenues was approximately $37.8 million for the year ended December 31, 2021, compared with approximately $21.3 million for the year ended December 31, 2020, representing an increase of approximately $16.4 million or 77% primarily resulting from increased revenues related to our RT-PCR COVID-19 testing business. Although we continue to leverage the fixed components of our costs, our cost of revenue as a percentage of net revenues decreased by approximately 21% for the year ended December 31, 2021 as compared to the same period in the prior year. The overall increase was primarily due to the following increases: a $7.8 million increase in COVID-19 related materials and supplies, a $5.5 million increase in personnel related costs, a $1.5 million increase in temporary labor costs, a $1.0 million increase in facility expenses, a $0.4 million increase in sample cost allocations, a $0.2 million increase in preventive equipment maintenance and a $0.1 million increase in miscellaneous indirect costs. Cost of revenues are comprised of, but not limited to, expenses related to personnel costs, materials, shipping and other direct costs, as well as equipment depreciation and software amortization expenses.

Research and Development Expenses. Research and development expenses were approximately $5.0 million for the year ended December 31, 2021, compared with approximately $5.2 million for the year ended December 31, 2020, a decrease of approximately $0.3 million or 5%. The decrease was primarily attributable to a decrease in research and development materials of approximately $0.3 million, a decrease of temporary labor of approximately $0.2 million, and a decrease in facility costs of approximately $0.1 million, partially offset by an increase in personnel costs of approximately $0.3 million. The decrease in materials and facility costs is due to refocusing our genomic assay development in areas of development that were not as expensive and decreasing the activities in our translational lab due to relocating our facilities which delayed ongoing research by a couple of months. The decrease in temporary labor was offset with the increase in personnel costs due to hiring additional full-time employees. Research and development expenses are comprised of, but not limited to, personnel costs, material, shipping, other direct costs, computer and laboratory equipment maintenance and facility related costs.

General and Administrative Expenses. General and administrative expenses were approximately $12.6 million for the year ended December 31, 2021, compared with approximately $10.0 million for the year ended December 31, 2020, an increase of approximately $2.6 million, or 26%. The overall increase is due to the following: a $1.5 million increase in personnel costs, a $0.8 million increase in billing and insurance software expenses, a $0.7 million increase in office expenses, which are directly related to support COVID-19 testing, and a $0.3 million increase in legal and patent expenses, a $0.1 million increase in directors and officer's liability insurance and $0.1 million increase in audit fees. These expenses were offset by: a $0.7 million decrease related to a reduction in proxy support services, a $0.1 million decrease in outside services expenses and a $0.1 million decrease in facility expenses. General and administrative expenses are comprised of, but not limited to, personnel costs, facilities, depreciation, repairs and maintenance costs, stock-based compensation expenses, patent and legal costs, accounting and audit fees, as well as insurance, office and other expenses.

Sales and Marketing Expenses. Sales and marketing expenses were approximately $8.3 million for the year ended December 31, 2021, compared with approximately $6.4 million for the year ended December 31, 2020, an increase of approximately $1.9 million, or 30%. The increase was primarily attributable to higher sales commissions of approximately $1.2 million, due to higher revenues during the period, an increase of approximately $0.4 million in personnel costs, due to an increase in headcount, an increase in tradeshow expenses of approximately $0.2 million and an increase in office expenses of approximately $0.1 million. Sales and marketing expenses are comprised of, but not limited to, personnel costs, trade show and other marketing related expenses, as well as office supplies and other costs.

Interest Expenses. Interest expenses were approximately $0.3 million for the year ended December 31, 2021, compared to approximately $0.2 million for the year ended December 31, 2020, representing an increase of less than $0.1 million, or 22%. Interest expenses are comprised of interest incurred related to finance leases used to obtain equipment. For the year ended December 31, 2021, the Company entered seven additional financed equipment leases.

Warrant Inducement and Other Expenses. There were no warrant inducement and other expenses for the year ended December 31, 2021 compared with approximately $2.1 million for the same period in 2020, a decrease of $2.1 million, as there were no inducement warrants issued for the period ending December 31, 2021.

Income Tax Expense

Except as disclosed below, over the past several years we have generated operating losses in all jurisdictions in which we may be subject to income taxes. As a result, we have accumulated significant net operating losses and other deferred tax assets. Because of our history of losses and the uncertainty as to the realization of those deferred tax assets, a full valuation allowance has been recognized. Due to the suspension of California's net operation loss utilization for 2021, we have accrued as of December 31, 2021 a current income tax provision of $0.1 million.

We have not completed a study to assess whether an ownership change has occurred or whether there have been multiple ownership changes since our formation, due to the complexity and cost associated with such a study, and the fact that there may be additional ownership changes in the future, however, we believe multiple ownership changes likely occurred. As a result, we have estimated that the use of our net operating loss is limited and the remaining net operating loss carryforwards and research and development credits we estimate can be used in the future remain fully offset by a valuation allowance to reduce the net asset to zero.

Inflation

We do not believe that inflation has had a material adverse impact on our business or operating results during the periods presented.

Liquidity and Capital Resources

We are actively working to improve our financial position and enable the growth of our business, by raising new capital and generating revenues. As the year 2021 progressed, we experienced significant growth in our COVID-19 testing volumes and related revenues (as noted above, the commercial accessions delivered for the years ended December 31, 2021 and 2020 were 532,520 and 191,461, respectively, of which 528,917 and 187,764 respectively, were related to RT-PCR COVID-19 testing), which allowed us to generate positive cash flow from operations in 2021, and accumulate $28.9 million of cash on hand as of December 31, 2021. While we contemplate a reduction of COVID testing revenue in 2022 going forward, our projections indicate sufficient capital to carry the business through the first quarter of 2023.

In May 2020, the SEC declared effective a shelf registration statement filed by us. This shelf registration statement allows us to issue any combination of our common stock, preferred stock, debt securities and warrants from time to time for an aggregate initial offering price of up to $100.0 million. In May 2021, we entered into a Controlled Equity Offering℠ Sales Agreement, or the Sales Agreement, with Cantor Fitzgerald & Co., or the Sales Agent, under which we may issue and sell from time to time up to $25.0 million of our common stock through or to the Sales Agent, as sales agent or principal. Any sale of shares of our common stock under the Sales Agreement will be made under our shelf registration statement on Form S-3. Sales of our common stock under the Sales Agreement are made at market prices by any method that is deemed to be an "at the market offering" as defined in Rule 415(a)(4) under the Securities Act of 1933, as amended. As of December 31, 2021, $10.2 million of our common stock remained available for sale under the Sales Agreement.

Cash Flows

Our net cash flow from operating, investing and financing activities for the periods below were as follows (in thousands):

	For the year ended December 31,	
	2020	2021
Cash provided by/(used in):		
Operating activities	$ (19,786)	$ 3,690
Investing activities	(867)	(1,572)
Financing activities	25,720	12,378
Net increase in cash	$ 5,067	$ 14,496

Cash Used/Provided by Operating Activities. Net cash provided by operating activities was approximately $3.7 million for the year ended December 31, 2021, compared to net cash used in operating activities of approximately $19.8 million for the year ended December 31, 2020. The increase in the cash provided by operating activities of approximately $23.5 million was primarily due to the decrease in our net loss of approximately $15.0 million for the period ended December 31, 2021.

Furthermore, cash provided by operations increased due to an increase from the prior year for the following expenses: Depreciation and amortization of approximately $1.6 million, and stock-based compensation of approximately $2.5 million which was offset by a decrease in accrued liabilities of $0.1 million and warrant inducement expense of approximately $2.1 million as there were no warrant inducements issued for the period ending December 31, 2021.

Cash Used in Investing Activities. Net cash used in investing activities was approximately $1.6 million for the year ended December 31, 2021, compared to net cash used in investing activities of approximately $0.9 million for the year ended December 31, 2020 which is predominately related to an increase in lab equipment purchases.

Cash Provided by Financing Activities. Net cash provided by financing activities was $12.4 million for the year ended December 31, 2021, compared to net cash provided by financing activities of $25.7 million for the year ended December 31, 2020. Our primary sources of cash from financing activities during the year ended December 31, 2021 consisted of net proceeds of $14.1 million from the sale of our common stock pursuant to the Sales Agreement. Net proceeds from financing transactions during the year ended December 31, 2021 were partially offset by approximately $1.8 million of principal payments made on financed leases and supplier indebtedness. Our primary sources of cash from financing activities during the year ended December 31, 2020 consisted of the sale of our common stock in three financing transactions in March and April 2020, as well as the exercise of common stock warrants. Net proceeds from financing transactions during the year ended December 31, 2020 were partially offset by $1.5 million of principal payments made on finance leases and indebtedness.

Liquidity, Capital Resources and Material Cash Requirements

We expect to continue to incur substantial operating losses in the future. We expect that we will use the net proceeds from our sale of equity securities, if any, cash received from the licensing of our technology, if any, and our revenues from operations to hire sales and marketing personnel, support increased sales and marketing activities, fund further research and development, clinical utility studies and future enhancements of our assays, acquire equipment, implement automation and scale our capabilities to prepare for significant assay volume, for general corporate purposes and to fund ongoing operations and the expansion of our business, including the increased costs associated with expanded commercial activities. We may also use the net proceeds from our sale of equity securities, if any, cash received from the licensing of our technology, if any, and our revenues from operations to acquire or invest in businesses, technologies, services or products, although we do not have any current plans to do so.

In May 2020, the SEC declared effective a shelf registration statement filed by us. The shelf registration statement allows us to issue any combination of our common stock, preferred stock, debt securities and warrants from time to time for an aggregate initial offering price of up to $100.0 million.

In May 2021, we entered into the Sales Agreement with the Sales Agent, under which we may issue and sell from time to time up to $25,000,000 of our common stock through or to the Sales Agent, as sales agent or principal. Sales of our common stock under the Sales Agreement are made at market prices by any method that is deemed to be an “at the market offering” as defined in Rule 415(a)(4) under the Securities Act of 1933, as amended. During 2021, we received net proceeds of $14.1 million from the sale of our common stock pursuant to the Sales Agreement. As of December 31, 2021, $10.2 million of our common stock remained available for sale under the Sales Agreement.

As of December 31, 2021, our cash totaled $28.9 million. The COVID-19 testing revenue during 2020 and 2021 has provided us with increased levels of cash inflows from operations. However, we are currently seeing reduced demand for our COVID-19 testing services and expect this trend to continue absent a negative and sustained turn in the course of the pandemic. As a result, we believe that based on our current and planned cash usage, along with current COVID-19 testing revenues, our cash balances will support our operations for at least the next 12 months. As such, we determined that it is not probable based on projected cash flows that substantial doubt about our ability to continue as a going concern exists for the one-year period following the date that the financial statements for the year ended December 31, 2021 were issued. The COVID-19 pandemic continues to evolve, and the extent to which COVID-19 may impact the Company’s business will depend on future developments, including whether the number of cases continues to decrease, the potential emergence of new variants, and testing policies of governments, businesses and schools. While the Company experienced increased revenue levels in 2020 and 2021 related to its COVID-19 testing business and attained net income in the fourth quarter in 2020 and in the first quarter of 2021, these results are not expected to be indicative of future results as the COVID-19 pandemic subsides.

We expect that we will need additional financing to execute on our current or future business strategies beyond the next 12 months. Until we can generate significant cash from operations, including assay revenues, we expect to continue to fund operations with the proceeds from offerings of our equity securities or debt, or transactions involving product development, technology licensing or collaboration. For example, we have an effective shelf registration statement on file with the SEC which allows us to issue any combination of our common stock, preferred stock, debt securities and warrants from time to time until expiration in May 2023. The specific terms of additional future offerings, if any, under this shelf registration statement would be established at the time of such offerings. We can provide no assurances that any sources of a sufficient amount of financing will be available to us on favorable terms, if at all. If we are unable to raise a sufficient amount of financing in a timely manner, we would likely need to scale back our general and administrative activities and certain of our research and development activities. Our forecast pertaining to our current financial resources and the costs to support our general and administrative and research and development activities are forward-looking statements and involve risks and uncertainties. Actual results could vary materially and negatively as a result of a number of factors, including:

- the impact of the COVID-19 pandemic on our business;
- our ability to secure financing and the amount thereof;
- the costs of operating and enhancing our laboratory facilities;
- the costs of developing our anticipated internal sales and marketing capabilities;
- the scope, progress and results of our research and development programs, including clinical utility studies;
- the scope, progress, results, costs, timing and outcomes of the clinical utility studies for our diagnostic assays;
- our ability to manage the costs for manufacturing our microfluidic channels;
- the costs of maintaining, expanding and protecting our intellectual property portfolio, including potential litigation costs and liabilities;
- our ability to obtain adequate reimbursement from governmental and other third-party payers for our assays and services;
- the costs of additional general and administrative personnel, including accounting and finance, legal and human resources, as a result of becoming a public company;
- our ability to collect revenues; and
- other risks discussed in our other filings with the SEC.

We may raise additional capital to fund our current operations and to fund expansion of our business to meet our long-term business objectives through public or private equity offerings, debt financings, borrowings or strategic partnerships coupled with an investment in our company or a combination thereof. If we raise additional funds through the issuance of convertible debt securities, or other debt securities, these securities could be secured and could have rights senior to those of our common stock. In addition, any new debt incurred by us could impose covenants that restrict our operations. The issuance of any new equity securities will also dilute the interest of our current stockholders. Given the risks associated with our business, including our unprofitable operating history and our ability or inability to develop additional assays, additional capital may not be available when needed on acceptable terms, or at all. If adequate funds are not available, we will need to curb our expansion plans or limit our research and development activities, which would have a material adverse impact on our business prospects and results of operations.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Not applicable.

Item 8. Financial Statements and Supplementary Data

Biocept, Inc.
Index to Financial Statements

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of **Biocept, Inc.**

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Biocept, Inc. ("Company") as of December 31, 2021 and 2020, and the related statements of operations and comprehensive loss, shareholders' equity and cash flows for each of the two years in the period ended December 31, 2021, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2021, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

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

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue Recognition and Accounts Receivable

As described in Note 3 to the financial statements, the Company's revenues are generated from diagnostic services provided to patient's physicians and billed to third-party insurance payers such as managed care organizations, Medicare and Medicaid and patients for any deductibles, coinsurance or copayments that may be due. The Company's gross revenues billed, and corresponding gross accounts receivable, represent variable consideration subject to estimated deductions for allowances and reserves to derive reported net revenues and receivables, which relate to differences between amounts billed and corresponding amounts estimated to be subsequently collected. The Company estimates the amount of variable consideration using the most likely amount approach to estimating variable consideration for third-party payers, including direct patient bills, whereby the estimated reimbursement for services are established based on published reimbursement rates from Medicare and Medicaid by payment histories on Current Procedural Terminology, or CPT, codes for each payer, or similar payer types. The estimates of amounts that will ultimately be realized from commercial diagnostic services require significant judgment.

We identified auditing the measurement of the Company's transaction price for revenue recognition and the corresponding valuation of accounts receivable as a critical audit matter. The principal consideration for our determination that performing procedures relating to the transaction price for revenue, and corresponding net accounts receivable, is a critical audit matter is the significant judgment by management in estimating the amount to be collected, which in turn led to significant auditor judgment, subjectivity and effort in performing procedures and evaluating audit evidence for revenue recognition and net accounts receivable.

The primary procedures we performed to address this critical audit matter included:

- Evaluating the appropriateness of the methods used, by evaluating management's process for developing the estimated transaction price which includes related reserves, as well as the accuracy and relevance of the historical billing and collection data used as an input to derive the estimated transaction price.
- Testing the accuracy of the estimated transaction price for a sample of revenue transactions from the historical billing data and historical collection data used in management's estimation of the transaction price, including agreeing the revenue transactions selected to supporting documentation such as physician requisition, cash collected, and delivery of final reports, as applicable.
- Identifying and evaluating the significant assumptions used in developing the reserves estimate, including:
    - Evaluating the historical accuracy of management's process for developing the estimate of the amount which will ultimately be collected by comparing actual cash collections to the previously recorded transaction price and the net accounts receivable balance.
    - Analyzing the subsequent cash collections of the accounts receivable recorded at December 31, 2021.
    - Evaluated the remaining accounts receivable balances as of December 31, 2021 which have not been collected by developing an independent expectation of the net accounts receivable balance, by payer, based on historical collection trends.

Management's Assessment over Going Concern

The Company's financial statements have been prepared on the going concern basis, which contemplates the continuity of normal business activities and the realization of assets and settlement of liabilities in the normal course of business. As discussed in Note 2 to the financial statements, the Company's COVID-19 testing revenue has provided the Company with increased levels of cash inflows from operations, and therefore increased liquidity. As a result, the Company believes that based on its current and planned cash flow and liquidity needs, its cash balances along with projected COVID-19 testing revenue will be sufficient to support operations for at least one-year from the issuance date of these financial statements. As such, the Company determined that the current facts and circumstances do not indicate it is probable that substantial doubt about the Company's ability to continue as a going concern exists for the one year period following the date that the financial statements for the year ended December 31, 2021 are issued.

We identified the Company's assessment of the current indicators and their impact on the Company's ability to continue as a going concern and the related disclosures as a critical audit matter. The principal considerations for our determination include the high degree of management subjectivity in determining significant assumptions included in the Company's estimation of future cash flows, specifically management's estimates related to COVID-19 diagnostic testing revenues and related costs. Performing audit procedures and evaluating audit evidence obtained related to these considerations required a high degree of auditor judgment and effort.

The primary procedures we performed to address this critical audit matter included:

- Obtaining an understanding of management's process to develop their estimates included in the cash flow projections used to perform the going concern assessment. We also evaluated the design of certain controls used by management to develop their estimates.
- Assessing the reasonableness of the forecasted revenue and operating expenses in management's going concern assessment of whether the Company projects to have sufficient liquidity to fund operations for at least one year from the financial statement issuance date. This assessment included:

- Evaluating management's estimates with respect to projected COVID-19 diagnostic testing demand during the going concern assessment period in relation to historical demand and the changing demand for COVID-19 testing.
- Performing sensitivity analyses to evaluate the impact of lower than projected demand for COVID-19 testing revenues on management's projections.
- Evaluating management's intent and ability to manage costs and liquidity if the actual demand for COVID-19 testing revenues are less than the demand projected by management.
- Evaluating management's cash flow projections with recent experience, taking into account changes in conditions and events affecting the Company, and whether other evidence obtained in other areas of the audit supported or contradicted the conclusions reached by management.

- Evaluating the adequacy of the Company's disclosures in Note 2 in relation to the going concern assessment.

We have served as the Company's auditor since 2005.

/s/ Mayer Hoffman McCann P.C

San Diego, California
April 05, 2022

Biocept, Inc.
Balance Sheets
(in thousands, except share and per share data)

	December 31, 2020	December 31, 2021
Current assets:		
Cash	$ 14,368	$ 28,864
Accounts receivable, net	14,145	13,786
Inventories, net	1,930	2,651
Prepaid expenses and other current assets	2,152	391
Total current assets	32,595	45,692
Fixed assets, net	2,318	2,401
Lease right-of-use assets - operating	9,776	9,026
Lease right-of-use assets - finance	2,338	2,842
Other non-current assets	426	456
Total assets	$ 47,453	$ 60,417
Current liabilities:		
Accounts payable	$ 8,366	7,246
Accrued liabilities	3,166	3,018
Current portion of lease liabilities - operating	-	426
Current portion of lease liabilities - finance	964	1,083
Total current liabilities	12,496	11,773
Non-current portion of lease liabilities - operating	9,805	9,736
Non-current portion of lease liabilities - finance	1,460	1,428
Total liabilities	23,761	22,937
Commitments and contingencies (see Note 15)		
Shareholders' equity:		
Preferred stock, $0.0001 par value, 5,000,000 shares authorized; 2,111 shares and 2,106 shares issued and outstanding at December 31, 2020 and 2021, respectively.	—	—
Common stock, $0.0001 par value, 150,000,000 shares authorized; 13,397,041 shares and 16,849,805 shares issued and outstanding at December 31, 2020 and 2021, respectively.	1	2
Additional paid-in capital	287,218	303,829
Accumulated deficit	(263,527)	(266,351)
Total shareholders' equity	23,692	37,480
Total liabilities and shareholders' equity	$ 47,453	$ 60,417

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

Biocept, Inc.
Statements of Operations and Comprehensive Loss
(in thousands, except shares and per share data)

	For the years ended December 31,	
	2020	**2021**
Net revenues	$ 27,461	$ 61,249
Costs and expenses:		
Cost of revenues	21,337	37,764
Research and development expenses	5,220	4,960
General and administrative expenses	9,973	12,614
Sales and marketing expenses	6,400	8,320
Total costs and expenses	42,930	63,658
Loss from operations	(15,469)	(2,409)
Other income/(expense):		
Interest expense, net	(236)	(290)
Warrant inducement expense	(2,102)	-
Total other income/(expense):	(2,338)	(290)
Loss before income taxes	(17,807)	(2,699)
Income tax expense	-	(125)
Net loss and comprehensive loss	(17,807)	(2,824)
Deemed dividend related to warrants down round provision	(3)	0
Net loss attributable to common shareholders	$ (17,810)	$ (2,824)
Weighted-average shares outstanding used in computing net loss per share attributable to common shareholders:		
Basic	11,845,255	14,775,805
Diluted	11,845,255	14,775,805
Net loss per common share:		
Basic	$ (1.50)	$ (0.19)
Diluted	$ (1.50)	$ (0.19)

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

Biocept, Inc.
Statements of Stockholder's Equity
(in thousands, except for shares)

	Common Stock		Series A Convertible Preferred Stock		Additional Paid-in Capital	Accumulated Deficit	Total
	Shares	Amount	Shares	Amount			
Balance at December 31, 2019	5,473,848	$ 1	2,133	$ —	$ 256,917	$ (245,717)	$ 11,201
Stock-based compensation expense	—	—	—	—	941	—	941
Shares issued upon exercise of common stock warrants	723,272	—	—	—	2,402	—	2,402
Shares issued upon cashless exercise of common stock warrants	876,772	—	—	—	—	—	—
Costs related to previous financings	—	—	—	—	(42)	—	(42)
Deemed dividends related warrants down round provision	—	—	—	—	3	(3)	—
Shares issued for exercise of December 2019 overallotment warrants, net of issuance costs	192,750	—	—	—	660	—	660
Shares issued for March 2, 2020 financing transaction, net of issuance costs	2,300,000	—	—	—	8,565	—	8,565
Shares issued for March 4, 2020 financing transaction, net of issuance costs	1,600,000	—	—	—	6,093	—	6,093
Shares issued for April 2020 financing transaction, net of issuance costs.	2,230,000	—	—	—	9,577	—	9,577
Fractional shares adjustment upon one-for-ten reverse stock split	(68)	—	—	—	—	—	—
Warrant inducement expense	—	—	—	—	2,102	—	2,102
Shares issued upon conversion of preferred stock	467	—	(22)	—	-	—	-
Net loss	—	—	—	—	-	(17,807)	(17,807)
Balance at December 31, 2020	13,397,041	$ 1	2,111	$ —	$ 287,218	$ (263,527)	$ 23,692
Stock-based compensation expense		—	—	—	2,462	—	2,462
Shares issued upon exercise of common stock warrants	7,212	—	—	—	28	—	28
Shares issued upon cashless exercise of common stock warrants	16,200	—	—	—		—	—
Shares issued for ATM transaction, net of issuance costs	3,428,680	1	—	—	14,119	—	14,120
Shares issued upon exercise of stock options	537	—	—	—	2	—	2
Shares issued upon conversion of preferred stock	135	—	(5)	—	—	—	—
Net loss		—	—	—	—	(2,824)	(2,824)
Balance at December 31, 2021	16,849,805	$ 2	2,106	$ —	$ 303,829	$ (266,351)	$ 37,480

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

Biocept, Inc.
Statements of Cash Flows
(in thousands)

	For the years ended December 31, 2020	2021
Cash Flows from Operating Activities		
Net loss	$ (17,807)	$ (2,824)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	1,085	1,530
Amortization of right-of-use assets	(84)	1,107
Inventory reserve	245	107
Stock-based compensation	941	2,462
Warrant inducement expense	2,102	-
Loss (gain) on disposal of fixed assets	(2)	4
Increase/(decrease) in cash resulting from changes in:		
Accounts receivable, net	(10,618)	358
Inventory	(1,406)	(828)
Landlord reimbursement	-	1,856
Prepaid expenses and other current assets	534	505
Other non-current assets	(426)	(29)
Accounts payable	4,465	(411)
Accrued liabilities	1,185	(147)
Net cash (used) provided by operating activities	(19,786)	3,690
Cash Flows from Investing Activities:		
Purchases of fixed assets	(867)	(1,572)
Net cash used in investing activities	(867)	(1,572)
Cash Flows from Financing Activities:		
Net proceeds from issuance of common stock and warrants	24,194	14,120
Proceeds from exercise of common stock warrants	2,402	28
Proceeds from exercise of overallotment warrants	660	-
Proceeds from exercise of stock options	-	2
Payments on finance leases	(703)	(1,150)
Payments on supplier and other third-party financings	(833)	(622)
Net cash provided by financing activities	25,720	12,378
Net increase in Cash	5,067	14,496
Cash at Beginning of Period	9,301	14,368
Cash at End of Period	14,368	28,864
Supplemental Disclosures of Cash Flow Information:		
Interest	$ 237	$ 290
Income taxes	$ -	$ -

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

Non-cash Investing and Financing Activities:

During the years ended December 31, 2021 and 2020, the Company financed insurance premiums of approximately $0.5 million and $0.6 million, respectively, through third-party financings (see Note 8).

Fixed assets purchased totaling approximately $1.2 million and $1.4 million during the years ended December 31, 2021 and 2020, respectively, were recorded as finance lease obligations and were excluded from cash purchases in the Company's statements of cash flows (see Note 7).

The amount of unpaid fixed asset purchases excluded from cash purchases in the Company's statements of cash flows increased from approximately $0.1 million at December 31, 2020 to $0.2 million at December 31, 2021.

In January 2020, the Company issued an aggregate of 692,725 shares of its common stock pursuant to the exercise of certain warrants issued by the Company in February 2019 and March 2019, as part of a warrant repricing and exchange transaction. As part of the warrant repricing and exchange transaction, the Company issued an aggregate of 692,725 new warrants in exchange for the exercise of the February 2019 and March 2019 warrants and received net proceeds of approximately $2.3 million. As a result of the warrant repricing, the exercise price of warrants to purchase an aggregate of 89,657 shares of common stock issued by the Company in January 2018 was adjusted from $4.05 to $3.495 per share.

In June 2020, the Company entered into an amendment of its facility lease to extend the term of the lease originally set to expire in July 2020 to November 2020. Pursuant to the extension of the lease term, the Company recorded an additional lease right-of-use asset and lease liability of $0.5 million

In June 2020, the Company entered into a lease for a 39,000 square foot headquarters, manufacturing and laboratory facility. The lease commenced on December 1, 2020 and is for a term of 127 months from the commencement date. The Company recorded a lease right-of-use asset and lease liability of approximately $9.8 million as of December 31, 2020 and 2021 (see Note 7).

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

1. The Company and Business Activities

The Company was founded in California in May 1997 and is a molecular oncology diagnostics company that develops and commercializes proprietary circulating tumor cell and circulating cell-free tumor DNA and RNA assays utilizing a standard blood sample, or liquid biopsy. The Company's current and planned assays are intended to provide information to aid healthcare providers to identify specific oncogenic alterations that may qualify a subset of cancer patients for targeted therapy at diagnosis, progression or for monitoring to identify specific resistance mechanisms. Sometimes traditional procedures, such as surgical tissue biopsies, result in tumor tissue that is insufficient and/or unable to provide the molecular subtype information necessary for clinical decisions. The Company's assays, performed on blood and cerebral spinal fluid, have the potential to provide more contemporaneous information on the characteristics of a patient's disease when compared with tissue biopsy and radiographic imaging. Further, sales to laboratory supply distributors of the Company's proprietary SCTs commenced in June 2018, which allow for the intact transport of liquid biopsy samples for research use only, or RUO, from regions around the world.

The Company operates a clinical laboratory that is CLIA-certified (under the Clinical Laboratory Improvement Amendment of 1988) and CAP-accredited (by the College of American Pathologists), and manufactures cell enrichment and extraction microfluidic channels, related equipment and certain reagents to perform the Company's diagnostic assays in a facility located in San Diego, California. CLIA certification and accreditation are required before any clinical laboratory may perform testing on human specimens for the purpose of obtaining information for the diagnosis, prevention, treatment of disease, or assessment of health. The assays the Company offers are classified as laboratory developed tests under the CLIA regulations.

In July 2013, the Company effected a reincorporation to Delaware by merging itself with and into Biocept, Inc., a Delaware corporation, which had been formed to be and was a wholly-owned subsidiary of the Company since July 23, 2013.

The COVID-19 pandemic continues to evolve, and the extent to which COVID-19 may impact the Company's business will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of the pandemic, the emergence and impact of variants, vaccinations, government funding for COVID-19 testing, travel restrictions and social distancing in the United States and other countries, business closures or business disruptions, and the effectiveness of actions taken in the United States and other countries to contain and treat the disease. The Company experienced increased revenue levels in 2020 and 2021 related to its COVID-19 testing business.

2. Liquidity

As of December 31, 2021, cash totaled $28.9 million and the Company had an accumulated deficit of $266.4 million. For the years ended December 31, 2020 and 2021, the Company incurred net losses of $17.8 million and $2.8 million, respectively, and had negative cash flows from operations of $19.8 million for the year ended December 31, 2020, however, for the year ended December 31, 2021 the Company had $3.7 million of net cash provided from operations. At December 31, 2021, the Company had aggregate net interest-bearing indebtedness of $2.5 million of which $1.1 million is due within one year, in addition to approximately $10.2 million of other non-interest-bearing current liabilities.

The Company has historically funded its operations through capital raises, however, the COVID-19 testing revenue during 2020 and 2021, has provided the Company with increased levels of cash inflows from operations. The Company believes that based on its current and planned cash usage, along with current COVID-19 testing revenues, its cash balances will support operations through at least the next 12 months. The Company's determination is based on estimates regarding expected COVID-19 testing volumes, which are uncertain and subject to change as the pandemic subsides.

Historically, the Company's principal sources of cash have included proceeds from the issuance of common and preferred stock, proceeds from the exercise of warrants to purchase common stock, proceeds from the issuance of debt, and revenues from laboratory services. The Company's principal uses of cash have included cash used in operations, payments relating to purchases of property and equipment and repayments of borrowings. The Company expects that the principal uses of cash in the future will be for continuing operations, hiring of sales and marketing personnel and increased sales and marketing activities, funding of research and development, capital expenditures, and general working capital requirements. The Company

expects that, as revenues grow, sales and marketing and research and development expenses will continue to grow, albeit at a slower rate and, as a result, the Company will need to generate significant growth in net revenues to achieve and sustain income from operations. Based on current cash balances and current and planned cash usage, the Company determined that it is not probable that substantial doubt exists about the Company's ability to continue as a going concern for the one-year period following the date that the financial statements for the year ended December 31, 2021 were issued.

In order to meet its long-term operating requirements beyond the next 12 months, the Company will need, among other things, additional capital resources. Until the Company can generate significant cash from operations, including assay revenues, management's plans to obtain such resources for the Company include proceeds from offerings of the Company's equity securities or debt, cash received from the exercise of outstanding common stock warrants, or transactions involving product development, technology licensing or collaboration. The Company cannot provide any assurances that such additional funds will be available on reasonable terms, or at all.

If necessary, the Company can reduce spending to a sustainable level, which may include delaying, scaling back or eliminating some or all of our ongoing and planned investments in corporate infrastructure, research and development projects, regulatory submissions, business development initiatives, and sales and marketing activities, among other investments.

3. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying financial statements and notes are prepared in accordance with accounting principles generally accepted in the United States of America, or U.S. GAAP, and are prepared on the basis that the Company will continue as a going concern (see Note 2). The accompanying financial statements and notes do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classification of liabilities that may result from the possible inability of the Company to continue as a going concern.

On September 3, 2020, pursuant to the approval of the Company's board of directors, the Company filed a Certificate of Amendment to its Amended and Restated Certificate of Incorporation to effect a reverse stock split of the Company's outstanding common stock using a ratio of one-for-ten. As such, all references to share and per share amounts in these financial statements and accompanying notes have been retroactively restated to reflect the one-for-ten reverse stock split, except for the authorized number of shares of the Company's common stock of 150,000,000 shares, which was not affected by the one-for-ten reverse stock split.

Since March 2020, federal, state and local governmental policies and initiatives designed to reduce the transmission of COVID-19 have resulted in, among other things, a significant reduction in physician office visits, the cancellation of elective medical procedures, customers closing or severely curtailing their operations (voluntarily or in response to government orders), and the adoption of work-from-home policies, all of which have had, and the Company believes will continue to have, an impact on the Company's results of operations, financial position, and cash flows. Additionally, beginning during the second quarter of 2020, the Company experienced growing demand for COVID-19 molecular and antibody testing services. As a result, operating results for the year ended December 31, 2021 may not be indicative of the results that may be expected in the future.

Going Concern

The Company assesses and determines its ability to continue as a going concern in accordance with the provisions of ASC Topic 205-40, Presentation of Financial Statements—Going Concern, which requires the Company to evaluate whether there are conditions or events that raise substantial doubt about its ability to continue as a going concern within one year after the date that its annual and interim financial statements are issued (see Note 2). Certain additional financial statement disclosures are required if such conditions or events are identified. If and when an entity's liquidation becomes imminent, financial statements should be prepared under the liquidation basis of accounting. Determining the extent, if any, to which conditions or events raise substantial doubt about the Company's ability to continue as a going concern, or the extent to which mitigating plans sufficiently alleviate any such substantial doubt, as well as whether or not liquidation is imminent, requires significant judgment by management.

Use of Estimates

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. On an ongoing basis, management evaluates these estimates and judgments, including those related to accounts receivable reserves, inventory reserves, long-lived assets, income taxes, including uncertain tax benefits, estimated transaction price for revenues, stock-based compensation, incremental borrowing rate estimates, and the determination of the Company's ability to continue as a going concern. The Company bases its estimates on various assumptions that it believes are reasonable under the circumstances. Actual results may differ from these estimates under different assumptions or conditions. Though the impact of the COVID-19 pandemic on the Company's business and operating results presents additional uncertainty, the Company continues to use the best information available to determine its significant accounting estimates.

Revenue Recognition and Accounts Receivable

The Company's commercial revenues are generated from diagnostic services provided to patient's physicians and billed to third-party insurance payers such as managed care organizations, Medicare and Medicaid and patients for any deductibles, coinsurance or copayments that may be due. The Company recognizes revenue in accordance with ASC 606, Revenue from Contracts with Customers, or ASC 606, which requires that an entity recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services.

Contracts

For its commercial revenues, while the Company markets directly to physicians and other healthcare providers, the Company provides services that benefit the patient. Patients do not typically enter into direct agreements with the Company; however, a patient's insurance coverage requirements would dictate whether or not any portion of the cost of the tests would be patient responsibility. Accordingly, the Company establishes contracts with commercial insurers in accordance with customary business practices, as follows:

- Approval of a contract is established via the order and accession, which are submitted by the patient's physician.
- The Company is obligated to perform its diagnostic services upon receipt of a sample from a physician, and the patient and/or applicable payer are obligated to reimburse the Company for services rendered based on the patient's insurance benefits.
- Payment terms are a function of a patient's existing insurance benefits, including the impact of coverage decisions with Center for Medicare & Medicaid Services, or CMS, and applicable reimbursement contracts established between the Company and payers, unless the patient is a self-pay patient, whereby the Company bills the patient directly after the services are provided.
- Once the Company delivers a patient's assay result to the ordering physician, the contract with a patient has commercial substance, as the Company is legally able to collect payment and bill an insurer and/or patient, regardless of payer contract status or patient insurance benefit status.
- Consideration associated with commercial revenues is considered variable and constrained until fully adjudicated, with net revenues recorded to the extent that it is probable that a significant reversal will not occur.

The Company's development services revenues are supported by contractual agreements and generated from assay development services provided to entities, such as pharma or biotech organizations, as well as certain other diagnostic services provided to physicians, and revenues are recognized upon delivery of the performance obligations in the contract.

Performance Obligations

A performance obligation is a promise in a contract to transfer a distinct good or service, or a bundle of goods or services, to the customer. For its commercial and development services revenues, the Company's contracts have a single performance obligation, which is satisfied upon rendering of services, which culminates in the delivery of a patient's assay result(s) to the ordering physician or entity. The duration of time between accession receipt and delivery of a valid assay result to the ordering physician or entity is typically less than two weeks, and for our RT-PCR COVID-19 testing, typically 48 hours or less.

Accordingly, the Company elected the practical expedient and therefore, does not disclose the value of unsatisfied performance obligations.

Transaction Price

The transaction price is the amount of consideration that the Company expects to collect in exchange for transferring promised goods or services to a customer, excluding amounts collected on behalf of third parties, such as sales taxes. The consideration expected from a contract with a customer may include fixed amounts, variable amounts, or both. The Company's gross commercial revenues billed, and corresponding gross accounts receivable, are subject to estimated deductions for such allowances and reserves to arrive at reported net revenues, which relate to differences between amounts billed and corresponding amounts estimated to be subsequently collected and is deemed to be variable although the variability is not explicitly stated in any contract. Rather, the implied variability is due to several factors, such as the payment history or lack thereof for third-party payers, reimbursement rate changes for contracted and non-contracted payers, any patient co-payments, deductibles or compliance incentives, the existence of secondary payers and claim denials. The Company estimates the amount of variable consideration using the most likely amount approach to estimating variable consideration for third-party payers, including direct patient bills, whereby the estimated reimbursement for services are established by payment histories on CPT codes for each payer, or similar payer types. When no payment history is available, the value of the account is estimated at Medicare rates, with additional other payer-specific reserves taken as appropriate. Collection periods for billings on commercial revenues range from less than 30 days to several months, depending on the contracted or non-contracted nature of the payer, among other variables. The estimates of amounts that will ultimately be realized from commercial diagnostic services for non-contracted payers require significant judgment by management.

The Company limits the amount of variable consideration included in the transaction price to the unconstrained portion of such consideration. Revenue is recognized up to the amount of variable consideration that is not subject to a significant reversal until additional information is obtained or the uncertainty associated with the additional payments or refunds is subsequently resolved. Differences between original estimates and subsequent revisions, including final settlements, represent changes in the estimate of variable consideration and are included in the period in which such revisions are made. The Company monitors its estimates of transaction price to depict conditions that exist at each reporting date. If the Company subsequently determines that it will collect more consideration than it originally estimated for a contract with a customer, it will account for the change as an increase in the estimate of the transaction price in the period identified as an increase to revenue. Similarly, if the Company subsequently determines that the amount it expects to collect from a customer is less than it originally estimated, it will generally account for the change as a decrease in the estimate of the transaction price as a decrease to revenue, provided that such downward adjustment does not result in a significant reversal of cumulative revenue recognized. Revenue recognized from changes in transaction prices was not significant during the years ended December 31, 2020 and 2021. Further, although the Company believes that its estimate for contractual allowances and other reserves is appropriate, it is possible that the Company will experience an impact on cash collections as a result of the impact of the COVID-19 pandemic.

Allocate Transaction Price

For the Company's commercial revenues, the entire transaction price is allocated to the single performance obligation contained in a contract with a customer. For the Company's development services revenues, the contracted transaction price is allocated to each single performance obligation contained in a contract with a customer as performed.

Point-in-time Recognition

The Company's single performance obligation is satisfied at a point in time, and that point in time is defined as the date a patient's successful assay result is delivered to the patient's ordering physician or entity. The Company considers this date to be the time at which the patient obtains control of the promised diagnostic assay service.

Contract Balances

The timing of revenue recognition, billings and cash collections results in accounts receivable recorded in the Company's balance sheets. Generally, billing occurs subsequent to delivery of a patient's test result to the ordering physician or entity, resulting in an account receivable.

Practical Expedients

The Company does not adjust the transaction price for the effects of a significant financing component, as at contract inception, the Company expects the collection cycle to be one year or less.

The Company expenses sales commissions when incurred because the amortization period is one year or less, which are recorded within sales and marketing expenses.

The Company incurs certain other costs that are incurred regardless of whether a contract is obtained. Such costs are primarily related to legal services and patient communications. These costs are expensed as incurred and recorded within general and administrative expenses.

Disaggregation of Revenue and Concentration of Risk

The composition of the Company's net revenues recognized during the years ended December 31, 2020 and 2021, disaggregated by source and nature, are as follows (in thousands):

	For the year ended December 31,	
	2020	2021
Net revenues from non-contracted payers	$ 12,793	$ 25,671
Net revenues from contracted payers*	14,070	35,260
Net commercial revenues	26,863	60,931
Development services revenues	177	147
Kits and Specimen Collection Tubes (SCTs)	421	171
Total net revenues	$ 27,461	$ 61,249

*Includes Medicare and Medicare Advantage, as reimbursement amounts are fixed.

Net revenues for the year ended December 31, 2021 included $60.9 million in commercial test revenue, which includes $59.7 million attributable to RT-PCR COVID-19 testing.

A summary of activity in the Company's gross and net accounts receivable balances, as well as corresponding reserves, during the year ended December 31, 2020 and 2021 is as follows (in thousands):

	Balance at December 31, 2020	Amounts Recognized Upon Delivery	Settlements Upon Adjudication	Balance at December 31, 2021
Accounts receivable, gross	$ 41,024	$ 143,434	$ (136,637)	$ 47,821
Reserve for contractual discounts	(23,629)	82,332	(87,150)	(28,447)
Reserve for aged non-patient receivables	(49)	26	(26)	(49)
Reserve for estimated patient receivables	(5)	578	(578)	(5)
Reserve for other payer-specific sales allowances	(3,196)	9,194	(11,532)	(5,534)
Accounts receivable, net	$ 14,145	$ 235,564	$ (235,923)	$ 13,786

	Balance at December 31, 2019	Amounts Recognized Upon Delivery	Settlements Upon Adjudication	Balance at December 31, 2020
Accounts receivable, gross	$ 16,854	$ 73,645	$ (49,475)	$ 41,024
Reserve for contractual discounts	(3,827)	(44,779)	24,977	(23,629)
Reserve for aged non-patient receivables	(1,500)	(2,507)	3,958	(49)
Reserve for estimated patient receivables	(5)	(61)	61	(5)
Reserve for other payer-specific sales allowances	(7,995)	1,164	3,635	(3,196)
Accounts receivable, net	$ 3,527	$ 27,462	$ (16,844)	$ 14,145

At December 31, 2020 and 2021, unbilled accounts receivables totaled approximately $4.5 million and $3.5 million, respectively.

Cash

The Company places its cash with reputable financial institutions that are insured by the Federal Deposit Insurance Corporation, or FDIC. At times, deposits held may exceed the amount of insurance provided by the FDIC. The Company has not experienced any losses in its cash and believes they are not exposed to any significant credit risk.

Fair Value Measurements

The Company uses a three-tier fair value hierarchy to prioritize the inputs used in the Company's fair value measurements. These tiers include: Level 1, defined as observable inputs such as quoted prices in active markets for identical assets; Level 2, defined as inputs other than quoted prices in active markets that are either directly or indirectly observable; and Level 3, defined as unobservable inputs in which little or no market data exists, therefore requiring an entity to develop its own assumptions. The Company believes the carrying amount of cash, accounts receivable, accounts payable and accrued expenses approximate their estimated fair values due to the short-term maturities of these financial instruments. See Note 5 for further details about the inputs and assumptions used to determine fair value measurements.

Concentration of Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of temporary cash investments.

Concentrations of credit risk with respect to revenues are primarily limited to geographies to which the Company provides a significant volume of its services, and to specific third-party payers of the Company's services such as Medicare, insurance companies, and other third-party payers. The Company's client base consists of a large number of geographically dispersed clients diversified across various customer types.

The Company's third-party payers that represent more than 10% of total net revenues in any period presented, as well as their related net revenue amount as a percentage of total net revenues, during the years ended December 31, 2020 and 2021 were as follows:

	For the year ended December 31,	
	2020	2021
Medicare and Medicare Advantage/CARES Act	51%	56%
Blue Cross Blue Shield	20%	17%

The Company's third-party payers that represent more than 10% of total net accounts receivable, and their related net accounts receivable balance as a percentage of total net accounts receivable, as of December 31, 2020 and 2021 were as follows:

	For the year ended December 31,	
	2020	2021
Medicare and Medicare Advantage/CARES Act	35%	31%
Blue Cross Blue Shield	24%	19%

The Company operates in one reportable business segment and historically has derived most revenues only from within the United States.

Certain components used in the Company’s current or planned products are currently sourced from one supplier, for which alternative suppliers exist but the Company has not validated the product(s) of such alternative supplier(s), and substitutes for these components may not be obtained easily or may require substantial design or manufacturing modifications.

Inventories

Inventories are valued at the lower of cost or net realizable value. Cost is determined by the average cost method. The two primary components of inventory balances are raw materials and subassemblies. Subassemblies are in process raw materials used in our laboratory operations. The Company records adjustments to its inventory for estimated obsolescence or diminution in net realizable value equal to the difference between the cost of the inventory and the estimated net realizable value. At the point of loss recognition, a new cost basis for that inventory is established, and subsequent changes in facts and circumstances do not result in the restoration or increase in that newly established cost basis. In addition, the Company records a liability for firm, non-cancelable, and unconditional purchase commitments with contract manufacturers and suppliers for quantities in excess of the Company’s future demand forecasts consistent with its valuation of excess and obsolete inventory.

Fixed Assets

Fixed assets consist of machinery and equipment, furniture and fixtures, computer equipment and software, leasehold improvements, financed equipment and construction in-process. Fixed assets are stated at cost less accumulated depreciation and amortization. Additions, improvements, and major renewals are capitalized. Maintenance, repairs, and minor renewals are expensed as incurred. Depreciation and amortization are recorded using the straight-line method over the estimated useful lives of the assets, which range from three to seven years. Leasehold improvements are amortized over the life of the lease or the asset, whichever is shorter. Depreciation and amortization expense for the years ended December 31, 2020 and 2021 was approximately $1.1 million and $1.5 million, respectively.

Upon sale or disposal of fixed assets, the accounts are relieved of the cost and the related accumulated depreciation or amortization with any gain or loss recorded to the statement of operations and comprehensive loss.

Fixed assets are reviewed for impairment whenever changes in circumstances indicate that the carrying amount of an asset may not be recoverable. These computations utilize judgments and assumptions inherent in the estimates of future cash flows to determine recoverability of these assets. If the assumptions about these assets were to change as a result of events or

circumstances, the Company may be required to record an impairment loss. There had been no material impairment losses recorded in 2020 and 2021.

Stock-based Compensation

The Company measures and recognizes compensation expense for all stock-based awards made to employees and directors based on their grant date fair values. The Company estimates the fair value of stock option awards on the date of grant using the Black-Scholes option pricing model, while the fair value of restricted stock unit awards, or RSUs, is determined by the Company's stock price on the date of grant. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service periods using the straight-line method. In addition, forfeitures are recorded when incurred. The Company determines the fair value of the stock-based compensation awards granted as either the fair value of the consideration received, or the fair value of the equity instruments issued, whichever is more reliably measurable.

Calculating the fair value of stock-based awards requires the input of highly subjective assumptions into the Black-Scholes valuation model. Stock-based compensation expense is calculated using the Company's best estimates, which involves inherent uncertainties, and the application of management's judgment. Significant estimates include the expected life of the stock option, stock price volatility and risk-free interest rate.

Research and Development

Research and development costs are expensed as incurred. The amounts expensed in the years ended December 31, 2020 and 2021 were approximately $5.2 million and $5.0 million, respectively, which includes salaries of research and development personnel.

Income Taxes

The Company provides for income taxes utilizing the liability method. Under the liability method, current income tax expense or benefit is the amount of income taxes expected to be payable or refundable for the current year. A deferred income tax asset or liability is computed for the expected future impact of differences between the financial reporting and tax bases of assets and liabilities and for the expected future tax benefit to be derived from tax credits. Tax rate changes are reflected in the computation of the income tax provision during the period such changes are enacted.

Deferred tax assets are reduced by a valuation allowance when, in management's opinion, it is more likely than not that some portion or all of the deferred tax assets will not be realized. The Company considers the scheduled reversal of deferred tax liabilities, projected future taxable income, and tax planning strategies in making this assessment. The Company's valuation allowance is based on available evidence, including its current year operating loss, evaluation of positive and negative evidence with respect to certain specific deferred tax assets including evaluation sources of future taxable income to support the realization of the deferred tax assets. The Company has established a full valuation allowance on the deferred tax assets as of December 31, 2020 and 2021, and therefore has not recognized any income tax benefit or expense in the periods presented.

A tax benefit from uncertain tax positions may be recognized by the Company when it is more-likely-than-not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on the technical merits of the position. Income tax positions must meet a more-likely-than-not recognition threshold to be recognized.

The Company recognizes interest and/or penalties related to income tax matters in income tax expense. There is no accrual for interest or penalties for income taxes on the balance sheets at December 31, 2020 and 2021, and the Company has not recognized interest and/or penalties in the statements of operations and comprehensive loss for the years ended December 31, 2020 and 2021.

Recent Accounting Pronouncements

In November 2018, the FASB issued authoritative guidance clarifying the interaction between Collaborative Arrangements (Topic 808) and Revenue from Contracts with Customers (Topic 606) to address diversity in practice related to how companies account for collaborative arrangements. For public companies, this guidance is effective for fiscal years beginning after December 15, 2019, including interim periods within that fiscal year. Early adoption is permitted, but no earlier than an entity's

adoption date of Revenue from Contracts with Customers (Topic 606). The Company adopted this guidance for the fiscal year beginning on January 1, 2020 and determined that the adoption of this guidance does not have a material impact on its financial statements or disclosures.

In June 2016, the FASB issued ASU 2016-13, "Credit Losses (Topic 326)." ASU 2016-13 requires that financial assets measured at amortized cost, such as trade receivables and investments, be represented net of expected credit losses, which may be estimated based on relevant information such as historical experience, current conditions, and future expectation for each pool of similar financial asset. The new guidance requires enhanced disclosures related to trade receivables and associated credit losses. In May 2019, the FASB issued ASU No. 2019-05, "Financial Instruments—Credit Losses (Topic 326) Targeted Transition Relief," which allows for a transition election on certain instruments. The guidance is effective for Small Reporting Companies for fiscal years beginning after December 15, 2022 and interim periods in those fiscal years. In November 2019, the FASB issued ASU No. 2019-11 which amends certain aspects of ASU No. 2016-13, including transition relief for trouble debt restructuring, among other topics. The Company is currently evaluating the impact of this pronouncement on its financial statements.

4. Sales of Equity Securities

In January 2020, the Company issued an aggregate of 692,725 shares of its common stock pursuant to the exercise of certain warrants issued by the Company in February 2019 and March 2019, as part of a warrant repricing and exchange transaction. As part of the warrant repricing and exchange transaction, the Company issued an aggregate of 692,725 new warrants in exchange for the exercise of the February 2019 and March 2019 warrants and received net proceeds of approximately $2.3 million. As a result of the warrant repricing, the exercise price of warrants to purchase an aggregate of 89,657 shares of common stock issued by the Company in January 2018 was adjusted from $4.05 to $3.495 per share. In January 2020, the Company issued 192,750 shares of common stock pursuant to the partial exercise of the underwriters' overallotment option from the Company's December 2019 public offering. The net proceeds to the Company from the overallotment closing, was approximately $700,000. The warrants issued in connection with the warrant repricing and exchange transaction were considered inducement warrants and are classified in equity. In addition, the modification expense associated with the change in fair value due to the repricing of February and March 2019 warrants is recorded as inducement expense, which was approximately $191,000. The fair value of the warrants issued was approximately $1.9 million. The fair value of the inducement warrants and warrant modification of $2.1 million was expensed as warrant inducement expense in the accompanying statement of operations for the year ended December 31, 2020.

On March 2, 2020, the Company sold and issued 2,300,000 shares of its common stock at a negotiated purchase price of $4.00 per share in a registered direct offering and received net cash proceeds of approximately $8.6 million after deducting placement agent fees and other expenses.

On March 4, 2020, the Company sold and issued 1,600,000 shares of its common stock at a negotiated purchase price of $4.10 per share in a registered direct offering and received net cash proceeds of approximately $6.1 million after deducting placement agent fees and other expenses.

On April 16, 2020, the Company sold and issued 2,230,000 shares of its common stock at a negotiated purchase price of $4.60 per share in a registered direct offering and received net cash proceeds of approximately $9.6 million after deducting placement agent fees and other expenses.

On May 12, 2021, the Company entered into a Controlled Equity Offering^{SM} Sales Agreement (the "Sales Agreement") with Cantor Fitzgerald & Co. (the "Sales Agent"), under which the Company may issue and sell from time to time up to $25,000,000 of its common stock through or to the Sales Agent, as sales agent or principal. The issuance and sale of these shares under the Sales Agreement, if any, is subject to the continued effectiveness of the Company's shelf registration statement on Form S-3, filed with the Securities and Exchange Commission on April 24, 2020. Sales of the Company's common stock, under the Sales Agreement are made at market prices by any method that is deemed to be an "at the market offering" as defined in Rule 415(a)(4) under the Securities Act of 1933, as amended. Each time the Company wishes to issue and sell common stock under the Sales Agreement, it notifies the Sales Agent of the number of shares to be issued, the dates on which such sales are anticipated to be made and any minimum price below which sales may not be made. Once the Company has so instructed the Sales Agent, unless the Sales Agent declines to accept the terms of the notice, the Sales Agent has agreed to use its commercially reasonable efforts consistent with its normal trading and sales practices to sell such shares up to the amount specified on such terms. The obligations of the Sales Agent under the Sales Agreement to sell the Company's common stock are subject to a number of conditions that the Company must meet. The offering of common stock pursuant to the Sales Agreement will terminate upon the earlier of (1) the sale of all common stock subject to the Sales Agreement and (2) termination of the Sales Agreement as permitted therein. The Sales Agreement may be terminated by the Company at any time upon ten days' notice. The Sales Agent may terminate the Sales Agreement at any time upon ten days' prior notice. The Sales Agent is entitled to compensation from the Company at a fixed commission rate equal to 3.0% of the gross sales price per share of any common stock sold under the Sales Agreement. During 2021, the Company sold and issued 3,428,680 shares of its common stock at a weighted average purchase price of $4.31 under the Sales Agreement and received net cash proceeds of approximately $14.1 million after deducting Sales Agent commissions and other offering costs

5. Fair Value Measurements

As of the closing of the Company's January 2020 warrant repricing and exchange transaction, the estimated grant date fair value of approximately $2.80 per share associated with the warrants to purchase up to 692,725 shares of common stock issued in the transaction, or a total of approximately $1.9 million, was recorded as a warrant inducement expense with an offset to additional paid-in capital. All warrants issued in this warrant inducement transaction have an exercise price of $3.495 per share, became exercisable beginning 6 months from issuance and expire 5.5 years from the date of issuance. The fair value of the warrants was estimated using a Black-Scholes model with the following assumptions:

Beginning stock price	$	3.00
Exercise price	$	3.495
Expected dividend yield		0.00%
Discount rate-bond equivalent yield		1.66%
Expected life (in years)		5.50
Expected volatility		150.33%

In addition to the inducement warrants issued in the Company's January 2020 warrant repricing and exchange transaction, the Company adjusted the exercise prices of the February 2019 and March 2019 warrants from $12.00 and $12.50, respectively, to $3.495 to induce exercise of these warrants. This price modification triggered the requirement for modification accounting of these warrants. Based on the applicable guidance, the modification required the Company to value the modified February 2019 and March 2019 warrants immediately prior to the modification of the exercise price and immediately following the modification and record the difference between the resulting two values as warrant inducement expense.

The estimated fair value prior to modification of the February 2019 and March 2019 warrants was approximately $2.70 per share, whereas the estimated fair value of the February 2019 warrants increased to $2.90 due to the adjustment of the exercise price, and the estimated fair value of the March 2019 warrants increased to $3.00 per share. There were 216,725 February 2019 warrants and 476,000 March 2019 warrants eligible for this price modification and the resulting modification expense recorded as warrant inducement expenses were $60,000 and $130,000, respectively.

6. Balance Sheet Details

The following provides certain balance sheet details (in thousands):

	December 31, 2020	December 31, 2021
Inventories		
Raw materials	$ 1,236	$ 2,303
Subassemblies	691	294
Finished goods	3	54
	$ 1,930	$ 2,651
Fixed Assets		
Machinery and equipment	$ 2,974	$ 3,063
Furniture and office equipment	158	161
Computer equipment and software	2,428	2,931
Leasehold improvements	570	634
Construction in process	761	245
	$ 6,891	$ 7,034
Less accumulated depreciation and amortization	(4,573)	(4,633)
Total fixed assets, net	$ 2,318	$ 2,401
Accrued Liabilities		
Accrued payroll	452	725
Accrued vacation	869	961
Accrued bonuses	1,022	178
Accrued sales commissions	457	600
Accrued other	366	554
Total accrued liabilities	$ 3,166	$ 3,018

7. Leases

Effective January 1, 2019, the Company adopted US GAAP accounting rules in ASC Topic 842, Leases (ASC 842), using the modified retrospective method. The Company elected to follow the package of practical expedients provided under the transition guidance within ASC 842, and accordingly, did not reassess whether any expired or existing contracts are or contain leases, did not reassess expired or existing leases, and did not reassess initial direct costs for any existing leases. Upon adoption, the Company recorded an operating lease right-of-use asset and an operating lease liability on the balance sheet. In addition, assets under equipment leases previously classified as capital leases within Property, Plant and Equipment on the Company's balance sheet were reclassified to finance lease right-of-use assets upon adoption of the guidance. Right-of-use assets and obligations were recognized based on the present value of remaining lease payments over the lease term. As the Company's operating lease does not provide an implicit rate, an estimated incremental borrowing rate was used based on the information available at the adoption date in determining the present value of lease payments. Operating lease expense is recognized on a straight-line basis over the lease term. Variable lease costs such as common area costs and other operating costs are expensed as incurred. Leases with an initial term of 12 months or less are not recorded on the balance sheet.

Financed Leases

The Company leases certain laboratory equipment under arrangements previously accounted for as capital leases, classified on the Company's balance sheet as fixed assets and related lease liabilities and depreciated on a straight-line basis over the lease term. Upon adoption of ASC 842, leased equipment previously classified as fixed assets totaling $1.4 million in net book value were reclassified to lease right-of-use assets in accordance with the guidance. The equipment under finance leases is depreciated on a straight-line basis over periods ranging from 5 to 7 years. The total gross value of equipment capitalized under such lease financing arrangements was approximately $4.6 million and $6.0 million at December 31, 2020 and 2021, respectively. Total accumulated depreciation related to equipment under finance leases was approximately $2.3 million and $3.2 million at December 31, 2020 and 2021, respectively, and total depreciation expense was approximately $0.7 million and $0.9 million, at December 31, 2020 and 2021, respectively. Fixed asset purchases totaling approximately $1.4 million and $1.2 million during the years ended December 31, 2020 and 2021, respectively, were recorded as finance leases.

In February 2020, the Company entered into finance leases for a total capitalized amount of $197,000 for three pieces of equipment. Under the terms of the equipment financing agreement, which was accounted for as a finance lease transaction, the principal balance plus interest for the equipment are to be repaid in full in installments ranging from 48 to 60 monthly installments of $4,532 totaling approximately $265,000 through January 2025. In addition, in March 2020, the Company entered into a finance lease for a capitalized amount of $11,000 for an additional piece of equipment. Under the term of the equipment financing agreement, the principal amount plus interest are to be repaid in 48 monthly installments of $288 totaling approximately $14,000 through February 2024.

In April 2020, the Company entered into finance leases for a capitalized amount of $161,000 for laboratory testing equipment and manufacturing tooling. Under the terms of the equipment financing agreement, which was accounted for as a finance lease transaction, the principal balance plus interest for the equipment are to be repaid in full in 60 monthly installments of $3,337 totaling approximately $185,000 through March 2025.

In June 2020 the Company entered into finance leases for a capitalized amount of $334,000 for equipment and laboratory management software. Under the terms of the equipment financing agreement, which was accounted for as a finance lease transaction, the principal balance plus interest for the equipment are to be repaid in full in installments ranging from 36 to 60 monthly installments of $8,966 totaling approximately $469,000 through June 2025.

In July 2020 the Company entered into finance leases for a capitalized amount of $143,000 for computer infrastructure equipment and implementation. Under the terms of the equipment financing agreement, which was accounted for as a finance lease transaction, the principal balance plus interest for the equipment are to be repaid in full after 60 monthly installments of $2,772 totaling approximately $166,000 through July 2025.

In September 2020 the Company entered into finance leases for a capitalized amount of $226,000 for laboratory equipment. Under the terms of the equipment financing agreement, which was accounted for as a finance lease transaction, the principal balance plus interest for the equipment are to be repaid in full in installments ranging from 12 to 60 monthly installments of $16,427 totaling approximately $261,000 through July 2025.

In October 2020 the Company entered into finance leases for a capitalized amount of $192,000 for laboratory equipment. Under the terms of the equipment financing agreement, which was accounted for as a finance lease transaction, the principal balance plus interest for the equipment are to be repaid in full after 48 monthly installments of $5,382 totaling approximately $258,000 through October 2024.

In November 2020 the Company entered into finance leases for a capitalized amount of $73,000 for laboratory equipment. Under the terms of the equipment financing agreement, which was accounted for as a finance lease transaction, the principal balance plus interest for the equipment are to be repaid in full after 60 monthly installments of $1,394 totaling approximately $84,000 through November 2025.

In December 2020 the Company entered into finance leases for a capitalized amount of $91,000 for laboratory equipment. Under the terms of the equipment financing agreement, which was accounted for as a finance lease transaction, the principal balance plus interest for the equipment are to be repaid in full after 36 monthly installments of $3,002 totaling approximately $108,000 through December 2023.

In January 2021, the Company entered into a finance lease for a capitalized amount of $309,000 for laboratory testing equipment. Under the terms of the equipment financing agreement, which was accounted for as a finance lease transaction, the principal balance plus interest for the equipment are to be repaid in full with an initial payment of $100,000 and 36 monthly installments of $7,152 totaling approximately $357,000 through January 2024.

In February 2021, the Company entered into a finance lease for a capitalized amount of $182,000 for laboratory testing equipment. Under the terms of the equipment financing agreement, which was accounted for as a finance lease transaction, the principal balance plus interest for the equipment are to be repaid in full after 60 monthly installments of $4,237 totaling approximately $242,000 through February 2026.

In March 2021, the Company entered into a finance lease for a capitalized amount of $186,000 for laboratory scanning equipment. Under the terms of the equipment financing agreement, which was accounted for as a finance lease transaction, the principal balance plus interest for the equipment are to be repaid in full in installments in full after 60 monthly installments of $4,735 totaling approximately $284,000 through March 2026.

In April 2021, the Company entered into a finance lease for a capitalized amount of $218,000 for laboratory equipment. Under the terms of the equipment financing agreement, which was accounted for as a finance lease transaction, the principal balance plus interest for the equipment are to be repaid in full in installments in full after an initial payment of $54,000, 23 monthly installments of $6,859 and 12 monthly installments of $5,870 totaling approximately $282,000 through March 2024.

In July 2021, the Company entered into finance leases for a capitalized amount of $125,000 for laboratory equipment. Under the terms of the equipment financing agreements, which were accounted for as finance lease transactions, the principal balance plus interest for the equipment are to be repaid in full in installments ranging from 36 to 40 monthly installments of $3,471 totaling approximately $148,000 through November 2024.

In August 2021 the Company entered into finance leases for a capitalized amount of $218,000 for laboratory equipment. Under the terms of the equipment financing agreement, which was accounted for as a finance lease transaction, the principal balance plus interest for the equipment are to be repaid in full after 36 monthly installments of $7,534 totaling approximately $271,000 through July 2024.

During the twelve months ending December 31, 2021, the Company entered into finance leases for a total capitalized amount of $1.2 million for seven pieces of equipment. Under the terms of the financing agreements, which were accounted for as finance lease transactions, the principal balance plus interest for the equipment are to be paid in installments ranging from 36 to 60 months totaling approximately $1.6 million through March 2026.

Operating Lease

The Company leases its primary laboratory and office facilities in San Diego, California. In accordance with the ASC 842 guidance, the facility lease is classified as an operating lease. From its inception until December 2020, the Company's primary facilities were located at 5810 Nancy Ridge Road in San Diego, California (Nancy Ridge Facility). The average monthly cash payment related to the Company's Nancy Ridge Facility operating lease was approximately $120,000 per month, and the lease term expired on July 31, 2020, but was extended as stated below. The Company recorded a lease right-of-use asset and lease liability related to this lease of $1.9 million and $2.2 million, respectively, as of January 1, 2019, based on the present value of payments and an incremental borrowing rate of 4.5%.

On June 5, 2020, the Company entered into a fifth amendment (the "Amendment") to its lease agreement, dated March 31, 2004, relating to the Nancy Ridge Facility. Pursuant to the Amendment, the expiration date of the Lease was extended from July 31, 2020 to November 30, 2020. The monthly base rent during the extended term was the then current monthly rate paid by the Company. The Company agreed to pay additional rent and all other charges as set forth in the Lease through the expiration date. Pursuant to the extension of the expiration date of the lease, the Company recorded an additional lease right-of-use asset and lease liability of $482,000. In order to allow the Company adequate time to move its operations to its new facility, the Company entered into an additional extension related to the facility extending the lease until December 11, 2020 at the prorated amount of the current rent.

On June 1, 2020, the Company entered into a lease for a 39,000 square foot headquarters, manufacturing and laboratory facility at 9955 Mesa Rim Road in San Diego, California. The lease commenced on December 1, 2020 and is for a term of 127 months from the commencement date. The lease includes a rent abatement period of seven months, from January 2021 through July of 2021, during which period the Company is exempted from paying the amount of base rent of $111,000. In addition, the landlord agreed to pay for certain preapproved leasehold improvement costs through a one-time leasehold improvement allowance of approximately $1.6, million and an additional leasehold improvement allowance of approximately $1.6 million. The amount of additional leasehold improvement allowance of approximately $1.6 million is to be paid back to the landlord during the term of the lease by the Company, amortized at an agreed upon annual rate of 7% as an additional rent payment of approximately $18,000 per month. The average monthly cash payment including payment for the additional leasehold improvement allowance for the lease is approximately $140,000 per month with initial monthly lease payments at $128,000 per month. The Company recorded a lease right-of-use asset and lease liability of $9.8 million and $9.8,million respectively, as of December 31, 2020, based on the present value of payments and an incremental borrowing rate of 12%. As the Company's lease did not provide an implicit rate, the Company estimated the incremental borrowing rate based on the credit quality of the Company and by comparing interest rates available in the market for similar borrowings. In addition, the Company recorded $1.6 million in other current assets related to reimbursable leasehold improvement costs incurred as of December 31, 2020. The landlord reimbursed the Company $1.8 million during the year ended December 31, 2021.

In addition, the Company reviews agreements at inception to determine if they include a lease, and when they do, uses its incremental borrowing rate or implicit interest rate to determine the present value of the future lease payments.

The following schedule sets forth the components of right-of-use lease assets as of December 31, 2020 and 2021 as follows (in thousands):

	December 31, 2020	December 31, 2021
Lease right-of-use assets:		
Operating	$ 9,776	$ 9,026
Finance	2,338	2,842
Total	$ 12,114	$ 11,868

The following schedule sets forth the current portion of operating and finance lease liabilities as of December 31, 2020 and 2021 (in thousands):

	December 31, 2020	December 31, 2021
Current portion of lease liability:		
Operating	$ —	$ 426
Finance	964	1,083
Total	$ 964	$ 1,509

The following schedule sets forth the long-term portion of operating and finance lease liabilities as of December 31, 2020 and 2021 (in thousands):

	December 31, 2020	December 31, 2021
Long-term portion of lease liability:		
Operating	$ 9,805	$ 9,736
Finance	1,460	1,428
Total	$ 11,265	$ 11,164

The following schedule represents the components of lease expense for the years ended December 31, 2020 and 2021 (in thousands):

	December 31, 2020	December 31, 2021
Lease cost		
Finance lease cost		
Amortization of right-of-use assets	$ 694	$ 863
Interest on lease liabilities	228	277
Operating lease cost	1,412	1,656
Total	$ 2,334	$ 2,796

The following schedule sets forth the remaining future minimum lease payments outstanding under finance and operating leases, as well as corresponding remaining sales tax and maintenance obligation payments that are expensed as incurred and due within

each respective year ending December 31, as well as the present value of the total amount of the remaining minimum lease payments, as of December 31, 2021 (in thousands):

	Finance		Operating
	Minimum Lease Payments	Maintenance and Sales Tax Obligation Payments	Minimum Lease Payments
2022	$ 1,144	$ 111	$ 1,586
2023	$ 996	$ 95	$ 1,629
2024	539	61	1,672
2025	188	15	1,715
2026	21	2	1,762
Thereafter	-	-	8,518
Total payments	2,888	284	16,882
Less amount representing interest	(377)	—	(6,721)
Present value of payments	$ 2,511	$ 284	$ 10,161

The following schedule sets forth supplemental cash flow information related to operating and finance leases as of December 31, 2020 and 2021 (in thousands):

	December 31, 2020	December 31, 2021
Other information		
Operating cash flows from finance leases	$ 228	$ 277
Operating cash flows from operating leases	$ 1,512	$ 549
Financing cash flows from finance leases	$ 703	$ 1,150

The aggregate weighted average remaining lease term was 2.7 years on finance leases and 9.5 years on operating leases as of December 31, 2021. The aggregate weighted average discount rate was 16.3% on finance leases and 12.0% on operating leases as of December 31, 2021.

8. Supplier Financings

In 2020 and 2021, the Company obtained third-party financing for certain business insurance premiums. The 2020 and 2021 financings bore interest at rates ranging from 3.57% to 3.70% per annum, and all financings were due within one year. As of December 31, 2020 and 2021 there were no balances outstanding under this arrangement.

9. Stock-Based Compensation

Equity Incentive Plans

The Company has two equity incentive plans: The Amended and Restated 2013 Equity Incentive Plan, or the 2013 Plan, and the 2007 Equity Incentive Plan, or the 2007 Plan. The 2013 Plan includes a provision that shares available for grant under the Company's 2007 Plan become available for issuance under the 2013 Plan and are no longer available for issuance under the 2007 Plan.

At the Company's 2021 annual meeting of stockholders, the Company's stockholders approved amendments to the 2013 Plan, which included an increase in the number of non-inducement shares of common stock authorized for issuance under the 2013 Plan by 1,300,000 shares. In December 2020, the Company's board of directors approved an increase of 750,000 shares in the inducement shares of common stock authorized for issuance under the 2013 Plan. As of December 31, 2021, 762,421 shares of the Company's common stock were authorized exclusively for the issuance of stock awards to employees who have not previously been an employee or director of the Company, except following a bona fide period of non-employment, as an inducement material to the individual's entering into employment with the Company, as defined under applicable Nasdaq Listing Rules.

As of December 31, 2021, under all plans, a total of 3,098,245 shares were authorized for issuance consisting of 2,336,409 non-inducement stock options and 761,836 inducement stock options. As of December 31, 2021, 1,783,789 non-inducement shares and 634,262 inducement shares had been issued and 461,268 non-inducement shares and 173,801 inducement shares were available for grant. Outstanding awards as of December 31, 2021, consisted of 1,825,297 non-inducement shares and 587,897 inducement shares.

Stock Options

Non-performance options granted under either plan vest over a maximum period of four years and expire ten years from the date of grant. Non-performance options generally vest either (i) over four years, 25% on the one-year anniversary of the date of grant and monthly thereafter for the remaining three years; or (ii) over four years, monthly vesting beginning month-one after the grant and monthly thereafter.

The fair value of stock options is determined on the date of grant using the Black-Scholes valuation model. For non-performance awards, such value is recognized as expense over the requisite service period using the straight-line method. The amount and timing of compensation expense recognized for performance awards is based on management's estimate of the most likely outcome and when the achievement of the performance objectives is probable. The determination of the fair value of stock options is affected by the Company's stock price, as well as assumptions regarding a number of complex and subjective variables. The volatility assumption is based on the historical volatility of the Company's common stock over a period of time equal to the expected term of the stock options. The expected term of employee stock options represents the weighted-average period the stock options are expected to remain outstanding. The expected term assumption is estimated based primarily on the options' vesting terms and remaining contractual life and employees' expected exercise and post-vesting employment termination behavior. The risk-free interest rate assumption is based upon observed interest rates on the grant date appropriate for the term of the employee stock options. The dividend yield assumption is based on the expectation of no future dividend payouts by the Company.

The assumptions used in the Black-Scholes pricing model for options granted during the years ended December 31, 2020 and 2021 are as follows:

	2020	2021
Stock and exercise prices	$2.70 - $7.10	3.62 - 6.03
Expected dividend yield	0.00%	0.00%
Discount rate-bond equivalent yield	0.34% - 1.37%	.52 % - 1.15
Expected life (in years)	5.00 - 5.96	5.0 - 5.98
Expected volatility	146% - 171%	163.1 - 173.9%

Using the assumptions described above, with stock and exercise prices being equal on date of grant, the weighted-average estimated fair value of options granted in 2020 and 2021 were approximately $4.31 and $3.78 per share, respectively.

A summary of stock option activity for the years ended December 31, 2020 and 2021 is as follows:

	Number of Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term in Years
Outstanding at 2019	273,418	$ 36.14	9.25
Granted	858,523	$ 4.51	
Exercised	—	—	
Cancelled/forfeited/expired	(53,237)	$ 22.26	
Outstanding at 2020	1,078,704	$ 11.64	9.36
Granted	1,558,510	$ 3.96	
Exercised	(537)	3	
Cancelled/forfeited/expired	(223,483)	$ 7.83	
Outstanding at 2021	2,413,194	$ 7.04	9.06
Vested and unvested expected to vest, 2021	2,367,847	$ 7.10	9.06

The intrinsic values of options outstanding, options exercisable, and options vested and unvested expected to vest at December 31, 2020 and 2021 were $4,714 and $610, respectively.

Restricted Stock

The fair value of RSUs awarded under either plan is determined by the closing price of the Company's common stock on the date of grant. For non-performance RSUs, such value is recognized as expense over the requisite service period, net of estimated forfeitures, using the straight-line method. The amount and timing of compensation expense recognized for RSUs is based on management's estimate of the most likely outcome and when the achievement of the performance objectives is probable. There were no RSUs granted for the year ended December 31, 2021. At December 31, 2021, the intrinsic values of RSUs outstanding was approximately $130 and all of the 36 RSUs outstanding at December 31, 2021 were fully vested.

Stock-based Compensation Expense

The following table presents the effects of stock-based compensation related to equity awards to employees and nonemployees on the statement of operations during the periods presented (in thousands):

	Years Ended December 31,	
	2020	2021
Stock Options		
Cost of revenues	$ 160	$ 598
Research and development expenses	116	231
General and administrative expenses	548	1,266
Sales and marketing expenses	117	367
Total stock-based compensation	$ 941	$ 2,462

As of December 31, 2021, total unrecognized share-based compensation expense related to unvested stock options and RSUs, adjusted for estimated forfeitures, was approximately $7.1million and such amount is expected to be recognized over a weighted-average period of approximately 2.49 years.

10. Common Stock Warrants Outstanding

A summary of equity-classified common stock warrant activity, for warrants other than those underlying unexercised overallotment option warrants, during 2020 and 2021 is as follows:

	Number of Shares		Weighted Average Exercise Price Per Share	Average Remaining Contractual Term in Years
Outstanding at December 31, 2019	2,748,424	$	18.58	4.6
Issued	885,475	$	3.62	
Exercised	(2,634,799)	$	6.74	
Expired	(1,933)	$	1,404.00	
Outstanding at December 31, 2020	997,167	$	35.48	3.3
Issued	—	$	—	
Exercised	(126,330)	$	3.52	
Expired	(13,576)	$	569.89	
Outstanding at December 31, 2021	857,261	$	31.73	2.2

All warrants outstanding at December 31, 2020 and 2021 are exercisable.

Warrants issued in the February 2019 financing transaction have an expiration date of February 12, 2024, warrants issued in the March 2019 transaction have an expiration date of September 19, 2024, warrants issued in the May 2019 inducement offering have an expiration date of December 2, 2024, warrants issued in the December 2019 have an expiration date of December 11, 2024, and warrants issued in the January 2020 inducement offering have an expiration date of July 10, 2025.

The intrinsic value of equity-classified common stock warrants outstanding at December 31, 2020 and 2021 was $243,000 and $16,000, respectively.

11. Net Loss per Common Share

Basic and diluted net loss per common share is determined by dividing net loss applicable to common shareholders by the weighted-average common shares outstanding during the period. Because there is a net loss attributable to common shareholders for the years ended December 31, 2020 and 2021, the outstanding RSUs, warrants, and common stock options have been excluded from the calculation of diluted loss per common share because their effect would be anti-dilutive. Therefore, the weighted-average shares used to calculate both basic and diluted loss per share are the same.

The following potentially dilutive securities have been excluded from the computations of diluted weighted-average shares outstanding for the periods presented, as they would be anti-dilutive:

	December 31, 2020	December 31, 2021
Common warrants outstanding	997,167	857,261
RSUs outstanding	36	36
Convertible preferred stock outstanding (number of common stock equivalents)	46,675	46,541
Common options outstanding	1,078,704	2,413,194
Total anti-dilutive common share equivalents	2,122,582	3,317,032

During the course of the preparation of the December 31, 2020 financial statements the Company noted a clerical error related to the presentation of the three months and nine months ended September 30, 2020 weighted average shares outstanding such that the three months and nine months ended September 30, 2020 weighted average shares outstanding were transposed, resulting in an error in the per share calculation for the three months and nine months ended September 30, 2020.

The impact of the error is presented in the table below (in thousands except for per share data):

	For the three months ended September 30, 2020		For the nine months ended September 30, 2020	
	As reported	Corrected	As reported	Corrected
	(Unaudited)	(Unaudited)	(Unaudited)	(Unaudited)
Net loss attributable to common shareholders	(4,878,334)	(4,878,334)	(19,711,749)	(19,711,749)
Weighted-average shares outstanding used in computing net loss per share attributable to common shareholders:				
Basic	11,324,289	13,333,427	13,333,427	11,324,289
Diluted	11,324,289	13,333,427	13,333,427	11,324,289
Net loss per common share:				
Basic	$ (0.43)	$ (0.37)	$ (1.48)	$ (1.74)
Diluted	$ (0.43)	$ (0.37)	$ (1.48)	$ (1.74)

The Company evaluated the error and determined that it was immaterial to the Company's financial statements for the three and nine months ended September 30, 2020. The Company made the correction to the financial statements for the three and nine months ended September 30, 2020, upon filing the Form 10-Q for the third quarter of 2021.

12. 401(k) Plan

The Company sponsors a 401(k) savings plan for all eligible employees. The Company may make discretionary matching contributions to the plan to be allocated to employee accounts based upon employee deferrals and compensation. During the years ended December 31, 2020 and 2021, the Company made approximately $250,000 and $283,000, respectively, in matching contributions into the savings plan.

13. Income Taxes

For the years ended December 31, 2020 and 2021, the provision for income taxes was calculated as follows (in thousands):

	December 31, 2020	December 31, 2021
Current:		
Federal	$ —	$ —
State	—	125
Total	—	125
Deferred		
Federal	—	—
State	—	—
Total	—	—
Provision for income tax	$ —	$ 125

The following table reconciles income taxes computed at the federal statutory rate and the Company's provision for income taxes (in thousands):

	December 31, 2020	December 31, 2021
Income tax at statutory rate	$ (3,739)	$ (567)
Change in federal tax rate	—	—
State liability	(940)	66
Permanent items	101	278
Stock compensation	94	178
Warrant inducement	441	—
Expiration of net operating losses	912	594
Research and development credit	(370)	(377)
Unrecognized tax benefits	-	2,956
State rate change	(164)	(480)
Estimated section 382 limitation	-	(485)
Return to provision	7	(8)
Other	(875)	28
Valuation allowance	4,533	(2,058)
Provision for income tax	$ —	$ 125

Deferred income taxes are provided for temporary differences in recognizing certain income and expense items for financial and tax reporting purposes. The deferred tax assets consisted primarily of the income tax benefits from accruals, estimated net operating loss carryforwards, and estimated research and development credits. Valuation allowances have been recorded to fully offset deferred tax assets at December 31, 2020 and 2021, as it is more likely than not that the assets will not be utilized.

At December 31, 2020, the Company had estimated federal net operating loss carryforwards of approximately $75.5 million with $61.6 million net operating losses generated in tax years beginning after December 31, 2017 carrying forward indefinitely and may generally be used to offset up to 80% of future taxable income, and total estimated federal net operating loss carryforwards of approximately $13.9 million which will begin to expire in 2022. The Company has additional state net operating losses of $41.5 million with $3.4 million net operating losses generated after December 31, 2017, carrying forward indefinitely and may generally be used to offset up to 80% of future taxable income. The remaining estimated net operating loss carryforwards of approximately $38.1 million will begin to expire in 2027. Additionally, at December 31, 2020, the Company had estimated research and development tax credits of approximately $0.8 million and $0.6 million for federal and California purposes, respectively. The federal research and development tax credits will begin to expire in 2022. The California research and development tax credits do not expire.

For the years ended December 31, 2020 and 2021, the Company has evaluated the various tax positions reflected in its income tax returns for both federal and state jurisdictions, to determine if the Company has any uncertain tax positions on the historical tax returns. The Company recognizes the impact of an uncertain tax position on an income tax return at the largest amount that the relevant taxing authority is more-likely-than not to sustain upon audit. The Company does not recognize uncertain income tax positions if they have less than 50% likelihood of being sustained. Based on this assessment, the Company believes there are tax positions for which a liability for unrecognized tax benefits should be recorded as of December 31, 2020 and 2021. The following table summarizes the activity related to our gross unrecognized tax benefits:

	December 31, 2020	December 31, 2021
Current:		
Balance at the beginning of the year	$ —	$ —
Adjustments related to prior year tax positions	—	3,640
Increases related to current year tax positions	—	39
Decreases for tax positions from prior years	—	—
Provision for income tax	$ —	$ 3,679

The Company is subject to U.S. federal income tax as well as income tax in multiple state jurisdictions. With few exceptions, the Company is no longer subject to U.S. federal income tax examinations for tax years ending on or before December 31, 2016, and state and local income tax examinations for tax periods ending on or before December 31, 2000. However, to the extent allowed by law, the tax authorities may have the right to examine prior periods where net operating losses were generated and carried forward and make adjustments up to the amount of the net operating loss carryforward amount. The Company's policy is to recognize interest and penalties related to income tax matters in income tax expense. Due to the existence of the valuation allowance, future changes in unrecognized tax benefits will not impact the Company's effective tax rate. The Company is currently not under examination by any taxing authorities and does not believe its unrecognized tax benefits will significantly change in the next twelve months.

The tax effects of carryforwards and other temporary differences that give rise to deferred tax assets consist of the following (in thousands):

	For the year ended December 31,	
	2020	2021
Estimated net operating loss carryforward	$ 18,673	$ 18,482
Estimated research and development credits	3,689	1,026
Accruals and other	1,824	2,516
Operating lease liability	2,394	2,821
Fixed assets	660	368
Stock based compensation	860	1,164
	28,100	26,377
Right-of-use asset	(2,958)	(3,295)
Gross deferred tax liabilities	(2,958)	(3,295)
Less valuation allowance	(25,142)	(23,082)
Net deferred tax assets	$ —	$ —

Utilization of the estimated domestic net operating loss and research and development tax credit carryforwards may be subject to a substantial annual limitation due to ownership change limitations that may have occurred or that could occur in the future, as required by Sections 382 and 383 of the Code, as well as similar state provisions. These ownership changes may limit the amount of estimated net operating loss and research and development credit carryforwards that can be utilized annually to offset future taxable income and tax, respectively. In general, an "ownership change" as defined by Section 382 of the Code results from a transaction or series of transactions over a three-year period resulting in an ownership change of more than 50 percentage points by value of the outstanding stock of a company by certain stockholders. Since the Company's formation, the Company has raised capital through the issuance of capital stock on several occasions which on its own or combined with the purchasing stockholders' subsequent disposition of those shares, likely resulted in such an ownership change, or could result in an ownership change in the future.

Upon the occurrence of an ownership change under Sections 382 and 383 of the Code as outlined above, utilization of the estimated net operating loss and research and development credit carryforwards are subject to an annual limitation, which is determined by first multiplying the value of the Company's stock at the time of the ownership change by the applicable long-term, tax-exempt rate, which could be subject to additional adjustments, as required. Any limitation may result in expiration of

a portion of the estimated net operating loss or research and development tax credit carryforwards before utilization. The Company has not yet completed an analysis to determine whether an ownership change has occurred, however, the Company believes multiple ownership changes have likely occurred. As a result, the Company has estimated that the use of its net operating loss carryforwards is limited and has disclosed in the table above only the amounts it estimates could be used in the future, which remain fully offset by a valuation allowance to reduce the net asset to zero.

14. Related Party Transactions

A member of the Company's management is the controlling person of Aegea Biotechnologies, Inc., or Aegea. On September 2, 2012, the Company entered into an Assignment and Exclusive Cross-License Agreement, or the Cross-License Agreement, with Aegea. The Company received payments totaling approximately $36,000 and $49,000 during the years ended December 31, 2020 and 2021, respectively, from Aegea as reimbursements for shared patent costs under the Cross-License Agreement. On December 11, 2019, the Company entered into a First Amendment to the Assignment and Exclusive Cross-License Agreement with Aegea pursuant to which the Company obtained a royalty bearing license for a certain patent. The Company agreed to pay Aegea, effective January 1, 2019, a royalty of 10% on Biocept's sale of research use only, or RUO, and import research use only reagents and kits in the field of oncology, where the sample types are tissue, whole blood, bone marrow, cerebrospinal fluid or derivatives of any of the foregoing. As of December 31, 2020, the Company has accrued approximately $3,000 and as of December 31, 2021, no royalties have been accrued related to this arrangement. On June 3, 2020, the Company entered into a development agreement with Aegea focused on the co-development by Biocept and Aegea of a highly sensitive PCR-based assay designed by Aegea for detecting the COVID-19 virus. Pursuant to the agreement, the Company receives compensation for development services performed based on time and materials expended. The development agreement was completed in October 2021. During the year ended December 31, 2021, the Company recorded revenues of approximately $68,000 and had approximately $8,000 accounts receivable due from Aegea as of December 31, 2021, related to this agreement.

15. Commitments and Contingencies

Purchase Commitment

In February 2016, the Company signed a firm, non-cancelable, and unconditional commitment in an aggregate amount of $1.1 million with a vendor to purchase certain inventory items, payable in minimum quarterly amounts of $62,500 through May 2020. At December 31, 2020 and 2021, there were no outstanding amounts.

Financed Equipment Maintenance and Sales Tax Obligations

During the years ended December 31, 2020 and 2021, total expense recorded in the Company's statement of operations and comprehensive loss for sales tax and maintenance obligations associated with finance lease arrangements was approximately $129,000 and $130,000, respectively. At December 31, 2020 and 2021, approximately $77,000 and $81,000 of such sales tax and maintenance obligations incurred but not paid were recorded in accrued other liabilities in the Company's balance sheet (see Note 6). Future payments totaling $0.3 million for sales tax and maintenance obligations associated with financed equipment were due under equipment financing arrangements as of December 31, 2021, which will be expensed as incurred (see Note 7).

Legal Proceedings

In the normal course of business, the Company may be involved in legal proceedings or threatened legal proceedings. The Company is not party to any formal legal proceedings which are expected to have a material adverse effect on its financial condition, results of operations or liquidity.

The Company is currently in discussions with a former employee and certain current employees regarding disputed claims for certain sales commissions. The Company is not in agreement with their interpretations or claims and are unable to predict the outcome of this matter. In addition, at this time we cannot reasonably estimate any amount or range of potential expense associated with this matter.

16. Subsequent Events

On February 15, 2022, the Company's former President and Chief Executive Officer, Michael Nall, and the Company's former Chief Financial Officer and Chief Operating Officer, Timothy Kennedy, resigned from all positions with the Company. In

connection with their resignations, the Company entered into separation agreements with each of them pursuant to which, in exchange for a release of claims, the Company agreed to provide these individuals with the severance benefits they would have been entitled to receive under their respective employment agreements in the event of a termination without cause. Total severance payments to be made during the year ending December 31, 2022 will be approximately $0.8 million.

Effective at the close of business on February 15, 2022, the Board appointed Samuel D. Riccitelli, to serve as the Company's Interim President and Chief Executive Officer and Antonino Morales as the Company's Interim Chief Financial Officer and Secretary.

In connection with Mr. Riccitelli's appointment, the Company entered into an employment offer letter with Mr. Riccitelli that governs the current terms of his employment with the Company. The employment offer letter provides that Mr. Riccitelli will receive an annual base salary of $570,000 and a sign on bonus of $30,000 and will be eligible to receive an annual performance bonus with a target bonus percentage equal to 50% of his base salary. The employment offer letter also provides that the Company will grant Mr. Riccitelli an option to purchase 250,000 shares of the Company's common stock. In addition, Mr. Riccitelli is entitled to severance benefits upon a termination without cause or resignation for good reason ("Involuntary Termination"), including continued payment of base salary for six months and payment of his group health insurance premiums for up to six months. In addition, if Mr. Riccitelli's employment is subject to an Involuntary Termination within one month prior to or 12 months following a change in control, then he will be entitled to receive continued payment of base salary for 12 months, payment of his group health insurance premiums for up to 12 months, a pro-rated annual performance bonus and full accelerated vesting of any unvested equity awards. Mr. Riccitelli may also be entitled to receive tax gross up payments in the event any payments made in connection with a change in control are subject to the excise taxes imposed by Sections 280G and 4999 of the Internal Revenue Code.

In connection with Mr. Morales appointment, the Company entered into an employment offer letter with Mr. Morales that governs the current terms of his employment with the Company. The employment offer letter provides that Mr. Morales will receive an annual base salary of $400,000 and will be eligible to receive an annual performance bonus with a target bonus percentage equal to 40% of his base salary. The employment offer letter also provides that the Company will grant Mr. Morales an option to purchase 150,000 shares of the Company's common stock. In addition, Mr. Morales is entitled to severance benefits upon an Involuntary Termination, including continued payment of base salary for six months and payment of his group health insurance premiums for up to six months. In addition, if Mr. Morales's employment is subject to an Involuntary Termination within one month prior to or 12 months following a change in control, then he will be entitled to receive continued payment of base salary for 12 months, payment of his group health insurance premiums for up to 12 months, a pro-rated annual performance bonus and full accelerated vesting of any unvested equity awards. Mr. Morales may also be entitled to receive tax gross up payments in the event any payments made in connection with a change in control are subject to the excise taxes imposed by Sections 280G and 4999 of the Internal Revenue Code.

In February and March 2022, the Company's board of directors approved increases in the number of shares of common stock authorized for issuance pursuant to inducement awards under the 2013 Plan, resulting in an aggregate increase of 1,500,000 shares.

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

Not applicable.

Item 9A. Controls and Procedures.

Disclosure Controls and Procedures

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

We carried out an evaluation, under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, of the effectiveness of the design and operation of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, as of December 31, 2021, the end of the period covered by this report. Based on this evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were not effective at the reasonable assurance level as of December 31, 2021 due to the material weaknesses in internal control over financial reporting described below.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). Because of its inherent limitations, internal control over financial reporting may not prevent or detect all misstatements. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation.

Following the original issuance of our financial statements for the three and nine months ended September 30, 2021 included in our quarterly report on Form 10-Q, filed with the SEC on November 15, 2021 (the "Original September 30, 2021 Financial Statements"), we discovered that we had failed to accrue for, and reflect in the Original September 30, 2021 Financial Statements, certain expenses incurred during the third quarter of 2021 in the amount of approximately $1.1 million. This resulted in the restating of our financial statements as of for the nine months ended September 30, 2021. We determined that our review control over the completeness and accuracy of our accounts payable did not operate effectively, resulting in a material error in the Original September 20, 2021 Financial Statements.

We conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in Internal Control—Integrated Framework (2013 Framework) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation under the framework in Internal Control—Integrated Framework, our management concluded that our internal control over financial reporting was not effective as of December 31, 2021 based on the material weaknesses described below.

- The operating effectiveness of our internal controls to timely identify and report all of our outstanding invoices and potential unrecorded liabilities.
- The operating effectiveness of our internal controls to determine certain estimates and the timely review of such estimates.

A material weakness, as defined in Rule 12b-2 under the Exchange Act, is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of a company's annual or interim financial statements will not be prevented or detected on a timely basis.

This annual report does not include an attestation report of our independent registered public accounting firm regarding internal control over financial reporting. Our report was not subject to attestation by our independent registered public accounting firm pursuant to the rules of the Securities and Exchange Commission that permit us to provide only management's report in this report.

Changes in Internal Control Over Financial Reporting

An evaluation was also performed under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, of any change in our internal control over financial reporting that occurred during our last fiscal quarter and that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. That evaluation did not identify any changes in our internal control over financial reporting that occurred during the three months ended December 31, 2021 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Remediation Actions to Date

In the first quarter of 2022, we implemented certain improvements to our internal control and financial reporting processes to address the material weaknesses identified above. These improvements include the following:

- Management has engaged a "Big Four" accounting firm under an advisory engagement to be conducted under the AICPA Standards for Consulting Services to assist management with their internal controls review.

We are committed to maintaining a strong internal control environment and implementing measures to ensure that the control deficiencies identified above are remediated as soon as possible. Management is in the process of implementing a remediation plan, which includes steps to design and implement new controls and expand the review of any potential unrecorded liabilities.

Although we have implemented certain aspects of our remediation plan, we do not believe that the applicable remedial controls have operated for a sufficient period of time or number of occurrences to allow for sufficient testing to determine the controls' operating effectiveness nor do we believe our remediation plan has been fully implemented.

The remediation actions are being monitored by the Audit Committee of our Board of Directors.

Item 9B. Other Information.

Not applicable.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

The information required by this item and not set forth below will be set forth in the sections entitled "Election of Directors" and "Executive Officers" in our Proxy Statement for our 2022 Annual Meeting of Stockholders, or Proxy Statement, to be filed with the SEC no later than May 2, 2022, and is incorporated herein by reference.

We have adopted a code of ethics that applies to our Chief Executive Officer and other senior financial officers (our Chief Financial Officer, Controller and other senior financial officers performing similar functions), which we refer to as the Code of Business Conduct and Ethics. The Code of Business Conduct and Ethics is available on our website at www.biocept.com under the Corporate Governance section of the Investor Relations portion of the website. Our Code of Business Conduct and Ethics is designed to meet the requirements of Section 406 of Regulation S-K and the rules promulgated thereunder. We will promptly disclose on our website (i) the nature of any amendment to the Code of Business Conduct and Ethics that applies to any covered person, and (ii) the nature of any waiver, including an implicit waiver, from a provision of the Code of Business Conduct and Ethics that is granted to one of the covered persons.

Item 11. Executive Compensation.

The information required by this item will be set forth in the sections entitled "Executive Compensation" and "Director Compensation" in our Proxy Statement and is incorporated herein by reference.

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

The information required by this item will be set forth in the sections entitled "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plan Information" in our Proxy Statement and is incorporated herein by reference.

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

The information required by this item will be set forth in the sections entitled "Transactions with Related Persons," "Corporate Governance—Director Independence" and "Corporate Governance—Board Committees" in our Proxy Statement and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services.

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

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(a) The following documents are filed as part of this Report:

1. *Financial Statements*. The following documents are included in Part II, Item 8 of this Report and are incorporated by reference herein:

2. *Financial Statement Schedules*.

Not required.

3. *Exhibits*.

EXHIBITS

Exhibit No.	Description of Exhibit
3.1	Amended and Restated Certificate of Incorporation, as amended by a Certificate of Amendment thereto (incorporated by reference to Exhibit 3.1.4 of the Registrant's Current Report on Form 8-K, filed with the SEC on February 14, 2014).
3.2	Certificate of Amendment of Certificate of Incorporation (incorporated by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on September 29, 2016).
3.3	Certificate of Amendment to Certificate of Incorporation (incorporated by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on July 6, 2018).
3.4	Certificate of Amendment to Certificate of Incorporation (incorporated by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on September 4, 2020).
3.5	Certificate of Designation of Preferences, Rights and Limitations of Series A Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on August 13, 2018).
3.6	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2.1 of the Registrant's Registration Statement on Form S-1 (File No. 333-191323), filed with the SEC on September 23, 2013).
3.7	Amendment to Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on September 29, 2017).
3.8	Second Amendment to Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on March 24, 2022).
4.1	Reference is made to Exhibits 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7. and 3.8
4.2	Specimen Common Stock Certificate of the Registrant (incorporated by reference to Exhibit 4.2 of the Registrant's Quarterly Report on Form 10-Q, filed with the SEC on November 16, 2020).
4.3	Description of Common Stock.
4.4	Form of Warrant issued to the lenders under the Loan and Security Agreement, dated as of April 30, 2014, by and among Biocept, Inc., Oxford Finance LLC, as collateral agent, and the lenders party thereto from time to time, including Oxford Finance LLC (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on May 6, 2014).
4.5	Form of Common Stock Purchase Warrant issued to the investors under the Securities Purchase Agreement, dated March 28, 2017, by and among Biocept, Inc. and the purchasers signatory thereto (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on March 30, 2017).
4.6	Common Stock Purchase Warrant issued by the Registrant in favor of Ally Bridge LB Healthcare Master Fund Limited under the Common Stock and Warrant Purchase Agreement dated August 9, 2017 (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on August 10, 2017).
4.7	Common Stock Purchase Warrant issued in favor of Dawson James Securities, Inc. under the Securities Purchase Agreement dated December 5, 2017 (incorporated by reference to Exhibit 4.18 of the Registrant's Registration Statement on Form S-1 (File No. 333-221648), as amended, filed with the SEC on January 22, 2018).
4.8	Form of Warrant to Purchase Common Stock issued to the investors under the Securities Purchase Agreement, dated January 26, 2018 (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on January 30, 2018).
4.9	Warrant Agency Agreement dated August 13, 2018 by and between the Registrant and Continental Stock Transfer & Trust Company (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on August 13, 2018).
4.10	Form of Series A Common Stock Purchase Warrant (incorporated by reference to Exhibit 3.6 of the Registrant's Registration Statement on Form S-1 (File No. 333-225147), as amended, filed with the SEC on July 11, 2018).
4.11	Form of Series A Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.2 of the Registrant's Current Report on Form 8-K, filed with the SEC on September 24, 2018).

Exhibit No.	Description of Exhibit
4.12	Form of Series B Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.24 of the Registrant's Registration Statement on Form S-1 (File No. 333-228566), filed with the SEC on November 28, 2018).
4.13	Form of Series B Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on March 18, 2019).
4.14	Form of Series C Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on May 29, 2019).
4.15	Form of Common Stock Warrant (incorporated by reference to Exhibit 4.19 of the Registrant's Registration Statement on Form S-1 (File No. 333-234459), as amended, filed with the SEC on December 6, 2019).
4.16	Form of Common Stock Warrant (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on December 11, 2019).
4.17	Form of Warrant Amendment (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on January 9, 2020).
4.18	Form of Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.2 of the Registrant's Current Report on Form 8-K, filed with the SEC on January 9, 2020).
10.1+	2007 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 of the Registrant's Registration Statement on Form S-1 (File No. 333-191323), filed with the SEC on September 23, 2013).
10.2+	Form of Stock Option Grant Notice and Option Agreement under 2007 Equity Incentive Plan (incorporated by reference to Exhibit 10.1.1 of the Registrant's Registration Statement on Form S-1 (File No. 333-191323), filed with the SEC on September 23, 2013).
10.3+	Form of Restricted Stock Unit Grant Notice and Restricted Stock Unit Agreement under 2007 Equity Incentive Plan (incorporated by reference to Exhibit 10.1.2 of the Registrant's Registration Statement on Form S-1 (File No. 333-191323), filed with the SEC on September 23, 2013).
10.4+	Form of Indemnification Agreement between the Registrant and its officers and directors (incorporated by reference to Exhibit 10.3 of the Registrant's Registration Statement on Form S-1 (File No. 333-191323), filed with the SEC on September 23, 2013).
10.5+	Form of Indemnity Agreement between Biocept, Inc., a California corporation, and its officers and directors (incorporated by reference to Exhibit 10.4 of the Registrant's Registration Statement on Form S-1 (File No. 333-191323), filed with the SEC on September 23, 2013).
10.6	Assignment and Exclusive Cross-License Agreement between the Registrant and Aegea Biotechnologies, Inc. dated June 2, 2012 (incorporated by reference to Exhibit 10.22 of the Registrant's Registration Statement on Form S-1 (File No. 333-191323), as amended, filed with the SEC on January 30, 2014).
10.7+	2014 Annual Incentive Plan (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q, filed with the SEC on August 8, 2014).
10.8+	Biocept, Inc. Amended and Restated 2013 Equity Incentive Plan, Form of Stock Option Grant Notice, Option Agreement, Form of Restricted Stock Unit Grant Notice and Restricted Stock Unit agreement for use thereunder, as amended.
10.9	Form of Warrant Exercise Agreement, dated May 28, 2019, by and between the Registrant and certain holders of warrants to purchase shares of the Registrant's common stock (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on May 29, 2019).
10.10	Form of Amendment to Warrant Exercise Agreement, dated July 15, 2019, by and between the Registrant and certain holders of warrants to purchase shares of the Registrant's common stock (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K, filed with the SEC on July 18, 2019).

Exhibit No.	Description of Exhibit
10.11+	First Amendment to Employment Agreement between the Registrant and Michael Terry, dated September 11, 2018 (incorporated by reference to Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q, filed with the SEC on August 13, 2020).
10.12	Lease Agreement, dated June 1, 2020, by and between Registrant and 9955 Mesa Rim A DE LLC (incorporated by reference to Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q, filed with the SEC on August 13, 2020).
10.13+	Employment Agreement between the Registrant and Michael C. Dugan, M.D., dated August 10, 2020 (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q, filed with the SEC on November 16, 2020).
10.14	Controlled Equity OfferingSM Sales Agreement, dated May 12, 2021, by and between the Registrant and Cantor Fitzgerald & Co. (incorporated by reference to Exhibit 1.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on May 12, 2021).
10.15+	Employment Agreement, dated December 27, 2021, by and between the Registrant and Darrell Taylor, as amended.
10.16	Biocept, Inc. Non-Employee Director Compensation Policy, as amended.
10.17+	Employment Offer Letter, dated February 15, 2022, by and between the Registrant and Samuel D. Riccitelli (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on February 16, 2022).
10.18+	Employment Offer Letter, dated February 15, 2022, by and between the Registrant and Antonino Morales (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K, filed with the SEC on February 16, 2022).
10.19+	Separation Agreement, dated February 15, 2022, by and between the Registrant and Michael W. Nall.
10.20+	Separation Agreement, dated February 15, 2022, by and between the Registrant and Timothy Kennedy.
10.21+	Employment Offer Letter, dated March 4, 2022, by and between the Registrant and Philippe Marchand, Ph.D. (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on March 8, 2022).
23.1	Consent of Mayer Hoffman McCann P.C.
31.1	Certification of Samuel D. Riccitelli, Chief Executive Officer, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Antonino Morales, Chief Financial Officer, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1*	Certification of Samuel D. Riccitelli, Chief Executive Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2*	Certification of Antonino Morales, Chief Financial Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	Inline XBRL Taxonomy Extension Schema Document
101.SCH	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.CAL	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Label Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Presentation Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interact File (formatted as inline XBRL and contained in Exhibit 101)

+ Indicates management contract or compensatory plan.

* This certification is not deemed "filed" for purposes of Section 18 of the Securities Exchange Act, or otherwise subject to the liability of that section. Such certification will not be deemed to be incorporated by reference into any filing under

the Securities Act of 1933 or the Securities Exchange Act of 1934, except to the extent that the registrant specifically incorporates it by reference.

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.

BIOCEPT, INC.

Date: April 5, 2022

By: /s/ Samuel D. Riccitelli
Samuel D. Riccitelli
Interim Chief Executive Officer

KNOW ALL BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Samuel D. Riccitelli and Antonino Morales, and each and either of them, his or her true and lawful agent, proxy and attorney-in-fact, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any 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 their substitute or substitutes may do or cause to be done by virtue hereof.

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

Signature	Title	Date
/s/ Samuel D. Riccitelli Samuel D. Riccitelli	Interim Chief Executive Officer, President, Chair and Director (Principal Executive Officer)	April 5, 2022
/s/ Antonino Morales Antonino Morales	Interim Chief Financial Officer and Director (Principal Financial Officer and Principal Accounting Officer)	April 5, 2022
/s/ M. Faye Wilson M. Faye Wilson	Director	April 5, 2022
/s/ Marsha A. Chandler Marsha A. Chandler	Director	April 5, 2022
/s/ Bruce E. Gerhardt Bruce E. Gerhardt	Director	April 5, 2022
/s/ David F. Hale David F. Hale	Director	April 5, 2022
/s/ Ivor Royston Ivor Royston	Director	April 5, 2022
/s/ Linda Rubinstein Linda Rubinstein	Director	April 5, 2022

DESCRIPTION OF COMMON STOCK

General

The following description summarizes the material terms of our common stock. Because it is only a summary, it does not contain all the information that may be important to you. For a complete description of the matters set forth in this "Description of Common Stock," you should refer to our amended and restated certificate of incorporation, as amended (the "Restated Certificate"), and amended and restated bylaws, as amended (the "Restated Bylaws"), which are included as exhibits to our Annual Report on Form 10-K (the "Annual Report"), and to the applicable provisions of Delaware law. Our authorized capital stock consists of 150,000,000 shares of common stock, par value $0.0001 per share, and 5,000,000 shares of preferred stock, par value $0.0001 per share. Our board of directors has the authority, without stockholder approval, except as required by the listing standards of The Nasdaq Stock Market LLC, to issue additional shares of our capital stock. In addition, our board of directors has the authority, without further action by our stockholders, to designate the rights, preferences, privileges, qualifications and restrictions of our preferred stock in one or more series.

Our board of directors has designated 2,106 shares of preferred stock as Series A Convertible Preferred Stock (the "Series A Preferred Stock"), 2,106 shares of which are issued and outstanding as of the date of the Annual Report. Each share of Series A Preferred Stock is convertible into the number of shares of our common stock determined by dividing the $1,000 stated value per share of the Series A Preferred Stock by the current as adjusted conversion price of $45.30 per share at the election of the holder, subject to proportional adjustment and beneficial ownership limitations as provided in the Certificate of Designation of Preferences, Rights and Limitations of Series Convertible Preferred Stock.

Voting Rights

Holders of our common stock are entitled to one vote per share in the election of directors and on all other matters on which stockholders are entitled or permitted to vote. Holders of our common stock are not entitled to cumulative voting rights.

Dividend Rights

Subject to the terms of any then outstanding series of preferred stock, the holders of our common stock are entitled to dividends in the amounts and at times as may be declared by our board of directors out of funds legally available therefor. Holders of Series A Preferred are entitled to receive dividends on shares of Series A Preferred Stock equal (on an as-converted to common stock basis) to and in the same form as dividends actually paid on our common stock.

Liquidation Rights

Upon liquidation or dissolution, holders of our common stock and holders of Series A Preferred Stock are entitled to share ratably (on an as-converted to common stock basis) in all net assets available for distribution to stockholders after we have paid, or provided for payment of, all of our debts and liabilities, and after payment of any liquidation preferences to holders of any then outstanding shares of preferred stock.

Other Matters

Holders of our common stock have no redemption, conversion or preemptive rights pursuant to the Restated Certificate or the Restated Bylaws. There are no sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to the rights of the holders of shares of any series of preferred stock that we may issue in the future.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Continental Stock Transfer & Trust Company.

Stock Exchange Listing

Our common stock is listed on The Nasdaq Capital Market under the symbol "BIOC."

Anti-Takeover Provisions

Delaware Anti-Takeover Law

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

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

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

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

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

Restated Certificate and Restated Bylaws Provisions

Provisions of the Restated Certificate and the Restated Bylaws may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock. Among other things, the Restated Certificate and the Restated Bylaws provide that:

- our board of directors is classified into three classes of equal (or roughly equal) size, with all directors serving for a three-year term and the directors of only one class being elected at each annual meeting of stockholders, so that the terms of the classes of directors are "staggered";

- the authorized number of directors can be changed only by resolution of our board of directors;

- our Restated Bylaws may be amended or repealed by our board of directors or our stockholders;

- no action can be taken by stockholders except at an annual or special meeting of the stockholders called in accordance with the Restated Bylaws, and stockholders may not act by written consent, unless the stockholders amend the Restated Certificate to provide otherwise;

- stockholders may not call special meetings of the stockholders or fill vacancies on the board;

- our board of directors will be authorized to issue, without stockholder approval, preferred stock, the rights of which will be determined at the discretion of the board of directors and that, if issued, could operate as a "poison pill" to dilute the stock ownership of a potential hostile acquirer to prevent an acquisition that our board of directors does not approve;

- our stockholders do not have cumulative voting rights, and therefore our stockholders holding a majority of the shares of common stock outstanding will be able to elect all of our directors; and

- our stockholders must comply with advance notice provisions to bring business before or nominate directors for election at a stockholder meeting.

Potential Effects of Authorized but Unissued Stock

We have shares of common stock and preferred stock available for future issuance without stockholder approval. We may utilize these additional shares for a variety of corporate purposes, including future public offerings to raise additional capital, to facilitate corporate acquisitions or payment as a dividend on the capital stock.

The existence of unissued and unreserved common stock and preferred stock may enable our board of directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could render more difficult or discourage a third-party attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise, thereby protecting the continuity of our management. In addition, the board of directors has the discretion to determine designations, rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences of each series of preferred stock, all to the fullest extent permissible under the DGCL and subject to any limitations set forth in our certificate of incorporation. The purpose of authorizing the board of directors to issue preferred stock and to determine the rights and preferences applicable to such preferred stock is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing desirable flexibility in connection with possible financings, acquisitions and other corporate purposes, could have the effect of making it more difficult for a third-party to acquire, or could discourage a third-party from acquiring, a majority of our outstanding voting stock. The issuance of preferred stock could adversely affect the voting power of holders of common stock and reduce the likelihood that common stockholders will receive dividend payments and payments upon liquidation. The issuance could also have the effect of decreasing the market price of our common stock.

Choice of Forum

Our Restated Bylaws provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, another state court located within the State of Delaware or, if no state court located within the State of Delaware has jurisdiction, the federal district court for the District of Delaware) shall, to the fullest extent permitted by law, be the sole and exclusive forum for (a) any derivative action or proceeding brought on our behalf, (b) any action asserting a claim of

breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (c) any action asserting a claim arising pursuant to any provision of the DGCL, the Restated Certificate or the Restated Bylaws, or (d) any action asserting a claim governed by the internal affairs doctrine, in all cases to the fullest extent permitted by law and subject to the court's having personal jurisdiction over the indispensable parties named as defendants. This choice of forum provision does not apply to suits brought to enforce a duty or liability created by the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, or any other claim for which the federal courts have exclusive jurisdiction.

Exhibit 10.8

BIOCEPT, INC. AMENDED AND RESTATED 2013 EQUITY INCENTIVE PLAN

Adopted by the Board of Directors: July 31, 2013
Approved by the Stockholders: August 6, 2013
Amended and Restated by the Board of Directors: April 28, 2015
Approved by the Stockholders: June 16, 2015
Amended by the Board: July 25, 2016
Amended by the Board: March 27, 2017
Approved by the Stockholders: May 2, 2017
Amended by the Board: May 7, 2018
Approved by the Stockholders: June 28, 2018
Amended by the Board: March 25, 2019
Approved by the Stockholders: June 17, 2019
Amended by the Board: March 30, 2020
Approved by the Stockholders: June 5, 2020
Amended by the Board: April 28, 2021
Approved by the Stockholders: July 16, 2021
Amended by the Board: February 14, 2022
Amended by the Board: March 22, 2022

1. General.

1.1 **Plan History**. The name of this plan is the Biocept, Inc. Amended and Restated 2013 Equity Incentive Plan, as it may be amended from time to time (the "***Plan***"). The Plan was originally adopted by the Board and stockholders of the Company on July 31, 2013 and August 6, 2013, respectively. The Plan was amended and restated effective June 16, 2015, the date the amendment and restatement of the Plan was approved by the Company's stockholders at the Company's 2015 Annual Meeting (the "***Initial Amendment and Restatement Effective Date***"). The Plan was further amended and restated effective May 2, 2017, the date the amendment and restatement of the Plan was approved by the Company's stockholders at the Company's 2017 Annual Meeting. The Plan was further amended and restated effective June 28, 2018, the date the amendment and restatement of the Plan was approved by the Company's stockholders at the Company's 2018 Annual Meeting. The Plan was further amended and restated effective June 17, 2019, the date the amendment and restatement of the Plan was approved by the Company's stockholders at the Company's 2019 Annual Meeting. The Plan was further amended and restated effective June 5, 2020, the date the amendment and restatement of the Plan was approved by the Company's stockholders at the Company's 2020 Annual Meeting. The Plan was further amended and restated effective April 28, 2021 by the Company's Board of Directors, contingent on approval by the Company's stockholders at the Company's 2021 Annual Meeting (the "***Amendment and Restatement Effective Date***"). As of the Initial Amendment and Restatement Effective Date, the Plan became the successor to and continuation of the Biocept, Inc. 2007 Equity Incentive Plan (the "***2007 Plan***"). From and after the Initial Amendment and Restatement Effective Date, no additional stock awards will be granted under the 2007 Plan, however outstanding stock awards granted under the 2007 Plan will remain subject to the terms of the 2007 Plan. Any shares of Common Stock that would otherwise remain available for future grants of stock awards under the 2007 Plan as of the Initial Amendment and Restatement Effective Date (the "***2007 Plan Available Reserve***") will cease to be available under the 2007 Plan at such time and will be added to the Share Reserve (as further described in Section 4.1 below) and be immediately available for grants and issuance pursuant to Awards hereunder. In addition, from and after the Initial Amendment and Restatement Effective Date, any shares subject, at such time, to outstanding stock awards that were granted under the 2007 Plan (the "***2007 Plan Awards***") will be added to the Share Reserve at such time and to the extent described in Section 4.1 and 4.3 below.

1.2 **General Purpose**. The purposes of the Plan are to (a) enable the Company to attract and retain the types of Employees, Consultants and Directors who will contribute to the Company's long range success; (b) provide incentives that align the interests of Employees, Consultants and Directors with those of the stockholders of the Company; (c) promote the success of the Company's business; and (d) with respect to Inducement Awards, provide an inducement material for certain individuals to enter into employment with the Company within the meaning of Rule 5635(c)(4) of the Nasdaq Listing Rules.

1.3 **Eligible Award Recipients**. The persons eligible to receive Awards are the Employees, Consultants and Directors. Notwithstanding the foregoing, the only persons eligible to receive grants of Inducement Awards under this Plan are individuals who satisfy the standards for inducement grants under Nasdaq Marketplace Rule 5635(c)(4) and the related guidance under Nasdaq IM 5635-1. A person who previously served as an Employee or Director will not be eligible to receive Inducement Awards under the Plan, other than following a bona fide period of non-employment.

1.4 **Available Awards**. Awards that may be granted under the Plan include: (a) Incentive Stock Options, (b) Non-qualified Stock Options, (c) Stock Appreciation Rights, (d) Restricted Awards and (e) Performance Compensation Awards. Notwithstanding the foregoing, Inducement Awards that may be granted under the Plan may include: (i) Non-qualified Stock Options, (ii) Stock Appreciation Rights, and (iii) Restricted Awards.

2. **DEFINITIONS**.

"***2007 Plan Available Reserve***" means the shares of Common Stock that remain available for future grants of stock awards under the 2007 Plan as of the Initial Amendment and Restatement Effective Date.

"***2007 Plan Award***" means a stock award that was granted under the 2007 Plan and that is outstanding as of the Initial Amendment and Restatement Effective Date.

"***Affiliate***" means a corporation or other entity that, directly or through one or more intermediaries, controls, is controlled by or is under common control with, the Company.

"***Amendment and Restatement Effective Date***" means July 16, 2021, the date the amendments and restatements to the Plan of April 28, 2021 are subject to approval by the Company's stockholders at the Company's 2018 Annual Meeting.

"***Applicable Laws***" means the requirements related to or implicated by the administration of the Plan under applicable state corporate law, United States federal and state securities laws, the Code, any securities exchange or quotation system on which the shares of Common Stock are listed or quoted, and the applicable laws of any foreign country or jurisdiction where Awards are granted under the Plan.

"***Award***" means any right granted under the Plan, including an Incentive Stock Option, a Non-qualified Stock Option, a Stock Appreciation Right, a Restricted Award, or a Performance Compensation Award.

"***Award Agreement***" means a written agreement, contract, certificate or other instrument or document evidencing the terms and conditions of an individual Award granted under the Plan which may, in the discretion of the Company, be transmitted electronically to any Participant. Each Award Agreement shall be subject to the terms and conditions of the Plan.

"***Beneficial Owner***" has the meaning assigned to such term in Rule 13d-3 and Rule 13d-5 under the Exchange Act, except that in calculating the beneficial ownership of any particular Person, such Person shall be deemed to have beneficial ownership of all securities that such Person has the right to acquire by conversion or exercise of other securities, whether such right is currently exercisable or is exercisable only after the passage of any length of time. The terms "***Beneficially Owns***" and "***Beneficially Owned***" have a corresponding meaning.

"***Board***" means the Board of Directors of the Company, as constituted at any time.

"***Cause***" means, with respect to any Employee or Consultant: (a) If the Employee or Consultant is a party to an employment or service agreement with the Company or its Affiliates and such agreement provides for a definition of Cause, the definition contained therein; or (b) If no such agreement exists, or if such agreement does not define Cause: (i) the conviction of or plea of guilty or no contest to, a felony or a crime involving moral turpitude; (ii) the commission of a felony or a crime involving moral turpitude for which charges have been filed or the circumstances of which are such that, if sufficient admissible evidence of guilt were available to prosecuting authorities, such authorities would typically elect to prosecute the alleged offender given all the circumstances; (iii) the commission of any other material act involving willful malfeasance or fiduciary breach with respect to the Company or an Affiliate; (iv) conduct that results in or would reasonably be expected or intended to result in material harm to the reputation or business of the Company or any of its Affiliates; (v) gross negligence or willful misconduct with respect to the Company or an Affiliate; or (vi) material violation of state or federal securities laws. For this purpose, a first offense of drunk driving shall be deemed not to involve moral turpitude.

The Committee, in its absolute discretion, shall determine the effect of all matters and questions relating to the existence of and whether a Participant has been discharged for Cause.

"***Change in Control***" means: (a) The direct or indirect sale, transfer, conveyance or other disposition (other than by way of merger or consolidation), in one or a series of related transactions, of all or substantially all of the properties or assets of the Company and its subsidiaries, taken as a whole, to any Person that is not a subsidiary of the Company; (b) The Incumbent Directors cease for any reason to constitute at least a majority of the Board; (c) The date which is 10 business days before the consummation of a complete liquidation or dissolution of the Company; (d) The acquisition by any Person of Beneficial Ownership of 50% or more of either (i) the then outstanding shares of Common Stock of the Company, taking into account as outstanding for this purpose such Common Stock issuable upon the exercise of options or warrants, the conversion of convertible stock or debt, and the exercise of any similar right to acquire such Common Stock (the "***Outstanding Company Common Stock***") or (ii) the combined voting power of the then outstanding voting securities of the Company entitled to vote generally in the election of directors (the "***Outstanding Company Voting Securities***"); *provided, however*, that for purposes of this Plan, the following acquisitions shall not constitute a Change in Control: (A) any acquisition which complies with clauses, (i), (ii) and (iii) of subsection (e) of this definition, or (B) in respect of an Award held by a particular Participant, any acquisition by the Participant or any group of persons including the Participant (or any entity controlled by the Participant or any group of persons including the Participant); or (e) The consummation of a reorganization, merger, (whether or not the approval of the Company's stockholders is required for such merger), consolidation, statutory share exchange or similar form of corporate transaction involving the Company that requires the approval of the Company's stockholders, whether for such transaction or the issuance of securities in the transaction (a "***Business Combination***"), unless immediately following such Business Combination: (i) more than 50% of the total voting power of (A) the entity resulting from such Business Combination (the "***Surviving Company***"), or (B) if applicable, the ultimate parent entity that directly or indirectly has beneficial ownership of sufficient voting securities eligible to elect a majority of the members of the board of directors (or the analogous governing body) of the Surviving Company (the "***Parent Company***"), is represented by the Outstanding Company Voting Securities that were outstanding immediately before such Business Combination (or, if applicable, is represented by shares into which the Outstanding Company Voting Securities were converted pursuant to such Business Combination), and such voting power among the holders thereof is in substantially the same proportion as the voting power of the Outstanding Company Voting Securities among the holders thereof immediately before the Business Combination; (ii) no Person (other than Claire Reiss or her Affiliates or any employee benefit plan sponsored or maintained by the Surviving Company or the Parent Company) is or becomes the Beneficial Owner, directly or indirectly, of 50% or more of the total voting power of the outstanding voting securities eligible to elect members of the board of directors of the Parent Company (or the analogous governing body) (or, if there is no Parent Company, the Surviving Company); and (iii) at least a majority of the members of the board of directors (or the analogous governing body) of the Parent Company (or, if there is no Parent Company, the Surviving Company) following the consummation of the Business Combination were Board members at the time of the Board's approval of the execution of the initial agreement providing for such Business Combination. Notwithstanding the foregoing, a transaction or event shall not constitute a Change in Control if it does not qualify as a change in control event within the meaning of Section 409A and such failure to qualify would, in the circumstances, cause a Section 409A problem.

"***Code***" means the Internal Revenue Code of 1986, as it may be amended from time to time. Any reference to a section of the Code shall be deemed to include a reference to any regulations promulgated thereunder.

"***Committee***" means a committee of one or more members of the Board appointed by the Board to administer the Plan in accordance with Section 3.3, Section 3.4 and Section 4.5.

"***Common Stock***" means the common stock, $0.0001 par value per share, of the Company, or such other securities of the Company as may be designated by the Committee from time to time in substitution thereof.

"***Company***" means Biocept, Inc., a Delaware corporation, and any successor thereto.

"***Consultant***" means any individual who is engaged by the Company or any Affiliate to render consulting or advisory services.

"***Continuous Service***" means that the Participant's service with the Company or an Affiliate, whether as an Employee, Consultant or Director, is not interrupted or terminated. The Participant's Continuous Service shall not be deemed to have terminated merely because of a change in the capacity in which the Participant renders service to the Company or an Affiliate as an Employee, Consultant or Director or a change in the entity for which the Participant renders such service, *provided that* there is not otherwise any interruption or termination of the Participant's Continuous Service; *provided further* that if any Award is subject to Section 409A, termination of service shall not be deemed to have occurred for purposes of any provision of this Plan or such Award providing for the payment of any amounts or benefits that may be considered nonqualified deferred compensation under Section 409A upon or following a termination of service unless such termination is also a "separation from service" within the meaning of Section 409A, and, for purposes of any such provision of this Plan or such Award, references to a "termination," "termination of service" or like terms shall mean such a separation from service (determined in accordance with the presumptions set forth in Section 1.409A-1(h) of the Treasury Regulations). For example, a change in status from an Employee of the Company to a Director of an Affiliate will not constitute an interruption of Continuous Service.

"***Director***" means a member of the Board.

"***Disability***" means that the Participant is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment; *provided, however*, for purposes of determining the term of an Incentive Stock Option pursuant to Section 6.10 hereof, the term Disability shall have the meaning ascribed to it under Section 22(e)(3) of the Code. The determination of whether an individual has a Disability shall be conclusively determined under procedures established by the Committee. Except in situations where the Committee is determining Disability for purposes of the term of an Incentive Stock Option pursuant to Section 6.10 hereof within the meaning of Section 22(e)(3) of the Code, the Committee may rely on any determination that a Participant is disabled for purposes of benefits under any long-term disability plan maintained by the Company or any Affiliate in which a Participant participates.

"***Disqualifying Disposition***" has the meaning set forth in Section 14.11.

"***Effective Date***" shall mean the date on which this Plan was originally adopted by the Board, which was July 31, 2013.

"***Employee***" means any person, not excluding a person who is also an Officer or Director, employed by the Company or an Affiliate; *provided, that*, for purposes of determining eligibility to receive Incentive Stock Options, an Employee shall mean an employee of the Company or a parent or subsidiary corporation within the meaning of Section 424 of the Code. Mere service as a Director or payment of a director's fee by the Company or an Affiliate shall not be sufficient to constitute "employment" by the Company or an Affiliate.

"***Exchange Act***" means the Securities Exchange Act of 1934, as amended.

"***Fair Market Value***" means, as of any date, the value of the Common Stock as determined below. If the Common Stock is listed on any US national securities exchange, the Fair Market Value shall be the closing price of a

share of Common Stock (or if no sales were reported the closing price on the date immediately preceding such date) as quoted on such exchange on the day of determination, as reported in the *Wall Street Journal* or such other source as the Committee deems reliable. In the absence of an established market for the Common Stock on any US national securities exchange, the Fair Market Value shall be determined (as of the close of business on the date in question) in good faith by the Committee in a manner consistent with the valuation principles of Section 409A and such determination shall be conclusive and binding on all persons.

"***Free Standing Rights***" has the meaning set forth in Section 7.1(a).

"***Good Reason***" means: (a) If an Employee or Consultant is a party to an employment or service agreement with the Company or its Affiliates and such agreement provides for a definition of Good Reason, the definition contained therein; (b) If no such agreement exists or if such agreement does not define Good Reason, the definition of Good Reason set forth in the Employee or Consultant's Award Agreement; or (c) If the applicable Award Agreement does not define Good Reason, the occurrence of one or more of the following without the Participant's express written consent, which circumstances are not remedied by the Company within 30 days of its receipt of a written notice from the Participant describing the applicable circumstances (which notice must be provided, if ever, by the Participant within 40 days after the Participant's knowledge of the applicable circumstances; if the Participant does not timely deliver such notice, it shall be conclusively deemed that Good Reason is not present): (i) any material, adverse change in the Participant's duties, responsibilities, authority, title, status or reporting structure; (ii) a material reduction in the Participant's base salary; or (iii) an involuntary geographical relocation of the Participant's principal office location by more than 50 miles. In no event shall a Participant's resignation be deemed to be with Good Reason (in relation to any particular circumstances alleged to constitute Good Reason) for purposes of this Plan or any Award Agreement unless the effective date of the Participant's resignation is before the earlier of 100 days after the Participant's knowledge of the applicable circumstances or 20 days after the 30-day remedy period described in the preceding sentence (if applicable) has expired without the circumstances being remedied.

"***Grant Date***" means the date on which the Committee adopts a resolution, or takes other appropriate action, expressly granting an Award to a Participant that specifies the key terms and conditions of the Award or, if a later date is set forth in such resolution, then such date as is set forth in such resolution.

"***Incentive Stock Option***" means an Option designated as and intended to qualify as, and qualifying as, an incentive stock option within the meaning of Section 422 of the Code.

"***Incumbent Directors***" means individuals who, on the Effective Date, constitute the Board, *provided that* any individual becoming a Director after the Effective Date whose election or nomination for election to the Board was approved by a vote of at least two-thirds of the Incumbent Directors then on the Board (either by a specific vote or by approval of the proxy statement of the Company in which such person is named as a nominee for Director without objection to such nomination) shall be an Incumbent Director. No individual initially elected or nominated as a director of the Company as a result of an actual or threatened election contest with respect to Directors or as a result of any other actual or threatened solicitation of proxies by or on behalf of any person other than the Board shall ever be an Incumbent Director.

"***Inducement Award***" means an Award, other than (i) an Incentive Stock Option or (ii) a Performance Compensation Award, that is granted pursuant to Section 4.5 of the Plan.

"***Inducement Award Rules***" means Nasdaq Marketplace Rule 5635(c)(4) and the related guidance under Nasdaq IM 5635-1.

"***Inducement Shares***" shall have the meaning set forth in Section 4.5.

"***Initial Amendment and Restatement Effective Date***" means June 16, 2015, the date the Plan was amended and restated by the Company's stockholders at the Company's 2015 Annual Meeting.

"***Negative Discretion***" means the discretion authorized by the Plan to be applied by the Committee to eliminate or reduce the size of a Performance Compensation Award in accordance with Section 7.3(d)(iv) of the Plan.

"***Non-Employee Director***" means a Director who is a "non-employee director" within the meaning of Rule 16b-3.

"***Non-qualified Stock Option***" means an Option that by its terms or under the circumstances of its grant does not qualify or is not intended to qualify as an Incentive Stock Option. Without limitation, to the extent that any Option designated as an Incentive Stock Option fails at any time, in whole or in part, to qualify as an Incentive Stock Option, it shall to that extent constitute a Non-qualified Stock Option.

"***Officer***" means a person who is an officer of the Company within the meaning and purposes of Section 16 of the Exchange Act and the rules and regulations promulgated thereunder.

"***Option***" means an Incentive Stock Option or a Non-qualified Stock Option granted pursuant to the Plan.

"***Optionholder***" means a person to whom an Option is granted pursuant to the Plan or, if applicable, any other person who properly holds an outstanding Option.

"***Option Exercise Price***" means the price at which a share of Common Stock may be purchased upon the exercise of an Option.

"***Participant***" means an eligible person to whom an Award is granted pursuant to the Plan or, if applicable, any other person who properly holds an outstanding Award.

"***Performance Compensation Award***" means any Award designated by the Committee as a Performance Compensation Award pursuant to Section 7.3 of the Plan.

"***Performance Criteria***" means the criterion or criteria that the Committee shall select for purposes of establishing the Performance Goal(s) for a Performance Period with respect to any Performance Compensation Award under the Plan. The Performance Criteria that will be used to establish the Performance Goal(s) shall be based on the attainment of specific levels of performance of the Company (or of an Affiliate, division, business unit or operational unit of the Company) and shall be limited to the following: (a) net earnings or net income (before or after taxes); (b) basic or diluted earnings per share (before or after taxes); (c) net revenue or net revenue growth; (d) gross revenue; (e) gross profit or gross profit growth; (f) net operating profit (before or after taxes); (g) return on assets, capital, invested capital, equity, or sales; (h) cash flow (including, but not limited to, operating cash flow, free cash flow, and cash flow return on capital); (i) earnings before or after taxes, interest, depreciation and/or amortization; (j) gross or operating margins; (k) improvements in capital structure; (l) budget and expense management; (m) productivity ratios; (n) economic value added or other value added measurements; (o) share price (including, but not limited to, stock price growth measures and total stockholder return); (p) expense targets; (q) margins; (r) operating efficiency; (s) working capital targets; (t) enterprise value; (u) safety record; (v) regulatory milestones; (w) scientific milestones; (x) customer acquisition; (y) completion of partnering agreement; (z) workforce retention; (aa) completion of acquisitions or business expansion; and (bb) individual business objectives.

Any one or more of the Performance Criteria may be used on an absolute or relative basis to measure the performance of the Company and/or an Affiliate as a whole or any division, business unit or operational unit of the Company and/or an Affiliate or any combination thereof, as the Committee may deem appropriate, or as compared to the performance of a group of comparable companies, or published or special index that the Committee, in its sole discretion, deems appropriate, or the Committee may select Performance Criterion (o) above as compared to various stock market indices. The Committee also has the authority to provide for accelerated vesting of any Award based on the achievement of Performance Goals pursuant to the Performance Criteria specified in this paragraph. The Committee shall define in an objective fashion the manner of calculating the Performance Criteria it selects to use for such Performance Period. In the event that applicable tax and/or securities laws change to permit the Committee discretion to alter the governing Performance Criteria without obtaining stockholder approval of such changes, the Committee shall have sole discretion to make such changes without obtaining stockholder approval.

"***Performance Formula***" means, for a Performance Period, the one or more objective formulas applied against the relevant Performance Goal to determine, with regard to the Performance Compensation Award of a

particular Participant, whether all, some portion but less than all, or none of the Performance Compensation Award has been earned for the Performance Period.

"***Performance Goals***" means, for a Performance Period, the one or more goals established by the Committee for the Performance Period based upon the Performance Criteria. The Committee is authorized at any time, in its sole and absolute discretion, to adjust or modify the calculation of a Performance Goal for such Performance Period in order to prevent the dilution or enlargement of the rights of Participants based on the following events: (a) asset write-downs; (b) litigation or claim judgments or settlements; (c) the effect of changes in tax laws, accounting principles, or other laws or regulatory rules affecting reported results; (d) any reorganization and restructuring programs; (e) extraordinary nonrecurring items as described in Accounting Principles Board Opinion No.30 (or any successor or pronouncement thereto) and/or in management's discussion and analysis of financial condition and results of operations appearing in the Company's annual report to stockholders for the applicable year; (f) acquisitions or divestitures; (g) any other specific unusual or nonrecurring events, or objectively determinable category thereof; (h) foreign exchange gains and losses; and (i) a change in the Company's fiscal year.

"***Performance Period***" means the one or more periods of time in duration, as the Committee may select, over which the attainment of one or more Performance Goals will be measured for the purpose of determining a Participant's right to and the payment of a Performance Compensation Award.

"***Person***" means any individual, entity, trust, partnership, organization, association, or (within the meaning of Section 13(d)(3) of the Exchange Act and the rules thereunder) group.

"***Permitted Transferee***" means: (a) a member of the Optionholder's or other Participant's immediate family (child, stepchild, grandchild, parent, stepparent, grandparent, spouse, former spouse, sibling, niece, nephew, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including adoptive relationships), any person sharing the Optionholder's or other Participant's household (other than a tenant or employee), a trust in which these persons have more than 50% of the beneficial interest, a foundation in which these persons (or the Optionholder or other Participant) control the management of assets, and any other entity in which these persons (or the Optionholder or other Participant) own more than 50% of the voting interests; and (b) such other transferees as may be permitted by the Committee in its sole discretion so long as the Participant receives no consideration in connection with such transfer.

"***Plan***" means this Biocept, Inc. Amended and Restated 2013 Equity Incentive Plan, as amended from time to time.

"***Related Rights***" has the meaning set forth in Section 7.1(a).

"***Restricted Award***" means any Award granted pursuant to Section 7.2(a).

"***Restricted Period***" has the meaning set forth in Section 7.2(a).

"***Restricted Stock***" has the meaning set forth in Section 7.2(a).

"***Restricted Stock Units***" has the meaning set forth in Section 7.2(a).

"***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.

"***Section 409A***" means Section 409A of the Code, as in effect from time to time.

"***Securities Act***" means the Securities Act of 1933, as amended.

"***Stock Appreciation Right***" means the right pursuant to an Award granted under Section 7.1 to receive, upon exercise, an amount payable in cash or shares equal to the number of shares subject to the Stock Appreciation Right

that is being exercised multiplied by the excess of (a) the Fair Market Value of a share of Common Stock on the date the Award is exercised, over (b) the exercise price specified in the Stock Appreciation Right Award Agreement.

"***Ten Percent Stockholder***" means a person who owns (or is deemed to own pursuant to Section 424(d) of the Code) stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or of any of its parent or subsidiary corporations.

"***Vested Unit***" has the meaning set forth in Section 7.2(e).

3. ADMINISTRATION.

3.1 **Authority of Committee**. The Plan shall be administered by the Committee or, in the Board's sole discretion, by the Board. (Notwithstanding references herein to the "***Committee***" and notwithstanding any prior delegation, if the Board generally or in an instance takes action with regard to administration of the Plan, the references herein to the authority or discretion of the Committee shall be read as, for the purpose of such action generally or in such instance (as the case may be), the authority or discretion of the Board.) Subject to the terms of the Plan, the Committee's charter and Applicable Laws, and subject to the Inducement Award Rules (where applicable), and in addition to other express powers and authorization conferred by the Plan, the Committee shall have the authority:

3.1.a to construe and interpret the Plan and apply its provisions;

3.1.b to promulgate, amend, and rescind rules and regulations relating to the administration of the Plan;

3.1.c to authorize any person to execute, on behalf of the Company, any instrument required to carry out the purposes of the Plan;

3.1.d to delegate (to the extent allowed under Delaware General Corporation Law Section 157 or other Applicable Laws) its authority to one or more Officers of the Company with respect to Awards that do not involve "insiders" within the meaning of Section 16 of the Exchange Act;

3.1.e to determine when Awards are to be granted under the Plan and the applicable Grant Date;

3.1.f from time to time to select, subject to the limitations set forth in this Plan, those Participants to whom Awards shall be granted;

3.1.g to determine the number of shares of Common Stock to be made subject to each Award;

3.1.h to determine whether each Option is to be an Incentive Stock Option or a Non-qualified Stock Option;

3.1.i to determine whether each Restricted Award is to be an Award of Restricted Stock or of Restricted Stock Units;

3.1.j to prescribe the terms and conditions of each Award, including, without limitation, the exercise price and medium of payment and vesting provisions, and to specify the provisions of the Award Agreement relating to such grant;

3.1.k to designate an Award (including a cash bonus) as a Performance Compensation Award and to select the Performance Criteria that will be used to establish the Performance Goals;

3.1.l to determine the identity or capacity of any persons who may be entitled to receive anything under or exercise a Participant's rights under any Award Agreement;

3.1.m to amend any outstanding Awards, including for the purpose of modifying the time or manner of vesting, or the term of any outstanding Award; *provided, however*, that if any such amendment impairs a Participant's rights or increases a Participant's obligations under his or her Award or creates or increases a Participant's federal income tax liability with respect to an Award, such amendment shall also be subject to the Participant's consent (and it being understood that these principles shall apply to any modification of the purchase price or the exercise price of any outstanding Award, *provided that* the Committee will not have the authority to (1) reduce the exercise, purchase or strike price of any outstanding Option or Stock Appreciation Right under the Plan, or (2) cancel any outstanding Option or Stock Appreciation Right 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 Awards under the Plan or otherwise, unless the stockholders of the Company have approved such an action within 12 months prior to such an event;

3.1.n to determine the duration and purpose of leaves of absences which may be granted to a Participant without constituting termination of their employment for purposes of the Plan;

3.1.o to make decisions with respect to outstanding Awards that may become necessary upon a change in corporate control or an event that triggers anti-dilution adjustments (in accordance with Sections 11 and 12 of the Plan);

3.1.p to interpret, administer, reconcile any inconsistency in, correct any defect in and/or supply any omission in the Plan and any instrument or agreement relating to, or Award granted under, the Plan; and

3.1.q to exercise discretion to make any and all other determinations which it determines to be necessary or advisable for the administration of the Plan.

3.2 **Committee Decisions Final**. All decisions made by the Committee pursuant to the provisions of the Plan shall be final and binding on the Company and the Participants.

3.3 **Delegation**. Subject to the Inducement Award Rules with respect to Inducement Awards, the Committee, or if no Committee has been appointed, the Board, may delegate administration of the Plan to a committee or committees of one or more members of the Board, and the term "***Committee***" shall apply to any person or persons to whom such authority has been delegated. The Committee shall have the power to delegate to a subcommittee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board or the Committee shall thereafter be to the committee or subcommittee), subject, however, to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board. The Board may abolish the Committee at any time and revest in the Board the administration of the Plan. The members of the Committee shall be appointed by and serve at the pleasure of the Board. From time to time, the Board may increase or decrease the size of the Committee, add additional members to, remove members (with or without cause) from, appoint new members in substitution therefor, and fill vacancies, however caused, in the Committee. The Committee shall act pursuant to a vote of the majority of its members, whether present or not, or by the unanimous written consent of its members and minutes shall be kept of all of its meetings and copies thereof shall be provided to the Board. Subject to the limitations prescribed by the Plan and the Board, the Committee may establish and follow such rules and regulations for the conduct of its business as it may determine to be advisable. This Section 3.3 is not in derogation of Section 3.1(d).

3.4 **Committee Composition**. Subject to the Inducement Award Rules with respect to Inducement Awards, and except as otherwise determined by the Board, the Committee shall consist solely of two or more Non-Employee Directors and who also meet the independence requirements (if any)

under the then applicable rules, regulations, listing requirements or listing maintenance requirements adopted by the principal national securities exchange on which the Common Stock is then listed. The Board shall have discretion to determine whether or not it intends to comply with the exemption requirements of Rule 16b-3. However, if the Board intends to satisfy such exemption requirements, with respect to Awards to any insider subject to Section 16 of the Exchange Act, the Committee shall be a compensation committee of the Board that at all times consists solely of two or more Non-Employee Directors. Within the scope of such authority, the Board or the Committee may delegate to a committee of one or more members of the Board who are not Non-Employee Directors the authority to grant Awards to eligible persons who are not then subject to Section 16 of the Exchange Act. Nothing herein shall create an inference that an Award is not validly granted under the Plan in the event Awards are granted under the Plan by a compensation committee of the Board that does not at all times consist solely of two or more Non-Employee Directors. This Section 3.4 is not in derogation of Section 3.1(d).

3.5 **Indemnification**. Service on the Committee is a form of service in the capacity of a member of the Board. In addition to such other rights of indemnification as they may have as Directors or members of the Committee, and to the extent allowed by Applicable Laws, the Committee members shall be indemnified by the Company against the reasonable expenses, including attorney's fees, actually incurred in connection with any action, suit or proceeding or in connection with any appeal therein, to which the Committee members may be party by reason of any action taken or failure to act under or in connection with the Plan or any Award granted under the Plan, and against all amounts paid by the Committee members in settlement thereof (*provided, however*, that the settlement has been approved by the Company, which approval shall not be unreasonably withheld) or paid by the Committee in satisfaction of a judgment in any such action, suit or proceeding, except in relation to matters as to which it shall be adjudged in such action, suit or proceeding that such Committee member(s) did not act in good faith and in a manner which such person reasonably believed to be in the best interests of the Company, or in the case of a criminal proceeding, had no reason to believe that the conduct complained of was unlawful; *provided, however*, that within 60 days after institution of any such action, suit or proceeding, such Committee member(s) shall, in writing, offer the Company the opportunity at its own expense to handle and defend such action, suit or proceeding.

3.6 **Exculpation**. No Director, Committee member or Employee shall be subject to any liability with respect to duties under the Plan unless the person acts fraudulently or in bad faith.

4. Shares Subject to the Plan.

4.1 **Share Reserve**. Subject to Sections 4.4, 4.5 and 11, the aggregate number of shares of Common Stock that may be available for issuance pursuant to Awards from and after the Initial Amendment and Restatement Effective Date will not exceed 2,336,409 shares, which is the sum of (1) 1,300,000 new shares of Common Stock, plus (2) the number of shares of Common Stock previously authorized by the Company stockholders (i) that remain available for issuance for future Award grants under Plan as of immediately prior to the Initial Amendment and Restatement Effective Date and (ii) that consist of the 2007 Plan Available Reserve plus (3) any shares underlying outstanding Awards under the Plan and 2007 Plan Awards that on or after the Amendment and Restatement Effective Date become available for issuance under the Plan again pursuant to Section 4.3 below shall be available for the grant of Awards under the Plan (such aggregate number of shares described in (1) through (3) the "***Share Reserve***"). During the terms of the Awards, the Company shall keep available at all times the number of shares of Common Stock required to satisfy such Awards. Shares of Common Stock available for distribution under the Plan may consist, in whole or in part, of authorized and unissued shares, or shares reacquired by the Company in any manner.

4.2 **Limitations**.

4.2.a Subject to the Share Reserve and adjustment in accordance with Section 11, the aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options will be 2,336,409 shares of Common Stock.

4.3 **Reversion of Shares to the Share Reserve**. Any shares of Common Stock subject to an Award or a 2007 Plan Award that is canceled, forfeited or expires before exercise or realization, either in full or in part, shall to that extent again become available for issuance under the Plan. (For this purpose, repurchase of Restrict Stock at a nominal repurchase price is deemed a forfeiture.) Notwithstanding anything to the contrary contained herein: shares subject to an Award or a 2007 Plan Award shall not again be made available for issuance or delivery under the Plan if such shares are (a) shares used to satisfy the exercise or purchase price of such Award or 2007 Plan Award, including shares used to effect a "net exercise," in payment of an Option exercise price requirement, (b) shares delivered to or withheld by the Company to satisfy any tax withholding obligation in connection with an Award or a 2007 Plan Award, (c) shares covered by a stock-settled Stock Appreciation Right that were not issued upon the settlement of the Award, or (d) shares repurchased by the Company on the open market with the proceeds of the exercise or purchase price of a stock Award or a 2007 Plan Award.

4.4 **Minimum Vesting Requirements**. Excluding, for this purpose, any (i) substitute awards, (ii) awards to Non-Employee Directors that vest on the earlier of the one year anniversary of the date of grant or the next annual meeting of stockholders which is at least 50 weeks after the immediately preceding year's annual meeting, and (iii) Inducement Awards, no Option or Stock Appreciation Right and, effective for Awards granted on or after July 16, 2021 no other Award (including an Award that is a Performance Compensation Award or otherwise subject to vesting based on performance goals) will vest until at least twelve months following the date of grant of such Award; *provided, however*, that up to 5% of the Share Reserve (as defined in Section 4.1 and excluding the Inducement Shares) may be subject to Awards (including Awards that are Performance Compensation Awards or otherwise subject to vesting based on performance goals) that do not meet such vesting requirements and, *provided further*, for the avoidance of doubt, that the foregoing restriction does not apply to the Board's discretion to provide for accelerated exercisability or vesting of any Award, including in cases of retirement, death, disability or a change in control, in the terms of the Award or otherwise.

4.5 **Inducement Share Pool and Inducement Award Rules.** Subject to adjustment in accordance with Section 11, an additional 2,250,000 shares of Common Stock shall be reserved under the Plan, exclusively for the grant of Inducement Awards in compliance with Nasdaq Listing Rule 5635(c)(4) (the "***Inducement Shares***"). The Inducement Shares that may be awarded under this Section 4.5 shall be in addition to and shall not reduce the shares available for issuance under Section 4.1 of the Plan. The following rules and restrictions shall apply to any Inducement Award granted pursuant to the Plan:

4.5.a An Inducement Award may be granted only to an Employee who has not previously been an Employee or a Director of the Company or an Affiliate, except following a bona fide period of non-employment, as an inducement material to the individual's entering into employment with the Company within the meaning of Rule 5635(c)(4) of the Nasdaq Listing Rules and the Inducement Award Rules.

4.5.b All such Inducement Awards must be granted by a majority of the Company's "Independent Directors" (as such term is defined in Nasdaq Listing Rule 5605(a)(2)) or the Company's compensation committee, provided such committee is comprised solely of Independent Directors, in each case in accordance with Nasdaq Listing Rule 5635(c)(4) and the Inducement Award Rules.

4.5.c The Inducement Shares underlying any Inducement Awards shall be subject to the same share counting provisions as described in Section 4.3, except that such Inducement Shares shall count against, or shall be added back to, the reserve of Inducement Shares available

for grant under this Section 4.5, and shall not count against, or be added back to, the Shares available for issuance under Section 4.1 of the Plan.

4.5.d The limits in Section 4.2 will not apply to Inducement Awards.

5. **Eligibility**.

5.1 **Eligibility for Specific Awards**. Incentive Stock Options may be granted only to Employees. Awards other than Incentive Stock Options may be granted to Employees, Consultants and Directors.

5.2 **Ten Percent Stockholders**. A Ten Percent Stockholder shall not be granted an Incentive Stock Option unless the Option Exercise Price is at least 110% of the Fair Market Value of the Common Stock at the Grant Date and the Option is not exercisable after the expiration of five years from the Grant Date.

6. **Option Provisions**. Each Option granted under the Plan shall be evidenced by an Award Agreement, and shall be voided if the Award Agreement is not executed and delivered by the Participant within 30 days after the Grant Date. Each Option so granted shall be subject to the conditions set forth in this Section 6, and to such other conditions not inconsistent with the Plan as may be reflected in the applicable Award Agreement. All Options shall be separately designated Incentive Stock Options or Non-qualified Stock Options at the time of grant, and, if certificates are issued, a separate certificate or certificates will be issued for shares of Common Stock purchased on exercise of each type of Option. Notwithstanding the foregoing, the Company shall have no liability to any Participant or any other person if an Option designated as an Incentive Stock Option fails to qualify as such at any time or if an Option (or other Award) is determined to constitute "nonqualified deferred compensation" within the meaning of Section 409A and the terms of such Option (or other Award) do not satisfy the requirements of Section 409A. The provisions of separate Options need not be identical, but each Option shall include (through incorporation of provisions hereof by reference in the Option or otherwise) the substance of each of the following provisions:

6.1 **Term**. Subject to the provisions of Section 5.2 regarding Ten Percent Stockholders and a requirement that no Incentive Stock Option shall be exercisable after the expiration of 10 years from the Grant Date, the term of an Incentive Stock Option granted under the Plan shall be determined by the Committee. The term of a Non-qualified Stock Option granted under the Plan shall be determined by the Committee; *provided, however*, no Non-qualified Stock Option shall be exercisable after the expiration of 10 years from the Grant Date.

6.2 **Exercise Price of An Incentive Stock Option**. Subject to the provisions of Section 5.2 regarding Ten Percent Stockholders, the Option Exercise Price of each Incentive Stock Option shall be not less than 100% of the Fair Market Value on the Grant Date of the Common Stock subject to the Option. Notwithstanding the foregoing, an Incentive Stock Option may be granted with an Option Exercise Price lower than that set forth in the preceding sentence if such Option is granted pursuant to an assumption or substitution for another option in a manner satisfying the provisions of Section 424(a) of the Code and Section 409A.

6.3 **Exercise Price of a Non-qualified Stock Option**. The Option Exercise Price of each Non-qualified Stock Option shall be not less than 100% of the Fair Market Value on the Grant Date of the Common Stock subject to the Option. Notwithstanding the foregoing, a Non-qualified Stock Option may be granted with an Option Exercise Price lower than that set forth in the preceding sentence if such Option is granted pursuant to an assumption or substitution for another option in a manner satisfying the provisions of Section 409A.

6.4 **Consideration**. The Option Exercise Price of Common Stock acquired pursuant to an Option shall be paid, to the extent permitted by applicable statutes and regulations, either (a) in cash or by bank check on the day the Option is exercised or (b) in the discretion (exercised either generally or only

for the particular instance) of the Committee, upon such terms as the Committee shall approve, the Option Exercise Price may be paid on the day the Option is exercised: (i) by delivery to the Company of other Common Stock, duly endorsed for transfer to the Company, with a Fair Market Value on the date of delivery equal to the Option Exercise Price (or portion thereof) due for the number of shares being acquired, or by means of attestation whereby the Participant identifies for delivery specific shares of Common Stock that have an aggregate Fair Market Value on the date of attestation equal to the Option Exercise Price (or portion thereof) and receives a number of shares of Common Stock equal to the difference between the number of shares thereby purchased and the number of identified attestation shares of Common Stock; (ii) a "cashless" same-day-sale exercise program established with a broker; (iii) by reduction in the number of shares of Common Stock otherwise deliverable upon exercise of such Option with a Fair Market Value equal to the aggregate Option Exercise Price at the time of exercise; (iv) any combination of the foregoing methods; or (v) in any other form of legal consideration that may be acceptable to the Committee. Unless otherwise specifically provided in the Option, the exercise price of Common Stock acquired pursuant to an Option that is (with Committee approval) paid by delivery (or attestation) to the Company of other Common Stock acquired, directly or indirectly from the Company, shall be paid only by shares of the Common Stock of the Company that have been held for more than six months (or such longer or shorter period of time required to avoid a charge to earnings for financial accounting purposes). Notwithstanding the foregoing, during any time the Common Stock is publicly traded an exercise by a Director or Officer that involves or may involve a direct or indirect extension of credit or arrangement of an extension of credit by the Company, directly or indirectly, in violation of Section 402(a) of the Sarbanes-Oxley Act of 2002 shall be prohibited with respect to any Award under this Plan.

6.5 **Transferability of An Incentive Stock Option**. An Incentive Stock Option shall not be transferable except by will or by the laws of descent and distribution or pursuant to qualified domestic relations orders under Applicable Laws and shall be exercisable during the lifetime of the Optionholder only by the Optionholder.

6.6 **Transferability of a Non-qualified Stock Option**. A Non-qualified Stock Option may, in the sole discretion of the Committee, be transferable to a Permitted Transferee, upon approval by the Committee to the extent provided in the Award Agreement. No such transfer which is a "prohibited transfer for value" (within the meaning of the General Instructions to Securities Act Form S-8) shall be allowed. If the Non-qualified Stock Option does not provide for transferability, then the Non-qualified Stock Option shall not be transferable except by will or by the laws of descent and distribution or pursuant to qualified domestic relations orders under Applicable Laws and shall be exercisable during the lifetime of the Optionholder only by the Optionholder.

6.7 **Vesting of Options**. Subject to Section 4.4, each Option may, but need not, vest and therefore become exercisable in periodic installments that may, but need not, be equal. The Option may be subject to such other terms and conditions on the time or times when it may be exercised (which may be based on performance or other criteria) as the Committee may deem appropriate and in accordance with Section 4.4. The vesting provisions of individual Options may vary.

6.8 **Termination of Continuous Service**. Unless otherwise provided in an Award Agreement or in an employment agreement the terms of which have been approved by the Committee, in the event an Optionholder's Continuous Service terminates (other than upon the Optionholder's death or Disability), the Optionholder may exercise his or her Option (to the extent that the Optionholder was entitled to exercise such Option as of the date of termination) but only within such period of time ending on the earlier of (a) the date three months following the termination of the Optionholder's Continuous Service or (b) the expiration of the term of the Option as set forth in the Award Agreement; *provided that*, if the termination of Continuous Service is by the Company for Cause, all outstanding Options (whether or not vested) shall immediately terminate and cease to be exercisable. If, after termination of Continuous Service, the Optionholder does not exercise his or her Option within the time specified in the Award Agreement, the Option shall terminate.

6.9 **Extension of Termination Date**. An Optionholder's Award Agreement may also provide that if the exercise of the Option following the termination of the Optionholder's Continuous Service for any reason would be prohibited at any time because the issuance of shares of Common Stock would violate the registration requirements under the Securities Act or any other state or federal securities law or the rules of any securities exchange or interdealer quotation system, then the Option shall terminate on the earlier of (a) the expiration of the term of the Option in accordance with Section 6.1 or (b) the expiration of a period after termination of the Participant's Continuous Service that is three months after the end of the period during which the exercise of the Option would be in violation of such registration or other securities law requirements.

6.10 **Disability of Optionholder**. Unless otherwise provided in an Award Agreement, in the event that an Optionholder's Continuous Service terminates as a result of the Optionholder's Disability, the Optionholder may exercise his or her Option (to the extent that the Optionholder was entitled to exercise such Option as of the date of termination), but only within such period of time ending on the earlier of (a) the date 12 months following such termination or (b) the expiration of the term of the Option as set forth in the Award Agreement. If, after termination of Continuous Service, the Optionholder does not exercise his or her Option within the time specified herein or in the Award Agreement, the Option shall terminate.

6.11 **Death of Optionholder**. Unless otherwise provided in an Award Agreement, in the event an Optionholder's Continuous Service terminates as a result of the Optionholder's death, then the Option may be exercised (to the extent the Optionholder was entitled to exercise such Option as of the date of death) by the Optionholder's estate or by a person who acquired the right to exercise the Option by bequest or inheritance, but only within the period ending on the earlier of (a) the date 12 months following the date of death or (b) the expiration of the term of such Option as set forth in the Award Agreement. If, after the Optionholder's death, the Option is not exercised within the time specified herein or in the Award Agreement, the Option shall terminate.

6.12 **Incentive Stock Option $100,000 Limitation**. To the extent that the aggregate Fair Market Value (determined at the time of grant) of Common Stock with respect to which Incentive Stock Options are exercisable for the first time by any Optionholder during any calendar year (under all plans of the Company and its Affiliates) exceeds $100,000, the Options or portions thereof which exceed such limit (according to the order in which they were granted) shall be treated as Non-qualified Stock Options.

6.13 **Fractions**. No Option may be exercised for a fraction of a share of Common Stock.

7. Provisions of Awards Other Than Options.

7.1 Stock Appreciation Rights.

7.1.a **General**. Each Stock Appreciation Right granted under the Plan shall be evidenced by an Award Agreement, and shall be voided if the Award Agreement is not executed and delivered by the Participant within 30 days after the Grant Date. Each Stock Appreciation Right so granted shall be subject to the conditions set forth in this Section 7.1, and to such other conditions (including as to transferability and ability to be pledged or otherwise encumbered) not inconsistent with the Plan as may be reflected in the applicable Award Agreement. Stock Appreciation Rights may be granted alone ("***Free Standing Rights***") or in tandem with an Option granted under the Plan ("***Related Rights***").

7.1.b **Grant Requirements**. Any Related Right that relates to a Non-qualified Stock Option may be granted at the same time the Option is granted or at any time thereafter but before the exercise or expiration of the Option. Any Related Right that relates to an Incentive Stock Option must be granted at the same time the Incentive Stock Option is granted.

7.1.c **Term of Stock Appreciation Rights**. The term of a Stock Appreciation Right granted under the Plan shall be determined by the Committee; *provided, however*, no Stock Appreciation Right shall be exercisable later than the tenth anniversary of its Grant Date.

7.1.d **Vesting of Stock Appreciation Rights**. Subject to Section 4.4, each Stock Appreciation Right may, but need not, vest and therefore become exercisable in periodic installments that may, but need not, be equal. The Stock Appreciation Right may be subject to such other terms and conditions on the time or times when it may be exercised as the Committee may deem appropriate in accordance with Section 4.4. The vesting provisions of individual Stock Appreciation Rights may vary.

7.1.e **Exercise and Payment**. Upon exercise of a Stock Appreciation Right, the holder shall be entitled to receive from the Company an amount equal to the number of shares of Common Stock subject to the Stock Appreciation Right that is being exercised multiplied by the excess of (i) the Fair Market Value of a share of Common Stock on the date the Award is exercised, over (ii) the exercise price specified in the Stock Appreciation Right or related Option. Payment with respect to the exercise of a Stock Appreciation Right shall be made as of and as soon as practicable after the date of exercise. Payment shall be made in the form of shares of Common Stock, cash or a combination thereof, as determined by the Committee. The Award Agreement may, in the Committee's discretion, provide that a Stock Appreciation Right shall be paid out immediately upon it vesting; and in such case "exercise" shall be deemed to occur automatically upon vesting.

7.1.f **Exercise Price**. The exercise price of a Free Standing Stock Appreciation Right shall be determined by the Committee, but shall not be less than 100% of the Fair Market Value of one share of Common Stock on the Grant Date of such Stock Appreciation Right. However, a Stock Appreciation Right may be granted with an exercise price lower than that set forth in the preceding sentence if such Stock Appreciation Right is granted pursuant to an assumption or substitution for another stock appreciation right in a manner satisfying the provisions of Section 409A. A Related Right granted simultaneously with or after the grant of an Option and in conjunction therewith or in the alternative thereto shall have the same exercise price as the related Option, shall be transferable only upon the same terms and conditions as the related Option, and shall be exercisable only to the same extent as the related Option; *provided, however*, that a Stock Appreciation Right, by its terms, shall be exercisable only when the Fair Market Value per share of Common Stock subject to the Stock Appreciation Right and related Option exceeds the exercise price per share thereof and no Stock Appreciation Rights may be granted in tandem with an Option unless the Committee determines that the requirements of Section 7.1(b) are satisfied.

7.1.g **Reduction in the Underlying Option Shares**. Upon any exercise of a Related Right, the number of shares of Common Stock for which any related Option shall be exercisable shall be reduced by the number of shares for which the Stock Appreciation Right has been exercised. The number of shares of Common Stock for which a Related Right shall be exercisable shall be reduced upon any exercise of any related Option by the number of shares of Common Stock for which such Option has been exercised.

7.1.h **Fractions**. No Stock Appreciation Right may be exercised for a fraction of a share of Common Stock.

7.2 **Restricted Awards**.

7.2.a **General**. A Restricted Award is an Award of actual shares of Common Stock ("***Restricted Stock***") or hypothetical Common Stock units ("***Restricted Stock Units***") having a value equal to the Fair Market Value of an identical number of shares of Common Stock, which may, but need not, provide that such Restricted Award may not be sold, assigned, transferred or otherwise disposed of, pledged or hypothecated as collateral for a loan or as

security for the performance of any obligation or for any other purpose for such period (the "***Restricted Period***") as the Committee shall determine. Each Restricted Award granted under the Plan shall be evidenced by an Award Agreement, and shall be voided if the Award Agreement is not executed and delivered by the Participant within 30 days after the Grant Date. Each Restricted Award so granted shall be subject to the conditions set forth in this Section 7.2, and to such other conditions not inconsistent with the Plan as may be reflected in the applicable Award Agreement.

7.2.b Restricted Stock and Restricted Stock Units

7.2.b.i Each Participant granted Restricted Stock shall execute and deliver to the Company an Award Agreement with respect to the Restricted Stock setting forth the restrictions and other terms and conditions applicable to such Restricted Stock. If the Committee determines that the Restricted Stock shall be held by the Company or in escrow rather than delivered to the Participant pending the release of the applicable restrictions, the Committee may require the Participant to additionally execute and deliver to the Company (A) an escrow agreement satisfactory to the Committee, if applicable and (B) the appropriate blank stock power with respect to the Restricted Stock covered by such agreement. If a Participant fails to execute an agreement evidencing an Award of Restricted Stock and, if applicable, an escrow agreement and stock power, the Award shall be null and void. Subject to the restrictions set forth in the Award, the Participant generally shall have the rights and privileges of a stockholder as to such Restricted Stock, including the right to vote such Restricted Stock and the right to receive dividends; *provided that*, any cash dividends and stock dividends with respect to the Restricted Stock shall be withheld by the Company for the Participant's account, and interest may be credited on the amount of the cash dividends withheld at a rate and subject to such terms as determined by the Committee. The cash dividends or stock dividends so withheld by the Committee and attributable to any particular share of Restricted Stock (and earnings thereon, if applicable) shall be distributed to the Participant in cash or, at the discretion of the Committee, in shares of Common Stock having a Fair Market Value equal to the amount of such dividends, if applicable, upon the release of restrictions on such share and, if such share is forfeited, the Participant shall have no right to such dividends. The consideration for Restricted Stock shall be, as determined by the Committee in its discretion and set forth in the Restricted Award, given in the form of cash, past services rendered to the Company or its Affiliate, and/or (if allowed by Applicable Laws) services to be rendered to the Company or its Affiliate during the Restricted Period.

7.2.b.ii The terms and conditions of a grant of Restricted Stock Units shall be reflected in an Award Agreement. No shares of Common Stock shall be issued at the time a Restricted Stock Unit is granted, and the Company will not be required to set aside a fund for the payment of any such Award. A Participant shall have no voting rights with respect to any Restricted Stock Units granted hereunder.

7.2.c Restrictions

7.2.c.i Restricted Stock awarded to a Participant shall be subject to the following restrictions until the expiration of the Restricted Period, and to such other terms and conditions as may be set forth in the applicable Award Agreement: (A) if an escrow arrangement is used, the Participant shall not be entitled to delivery of the stock certificate; (B) the shares shall be subject to the restrictions on transferability set forth in the Award Agreement; (C) the shares

shall be subject to forfeiture to the extent provided in the applicable Award Agreement; and (D) to the extent such shares are forfeited, the stock certificates shall be returned to the Company, and all rights of the Participant to such shares and as a stockholder with respect to such shares shall terminate without further obligation on the part of the Company.

7.2.c.i.1 If applicable state law requires a Participant to pay to the Company in cash at least the par value per share of Restricted Stock in connection with purchase of the Restricted Stock, the Participant shall pay to the Company in cash an amount equal to the par value per share times the number of shares of Restricted Stock; and all reference herein to forfeiture of Restricted Stock shall instead be read as references to repurchase of such Restricted Stock for a cash amount equal to such par value per share times the number of shares so repurchased. The terms upon which such repurchase right shall be exercisable (including the period and procedure for exercise and the appropriate vesting schedule for the purchased shares) shall be established by the Committee and set forth in the Award Agreement.

7.2.c.ii Restricted Stock Units awarded to any Participant shall be subject to (A) forfeiture until the expiration of the Restricted Period, and satisfaction of any applicable Performance Goals during such period, to the extent provided in the applicable Award Agreement, and to the extent such Restricted Stock Units are forfeited, all rights of the Participant to such Restricted Stock Units shall terminate without further obligation on the part of the Company and (B) such other terms and conditions (including as to transferability and ability to be pledge or otherwise encumbered) as may be set forth in the applicable Award Agreement. No transfer which is a "prohibited transfer for value" (within the meaning of the General Instructions to Securities Act Form S-8) shall be allowed.

7.2.c.iii Subject to the provisions of the Plan, including Section 12, the Committee shall have the authority to remove any or all of the restrictions on the Restricted Stock and Restricted Stock Units whenever it may determine that, by reason of changes in Applicable Laws or other changes in circumstances arising after the date the Restricted Stock or Restricted Stock Units are granted, such action is appropriate.

7.2.d **Restricted Period**. Subject to Section 4.4, with respect to Restricted Awards, the Restricted Period shall commence on the Grant Date and end or lapse at the time or times set forth on a schedule established by the Committee in the applicable Award Agreement.

7.2.e **Delivery of Restricted Stock and Settlement of Restricted Stock Units**. Upon the expiration of the Restricted Period with respect to any shares of Restricted Stock, the restrictions set forth in Section 7.2(c) and the applicable Award Agreement shall be of no further force or effect with respect to such shares, except as set forth in the applicable Award Agreement. If an escrow arrangement is used, upon such expiration, the Company shall as soon as practicable deliver to the Participant, or his or her beneficiary, without charge, the stock certificate evidencing the shares of Restricted Stock which have not then been forfeited and with respect to which the Restricted Period has expired (to the nearest full share) and any cash dividends or stock dividends credited to the Participant's account with respect to such Restricted Stock and the interest thereon, if any. Upon the expiration of the Restricted Period with respect to any outstanding Restricted Stock Units, the Company shall as soon as practicable deliver to the Participant, or his or her beneficiary, without charge, one share of Common Stock for each such outstanding Restricted Stock

Unit ("***Vested Unit***"); *provided, however*, that, if explicitly provided in the applicable Award Agreement, the Committee may, in its sole discretion, elect to pay cash or part cash and part Common Stock in lieu of delivering only shares of Common Stock for Vested Units. If a cash payment is made in lieu of delivering shares of Common Stock, the amount of such payment shall be equal to the Fair Market Value of the Common Stock as of the date on which the Restricted Period lapsed with respect to each Vested Unit.

7.2.f **Stock Restrictions**. Each certificate representing Restricted Stock awarded under the Plan shall bear a legend in such form as the Company deems appropriate. Any new, substituted or additional securities or other property (including money paid other than as a regular cash dividend) which the Participant may have the right to receive with respect to the Participant's Restricted Stock by reason of any stock dividend, stock split, recapitalization, combination of shares, exchange of shares or other change affecting the outstanding Common Stock as a class without the Company's receipt of consideration shall be issued subject to (i) the same vesting requirements applicable to the Participant's unvested shares of Restricted Stock and (ii) such escrow arrangements as the Committee shall deem appropriate.

7.3 **Performance Compensation Awards**.

7.3.a **Eligibility**. The Committee will, in its sole discretion, designate within the first 90 days of a Performance Period which Participants will be eligible to receive Performance Compensation Awards in respect of such Performance Period. However, designation of a Participant eligible to receive an Award hereunder for a Performance Period shall not in any manner entitle the Participant to receive payment in respect of any Performance Compensation Award for such Performance Period. The determination as to whether or not such Participant becomes entitled to payment in respect of any Performance Compensation Award shall be decided solely in accordance with the provisions of this Section 7.3. Moreover, designation of a Participant eligible to receive an Award hereunder for a particular Performance Period shall not require designation of such Participant eligible to receive an Award hereunder in any subsequent Performance Period and designation of one person as a Participant eligible to receive an Award hereunder shall not require designation of any other person as a Participant eligible to receive an Award hereunder in such period or in any other period.

7.3.b **Discretion of Committee with Respect to Performance Compensation Awards**. With regard to a particular Performance Period, subject to Section 4.4, the Committee shall have full discretion to select the length of such Performance Period, the type(s) of Performance Compensation Awards to be issued, the Performance Criteria that will be used to establish the Performance Goal(s), the kind(s) and/or level(s) of the Performance Goal(s) that is (are) to apply to the Company and the Performance Formula. The Committee shall, with regard to the Performance Compensation Awards to be issued for such Performance Period, exercise its discretion with respect to each of the matters enumerated in the immediately preceding sentence of this Section 7.3(c) and record the same in writing.

7.3.c **Payment of Performance Compensation Awards**

7.3.c.i **Condition to Receipt of Payment**. Unless otherwise provided in the applicable Award Agreement, a Participant must be employed by the Company on the last day of a Performance Period to be eligible for payment in respect of a Performance Compensation Award for such Performance Period.

7.3.c.ii **Limitation**. A Participant shall be eligible to receive payment in respect of a Performance Compensation Award only to the extent that: (A) the Performance Goals for such period are achieved; and (B) the Performance

Formula as applied against such Performance Goals determines that all or some portion of such Participant's Performance Compensation Award has been earned for the Performance Period.

7.3.c.iii **Certification**. Following the completion of a Performance Period, the Committee shall review and certify in writing whether, and to what extent, the Performance Goals for the Performance Period have been achieved and, if so, calculate and certify in writing the amount of the Performance Compensation Awards earned for the period based upon the Performance Formula. The Committee shall then determine the actual size of each Participant's Performance Compensation Award for the Performance Period and, in so doing, may apply Negative Discretion in accordance with Section 7.3(d)(iv) hereof, if and when it deems appropriate.

7.3.c.iv **Use of Discretion**. In determining the actual size of an individual Performance Compensation Award for a Performance Period, the Committee may reduce or eliminate the amount of the Performance Compensation Award earned under the Performance Formula in the Performance Period through the use of Negative Discretion if, in its sole judgment, such reduction or elimination is appropriate. The Committee shall not have the discretion to (A) grant or provide payment in respect of Performance Compensation Awards for a Performance Period if the Performance Goals for such Performance Period have not been attained or (B) increase a Performance Compensation Award above the maximum amount payable under Section 7.3(d)(vi) of the Plan.

7.3.c.v **Timing of Award Payments**. Performance Compensation Awards granted for a Performance Period shall be paid to Participants as soon as administratively practicable following completion of the certifications required by this Section 7.3 but in no event later than 2 1/2 months following the end of the fiscal year during which the Performance Period is completed.

8. Show-Stopper Conditions.

8.1 **Securities Law Compliance**. Each Award Agreement shall provide (and such provision shall control over any other provision of the Plan or the Award Agreement which would be to the contrary) that no shares of Common Stock shall be purchased, sold, issued or delivered thereunder unless and until (a) any then applicable requirements of state or federal laws and regulatory agencies have been fully complied with to the satisfaction of the Company and its counsel and (b) if required to do so by the Company, the Participant has executed and delivered to the Company a letter of investment intent in such form and containing such provisions as the Committee may require. The Company shall use reasonable efforts to seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority as may be required to grant Awards and to issue and sell shares of Common Stock upon exercise of the Awards; *provided, however*, that this undertaking shall not require the Company to register under the Securities Act the Plan, any Award or any Common Stock issued or issuable pursuant to any such Award. If, after reasonable efforts, the Company is unable to obtain from any such regulatory commission or agency the authority which counsel for the Company deems necessary for the lawful issuance and sale of Common Stock under the Plan, the Company shall be relieved from any liability for failure to issue and sell Common Stock upon exercise of such Awards unless and until such authority is obtained.

8.2 **Withholding Obligations**. Each Award Agreement shall provide (and such provision shall control over any other provision of the Plan or the Award Agreement which would be to the contrary) that no shares of Common Stock shall be purchased, sold, issued or delivered thereunder unless and until any then Applicable Laws for the payment of employee-side withholding taxes in connection therewith have been satisfied by (a) a cash payment by the Participant to the Company of 100% of

such amount, or (b) as may be allowed by the following sentence. To the extent (if any) provided by the terms of an Award Agreement and subject to the discretion of the Committee, the Participant may satisfy the preceding sentence's requirement for payment of any federal, state or local tax withholding obligation relating to the exercise or acquisition of Common Stock under an Award by any of the following means (if so expressly allowed) or by a combination of such means expressly allowed, in any event totaling in value 100% of such amount: (a) authorizing the Company to withhold cash from any cash compensation to be paid to the Participant, provided both the Company and the Participant actually and reasonably believe cash compensation sufficiently large will become payable to the Participant within 45 days; (b) tendering a cash payment; (c) authorizing the Company to withhold shares of Common Stock from the shares of Common Stock otherwise issuable to the Participant as a result of the exercise or acquisition of Common Stock under the Award, *provided, however*, that no shares of Common Stock are withheld with a value exceeding the minimum amount of tax required to be withheld by Applicable Law; or (d) delivering to the Company previously owned and unencumbered shares of Common Stock of the Company. Common Stock so withheld or delivered would be valued at its Fair Market Value as of the date of measurement of the amount of income subject to withholding.

9. **Use of Proceeds from Stock**. Proceeds from the sale of Common Stock pursuant to Awards, or upon exercise thereof, shall constitute general funds of the Company.

10. **Miscellaneous**.

10.1 **Acceleration of Exercisability and Vesting**. The Committee shall have the power to accelerate the time at which an Award may first be exercised or the time during which an Award or any part thereof will vest (or restrictions lapse), notwithstanding the provisions in the Award stating the time at which it may first be exercised or the time during which it will vest (or restrictions lapse); *provided that* if such action is taken in connection with a Change in Control, such action shall be made only in accordance with the provisions of Sections 11 and 12.

10.2 **Stockholder Rights**. Except as provided in the Plan or an Award Agreement, no Participant shall 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 such Award unless and until such Participant has satisfied all requirements for exercise of the Award pursuant to its terms and no adjustment shall be made for dividends (ordinary or extraordinary, whether in cash, securities or other property) or distributions of other rights for which the record date is before the date such Common Stock certificate is issued, except as provided in Section 11 hereof.

10.3 **No Employment or Other Service Rights**. Nothing in the Plan or any instrument executed or Award granted pursuant thereto shall confer upon any Participant any right to continue to serve the Company or an Affiliate in the capacity in effect at the time the Award was granted (or in any other capacity) or shall affect the right of the Company or an Affiliate to terminate (a) the employment of an Employee or the service of a Consultant, in either case with or without notice and with or without Cause or (b) the service of a Director pursuant to the Bylaws of the Company or Applicable Laws.

10.4 **Freedom to Approve Acquisitions, Etc**. The grant of Awards shall in no way affect the right of the Company to effect a Change in Control or a Business Combination or to otherwise adjust, reclassify, reorganize or otherwise change its capital or business structure or to merge, consolidate, dissolve, liquidate or sell or transfer all or any part of its business or assets; the Board and the Company shall incur no liability to Participants by approving or effecting such a transaction.

10.5 **Transfer; Approved Leave of Absence**. For purposes of the Plan, no termination of employment or of Continuous Service by an Employee shall be deemed to result from either (a) a transfer to the employment of the Company from an Affiliate or from the Company to an Affiliate, or from one Affiliate to another, or (b) an approved leave of absence for military service or sickness, or for any other purpose approved by the Company, if the Employee's right to reemployment is guaranteed either by a statute or by contract or under the express written terms of the policy pursuant to which

the leave of absence was granted or if the Committee otherwise so provides in writing, in either case, except to the extent inconsistent with Section 409A if the applicable Award is subject thereto.

11. **Adjustments upon Changes in Stock**. In the event of changes in the outstanding Common Stock or in the capital structure of the Company by reason of any stock or extraordinary cash dividend, stock split, reverse stock split, an extraordinary corporate transaction such as any recapitalization, reorganization, merger by which the Company is (either by direct merger or reverse triangular merger) acquired, consolidation, combination, exchange, or other relevant change in capitalization occurring after the Grant Date of any Award, Awards granted under the Plan and any Award Agreements, the exercise price of Options and Stock Appreciation Rights, the maximum number of shares of Common Stock subject to all Awards stated in Section 4 (including Sections 4.1 and 4.5), the maximum number of shares of Common Stock which can be issued pursuant to Incentive Stock Options stated in Section 4 and the maximum number of shares of Common Stock with respect to which any one person may be granted Awards during any period stated in Section 4 and Section 7.3(d)(vi) will be equitably adjusted or substituted, as to the number, price or kind of a share of Common Stock or other consideration subject to such Awards to the extent necessary to preserve as near as may be (but not to increase) the economic intent of such Award consistent with the purpose of such transaction. In the case of adjustments made pursuant to this Section 11, unless the Committee specifically determines that such adjustment is in the best interests of the Company, the Committee shall, in the case of Incentive Stock Options, seek to ensure that any adjustments under this Section 11 will not constitute a modification, extension or renewal of the Incentive Stock Options within the meaning of Section 424(h)(3) of the Code and in the case of Non-qualified Stock Options, seek to ensure that any adjustments under this Section 11 will not constitute a modification of such Non-qualified Stock Options within the meaning of Section 409A. Any adjustments made under this Section 11 shall be made in a manner which does not adversely affect the exemption provided pursuant to Rule 16b-3. The Company shall give each Participant notice of an adjustment hereunder and, upon notice, such adjustment shall be conclusive and binding for all purposes. By way of example, and without limitation: if the Company is acquired by merger for cash, all Options exercisable after such merger shall entitle the Optionholder to receive, upon exercise, cash (equal to the per-share cash merger price) and nothing else.

12. **Effect of Change in Control**.

12.1 **Double Trigger: Foreshortening**. Notwithstanding any provision of the Plan to the contrary:

12.1.a In the event of a Participant's termination of Continuous Service without Cause or for Good Reason (but excluding termination as a result of resignation in the absence of Good Reason) during the 10-day period before a Change in Control or during the 12-month period following a Change in Control, notwithstanding any provision of the Plan or any applicable Award Agreement to the contrary, all Options and Stock Appreciation Rights shall become immediately exercisable with respect to 100% of the shares subject to such Options or Stock Appreciation Rights, and/or the Restricted Period shall expire immediately with respect to 100% of the shares of Restricted Stock or Restricted Stock Units as of the date of the Participant's termination of Continuous Service.

12.1.b With respect to Performance Compensation Awards, in the event of a Change in Control, all incomplete Performance Periods in respect of such Award in effect on the date the Change in Control occurs shall end on the date of such change and the Committee shall (i) determine the extent to which Performance Goals with respect to each such Performance Period have been met based upon such audited or unaudited financial information then available as it deems relevant and (ii) cause to be paid to the applicable Participant partial or full Awards with respect to Performance Goals for each such Performance Period based upon the Committee's determination of the degree of attainment of Performance Goals or, if not determinable, assuming that the applicable "target" levels of performance have been attained, or on such other basis determined by the Committee.

To the extent practicable, any actions taken by the Committee under the immediately preceding clauses (a) and (b) shall occur in a manner and at a time which allows affected Participants the

ability to participate in the Change in Control with respect to the shares of Common Stock subject to their Awards.

12.2 **Acceleration and Termination**. In addition, in the event of a Change in Control in which the surviving corporation or acquiring corporation (or its parent company) does not assume or continue outstanding Awards or substitute similar stock awards for such outstanding Awards, then the Committee may in its discretion and upon at least 10 days' advance notice to the affected persons, accelerate the vesting (and exercisability, as applicable) of outstanding Awards in full or in part to a date prior to the effective time of the Change in Control and, to the extent not exercised (if applicable) at or prior to the effective time of the Change in Control, cancel all outstanding Awards upon or immediately before the Change in Control (but subject to the condition that the Change in Control actually occur) and pay to the holders of such cancelled Awards, in cash or stock, or any combination thereof, the value of such Awards (including, at the discretion of the Committee, any unvested portion of the Award) immediately prior to cancellation based upon the value per share of Common Stock received or to be received or deemed received by other stockholders of the Company in the event. In the case of any Option or Stock Appreciation Right with an exercise price that equals or exceeds the price paid for a share of Common Stock in connection with the Change in Control, the Committee may cancel the Option or Stock Appreciation Right without the payment of consideration therefor.

12.3 **Variations**. The Committee may in its discretion treat differently any Awards or Participants in connection with a Change in Control, either in the terms of the initial Award Agreements or in any actions taken by the Committee after the Grant Date.

12.4 **Successors**. The obligations of the Company under the Plan shall be binding upon any successor corporation or organization resulting from the merger, consolidation or other reorganization of the Company, or upon any successor corporation or organization succeeding to all or substantially all of the assets and business of the Company and its Affiliates, taken as a whole.

13. Amendment of the Plan and Awards.

13.1 **Amendment of Plan**. The Board at any time, and from time to time, may amend or terminate the Plan. However, except as provided in Section 11 relating to adjustments upon changes in Common Stock and Section 13.3, no amendment shall be effective unless approved by the stockholders of the Company to the extent stockholder approval is necessary to satisfy any Applicable Laws. At the time of such amendment, the Board shall determine, upon advice from counsel, whether such amendment will be contingent on stockholder approval. All provided, that that if the only Applicable Law which stockholder approval is necessary to satisfy pertains to Incentive Stock Options but not to any other Awards, such amendment shall be effective immediately as to all types of Awards other than Incentive Stock Options upon Board approval; but shall additionally become effective as to Incentive Stock Options upon stockholder approval and not before.

13.2 **Stockholder Approval**. The Board may, in its sole discretion, submit any other amendment to the Plan for stockholder approval.

13.3 **Contemplated Amendments**. It is expressly contemplated that the Board may amend the Plan in any respect the Board deems necessary or advisable to provide eligible Employees, Consultants and Directors with the maximum benefits provided or to be provided under the provisions of the Code and the regulations promulgated thereunder relating to Incentive Stock Options or to the nonqualified deferred compensation provisions of Section 409A and/or to bring the Plan and/or Awards granted under it into compliance therewith.

13.4 **No Impairment of Rights**. Rights under any Award granted before amendment of the Plan shall not be impaired by any amendment of the Plan unless (a) the Company requests the consent of the Participant and (b) the Participant consents in writing.

13.5 **Amendment of Awards**. The Committee at any time, and from time to time, may amend the terms of any one or more Awards; *provided, however*, that the Committee may not affect any amendment which would otherwise constitute an impairment of the rights under any Award unless (a) the Company requests the consent of the Participant and (b) the Participant consents in writing.

14. General Provisions.

14.1 **Forfeiture Events**. The Committee may specify in an Award Agreement that the Participant's rights, payments and benefits with respect to an Award shall be subject to reduction, cancellation, forfeiture or recoupment upon the occurrence of certain events, in addition to applicable vesting conditions of an Award. Such events may include, without limitation, breach of non-competition, non-solicitation, confidentiality, or other restrictive covenants that are valid under Applicable Laws and are contained in the Award Agreement or otherwise applicable to the Participant, a termination of the Participant's Continuous Service for Cause, or other conduct by the Participant that is or is intended to be detrimental to the business or reputation of the Company and/or its Affiliates.

14.2 **Clawback**. Notwithstanding any other provisions in this Plan, any Award which is subject to recovery under any law, government regulation or securities exchange listing requirement, will be subject to such deductions and clawback as may be required to be made pursuant to such law, government regulation or securities exchange listing requirement (or any policy adopted by the Company pursuant to any such law, government regulation or securities exchange listing requirement).

14.3 **Other Compensation Arrangements**. Nothing contained in this Plan shall prevent the Board from adopting other or additional compensation arrangements, subject to stockholder approval if such approval is required; and such arrangements may be either generally applicable or applicable only in specific cases.

14.4 **Sub-plans**. The Committee may from time to time establish sub-plans under the Plan for purposes of satisfying blue sky, securities, tax or other laws of various jurisdictions in which the Company intends to grant Awards. Any sub-plans shall contain such limitations and other terms and conditions as the Committee determines are necessary or desirable. All sub-plans shall be deemed a part of the Plan, but each sub-plan shall apply only to the Participants in the jurisdiction for which the sub-plan was designed.

14.5 **Unfunded Plan**. The Plan shall be unfunded. Neither the Company, the Board nor the Committee shall be required to establish any special or separate fund or to segregate any assets to assure the performance of its obligations under the Plan.

14.6 **Benefits Not Alienable**. Other than as provided above or in an Award Agreement, benefits under this Plan or the Award Agreement may not be sold, assigned, transferred or otherwise disposed of or alienated, whether voluntarily or involuntarily, nor be pledged or hypothecated as collateral for a loan or as security for the performance of any obligation or for any other purpose. Any unauthorized attempt at assignment, transfer, pledge or other disposition shall be without effect.

14.7 **Delivery**. Upon exercise of a right granted under this Plan, the Company shall issue Common Stock or pay any amounts due within a reasonable period of time thereafter. Subject to any statutory or regulatory obligations the Company may otherwise have, for purposes of this Plan, 20 days shall be considered a reasonable period of time.

14.8 **No Fractional Shares**. No fractional shares of Common Stock shall be issued or delivered pursuant to the Plan. The Committee shall determine whether cash, additional Awards or other securities or property shall be issued or paid in lieu of fractional shares of Common Stock or whether any fractional shares should be rounded, forfeited or otherwise eliminated.

14.9 **Other Provisions**. The Award Agreements authorized under the Plan may contain such other provisions not inconsistent with this Plan, including, without limitation, restrictions upon the exercise of the Awards, as the Committee may deem advisable.

14.10 **Section 409A**. (a) The Plan is intended to comply with the requirements of Section 409A to the extent subject thereto, and, accordingly, to the maximum extent permitted, the Plan shall be interpreted and administered to be in compliance therewith. Any payments described in the Plan or any Award Agreement that are due within the "short-term deferral period" as defined in Section 409A shall not be treated as deferred compensation unless Applicable Laws require otherwise. Notwithstanding anything to the contrary in the Plan or any Award Agreement, to the extent required to avoid accelerated taxation and tax penalties under Section 409A, amounts that would otherwise be payable and benefits that would otherwise be provided pursuant to the Plan or any Award Agreement during the six month period immediately following the Participant's termination of Continuous Service shall instead be paid in one lump sum on the first payroll date after the six-month anniversary of the Participant's separation from service (or the Participant's death, if earlier).

14.10.a Unless the Committee expresses a conscious and knowing intention to the contrary in the particular instance, all Award Agreements shall be deemed to be intended either to be exempt from the application of or to comply with the requirements of Section 409A to the extent subject thereto, and, accordingly, to the maximum extent permitted, each Award Agreement shall be interpreted and administered and each action of the Committee with respect thereto shall be interpreted such that grant, payment, settlement or deferral will not be subject to a penalty, tax or interest applicable under or as a result of Section 409A.

14.10.b Notwithstanding the foregoing, neither the Company nor the Committee shall have any obligation to take any action to prevent the assessment of any excise tax or penalty on any Participant under Section 409A and neither the Company nor the Committee will have any liability to, or obligation to indemnify or reimburse, any Participant for such tax or penalty.

14.11 **Disqualifying Dispositions**. Any Participant who shall make a "disposition" (as defined in Section 424 of the Code) of all or any portion of shares of Common Stock acquired upon exercise of an Incentive Stock Option within two years from the Grant Date of such Incentive Stock Option or within one year after the issuance of the shares of Common Stock acquired upon exercise of such Incentive Stock Option (a "***Disqualifying Disposition***") shall be required to immediately advise the Company in writing as to the occurrence of the sale and the price realized upon the sale of such shares of Common Stock.

14.12 **Section 16**. It is the intent of the Company that the Plan satisfy, and be interpreted in a manner that satisfies, the applicable requirements of Rule 16b-3 so that Participants will be entitled to the benefit of Rule 16b-3, or any other rule promulgated under Section 16 of the Exchange Act, so as not to become subject to short-swing liability under Section 16 of the Exchange Act. Accordingly, if the operation of any provision of the Plan would conflict with the intent expressed in this Section 14.12, such provision to the extent possible shall be interpreted and/or deemed amended so as to avoid such conflict.

14.13 **[Reserved**.]

14.14 **Expenses**. The costs of administering the Plan shall be paid by the Company.

14.15 **Annual Reports**. During the term of this Plan, to the extent required by Applicable Law the Company shall furnish to each Participant who does not otherwise receive such materials, copies of all reports, proxy statements and other communications that the Company distributes generally to its stockholders.

14.16 **Severability**. If any of the provisions of the Plan or any Award Agreement is held to be invalid, illegal or unenforceable, whether in whole or in part, such provision shall be deemed modified to the extent, but only to the extent, of such invalidity, illegality or unenforceability and the remaining provisions shall not be affected thereby.

14.17 **Plan Headings**. The headings in the Plan are for purposes of convenience only and are not intended to define or limit the construction of the provisions hereof.

14.18 **Non-Uniform Treatment**. The Committee's determinations under the Plan and in connection with any respective Award Agreements need not be uniform and may be made by it selectively among persons who are eligible to receive, or actually receive, Awards. Without limiting the generality of the foregoing, the Committee shall be entitled to make non-uniform and selective determinations, amendments and adjustments, and to enter into non-uniform and selective Award Agreements.

15. **Effective Date of Plan**. The Plan shall become effective as of the Effective Date, but no Award shall be exercised (or, in the case of a stock Award, shall be granted) unless and until the Plan has been approved by the stockholders of the Company, which approval shall be within 12 months before or after the date the Plan is adopted by the Board.

16. **Termination or Suspension of the Plan**. The Committee may suspend or terminate the Plan at any time. No Incentive Stock Options may be granted after the tenth anniversary of May 7, 2018, the date the Plan, as amended and restated, was adopted by the Board. No Awards may be granted under the Plan while the Plan is suspended or after it is terminated, but Awards granted prior to any suspension or termination may extend beyond such suspension or termination.

17. **Choice of Law**. The law of the State of Delaware shall govern all questions concerning the construction, validity and interpretation of this Plan, without regard to such state's conflict of law rules.

FORM OF NOTICE OF STOCK OPTION GRANT

You have been granted an option (the "Option") to purchase Common Stock of Biocept, Inc. (the "Company") under the Company's 2013 Amended and Restated Equity Incentive Plan, as follows:

Optionee:	_____
Date of Grant:	_____
Vesting Commencement Date:	_____
Number of Shares Subject to Option:	_____
Exercise Price (Per Share):	_____
Expiration Date:	_____

Type of Grant: ☐ Incentive Stock Option ☐ Nonstatutory Stock Option

Vesting Schedule: _____ of the shares shall vest and be exercisable on the Vesting Commencement Date; thereafter _____ of the total shares shall, provided that you remain in Continuous Service through the respective installment dates, vest and become exercisable in equal monthly installments over the next _____ years so that the option would be 100% vested on the _____ anniversary of the Vesting Commencement Date. Notwithstanding the foregoing, the Option is subject to potential accelerated vesting as set forth in Section 12.1 of the Plan.
[ADD IF APPLICABLE: In addition, if during the term of this Options there is a Change in Control in which the surviving corporation or acquiring corporation (or its parent company) does not assume or continue this Option or substitute similar stock awards for this Option, then provided that you are still in Continuous Service as of immediately prior to such Change in Control, any not-yet-vested shares shall subject to this Option vest and become exercisable immediately prior to such Change in Control.]

Termination Period: To the extent allowed by Section 5 of the Stock Option Agreement and not otherwise (and in no event later than the Expiration Date), this Option may still be exercised for three months after termination of Optionee's Continuous Service or for such other time period as called for by such Section 5 for a particular scenario. Optionee is responsible for keeping track of the applicable exercise period, if any, following termination for any reason of his or her Continuous Service. The Company will not provide further notice of such exercise period, if any.

By your signature and the signature of the Company's representative below, you and the Company agree that this Option is granted under and governed by the terms and conditions of the Company's 2013 Amended and Restated Equity Incentive Plan and the Stock Option Agreement, both of which are attached and made a part of this document. Accordingly, separate execution and delivery of the Stock Option Agreement is not required.

In addition, you agree and acknowledge that your rights to any shares underlying the Option will be earned only as you provide Continuous Services over time, that the grant of the Option is not as consideration for services you rendered to the Company before your Vesting Commencement Date, and that nothing in this Notice or the attached documents confers upon you any right to continue your employment or consulting relationship with the Company for any period of time, nor does it interfere in any way with your right or the Company's right to terminate that relationship at any time, for any reason, with or without Cause.

The per share "Exercise Price" is intended to be at least equal to the fair market value of the Company's Common Stock at the date of grant. The Company has attempted in good faith to make the fair market value determination in compliance with applicable tax law although there can be no certainty that the IRS will agree. If the IRS does not agree and asserts the fair market value at the time of grant is higher than the Exercise Price, the IRS could seek to impose greater taxes on you, including interest and penalties under Internal Revenue Code Section 409A. While the Company thinks this is an unlikely event, the Company cannot provide absolute assurance and you may want to consult your own tax adviser with any questions.

BIOCEPT, INC.

By:
Optionee Name:
Title:

ATTACHMENTS: Stock Option Agreement, Exercise Notice and Stock Purchase Agreement, 2013 Amended and Restated Equity Incentive Plan

Biocept, Inc.

2013 Amended and Restated Equity Incentive Plan

FORM OF STOCK OPTION AGREEMENT

1. Grant of Option. Biocept, Inc., a Delaware corporation (the "Company"), hereby grants to _____ ("Optionee"), an option (the "Option") to purchase the total number of shares of Common Stock (the "Shares") set forth in the Notice of Stock Option Grant (the "Notice"), at the exercise price per Share set forth in the Notice (the "Exercise Price") subject to the terms, definitions and provisions of the Company's 2013 Amended and Restated Equity Incentive Plan (the "Plan") adopted by the Company, which is incorporated in this Agreement by reference. Unless otherwise defined in this Agreement, the terms used in this Agreement shall have the meanings defined in the Plan or in the Notice.

2. Designation of Option. This Option is intended to be an Incentive Stock Option as defined in Section 422 of the Code only to the extent so designated in the Notice, and to the extent it is not so designated or to the extent the Option does not qualify as an Incentive Stock Option under Applicable Laws, then it is intended to be and will be treated as a Nonstatutory Stock Option. "Applicable Laws" means the legal requirements relating to the administration of stock option and restricted stock purchase plans, including under applicable U.S. state corporate laws, U.S. federal and applicable state securities laws, other U.S. federal and state laws, the Code, any stock exchange rules or regulations and the applicable laws, rules and regulations of any other country or jurisdiction where Options or other Awards are granted under the Plan, as such laws, rules, regulations and requirements shall be in place from time to time.

Notwithstanding the above, if designated as an Incentive Stock Option, in the event that the Shares subject to this Option (and all other Incentive Stock Options granted to Optionee by the Company or any Affiliate, including under other plans of the Company) that first become exercisable in any calendar year have an aggregate fair market value (determined for each Share as of the date of grant of the option covering such Share) in excess of $100,000, the Shares in excess of $100,000 shall be treated as subject to a Nonstatutory Stock Option, in accordance with Section 6.12 of the Plan.

3. Exercise of Option. This Option shall be exercisable during its term in accordance with the Vesting/Exercise Schedule set out in the Notice and with the provisions of the Plan, including Section 6 thereof, and of this Agreement, including Section 5 hereof, as follows:

(a) Right to Exercise.

(i) This Option may not be exercised for a fraction of a share.

(ii) In the event of Optionee's death, disability or other termination of Continuous Service, the exercisability of the Option is governed by Section 5 below, subject to the limitations contained in this Section 3.

(iii) In no event may this Option be exercised after the Expiration Date of the Option as set forth in the Notice.

(b) Method of Exercise.

(i) This Option shall be exercisable by execution and delivery of the Exercise Notice and Stock Purchase Agreement attached hereto as Exhibit A (the "Exercise Agreement") or of any other form of written notice approved for such purpose by the Company which shall state Optionee's election to exercise the Option, the number of Shares in respect of which the Option is being exercised, and such other representations and agreements as to the holder's investment intent with respect to such Shares as may be required by the Company pursuant to the provisions of the Plan. Such written notice shall be signed by Optionee and shall be delivered to the Company by such means as are determined by the Administrator in its discretion to constitute adequate delivery. The written notice shall

be accompanied by payment of the Exercise Price. This Option shall be deemed to be exercised upon receipt by the Company of such written notice accompanied by the Exercise Price.

(ii) As a condition to the exercise of this Option and as further set forth in Section 8.2 of the Plan, Optionee agrees to make such arrangements as the Administrator may require for the satisfaction of all federal, state or other tax withholding obligations, if any, which arise upon the vesting or exercise of the Option, or disposition of Shares, whether by withholding, direct payment to the Company, or otherwise, as the Administrator may in its discretion determine.

(iii) The Company is not obligated, and will have no liability for failure, to issue or deliver any Shares upon exercise of the Option unless such issuance or delivery would comply with the Applicable Laws, with such compliance determined by the Company in consultation with its legal counsel. As a condition to the exercise of this Option, the Company may require Optionee to make any representation and warranty to the Company as may be required by the Applicable Laws. Assuming such compliance, for income tax purposes the Shares shall be considered transferred to Optionee on the date on which the Option is exercised with respect to such Shares.

4. **Method of Payment.** Payment of the Exercise Price shall be by any of the following, or a combination of the following, at the election of Optionee:

(a) cash or check delivered on and dated no later than the date of exercise; or

(b) if the Company (in its sole discretion, at the time) is at such time permitting "same day sale" cashless brokered exercises, delivery of a properly executed exercise notice together with irrevocable instructions to a broker participating in such cashless brokered exercise program to deliver promptly to the Company the amount required to pay the exercise price (and applicable withholding taxes); or

(c) if the Notice expressly authorizes Optionee to use the net-exercise method, delivery of a properly executed net-exercise notice on a form provided by the Company.

5. **Termination of Relationship; Early Termination of Option.** Following the date of cessation of Optionee's Continuous Service for any reason (the "Termination Date"), Optionee may exercise the Option only as set forth in the Notice and this Section 5. To the extent that Optionee is not entitled to exercise this Option as of the Termination Date, or if Optionee is not allowed to exercise this Option during the Termination Period set forth in the Notice, or if Optionee does not exercise this Option within the Termination Period set forth in the Notice or the termination periods set forth below, the Option shall terminate in its entirety. In no event may any Option be exercised after the Expiration Date of the Option as set forth in the Notice.

(a) **Termination.** In the event of termination of Optionee's Continuous Service other than as a result of Optionee's disability or death or for Cause (as defined in the Plan), Optionee may, to the extent Optionee is vested in the Option Shares at the Termination Date, exercise this Option during the Termination Period set forth in the Notice.

(b) **Other Terminations of Relationship.** In connection with any termination other than a termination covered by Section 5(a), Optionee may exercise the Option only as described below:

(i) **Termination upon Disability of Optionee.** In the event of termination of Optionee's Continuous Service as a result of Optionee's disability, Optionee may, but only within twelve months from the Termination Date, exercise this Option to the extent Optionee was vested in the Option Shares as of such Termination Date.

(ii) **Death of Optionee.** In the event of the death of Optionee (a) during the term of this Option and while an employee (including officers) or Director of, or consultant or advisor to, either the Company or an Affiliate and having been in Continuous Service since the date of grant of the Option, or (b) within three months after Optionee's Termination Date (but only if such cessation of services was not as a result of voluntary termination by the Optionee or for Cause), the Option may be exercised at any time within twelve months following the date of

death by Optionee's estate or by a person who acquired the right to exercise the Option by bequest or inheritance, but only to the extent Optionee was vested in the Option as of the Termination Date.

(iii) **Termination for Cause.** In the event Optionee's Continuous Service is terminated for Cause, the Option shall terminate immediately upon such termination for Cause as set forth in Section 6.8 of the Plan. In the event Optionee's employment or consulting relationship with the Company is suspended pending investigation of whether such relationship shall be terminated for Cause, all Optionee's rights under the Option, including the right to exercise the Option, shall be suspended during the investigation period. The Administrator shall have authority to effect such procedures and take such actions as are necessary to carry out the legal intent of this Section 5(b)(iii), including such procedures and actions as are required to cause Optionee to return to the Company Shares purchased under the Option that have been purchased or that vested within six months of the events giving rise to the for-Cause termination of Optionee's Continuous Service and, if such Shares have been transferred by the Optionee, to remit to the Company the value of such transferred Shares.

(c) **Termination of Option.** This Option may terminate before its Expiration Date and before the dates specified under Section 5(a) and (b) above under certain circumstances as set forth in Section 12.2 of the Plan.

6. **Non-Transferability of Option.** Except as otherwise set forth in the Notice, this Option may not be transferred in any manner otherwise than by will or by the laws of descent or distribution or pursuant to qualified domestic relations orders under Applicable Laws and may be exercised during the lifetime of Optionee only by him or her. The terms of this Option shall be binding upon the executors, administrators, heirs, successors and assigns of Optionee.

7. **Tax Consequences**.

(a) The Company has not provided any tax advice with respect to this Option or the disposition of the Shares. Optionee should obtain advice from an appropriate independent professional adviser with respect to the taxation implications of the grant, exercise, vesting, assignment, release, cancellation or any other disposal of this Option (each, a "Trigger Event") and on any subsequent sale or disposition of the Shares. Optionee should also take advice in respect of the taxation indemnity provisions under Section 8 below. The per share Exercise Price of the Option is intended to be at least equal to the fair market value of the Company's Common Stock at the date of grant. The Company has attempted in good faith to make the fair market value determination in compliance with applicable tax law although there can be no certainty that the IRS will agree. If the IRS does not agree and asserts the fair market value at the time of grant is higher than the Exercise Price, the IRS could seek to impose greater taxes on Optionee, including interest and penalties under Internal Revenue Code Section 409A; but Optionee absolves and releases the Company and its directors from any claims should there be any such taxes, interest or penalties.

(b) If any payment or benefit Optionee will or may receive from the Company or otherwise (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 Optionee's 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 Optionee. If more than one method of reduction will result in the same economic benefit, the items so reduced will be reduced pro rata.

Unless Optionee and the Company agree on an alternative accounting firm or law firm, the accounting firm engaged by the Company for general tax compliance purposes as of the day prior to the effective date of the Change in Control 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 or law firm to make the determinations required hereunder. The Company shall bear all expenses with respect to the determinations by such accounting or law firm required to be made hereunder. The Company shall use commercially reasonable efforts to cause the accounting or law firm engaged to make the determinations hereunder to provide its calculations, together with detailed supporting documentation, to Optionee and the Company within 15 calendar days after the date on which Optionee's right to a 280G Payment becomes reasonably likely to occur (if requested at that time by Optionee or the Company) or such other time as requested by Optionee or the Company.

If Optionee receives a Payment for which the Reduced Amount was determined pursuant to clause (x) of this Section and the Internal Revenue Service determines thereafter that some portion of the Payment is subject to the Excise Tax, Optionee agrees to promptly return to the Company a sufficient amount of the Payment (after reduction pursuant to clause (x) of this Section) 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) or clause (x) of this Section, Optionee shall have no obligation to return any portion of the Payment pursuant to the preceding sentence.

8. Optionee's Taxation Indemnity.

(a) To the extent permitted by law, Optionee hereby agrees to indemnify and keep indemnified the Company and the Company as trustee for and on behalf of any affiliate entity, in respect of any liability or obligation of the Company and/or any affiliate entity to account for income tax or any other taxation provisions under the laws of Optionee's country or citizenship and/or residence to the extent arising from a Trigger Event or arising out of the acquisition, retention and disposal of the Shares.

(b) The Company shall not be obliged to allot and issue any of the Shares or any interest in the Shares unless and until Optionee has paid to the Company such sum as is, in the opinion of the Company, sufficient to indemnify the Company in full against any liability the Company has for any amount of, or representing, income tax or any other tax arising from a Trigger Event (the "Option Tax Liability"), or Optionee has made such other arrangement as in the opinion of the Company will ensure that the full amount of any Option Tax Liability will be recovered from Optionee within such period as the Company may then determine.

9. Data Protection.

(a) To facilitate the administration of the Plan and this Agreement, it will be necessary for the Company (or its payroll administrators) to collect, hold and process certain personal information about Optionee and to transfer this data to certain third parties such as brokers with whom Optionee may elect to deposit any share capital under the Plan. Optionee consents to the Company (or its payroll administrators) collecting, holding and processing Optionee's personal data and transferring this data to the Company or any other third parties insofar as is reasonably necessary to implement, administer and manage the Plan.

(b) Optionee understands that Optionee may, at any time, view Optionee's personal data, require any necessary corrections to it or withdraw the consents herein in writing by contacting the Company, but acknowledges that without the use of such data it may not be practicable for the Company to administer Optionee's involvement in the Plan in a timely fashion or at all and this may be detrimental to Optionee.

10. Governing Law. This Agreement and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the State of Delaware, without giving effect to principles of conflicts of law.

11. Effect of Agreement. Optionee acknowledges receipt of a copy of the Plan and represents that he or she is familiar with the terms and provisions thereof (and has had an opportunity to consult counsel regarding the Option terms), and hereby accepts this Option and agrees to be bound by its contractual terms as set forth herein and in the Plan. Optionee hereby agrees to accept as binding, conclusive and final all decisions and interpretations of the Administrator regarding any questions relating to the Option. In the event of a conflict between the terms and provisions of the Plan and the terms and provisions of the Notice and this Agreement, the Plan terms and provisions shall prevail. The Option, including the Plan, constitutes the entire agreement between Optionee and the Company on

the subject matter hereof and supersedes all proposals, written or oral, and all other communications between the parties relating to such subject matter.

EXHIBIT A

Biocept, Inc.

2013 Amended and Restated Equity Incentive Plan

FORM OF EXERCISE NOTICE AND STOCK PURCHASE AGREEMENT

This Agreement ("Agreement") is made as of _____, by and between Biocept, Inc., a Delaware corporation (the "Company"), and _____ ("Purchaser"). To the extent any capitalized terms used in this Agreement are not defined, they shall have the meaning ascribed to them in the Company's 2013 Amended and Restated Equity Incentive Plan (the "Plan").

1. Exercise of Option. Subject to the terms and conditions hereof, Purchaser hereby elects to exercise his or her option to purchase _____ shares of the Common Stock (the "Shares") of the Company under and pursuant to the Plan and the Stock Option Agreement granted _____, _____ (the "Option Agreement"). The purchase price for the Shares shall be $_____ per Share for a total purchase price of $_____. The term "Shares" refers to the purchased Shares and all securities received in replacement of the Shares or as stock dividends or splits, all securities received in replacement of the Shares in a recapitalization, merger, reorganization, exchange or the like, and all new, substituted or additional securities or other properties to which Purchaser is entitled by reason of Purchaser's ownership of the Shares.

2. Time and Place of Exercise. The purchase and sale of the Shares under this Agreement shall occur at the principal office of the Company simultaneously with the execution and delivery of this Agreement subject to the conditions stated in and the other provisions of the Option Agreement, including Section 3(b) thereof. On or forthwith after such date, the Company will deliver to Purchaser a certificate representing the Shares to be purchased by Purchaser (which shall be issued in Purchaser's name) against payment of the exercise price therefor on such date by Purchaser by any method listed in Section 4 of the Option Agreement.

3. Limitations on Transfer. In addition to any other limitation on transfer created by applicable securities laws, Purchaser shall not assign, encumber or dispose of any interest in the Shares except in compliance with the provisions below and applicable securities laws.

4. Repurchase Option on Termination For Cause. Purchaser acknowledges that in the event of termination of Purchaser's Continuous Service for Cause, the Administrator shall have authority to effect such procedures and take such actions as are necessary to carry out the legal intent of Section 9(b)(iv) of the Option Agreement, including such procedures and actions as are required to cause Purchaser to return to the Company Shares purchased under the Option that have been purchased or that vested within six months of the events giving rise to the for-Cause termination of Purchaser's Continuous Service and, if such Shares have been transferred by the Purchaser, to remit to the Company the value of such transferred Shares.

5. Investment and Taxation Representations. In connection with the purchase of the Shares, Purchaser represents to the Company the following (provided, that the representation in subsections (b), (c), (d), (e) and (f) shall be applicable if and only if the Shares are not registered under the Securities Act on Form S-8):

(a) Purchaser is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Shares.

(b) Purchaser is purchasing these securities for investment for his or her own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the Securities Act or under any applicable provision of state law. Purchaser does not have any present intention to transfer the Shares to any person or entity.

(c) Purchaser understands that the Shares have not been registered under the Securities Act by reason of a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Purchaser's investment intent as expressed herein.

(d) Purchaser further acknowledges and understands that the securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. Purchaser further acknowledges and understands that the Company is under no obligation to register the securities. Purchaser understands that the certificate(s) evidencing the securities will be imprinted with a legend which prohibits the transfer of the securities unless they are registered or such registration is not required in the opinion of counsel for the Company.

(e) Purchaser is familiar with the provisions of Rule 144 promulgated under the Securities Act, which, in substance, permit limited public resale of "restricted securities" acquired, directly or indirectly, from the issuer of the securities (or from an affiliate of such issuer), in a non-public offering subject to the satisfaction of certain conditions. Purchaser understands that the Company provides no assurances as to whether he or she will be able to resell any or all of the Shares pursuant to Rule 144, which rule requires, among other things, that the Company be subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, that resales of securities take place only after the holder of the Shares has held the Shares for certain specified time periods, and under certain circumstances, that resales of securities be limited in volume and take place only pursuant to brokered transactions. Notwithstanding this paragraph (e), Purchaser acknowledges and agrees to the restrictions set forth in paragraph (f) below.

(f) Purchaser further understands that in the event all of the applicable requirements of Rule 144 are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption will be required; and that, notwithstanding the fact that Rule 144 is not exclusive, the Staff of the Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rule 144 will have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk.

(g) Purchaser understands that Purchaser may suffer adverse tax consequences as a result of Purchaser's purchase or disposition of the Shares. Purchaser represents that Purchaser has consulted any tax consultants Purchaser deems advisable in connection with the purchase or disposition of the Shares and that Purchaser is not relying on the Company for any tax advice.

(h) Purchaser understands that the per share "Exercise Price" for the Shares is intended to be at least equal to the fair market value of the Company's Common Stock at the date of grant and that the Company has attempted in good faith to make the fair market value determination in compliance with applicable tax law although there can be no certainty that the IRS will agree. Purchaser understands that if the IRS does not agree and asserts that the fair market value at the time of grant is higher than the Exercise Price, the IRS could seek to impose greater taxes on Purchaser, including interest and penalties under Internal Revenue Code Section 409A; but Purchaser absolves and releases the Company and its directors from any claims should there be any such taxes, interest or penalties.

6. **Restrictive Legends and Stop-Transfer Orders**.

(a) **Legends.** If the Shares have not been registered under the Securities Act on Form S-8, the certificate or certificates representing the Shares shall bear the following legend (as well as any legends required by applicable state and federal corporate and securities laws):

> THE SHARES REPRESENTED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AND HAVE BEEN ACQUIRED FOR INVESTMENT AND NOT WITH A VIEW TO, OR IN CONNECTION WITH, THE SALE OR DISTRIBUTION THEREOF. NO SUCH SALE OR DISTRIBUTION MAY BE EFFECTED UNLESS EFFECTED PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT RELATED THERETO OR UNDER ANOTHER EXEMPTION AVAILABLE UNDER THE SECURITIES ACT OF 1933 (AS TO WHICH AVAILABILITY THE COMPANY MAY

REQUIRE THE SELLER/TRANSFEROR TO PROVIDE AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY).

(b) **Stop-Transfer Notices.** Purchaser agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) **Refusal to Transfer.** The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

7. **No Employment Rights.** Nothing in this Agreement shall affect in any manner whatsoever the right or power of the Company, or a parent or subsidiary of the Company, to terminate Purchaser's employment or consulting relationship, for any reason, with or without Cause.

8. **Tax Consequences.** Purchaser should obtain advice from an appropriate independent professional adviser with respect to the taxation implications of the grant, issuance, purchase, retention, assignment, release, cancellation, sale or any other disposal of the Shares (each, a "Trigger Event"). Participant should also take advice in respect of the taxation indemnity provisions under Section 9 below.

9. **Purchaser's Taxation Indemnity**.

(a) To the extent permitted by law, Purchaser hereby agrees to indemnify and keep indemnified the Company and the Company as trustee for and on behalf of any affiliate entity, in respect of any liability or obligation of the Company and/or any affiliate entity to account for income tax or any other taxation provisions under the laws of Purchaser's country or citizenship and/or residence to the extent arising from a Trigger Event.

(b) The Company shall not be obliged to allot and issue any of the Shares or any interest in the Shares unless and until Purchaser has paid to the Company such sum as is, in the opinion of the Company, sufficient to indemnify the Company in full against any liability the Company has for any amount of, or representing, income tax or any other tax arising from a Trigger Event (the "Shares Tax Liability"), or Purchaser has made such other arrangement as in the opinion of the Company will ensure that the full amount of any Shares Tax Liability will be recovered from Purchaser within such period as the Company may then determine.

10. **Data Protection**.

(a) To facilitate the administration of the Plan and this Agreement, it will be necessary for the Company (or its payroll administrators) to collect, hold and process certain personal information about Purchaser and to transfer this data to certain third parties such as brokers with whom Purchaser may elect to deposit any share capital under the Plan. Purchaser consents to the Company (or its payroll administrators) collecting, holding and processing Purchaser's personal data and transferring this data to the Company or any other third parties insofar as is reasonably necessary to implement, administer and manage the Plan.

(b) Purchaser understands that Purchaser may, at any time, view Purchaser's personal data, require any necessary corrections to it or withdraw the consents herein in writing by contacting the Company, but acknowledges that without the use of such data it may not be practicable for the Company to administer Purchaser's involvement in the Plan in a timely fashion or at all and this may be detrimental to Purchaser.

11. Miscellaneous.

(a) Governing Law. This Agreement and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the State of Delaware, without giving effect to principles of conflicts of law.

(b) Entire Agreement; Enforcement of Rights. This Agreement sets forth the entire agreement and understanding of the parties relating to the subject matter herein and merges all prior discussions between them. No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. The failure by either party to enforce any rights under this Agreement shall not be construed as a waiver of any rights of such party.

(c) Severability. If one or more provisions of this Agreement are held to be unenforceable under applicable law, the parties agree to renegotiate such provision in good faith. In the event that the parties cannot reach a mutually agreeable and enforceable replacement for such provision, then (i) such provision shall be excluded from this Agreement, (ii) the balance of the Agreement shall be interpreted as if such provision were so excluded and (iii) the balance of the Agreement shall be enforceable in accordance with its terms.

(d) Notices. Any notice required or permitted by this Agreement shall be in writing and shall be deemed sufficient when delivered personally or sent by email or fax or forty-eight (48) hours after being deposited in the U.S. mail, as certified or registered mail, with postage prepaid, and addressed to the party to be notified at such party's address as set forth below or as subsequently modified by written notice.

(e) Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original and all of which together shall constitute one instrument.

(f) Successors and Assigns. The rights and benefits of this Agreement shall inure to the benefit of, and be enforceable by the Company's successors and assigns. The rights and obligations of Purchaser under this Agreement may only be assigned with the prior written consent of the Company.

[Signature Page Follows]

The parties have executed this Exercise Notice and Stock Purchase Agreement as of the date first set forth above.

COMPANY:

BIOCEPT, INC.

By:

Name:

Title:

PURCHASER:

(Signature)

(Printed Name)

Address:

RECEIPT

The undersigned hereby acknowledges receipt of Certificate No. ____ for _____ shares of Common Stock of Biocept, Inc.

Dated:

Purchaser

RECEIPT

Biocept, Inc. (the "Company") hereby acknowledges receipt of check in the amount of $_____ given by _____ as consideration for Certificate No. _____ for _____ shares of Common Stock of the Company.

Dated:

BIOCEPT, INC.

By:

Name:

Title:

BIOCEPT, INC.

2013 Amended and Restated Equity Incentive Plan

FORM OF RESTRICTED STOCK UNIT AGREEMENT

This Restricted Stock Unit Agreement (this "**Agreement**") is made and entered into as of [DATE] (the "**Grant Date**") by and between Biocept, Inc., a Delaware corporation (the "**Company**") and [NAME] (the "**Grantee**").

WHEREAS, the Company has adopted the Biocept, Inc. 2013 Amended and Restated Equity Incentive Plan, (the "**Plan**") pursuant to which awards of Restricted Stock Units may be granted; and

WHEREAS, the Committee (or the Board) has determined that it is in the best interests of the Company and its stockholders to grant the award of Restricted Stock Units provided for herein, and accordingly has so granted.

NOW, THEREFORE, the parties hereto, intending to be legally bound, agree as follows:

1. Grant of Restricted Stock Units.

1.1 Pursuant to Section 7.2 of the Plan, the Company hereby issues to the Grantee on the Grant Date an Award consisting of, in the aggregate, [NUMBER] Restricted Stock Units (the "**Restricted Stock Units**"). Each Restricted Stock Unit represents the right to receive one share of Common Stock, subject to the terms and conditions set forth in this Agreement and the Plan. Capitalized terms that are used but not defined herein have the meaning ascribed to them in the Plan.

1.2 The Restricted Stock Units shall be credited to the Grantee on the books and records of the Company. All amounts credited to the Grantee shall continue for all purposes to be part of the general assets of the Company.

2. Consideration. The grant of the Restricted Stock Units is made in consideration of the services to be rendered by the Grantee to the Company.

3. Vesting.

3.1 Except as otherwise provided herein, provided that the Grantee remains in Continuous Service through the applicable vesting date, the Restricted Stock Units will vest in accordance with the following schedule:

Vesting Date	**Number of Restricted Stock Units That Vest**
[VESTING DATE 1]	[NUMBER OR PERCENTAGE OF UNITS THAT VEST ON THE VESTING DATE]
[VESTING DATE 2]	[NUMBER OR PERCENTAGE OF UNITS THAT VEST ON THE VESTING DATE]

Once vested, the Restricted Stock Units become **"Vested Units."**

3.2 Except as provided in the next sentence, if the Grantee's Continuous Service terminates for any reason at any time before all of his or her Restricted Stock Units have vested, the Grantee's unvested Restricted Stock Units (except for unvested Restricted Stock Units which vest simultaneously with such termination) shall be automatically forfeited upon such termination of Continuous Service and neither the Company nor any Affiliate shall have any further obligations to the Grantee with respect to such unvested Restricted Stock Units.

The foregoing vesting schedule notwithstanding, if the Grantee's Continuous Service terminates under the circumstances and during the period as specified in Section 12.1(a) of the Plan pertaining to a "double trigger," or terminates as a result of the Grantee's death or Disability, then (subject to **Section 10.2**) 100% of the unvested Restricted Stock Units shall vest as of the date of such termination.

4. Restrictions. Subject to any exceptions set forth in this Agreement or the Plan, from the Grant Date until such time as the Restricted Stock Units are settled in accordance with **Section 6**, the Restricted Stock Units or the rights relating thereto may not be assigned, alienated, pledged, attached, sold or otherwise transferred or encumbered

by the Grantee. Any attempt to assign, alienate, pledge, attach, sell or otherwise transfer or encumber the Restricted Stock Units or the rights relating thereto shall be wholly ineffective and, if any such attempt is made, the Restricted Stock Units will be forfeited by the Grantee and all of the Grantee's rights to such units shall immediately terminate without any payment or consideration by the Company.

5. Rights as Stockholder.

5.1 The Grantee shall not have any rights of a stockholder with respect to the shares of Common Stock underlying the Restricted Stock Units unless and until and except to the extent that (a) such Restricted Stock Units have become Vested Units and (b) such Vested Units are settled by the issuance of shares of Common Stock.

5.2 Upon and following the settlement of the Vested Units, the Grantee shall be the record owner of the shares of Common Stock which had underlain the Vested Units unless and until such shares are sold or otherwise disposed of, and as record owner shall be entitled to all rights of a stockholder of the Company (including voting rights).

6. Settlement of Restricted Stock Units.

6.1 Subject to **Section 9** hereof, promptly following the Trigger Date, the Company shall (a) issue and deliver to the Grantee the number of shares of Common Stock equal to the number of Vested Units; and (b) enter the Grantee's name on the books of the Company as the stockholder of record with respect to the shares of Common Stock delivered to the Grantee. The "**Trigger Date**" means the earliest of (a) [DATE-CERTAIN TRIGGER DATE], (b) the date of a "double trigger" termination of Continuous Service under the circumstances and during the period as specified in Section 12.1(a) of the Plan (but only in the event that the Change in Control which is one of the triggers in such "double trigger" termination of Continuous Service is an event described in Section 409A(a)(2)(A)(v) of the Code and the regulations and other guidance promulgated thereunder and/or that such qualifying termination of Continuous Service which is the other trigger in such "double trigger" termination of Continuous Service is a "separation from service" as described in Section 409A(a)(2)(A)(i) of the Code and the regulations and other guidance promulgated thereunder), (c) the date the Grantee's Continuous Service terminates as a result of the Grantee's Disability (but only, in such case, in the event that such termination of Continuous Service is due to the Grantee becoming "disabled" as described in Section 409A(a)(2)(C) of the Code and the regulations and other guidance promulgated thereunder) or death, or (d) upon verification by the Committee as such and a determination by the Committee, as a matter of grace, to allow such to be a Trigger Date, the date of an unforeseeable emergency as described in Section 409A(a)(2)(A)(vi) of the Code and the regulations and other guidance promulgated thereunder, but only to the extent necessary to satisfy such emergency and to pay taxes reasonably anticipated as a result thereof after taking into account the extent to which such hardship is or may be relieved through reimbursement or compensation by insurance or otherwise or by liquidation of the Grantee's assets (to the extent the liquidation of such assets would not itself cause severe financial hardship) (determined in accordance with Section 409A(a)(2)(B)(ii)(II) of the Code and the regulations and other guidance promulgated thereunder).

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

7. No Right to Continued Service. Neither the Plan nor this Agreement shall confer upon the Grantee any right to be retained in any position, as an Employee, Consultant or Director of the Company. Further, nothing in the Plan or this Agreement shall be construed to limit the discretion of the Company to terminate the Grantee's Continuous Service at any time, with or without Cause.

8. Adjustments. If any change is made to the outstanding Common Stock or the capital structure of the Company, if required, the Restricted Stock Units shall be adjusted or terminated in any manner as contemplated by Section 11 of the Plan.

9. Tax Liability and Withholding.

9.1 The Grantee shall be required to pay to the Company, and the Company shall have the right to deduct from any compensation (or other) obligations paid or payable to the Grantee pursuant to the Plan, the amount of any required employee-side withholding taxes in respect of the Restricted Stock Units and to take all such other action as the Committee deems necessary to satisfy all obligations for the payment of such withholding taxes. The Committee shall require, as a precondition to the issuance and delivery of shares of Common Stock hereunder, that the Grantee have paid the Company in cash an amount equal to 100% of all federal, state and local employee-side withholding taxes associated with the Restricted Stock Units or the issuance and delivery of shares of Common Stock hereunder; provided, however, that subject to the discretion of the Committee, the Committee may instead determine to allow the Grantee to satisfy this sentence's requirement for payment of all federal, state and local employee-side tax withholding obligation by any of the following means (if so expressly allowed) or by a combination of such means expressly allowed, in any event totaling in value 100% of such amount: (a) authorizing the Company to withhold cash from any cash compensation to be paid to the Grantee, provided both the Company and the Grantee actually and reasonably believe cash compensation sufficiently large will become payable to the Participant within 45 days; (b) tendering a partial cash payment; (c) authorizing the Company to withhold shares of Common Stock from the shares of Common Stock otherwise issuable to the Grantee as a result of the Restricted Stock Units, provided, however, that no shares of Common Stock are withheld with a value exceeding the minimum amount of tax required to be withheld by Applicable Law; or (d) delivering to the Company previously owned and unencumbered shares of Common Stock of the Company. Common Stock so withheld or delivered would be valued at its Fair Market Value as of the date of measurement of the amount of income subject to withholding. It is understood that the Committee may in its discretion decline to allow any or all of such alternative methods, and indeed may in its discretion require actual full cash payment in advance.

9.2 Notwithstanding any action the Company takes with respect to any or all income tax, social insurance, payroll tax, or other tax-related withholding ("**Tax-Related Items**"), the ultimate liability for all Tax-Related Items is and remains the Grantee's responsibility and the Company (a) makes no representation or undertakings regarding the treatment of any Tax-Related Items in connection with the grant, vesting or settlement of the Restricted Stock Units or the subsequent sale of any shares; and (b) does not commit to structure the Restricted Stock Units to reduce or eliminate the Grantee's liability for Tax-Related Items.

10. Confidentiality Obligations; Non-solicitation.

10.1 In consideration of the Restricted Stock Units, the Grantee agrees and covenants not to, directly or indirectly, solicit, recruit, attempt to hire or recruit, or induce the termination of employment of any employee of the Company or its Affiliates for 12 months following the Grantee's termination (due to whatever reason or cause) of Continuous Service.

10.2 If the Grantee breaches the covenant set forth in Section 10.1 or commits an intentional and non-trivial breach of any written confidential information and/or intellectual property assignment agreement with the Company:

(a) all unvested Restricted Stock Units shall be immediately forfeited; and

(b) the Grantee hereby consents and agrees that the Company shall be entitled to seek, in addition to other available remedies, a temporary, preliminary or permanent injunction or other equitable relief against such breach or threatened breach from any court of competent jurisdiction, without the necessity of showing any actual damages or that money damages would not afford an adequate remedy, and without the necessity of posting any bond or other security. The aforementioned equitable relief shall be in addition to, not in lieu of, legal remedies, monetary damages or other available forms of relief.

11. Compliance with Law. The issuance and transfer of shares of Common Stock shall be subject to compliance by the Company and the Grantee with all applicable requirements of federal and state securities laws and with all applicable requirements of any securities exchange on which the Company's shares of Common Stock may be listed. No shares of Common Stock shall be issued or transferred unless and until any then applicable requirements of state

and federal laws and regulatory agencies have been fully complied with to the satisfaction of the Company and its counsel.

12. Notices. Any notice required to be delivered to the Company under this Agreement shall be in writing and addressed to the Secretary of the Company at the Company's principal corporate offices. Any notice required to be delivered to the Grantee under this Agreement shall be in writing and addressed to the Grantee at the Grantee's address as shown in the records of the Company. Either party may designate another address in writing (or by such other method approved by the Company) from time to time.

13. Governing Law. This Agreement will be construed and interpreted in accordance with the laws of the State of Delaware without regard to conflict of law principles.

14. Interpretation. Any dispute regarding the interpretation of this Agreement shall be submitted by the Grantee or the Company to the Committee for review. The resolution of such dispute by the Committee shall be final and binding on the Grantee and the Company.

15. Restricted Stock Units Subject to Plan. This Agreement is subject to the Plan, as it may be amended from time to time. The terms and provisions of the Plan as it may be amended from time to time are hereby incorporated herein by reference. In the event of a conflict between any term or provision contained herein and a term or provision of the Plan, the applicable terms and provisions of the Plan will govern and prevail.

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

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

18. Discretionary Nature of Plan. The Plan is discretionary and may be amended, cancelled or terminated by the Company at any time, in its discretion. The grant of the Restricted Stock Units in this Agreement does not create any contractual right or other right to receive any other Restricted Stock Units or other Awards in the future. Future Awards, if any, will be at the sole discretion of the Company. Any amendment, modification, or termination of the Plan shall not constitute a change or impairment of the terms and conditions of the Grantee's employment with the Company.

19. Amendment. The Committee has the right to amend, alter, suspend, discontinue or cancel the Restricted Stock Units, prospectively or retroactively; provided, that no such amendment, alteration, suspension, discontinuance or cancellation shall adversely affect the Grantee's material rights under this Agreement without the Grantee's consent.

20. Section 409A. This Agreement is intended to comply with Section 409A of the Code or an exemption thereunder and shall be construed and interpreted in a manner that is consistent with the requirements for avoiding additional taxes or penalties under Section 409A of the Code. Notwithstanding the foregoing, the Company makes no representations that the payments and benefits provided under this Agreement comply with Section 409A of the Code and in no event shall the Company be liable for all or any portion of any taxes, penalties, interest or other expenses that may be incurred by the Grantee on account of non-compliance with Section 409A of the Code.

21. No Impact on Other Benefits. The value of the Grantee's Restricted Stock Units is not part of his or her normal or expected compensation for purposes of calculating any severance, retirement, welfare, insurance or similar employee benefit.

22. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original but all of which together will constitute one and the same instrument. Counterpart signature pages to this Agreement

transmitted by facsimile transmission, by electronic mail in portable document format (.pdf), or by any other electronic means intended to preserve the original graphic and pictorial appearance of a document, will have the same effect as physical delivery of the paper document bearing an original signature.

23. Acceptance. The Grantee hereby acknowledges receipt of a copy of the Plan and this Agreement. The Grantee has read and understands the terms and provisions thereof, and accepts the Restricted Stock Units subject to all of the terms and conditions of the Plan and this Agreement. The Grantee acknowledges that there may be adverse tax consequences upon the vesting or settlement of the Restricted Stock Units or disposition of the underlying shares and that the Grantee has been advised to consult a tax advisor before such vesting, settlement or disposition.

IN WITNESS WHEREOF, the parties hereto have executed this Restricted Stock Unit Agreement as of the Grant Date.

BIOCEPT, INC.

By: _____
Name:
Title:

[NAME]

_____

Exhibit 10.15

FIRST AMENDMENT TO EMPLOYMENT AGREEMENT

This **First Amendment to that certain Employment Agreement** (this "***Amendment***") is entered into effective as of February 18, 2022, by and between **Biocept, Inc.**, a Delaware corporation ("***Company***"), and Darrell Taylor ("***Employee***").

RECITALS

Whereas, Company and Employee are parties to that certain Employment Agreement, made and effective as of December 27, 2021, and as subsequently amended (collectively the "***Agreement***"); and

Whereas, Company and Employee believe that it would be in their mutual best interest to partially revise and amend the Agreement by modifying it as set forth in this Amendment;

consideration of the foregoing and the promises and covenants contained herein and in the Employment Agreement, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

AGREEMENT

1. **Amendment to Section 2(a).** The parties mutually agree that the Agreement is amended, effective the date of this Amendment, by amending Section 2(a) by replacing "General Counsel" with "Chief Legal Officer".
2. **Amendment to Section 3(a).** The parties mutually agree that the Agreement is amended, effective the date of this Amendment, by amending Section 3(a) by changing the base salary to read "Four Hundred Thousand Dollars ($400,000)".
3. **Amendment to Section 3(b).** The parties mutually agree that the Agreement is amended, effective the date of this Amendment, by amending Section 3(b) by changing the target bonus to "40%".
4. **Amendment to Section 3(f).** The parties mutually agree that the Agreement is amended, effective the date of this Amendment, by amending Section 3(f) by changing the initial option grant to "150,000".
5. **Amendment to Section 4(b)(i).** The parties mutually agree that the Agreement is amended, effective the date of this Amendment, by amending Section 4(b)(i) by changing the number of months of severance pay to "six (6)".
6. Except as expressly modified by this Amendment the Agreement shall remain unmodified and in full force and effect.This Amendment may be executed in counterparts and signatures delivered by email, each of which shall be deemed an original, but all of which together shall constitute one instrument. Should there be any conflict between the terms and conditions of this Amendment and the terms and conditions of the Agreement, the parties agree that the terms and conditions of this Amendment shall control/prevail.

ss Whereof, the parties have executed this Amendment as of the date set forth in the first paragraph hereof.

Biocept, Inc.	**Darrell Taylor**
By: /s/ Samuel D. Riccitelli	By: /s/ Darrell Taylor
Samuel D. Riccitelli	Darrell Taylor, JD, BSMT (ASCP)
President and CEO	Chief Legal Officer & Chief Compliance Officer Chairman, Board of Directors

December 9, 2021

Mr. Darrell Taylor, JD, BSMT (ASCP)
San Diego, CA

Re: Employment Terms

Dear Darrell:

Biocept, Inc. (the "Company") is pleased to offer you the position of Senior Vice President, General Counsel and Chief Compliance Officer on the following terms.

You will be expected to perform various duties according to the needs of the Company. This position is responsible to handle all our company's legal transactions, partnerships, and projects, either with in-house resources or by utilizing external counsel. This will include but is not limited to securities offerings, public company reporting compliance, corporate transactions across the U.S., all patents and ensuring compliant employee relations. This position will also ensure that our company's transactions comply with state laws and regulations, while actively helping our company avoid possible legal risks and violations. Other duties will include consulting and leading all corporate legal processes such as strategic discussions with other parties, compliance issues, transactions, partnerships, and lawsuits with sharp attention to detail. You will report to Michael Nall, the company's President and CEO at our facility located at 9955 Mesa Rim Road, San Diego, CA 92121. As an exempt salaried employee, you will be expected to work the hours required by the nature of your work assignments.

Your compensation will be a base salary of $340,000.00 per year ($13,076.92 bi-weekly) plus eligibility to earn a performance bonus under our annual management incentive plan based on the achievement of corporate and/or individual goals, with a "target award percentage" of 35% of your annual base salary, less payroll deductions and all required withholdings as approved by the Company's Board of Directors ("Board"). Your performance bonus for the 2021 calendar year, if any, will be prorated based on your start date. You will be paid bi-weekly, and you will be eligible for the following standard Company benefits: medical insurance, vacation/personal time off, and holidays. Details about these benefits are provided in the Employee Handbook and Summary Plan Descriptions, available for your review at New Employee Orientation. The Company may change compensation and benefits from time to time in its discretion. You will also be provided with an employment agreement for your review.

In addition, as a material inducement to your acceptance of our offer of employment, subject to approval by the Board or its Compensation Committee, the Company shall grant you a nonqualified stock option to purchase 134,550 shares of the Company's common stock at the fair market value as determined by the Board as of the date of grant (the "Option"). The Option will have a four-year vesting schedule, under which 25 percent of your shares will vest after twelve months of employment, with the remaining shares vesting monthly thereafter, until either the Option is fully vested or your employment ends, whichever occurs first. The Company understands that you would not accept employment with the Company but for the granting of the Option. The Option grant will be subject to the terms of the Company's Amended and Restated 2013 Equity Incentive Plan, as amended (the "Plan"), and will be approved by the Board or its Compensation Committee pursuant to the "inducement exception" provided under Nasdaq Market Place Rule 5635(c)(4) and Nasdaq IM-5635-1. You will receive copies of the Plan and Option grant notice and agreement promptly after the Board's or its Compensation Committee's approval of the Option grant.

As a Company employee, you will be expected to abide by Company policies and procedures and acknowledge in writing that you have read and will comply with the Company's Employee Handbook and the Code of Ethical Business Conduct.

In your work for the Company, you will be expected not to use or disclose any confidential information, including trade secrets, of any former employer or other person to whom you have an obligation of confidentiality. Rather, you will be expected to use only that information which is generally known and used by persons with training and experience comparable to your own, which is common knowledge in the industry or otherwise legally in the public domain, or

which is otherwise provided or developed by the Company. You agree that you will not bring onto Company premises or use in your work for the Company any unpublished documents or property belonging to any former employer or third party that you are not authorized to use and disclose. You represent further that you have disclosed to the Company any contract you have signed that may restrict your activities on behalf of the Company. By accepting employment with the Company, you are representing that you will be able to perform your job duties within these guidelines.

While we are hopeful that your employment relationship with the Company will be beneficial to you and to the Company, this is not a guarantee of employment. As discussed, the Company will provide you with an Executive Employment Agreement for your review and it will only be upon the mutual execution of that document that you will be hired by the Company.

If you accept this offer, you will begin work contingent upon (a) your successful completion of a background and reference check (b) your executing the enclosed Proprietary Information and Inventions Agreement; (c) your providing us with proof of your identity and authorization to work in the United States within three days of hire, pursuant to the Immigration and Naturalization Act; and (d) verification that you are not (i) currently debarred, suspended, excluded or otherwise ineligible to participate in any federal or state healthcare program; and/or (ii) currently under investigation or involved in any proceeding that might result in your debarment, suspension, exclusion or ineligibility to participate in any federal or state healthcare program. Biocept will not employ or contract with any individual who is debarred, suspended, excluded or otherwise ineligible to participate in any federal program.

We are pleased to make this offer and look forward to your joining the Company. If you accept this offer, please sign, and return this letter along with the executed Proprietary Information and Inventions Agreement and Background Authorization no later than December 13, 2021. If you accept our offer, we would like you to start on or about Tuesday, December 27, 2021, at 9:00 AM pending approval by the Board and pending successful completion of references and background checks.

We look forward to your favorable reply and to a productive and enjoyable work relationship.

Sincerely,

/s/ Michael Nall 12/09/2021
Michael Nall, President and CEO Date

I accept employment with Biocept Inc. as outlined in this letter. My signature below certifies that I understand and agree that my employment relationship with the Company is at-will. I understand that my agreement with Company on my at-will status is the final and entire agreement between Company and me concerning the manner in which my employment with Company may be terminated and other conditions of my employment changed.

S/s Darrell Taylor 12/09/2021
Mr. Darrell Taylor, JD, BSMT (ASCP) Date

Exhibit 10.16

BIOCEPT, INC.
NON-EMPLOYEE DIRECTOR COMPENSATION POLICY

Each member of the Board of Directors (the "***Board***") of Biocept, Inc. (the "***Company***") who is a non-employee director of the Company (each such member, a "***Non-Employee Director***") will receive the compensation described in this Non-Employee Director Compensation Policy (the "***Director Compensation Policy***").

A Non-Employee Director may decline all or any portion of his or her compensation by giving notice to the Company prior to the date cash is to be paid or equity awards are to be granted, as the case may be.

- Annual Retainer.

  For service as a director: an annual cash retainer of $40,000 (in addition to any annual cash retainers otherwise paid).

- Board Chair.

  For service as Board Chair: an annual cash retainer of $50,000 (in addition to any annual cash retainers otherwise paid).

- Lead Independent Director.

  For service as Lead Independent Director: an annual cash retainer of $50,000 (in addition to any annual cash retainers otherwise paid).

- Audit Committee.

  For service as Chair of the audit committee: an annual cash retainer of $15,000 (in addition to any annual cash retainers otherwise paid).

  For service as member of the audit committee other than as its Chair: an annual cash retainer of $7,500 (in addition to any annual cash retainers otherwise paid).

- Compensation Committee.

  For service as Chair of the compensation committee: an annual cash retainer of $10,000 (in addition to any annual cash retainers otherwise paid).

  For service as member of the compensation committee other than as its Chair: an annual cash retainer of $5,000 (in addition to any annual cash retainers otherwise paid).

- Nominating and Corporate Governance Committee.

  For service as Chair of the nominating and corporate governance committee: an annual cash retainer of $10,000 (in addition to any annual cash retainers otherwise paid).

  For service as member of the nominating and corporate governance committee other than as its Chair: an annual cash retainer of $5,000 (in addition to any annual cash retainers otherwise paid).

- Science, Technology and Clinical Affairs Committee.

  For service as Chair of the science, technology and clinical affairs committee: an annual cash retainer of $10,000 (in addition to any annual cash retainers otherwise paid).

  For service as member of the science, technology and clinical affairs committee other than as its Chair: an annual cash retainer of $5,000 (in addition to any annual cash retainers otherwise paid).

- Initial Awards.

  For each Non-Employee Director who is initially elected or appointed to the Board: an option to purchase 10,000 shares of common stock.

- Annual Awards.

  For each Non-Employee Director who (i) has been serving on the Board for at least six months as of the date of any annual meeting of the stockholders and (ii) will continue to serve as a Non-Employee Director immediately following such meeting: an option to purchase 10,000 shares of common stock.

The annual cash retainers shall be earned and paid on a calendar quarterly basis, subject to proration in the case of service during only a portion of a calendar quarter.

The per share exercise price of each option granted to the Non-Employee Directors shall equal the fair market value of a share of common stock on the date the option is granted. Each such initial award shall vest and become exercisable in substantially equal installments on each of the first three anniversaries of the vesting commencement date, subject to Continuous Service (as defined in the Company's Amended and Restated 2013 Equity Incentive Plan, as amended (the "***Plan***")) on the Board through each such vesting date; provided, that all stock options under the Director Compensation Policy shall vest in full upon the occurrence of a Change in Control (as defined in the Plan). Each such annual award shall fully vest and become exercisable on the first anniversary of the vesting commencement date, subject to Continuous Service on the Board through each such vesting date; provided, that all stock options under the Director Compensation Policy shall vest in full upon the occurrence of a Change in Control. The term of each such stock option shall be 10 years from the date the option is granted. Upon a Non-Employee Director's cessation of Continuous Service on the Board for any reason, his or her stock options granted under this Director Compensation Policy would, to the extent vested on the date of cessation of Continuous Service, remain exercisable for 12 months following the cessation of his or her Continuous Service on the Board (or such longer period as the Board may determine in its discretion on or after the date of such stock options).

Exhibit 10.19

BIOCEPT, INC.

February 15, 2022

Michael W. Nall
michaelnall1009@gmail.com

Dear Michael:

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

1. SEPARATION. Your last day of work with the Company and your employment termination date will be February 15, 2022 (the "**Separation Date**").

2. ACCRUED SALARY AND PAID TIME OFF. On the Separation Date, the Company will pay you all accrued salary and all accrued and unused PTO earned through the Separation Date, subject to standard payroll deductions and withholdings. You are entitled to this payment by law.

3. SEVERANCE PAYMENT. In full satisfaction of your employment agreement with the Company, dated as of August 26, 2013 (the "Employment Agreement"), if you timely sign this Agreement, allow it to become effective, and comply with your obligations under it (provided youwill not be considered non-compliant unless you have received written notice of such and at leastthirty (30) days to cure) (collectively, the "**Severance Preconditions**"), then the Company will pay you, as severance, the equivalent of twelve (12) months of your base salary in effect as of theSeparation Date, subject to standard payroll deductions and withholdings. This amount will be paid on a monthly basis consistent with regularly scheduled Company payroll occurring on or afterthe 30th calendar day after the Separation Date, provided that this Agreement has become Effectiveby its terms (as defined in Section 8(c) of this Agreement). In addition, the Company will pay youyour annual Bonus for 2021. If the Company exercises its discretion for the purposes of determining your Bonus for 2021, the Board shall treat you no less favorably than it treats the Company's other senior executives. The Bonus for 2021will be payable no later than the time thatthe Company pays performance Bonuses for 2021 to the Company's other senior executives.

4. HEALTH INSURANCE. Unless you follow the procedures set forth in this paragraph, your participation in the Company's group health insurance plan will end on the last day of the month in which the Separation Date occurs. To the extent provided by the federal COBRA law or,if applicable, state insurance laws, and by the Company's current group health insurance policies,you will be eligible to continue your group health insurance benefits at your own expense following the Separation Date. Later, you may be able to convert to an individual policy through the provider of the Company's health insurance, if you wish. You will be provided with a separatenotice describing your rights and obligations under COBRA and a form for electing COBRA coverage. As an additional severance benefit under this Agreement, provided that you satisfy the

Severance Preconditions set forth above and timely elect continued coverage under COBRA, thenthe Company shall reimburse you for the COBRA premiums to continue your health insurance coverage (including coverage for eligible dependents, if applicable) through the period (the "**COBRA Premium Period**") starting on the Separation Date and ending on the earliest to occurof: (i) twelve (12) months following your Separation Date; (ii) the date you become eligible for group health insurance coverage through a new employer; or (iii) the date you cease to be eligiblefor COBRA coverage for any reason. You must timely pay your premiums, and then provide documentation to the Company, to obtain reimbursement for your COBRA premiums under this Section 4. In the event you become covered under another employer's group health plan or otherwise cease to be eligible for COBRA during the COBRA Premium Period, you mustimmediately notify the Company in writing.

5. STOCK AWARDS. Under the terms of your Employment Agreement and the applicablestock option grant and equity incentive plan documents, vesting and/or exercisability of any outstanding stock options, restricted stock and such other awards granted pursuant to the Company's stock option and equity incentive award plans or agreements and any shares of stock issued upon exercise thereof ("Stock Awards") that are subject to time-based vesting requirementsshall be automatically accelerated as of the Separation Date as to the number of Stock Awards thatwould vest over the twelve (12) month period following the Separation Date had you remained continuously employed by the Company during such period. Your right to exercise any vested shares, and all other rights and obligations with respect to your stock options(s), will be as set forthin your stock option agreement, grant notice and applicable plan documents.

6. OTHER COMPENSATION OR BENEFITS. You acknowledge that, except as expressly provided in this Agreement, you have not earned and will not receive from the Company any additional compensation (including base salary, bonus, incentive compensation, or equity), severance, or benefits before or after the Separation Date, with the exception of any vested right you may have under the express terms of a written ERISA-qualified benefit plan (e.g., 401(k) account) or any vested stock options.

7. EXPENSE REIMBURSEMENTS. You agree that, within thirty (30) calendar days after theSeparation Date, you will submit your final documented expense reimbursement statementreflecting all business expenses you incurred through the Separation Date, if any, for which you seek reimbursement. The Company will reimburse you for these expenses pursuant to its regular business practice.

8. RELEASE OF CLAIMS.

(a) General Release of Claims. In exchange for the consideration provided toyou under this Agreement to which you would not otherwise be entitled, you hereby generally andcompletely release the Company, and its affiliated, related, parent and subsidiary entities, and its and their current and former directors, officers, employees, shareholders, partners, agents, attorneys, predecessors, successors, insurers, affiliates, and assigns from any and all claims, liabilities, demands, causes of action, and obligations, both known and unknown, arising from or

in any way related to events, acts, conduct, or omissions occurring at any time prior to andincluding the date you sign this Agreement.

(b) Scope of Release. This general release includes, but is not limited to: (a) allclaims arising from or in any way related to your employment with the Company or the terminationof that employment; (b) all claims related to your compensation or benefits from the Company, including salary, bonuses, commissions, vacation pay, expense reimbursements, severance pay, fringe benefits, stock, stock options, or any other ownership, equity, or profits interests in the Company; (c) all claims for breach of contract, wrongful termination, and breach of the implied covenant of good faith and fair dealing; (d) all tort claims, including claims for fraud, defamation,emotional distress, and discharge in violation of public policy; and (e) all federal, state, and local statutory claims, including claims for discrimination, harassment, retaliation, attorneys' fees, or other claims arising under the federal Civil Rights Act of 1964 (as amended), the federalAmericans with Disabilities Act of 1990, the California Labor Code (as amended), the CaliforniaFamily Rights Act, the Age Discrimination in Employment Act ("**ADEA**") and the California FairEmployment and Housing Act (as amended). **You acknowledge that you have been advised, asrequired by California Government Code Section 12964.5(b)(4), that you have the right to consult an attorney regarding this Agreement and that you were given a reasonable time period of not less than five business days in which to do so.** You further acknowledge and agreethat, in the event you sign this Agreement prior to the end of the reasonable time period providedby the Company, your decision to accept such shortening of time is knowing and voluntary and is not induced by the Company through fraud, misrepresentation, or a threat to withdraw or alter theoffer prior to the expiration of the reasonable time period, or by providing different terms to employees who sign such an agreement prior to the expiration of the time period.

(c) ADEA Release. You acknowledge that you are knowingly and voluntarilywaiving and releasing any rights you have under the ADEA, and that the consideration given for the waiver and releases you have given in this Agreement is in addition to anything of value to which you were already entitled. You further acknowledge that you have been advised, as requiredby the ADEA, that: (a) your waiver and release does not apply to any rights or claims arising afterthe date you sign this Agreement; (b) you should consult with an attorney prior to signing this Agreement (although you may choose voluntarily not to do so); (c) you have twenty-one (21) calendar days to consider this Agreement (although you may choose voluntarily to sign it sooner); **(d)** you have seven (7) calendar days following the date you sign this Agreement to revoke this Agreement (in a written revocation sent to the Company); and (e) this Agreement will not be effective until the date upon which the revocation period has expired, which will be the eighth calendar day after you sign this Agreement provided that you do not revoke it (the "**Effective Date**").

(d) Section 1542 Waiver. In giving the release herein, which includes claims which may be unknown to you at present, you acknowledge that you have read and understand Section 1542 of the California Civil Code, which reads as follows:

> **"A general release does not extend to claims that the creditor or releasingparty does not know or suspect to exist in his or her favor at the time of**

executing the release and that, if known by him or her, would have materiallyaffected his or her settlement with the debtor or released party."

You hereby expressly waive and relinquish all rights and benefits under that section and any law of any other jurisdiction of similar effect with respect to your release of claims herein, including but not limited to your release of unknown claims.

(e) Exceptions. Notwithstanding the foregoing, you are not releasing the Company hereby from: (i) any obligation to indemnify you pursuant to the Articles and Bylaws ofthe Company, any valid fully executed indemnification agreement with the Company, applicable law, or applicable directors and officers liability insurance; (ii) any claims that cannot be waived by law; (iii) any vested rights you may have under the employee benefit plans, programs, or policies of the Company and its affiliates; (iv) your rights following the date hereof with respect to any equity interests you hold in the Company or any of its past or present affiliates; or (iv) anyclaims for breach of this Agreement.

(f) Protected Rights. You understand that nothing in this Agreement limits your ability to file a charge or complaint with the Equal Employment Opportunity Commission, the Department of Labor, the National Labor Relations Board, the Occupational Safety and HealthAdministration, the California Department of Fair Employment and Housing, the Securities and Exchange Commission or any other federal, state or local governmental agency or commission ("**Government Agencies**"). You further understand this Agreement does not limit your ability tocommunicate with any Government Agencies or otherwise participate in any investigation or proceeding that may be conducted by any Government Agency, including providing documents orother information, without notice to the Company. While this Agreement does not limit your rightto receive an award for information provided to the Securities and Exchange Commission, you understand and agree that, to maximum extent permitted by law, you are otherwise waiving any and all rights you may have to individual relief based on any claims that you have released and any rights you have waived by signing this Agreement. Nothing in this Agreement prevents you from discussing or disclosing information about unlawful acts in the workplace, such as harassment or discrimination or any other conduct that you have reason to believe is unlawful.

9. RETURN OF COMPANY PROPERTY. You agree that, within three (3) days of the Separation Date, you will return to the Company all Company documents (and all copies thereof)and other Company property in your possession or control, including, but not limited to, Companyfiles, notes, drawings, records, plans, forecasts, reports, studies, analyses, proposals, agreements, drafts, financial and operational information, research and development information, sales and marketing information, customer lists, prospect information, pipeline reports, sales reports, personnel information, specifications, code, software, databases, computer-recorded information,tangible property and equipment (including, but not limited to, computing and electronic devices,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 theCompany (and all reproductions or embodiments thereof in whole or in part). You agree that youwill make a diligent search to locate any such documents, property and information by the close of business on the Separation Date or as soon as possible thereafter. If you have used any

personally owned computer or other electronic device, server, or e-mail system to receive, store, review, prepare or transmit any Company confidential or proprietary data, materials or information, within three (3) days after the Separation Date, you shall provide the Company witha computer-useable copy of such information and then permanently delete and expunge such Company confidential or proprietary information from those systems; and you agree to provide the Company access to your system as requested to verify that the necessary copying and/or deletion is completed. **Your timely compliance with this paragraph is a condition to your receipt of the severance benefits provided under this Agreement.**

10. CONFIDENTIAL INFORMATION OBLIGATIONS. You acknowledge and reaffirm your continuing obligations under your Proprietary Information and Inventions Agreement, a copy of which is attached hereto as Exhibit A and incorporated herein by reference.

11. CONFIDENTIALITY. The provisions of this Agreement will be held in strictest confidence by you and will not be publicized or disclosed by you in any manner whatsoever; *provided, however,* that: (a) you may disclose this Agreement in confidence to your immediate family and to your creditors, attorneys, accountants, tax preparers and financial advisors; (b) you may disclose this Agreement insofar as such disclosure may be necessary to enforce its terms or as otherwise required by law; and (c) you may make such statements and disclosures as set forthin the section of this Agreement entitled "Protected Rights." In particular, and without limitation,you agree not to disclose the terms of this Agreement to any current or former Company employeeor independent contractor.

12. NON-DISPARAGEMENT. You agree not to disparage the Company, its officers, directors, employees, shareholders, parents, subsidiaries, affiliates, and agents (provided that withrespect to any of the afore-mentioned parties who are individuals, only while such individuals serve in such positions), in any manner that is harmful to its or their business, business reputation,or personal reputation; the Company agrees not to disparage you in any manner that is harmful toyou or your business, business reputation, or personal reputation; provided that either party may respond accurately and fully to any request for information if required by legal process or in connection with a government investigation. In addition, nothing in this provision or this Agreement is intended to prohibit or restrain you in any manner from making disclosures protectedunder the whistleblower provisions of federal or state law or regulation or other applicable law orregulation or as set forth in the section of this Agreement entitled "Protected Rights." In responseto any reference request from a prospective employer, the Company will only confirm your datesof employment and positions held.

13. NO VOLUNTARY ADVERSE ACTION. You agree that you will not voluntarily (except inresponse to legal compulsion or as permitted under the section of this Agreement entitled"Protected Rights") assist any person in bringing or pursuing any proposed or pending litigation, arbitration, administrative claim or other formal proceeding against the Company, its parent or subsidiary entities, affiliates, officers, directors, employees or agents.

14. COOPERATION. Subject to your availability, you agree to cooperate as reasonably necessary with the Company in connection with its actual or contemplated defense, prosecution,

or investigation of any claims or demands by or against third parties, or other matters arising fromevents, acts, or failures to act that occurred during the period of your employment by the Company.Such cooperation includes, without limitation, making yourself reasonably available to the Company upon reasonable notice, without subpoena, to provide complete, truthful and accurate information in witness interviews, depositions, and trial testimony. The Company will reimburse you for reasonable out-of-pocket expenses you incur in connection with any such cooperation andwill make reasonable efforts to accommodate your scheduling needs.

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

16. REPRESENTATIONS. You hereby represent that you have: been paid all compensation owed and for all hours worked; received all leave and leave benefits and protections for which youare eligible pursuant to the Family and Medical Leave Act, the California Family Rights Act, or otherwise; and not suffered any on-the-job injury for which you have not already filed a workers'compensation claim.

17. DISPUTE RESOLUTION. You and the Company agree that any and all disputes, claims,or controversies of any nature whatsoever arising from, or relating to, this Agreement or its interpretation, enforcement, breach, performance or execution, your employment or the termination of such employment (including, but not limited to, any statutory claims) (collectively,"***Claims***", each a "***Claim***"), shall be resolved, pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16, and to the fullest extent permitted by law, by final, binding and confidential arbitration in San Diego, California (or another mutually acceptable location) conducted before a single neutralarbitrator by JAMS, Inc. ("***JAMS***") or its successor, under the then applicable JAMS Arbitration Rules and Procedures for Employment Disputes (available at http://www.jamsadr.com/rules- employment-arbitration/). **By agreeing to this arbitration procedure, both you and the Company waive the right to have any Claim resolved through a trial by jury or judge or anadministrative proceeding.** You will have the right to be represented by legal counsel at any arbitration proceeding, at your own expense. This paragraph shall not apply to any action or claimthat cannot be subject to mandatory arbitration as a matter of law, including, without limitation, claims brought pursuant to the California Private Attorneys General Act of 2004, as amended, to the extent such claims are not permitted by applicable law to be submitted to mandatory arbitrationand the applicable law(s) are not preempted by the Federal Arbitration Act or otherwise invalid (collectively, the "***Excluded Claims***"). In the event you intend to bring multiple claims, includingone of the Excluded Claims listed above, the Excluded Claims may be publicly filed with a court, while any other claims will remain subject to mandatory arbitration. The arbitrator shall have soleauthority for determining if a Claim is subject to arbitration, and any other procedural questions related to the dispute and bearing on the final disposition. In addition, the arbitrator shall: (a) havethe authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be available under applicable law in a court proceeding; and (b) issue a written statement signed by the arbitrator regarding the disposition of each claim and the relief, ifany, awarded as to each claim, the reasons for the award, and the arbitrator's essential findings and

conclusions on which the award is based. The Company shall pay all JAMS arbitration fees. Nothing in this Agreement shall prevent you or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any arbitration. Any awards or ordersin such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

18. MISCELLANEOUS. This Agreement, including Exhibit A, constitutes the complete, finaland exclusive embodiment of the entire agreement between you and the Company with regard to its subject matter. It is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations. This Agreement may not be modified or amended except in a writingsigned by both you and a duly authorized officer of the Company. This Agreement will bind the heirs, personal representatives, successors and assigns of both you and the Company, and inure tothe benefit of both you and the Company, their heirs, successors and assigns. If any provision of this Agreement is determined to be invalid or unenforceable, in whole or in part, this determinationwill not affect any other provision of this Agreement and the provision in question will be modifiedby the court so as to be rendered enforceable to the fullest extent permitted by law, consistent withthe intent of the parties. This Agreement will be deemed to have been entered into and will be construed and enforced in accordance with the laws of the State of California without regard to conflict of laws principles. Any ambiguity in this Agreement shall not be construed against either party as the drafter. Any waiver of a breach of this Agreement shall be in writing and shall not bedeemed to be a waiver of any successive breach. This Agreement may be executed in counterpartsand electronic or facsimile signatures will suffice as original signatures.

If this Agreement is acceptable to you, please sign below and return the original to me. You havetwenty-one (21) calendar days to decide whether to accept this Agreement, and the Company's offer contained herein will automatically expire if you do not sign and return it within that timeframe.

We wish you the best in your future endeavors.Sincerely,

By: DocuSigned by: Sam Riccitelli 7FF2259DC2984ED...

Samuel D. Riccitelli
President and CEO
Chairman, Board of Directors

I HAVE READ, UNDERSTAND AND VOLUNTARILY AGREE FULLY TO THEFOREGOING AGREEMENT:

DocuSigned by:
Michael W Nall
ADCD748BD759461...

Michael W. Nall

2/25/2022

Date

Exhibit 10.19

EXHIBIT A

EMPLOYEE PROPRIETARY INFORMATION AND INVENTIONS AGREEMENT

BIOCEPT, INC.

February 15, 2022

Timothy Kennedy
timken1212@gmail.com

Dear Timothy:

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

1. SEPARATION. Your last day of work with the Company and your employment termination date will be February 15, 2022 (the "**Separation Date**").

2. ACCRUED SALARY AND PAID TIME OFF. On the Separation Date, the Company will pay you all accrued salary and all accrued and unused PTO earned through the Separation Date, subject to standard payroll deductions and withholdings. You are entitled to this payment by law.

3. SEVERANCE PAYMENT. In full satisfaction of your employment agreement with the Company, dated as of July 26, 2016 (the "Employment Agreement"), if you timely sign this Agreement, allow it to become effective, and comply with your obligations under it (provided youwill not be considered non-compliant unless you have received written notice of such and at leastthirty (30) days to cure) (collectively, the "**Severance Preconditions**"), then the Company will pay you, as severance, the equivalent of nine (9) months of your base salary in effect as of the Separation Date, subject to standard payroll deductions and withholdings. This amount will be paid in a lump sum on the first regularly scheduled Company payroll date occurring on or after the30th calendar day after the Separation Date, provided that this Agreement has become Effective by its terms (as defined in Section 8(c) of this Agreement). In addition, the Company will pay youyour annual Bonus for 2021. If the Company exercises its discretion for the purposes of determining your Bonus for 2021, the Board shall treat you no less favorably than it treats the Company's other senior executives. The Bonus for 2021will be payable no later than the time thatthe Company pays performance Bonuses for 2021 to the Company's other senior executives.

4. HEALTH INSURANCE. Unless you follow the procedures set forth in this paragraph, your participation in the Company's group health insurance plan will end on the last day of the month in which the Separation Date occurs. To the extent provided by the federal COBRA law or, if applicable, state insurance laws, and by the Company's current group health insurance policies, you will be eligible to continue your group health insurance benefits at your own expense following the Separation Date. Later, you may be able to convert to an individual policy through the provider of the Company's health insurance, if you wish. You will be provided with a separatenotice describing your rights and obligations under COBRA and a form for electing COBRA coverage. As an additional severance benefit under this Agreement, provided that you satisfy the Severance Preconditions set forth above and timely elect continued coverage under COBRA, then the Company shall reimburse you for the COBRA premiums to continue your health insurance coverage (including coverage for eligible dependents, if applicable) through the period (the "**COBRA Premium Period**")

starting on the Separation Date and ending on the earliest to occurof: (i) nine (9) months following your Separation Date; (ii) the date you become eligible for grouphealth insurance coverage through a new employer; or (iii) the date you cease to be eligible for COBRA coverage for any reason. You must timely pay your premiums, and then provide documentation to the Company, to obtain reimbursement for your COBRA premiums under this Section 4. In the event you become covered under another employer's group health plan or otherwise cease to be eligible for COBRA during the COBRA Premium Period, you must immediately notify the Company in writing.

5. STOCK AWARDS. Under the terms of your Employment Agreement and the applicablestock option grant and equity incentive plan documents, all outstanding stock options and other equity awards covering the Company's common stock held by you as of the Separation Date thatare subject to time-based vesting requirements shall accelerate as to the number that would vest over the twelve (12) month period following the Separation Date had you remained continuouslyemployed by the Company during such period. Your right to exercise any vested shares, and all other rights and obligations with respect to your stock options(s), will be as set forth in your stockoption agreement, grant notice and applicable plan documents.

6. OTHER COMPENSATION OR BENEFITS. You acknowledge that, except as expressly provided in this Agreement, you have not earned and will not receive from the Company any additional compensation (including base salary, bonus, incentive compensation, or equity), severance, or benefits before or after the Separation Date, with the exception of any vested right you may have under the express terms of a written ERISA-qualified benefit plan (e.g., 401(k) account) or any vested stock options.

7. EXPENSE REIMBURSEMENTS. You agree that, within thirty (30) calendar days after theSeparation Date, you will submit your final documented expense reimbursement statementreflecting all business expenses you incurred through the Separation Date, if any, for which you seek reimbursement. The Company will reimburse you for these expenses pursuant to its regular business practice.

8. RELEASE OF CLAIMS.

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

(b) Scope of Release. This general release includes, but is not limited to: (a) all claims arising from or in any way related to your employment with the Company or the termination of that employment; (b) all claims related to your compensation or benefits from the Company, including salary, bonuses, commissions, vacation pay, expense reimbursements, severance pay, fringe benefits, stock, stock options, or any other ownership, equity, or profits interests in the Company; (c) all claims for breach of contract, wrongful termination, and breach of the implied covenant of good faith and fair dealing; (d) all tort claims, including claims for fraud, defamation, emotional distress, and discharge in violation of public policy; and (e) all federal, state, and local statutory claims, including claims for discrimination, harassment, retaliation, attorneys' fees, or other

claims arising under the federal Civil Rights Act of 1964 (as amended), the federal Americans with Disabilities Act of 1990, the California Labor Code (as amended), the California Family Rights Act, the Age Discrimination in Employment Act ("**ADEA**") and the California Fair Employment and Housing Act (as amended). **You acknowledge that you have been advised, as required by California Government Code Section 12964.5(b)(4), that you have the right to consult an attorney regarding this Agreement and that you were given a reasonable time period of not less than five business days in which to do so.** You further acknowledge and agree that, in the event you sign this Agreement prior to the end of the reasonable time period provided by the Company, your decision to accept such shortening of time is knowing and voluntary and is not induced by the Company through fraud, misrepresentation, or a threat to withdraw or alter the offer prior to the expiration of the reasonable time period, or by providing different terms to employees who sign such an agreement prior to the expiration of the time period.

(c) ADEA Release. You acknowledge that you are knowingly and voluntarily waiving and releasing any rights you have under the ADEA, and that the consideration given for the waiver and releases you have given in this Agreement is in addition to anything of value to which you were already entitled. You further acknowledge that you have been advised, as required by the ADEA, that: (a) your waiver and release does not apply to any rights or claims arising after the date you sign this Agreement; (b) you should consult with an attorney prior to signing this Agreement (although you may choose voluntarily not to do so); (c) you have twenty-one (21) calendar days to consider this Agreement (although you may choose voluntarily to sign it sooner); (d) you have seven (7) calendar days following the date you sign this Agreement to revoke this Agreement (in a written revocation sent to the Company); and (e) this Agreement will not be effective until the date upon which the revocation period has expired, which will be the eighth calendar day after you sign this Agreement provided that you do not revoke it (the "**Effective Date**").

(d) Section 1542 Waiver. In giving the release herein, which includes claims which may be unknown to you at present, you acknowledge that you have read and understand Section 1542 of the California Civil Code, which reads as follows:

> **"A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party."**

You hereby expressly waive and relinquish all rights and benefits under that section and any law of any other jurisdiction of similar effect with respect to your release of claims herein, including but not limited to your release of unknown claims.

(e) Exceptions. Notwithstanding the foregoing, you are not releasing the Company hereby from: (i) any obligation to indemnify you pursuant to the Articles and Bylaws of the Company, any valid fully executed indemnification agreement with the Company, applicable law, or applicable directors and officers liability insurance; (ii) any claims that cannot be waived by law; (iii) any vested rights you may have under the employee benefit plans, programs, or policies of the Company and its affiliates; (iv) your rights following the date hereof with respect to any equity interests you hold in the Company or any of its past or present affiliates; or (iv) any claims for breach of this Agreement.

(f) Protected Rights. You understand that nothing in this Agreement limits your ability to file a charge or complaint with the Equal Employment Opportunity Commission, the

Department of Labor, the National Labor Relations Board, the Occupational Safety and Health Administration, the California Department of Fair Employment and Housing, the Securities and Exchange Commission or any other federal, state or local governmental agency or commission ("**Government Agencies**"). You further understand this Agreement does not limit your ability tocommunicate with any Government Agencies or otherwise participate in any investigation or proceeding that may be conducted by any Government Agency, including providing documents or other information, without notice to the Company. While this Agreement does not limit your right to receive an award for information provided to the Securities and Exchange Commission, you understand and agree that, to maximum extent permitted by law, you are otherwise waiving any and all rights you may have to individual relief based on any claims that you have released and any rights you have waived by signing this Agreement. Nothing in this Agreement prevents you from discussing or disclosing information about unlawful acts in the workplace, such as harassment or discrimination or any other conduct that you have reason to believe is unlawful.

9. RETURN OF COMPANY PROPERTY. You agree that, within three (3) days of the Separation Date, you will return to the Company all Company documents (and all copies thereof)and other Company property in your possession or control, including, but not limited to, Company files, notes, drawings, records, plans, forecasts, reports, studies, analyses, proposals, agreements, drafts, financial and operational information, research and development information, sales and marketing information, customer lists, prospect information, pipeline reports, sales reports, personnel information, specifications, code, software, databases, computer-recorded information,tangible property and equipment (including, but not limited to, computing and electronic devices,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 or embodiments thereof in whole or in part). You agree that youwill make a diligent search to locate any such documents, property and information by the close of business on the Separation Date or as soon as possible thereafter. If you have used any personally owned computer or other electronic device, server, or e-mail system to receive, store, review, prepare or transmit any Company confidential or proprietary data, materials or information, within three (3) days after the Separation Date, you shall provide the Company with a computer-useable copy of such information and then permanently delete and expunge such Company confidential or proprietary information from those systems; and you agree to provide the Company access to your system as requested to verify that the necessary copying and/or deletion is completed. **Your timely compliance with this paragraph is a condition to your receipt of the severance benefits provided under this Agreement.**

10. CONFIDENTIAL INFORMATION OBLIGATIONS. You acknowledge and reaffirm your continuing obligations under your Proprietary Information and Inventions Agreement, a copy of which is attached hereto as Exhibit A and incorporated herein by reference.

11. CONFIDENTIALITY. The provisions of this Agreement will be held in strictest confidence by you and will not be publicized or disclosed by you in any manner whatsoever; *provided, however,* that: (a) you may disclose this Agreement in confidence to your immediate family and to your creditors, attorneys, accountants, tax preparers and financial advisors; (b) you may disclose this Agreement insofar as such disclosure may be necessary to enforce its terms or as otherwise required by law; and (c) you may make such statements and disclosures as set forth in the section of this Agreement entitled "Protected Rights." In particular, and without limitation,you agree not to disclose the terms of this Agreement to any current or former Company employeeor independent contractor.

12. NON-DISPARAGEMENT. You agree not to disparage the Company, its officers, directors, employees, shareholders, parents, subsidiaries, affiliates, and agents (provided that withrespect to any of the afore-mentioned parties who are individuals, only while such individuals serve in such positions), in any manner that is harmful to its or their business, business reputation,or personal reputation; the Company agrees not to disparage you in any manner that is harmful toyou or your business, business reputation, or personal reputation; provided that either party may respond accurately and fully to any request for information if required by legal process or in connection with a government investigation. In addition, nothing in this provision or this Agreement is intended to prohibit or restrain you in any manner from making disclosures protectedunder the whistleblower provisions of federal or state law or regulation or other applicable law orregulation or as set forth in the section of this Agreement entitled "Protected Rights." In responseto any reference request from a prospective employer, the Company will only confirm your datesof employment and positions held.

13. NO VOLUNTARY ADVERSE ACTION. You agree that you will not voluntarily (except in response to legal compulsion or as permitted under the section of this Agreement entitled"Protected Rights") assist any person in bringing or pursuing any proposed or pending litigation, arbitration, administrative claim or other formal proceeding against the Company, its parent or subsidiary entities, affiliates, officers, directors, employees or agents.

14. COOPERATION. Subject to your availability, you agree to cooperate as reasonably necessary with the Company in connection with its actual or contemplated defense, prosecution, or investigation of any claims or demands by or against third parties, or other matters arising fromevents, acts, or failures to act that occurred during the period of your employment by the Company. Such cooperation includes, without limitation, making yourself reasonably available to the Company upon reasonable notice, without subpoena, to provide complete, truthful and accurate information in witness interviews, depositions, and trial testimony. The Company will reimburse you for reasonable out-of-pocket expenses you incur in connection with any such cooperation (excluding foregone wages) and will make reasonable efforts to accommodate your scheduling needs.

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

16. REPRESENTATIONS. You hereby represent that you have: been paid all compensation owed and for all hours worked; received all leave and leave benefits and protections for which youare eligible pursuant to the Family and Medical Leave Act, the California Family Rights Act, or otherwise; and not suffered any on-the-job injury for which you have not already filed a workers'compensation claim.

17. DISPUTE RESOLUTION. You and the Company agree that any and all disputes, claims,or controversies of any nature whatsoever arising from, or relating to, this Agreement or its interpretation, enforcement, breach, performance or execution, your employment or the termination of such employment (including, but not limited to, any statutory claims) (collectively,"***Claims***", each a "***Claim***"), shall be resolved, pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16, and to the fullest extent permitted by law, by final, binding and confidential arbitration in San Diego, California (or another mutually acceptable location) conducted before a single neutral arbitrator by JAMS, Inc. ("***JAMS***") or its successor, under the then applicable JAMS Arbitration Rules and Procedures for Employment Disputes (available at http://www.jamsadr.com/rules-employment-arbitration/). **By agreeing to this arbitration procedure, both you and the Company waive the right to have any**

Claim resolved through a trial by jury or judge or anadministrative proceeding. You will have the right to be represented by legal counsel at any arbitration proceeding, at your own expense. This paragraph shall not apply to any action or claimthat cannot be subject to mandatory arbitration as a matter of law, including, without limitation, claims brought pursuant to the California Private Attorneys General Act of 2004, as amended, to the extent such claims are not permitted by applicable law to be submitted to mandatory arbitration and the applicable law(s) are not preempted by the Federal Arbitration Act or otherwise invalid (collectively, the "***Excluded Claims***"). In the event you intend to bring multiple claims, including one of the Excluded Claims listed above, the Excluded Claims may be publicly filed with a court, while any other claims will remain subject to mandatory arbitration. The arbitrator shall have soleauthority for determining if a Claim is subject to arbitration, and any other procedural questions related to the dispute and bearing on the final disposition. In addition, the arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be available under applicable law in a court proceeding; and (b) issue a written statement signed by the arbitrator regarding the disposition of each claim and the relief, if any, awarded as to each claim, the reasons for the award, and the arbitrator's essential findings and conclusions on which the award is based. The Company shall pay all JAMS arbitration fees. Nothing in this Agreement shall prevent you or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any arbitration. Any awards or ordersin such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

18. MISCELLANEOUS. This Agreement, including Exhibit A, constitutes the complete, final and exclusive embodiment of the entire agreement between you and the Company with regard to its subject matter. It is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations. This Agreement may not be modified or amended except in a writing signed by both you and a duly authorized officer of the Company. This Agreement will bind the heirs, personal representatives, successors and assigns of both you and the Company, and inure tothe benefit of both you and the Company, their heirs, successors and assigns. If any provision of this Agreement is determined to be invalid or unenforceable, in whole or in part, this determination will not affect any other provision of this Agreement and the provision in question will be modifiedby the court so as to be rendered enforceable to the fullest extent permitted by law, consistent withthe intent of the parties. This Agreement will be deemed to have been entered into and will be construed and enforced in accordance with the laws of the State of California without regard to conflict of laws principles. Any ambiguity in this Agreement shall not be construed against eitherparty as the drafter. Any waiver of a breach of this Agreement shall be in writing and shall not be deemed to be a waiver of any successive breach. This Agreement may be executed in counterpartsand electronic or facsimile signatures will suffice as original signatures.

If this Agreement is acceptable to you, please sign below and return the original to me. You havetwenty-one (21) calendar days to decide whether to accept this Agreement, and the Company's offer contained herein will automatically expire if you do not sign and return it within that timeframe.

We wish you the best in your future endeavors.

Sincerely,

By: /s/ Samuel D. Riccitelli
Samuel D. Riccitelli
President and CEO
Chairman, Board of Directors

I HAVE READ, UNDERSTAND AND VOLUNTARILY AGREE FULLY TO THEFOREGOING AGREEMENT:

/s/ Timothy Kennedy
Timothy Kennedy

2/27/2022
Date

EXHIBIT A

EMPLOYEE PROPRIETARY INFORMATION AND INVENTIONS AGREEMENT

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statements (Nos. 333-194930, 333-202656, 333-206347, 333-212960, 333-218018, 333-227267, 333-227900, 333-233285, 333-251676, and 333-261093) on Forms S-8, Registration Statements (Nos. 333-224946 and 333-237837) on Forms S-3, and Registration Statements (Nos. 333-234459, 333-230797, 333-228566, and 333-227908) on Forms S-1 of **Biocept, Inc.** ("Company") of our report dated April 5, 2022, relating to our audit of the financial statements, included in this Annual Report on Form 10-K of the Company for the year ended December 31, 2021.

/s/ Mayer Hoffman McCann P.C.

San Diego, California
April 5, 2022

EXHIBIT 31.1

CERTIFICATION

I, Samuel D. Riccitelli, certify that:

1. I have reviewed this Annual Report on Form 10-K of Biocept, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: April 5, 2022

/s/ Samuel D. Riccitelli
Samuel D. Riccitelli
Interim President and Chief Executive Officer
(Principal Executive Officer)

EXHIBIT 31.2

CERTIFICATION

I, Antonino Morales, certify that:

1. I have reviewed this Annual Report on Form 10-K of Biocept, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: April 5, 2022

/s/ Antonino Morales
Antonino Morales
Interim Chief Financial Officer
(Principal Financial and Accounting Officer)

EXHIBIT 32.1

CERTIFICATION

I, Samuel D. Riccitelli, hereby certify pursuant to Rule 13a-14(b) or Rule 15d-14(b) of the Securities Exchange Act of 1934 as amended (the "Exchange Act"), and 18 U.S.C. Section 1350, that, to my knowledge, the Annual Report on Form 10-K of Biocept, Inc. for the fiscal year ended December 31, 2021 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Biocept, Inc.

Date: April 5, 2022

/s/ Samuel D. Riccitelli
Samuel D. Riccitelli
Interim President and Chief Executive Officer
(Principal Executive Officer)

This certification accompanies the Report pursuant to Rule 13a-14(b) or Rule 15d-14(b) under the Exchange Act and 18 U.S.C. Section 1350 and shall not be deemed filed by the Company for purposes of Section 18 of the Exchange Act.

EXHIBIT 32.2

CERTIFICATION

I, Antonino Morales, hereby certify pursuant to Rule 13a-14(b) or Rule 15d-14(b) of the Securities Exchange Act of 1934 as amended (the "Exchange Act"), and 18 U.S.C. Section 1350, that, to my knowledge, the Annual Report on Form 10-K of Biocept, Inc. for the fiscal year ended December 31, 2021 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Exchange Act and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Biocept, Inc.

Date: April 5, 2022

/s/ Antonino Morales
Antonino Morales
Interim Chief Financial Officer
(Principal Financial and Accounting Officer)

This certification accompanies the Report pursuant to Rule 13a-14(b) or Rule 15d-14(b) under the Exchange Act of 1934 and 18 U.S.C. Section 1350 and shall not be deemed filed by the Company for purposes of Section 18 of the Exchange Act of 1934.