

**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 001-38185

PRESSURE BIOSCIENCES, INC.
(Exact Name of Registrant as Specified in its Charter)

Massachusetts

(State or Other Jurisdiction of
Incorporation or Organization)

04-2652826

(I.R.S. Employer
Identification No.)

14 Norfolk Avenue
South Easton, Massachusetts

(Address of Principal Executive Offices)

02375

(Zip Code)

(508) 230-1828

(Registrant's Telephone Number, Including Area Code)

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

Title of Each Class

None

Name of Each Exchange on Which Registered

None

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

(Title of Class)

Common Stock, par value \$.01 per share

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes No

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

Yes No

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that registrant was required to submit and post such files).

Yes No

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

Large accelerated filer

Non-accelerated filer

Accelerated filer

Smaller reporting company

Emerging growth company

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

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

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

The aggregate market value of the voting and non-voting common stock held by non-affiliates of the registrant as of June 30, 2021 was \$13,334,762 based on the closing price of \$2.17 per share of Pressure BioSciences, Inc. common stock as quoted on the OTCQB Marketplace on that date.

As of March 31, 2022, there were 8,712,494 shares of the registrant's common stock outstanding.

Documents Incorporated by Reference

N/A.

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Introductory Comments

Throughout this Annual Report on Form 10-K, the terms “we,” “us,” “our,” “the Company,” “our Company,” and “PBI,” refer to Pressure BioSciences, Inc., a Massachusetts corporation, and unless the context indicates otherwise, also includes our wholly-owned subsidiary.

Throughout this document we use the following terms: Barocycler®, and PULSE®, which are registered trademarks of the Company. We also use the terms ProteoSolve™, ProteoSolveLRS™, the Power of PCT™, the PCT Shredder™, HUB440™, HUB880™, micro-Pestle™, PCT-HD™, BaroFold™, Ultra Shear Technology™, and UST™ all of which are unregistered trademarks of the Company.

PART I

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”) and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). In some cases, forward-looking statements are identified by terms such as “may,” “will,” “should,” “could,” “would,” “expects,” “plans,” “anticipates,” “believes,” “estimates,” “projects,” “predicts,” “potential” and similar expressions intended to identify forward-looking statements. Such statements include, without limitation, statements regarding:

- our need for, and our ability to raise, additional equity or debt financing on acceptable terms, if at all;
- our need to take additional cost reduction measures, cease operations or sell our operating assets, if we are unable to obtain sufficient additional financing;
- our belief that we will have sufficient liquidity to finance normal operations for the foreseeable future;
- the options we may pursue in light of our financial condition;
- the potential applications and revenue projections for Ultra Shear Technology (“UST”);
- the potential applications and revenue projections for the BaroFold high-pressure protein refolding and disaggregation technology
- the amount of cash necessary to operate our business;
- the anticipated uses of grant revenue and the potential for increased grant revenue in future periods;
- our plans and expectations with respect to our continued operations;
- the expected increase in the number of Pressure Cycling Technology (“PCT”) and Constant Pressure (“CP”) based units that we believe will be installed and the expected increase in revenues from the sale of consumable products, extended service contracts, and biopharma contract services;
- our belief that PCT has achieved initial market acceptance in the mass spectrometry and other markets;
- the expected development and success of new instrument and consumables product offerings;
- the potential applications for our instrument and consumables product offerings;
- the expected expenses of, and benefits and results from, our research and development efforts;
- the expected benefits and results from our collaboration programs, strategic alliances and joint ventures;
- our expectation of obtaining additional research grants from the government in the future;
- our expectations of the results of our development activities funded by government research grants;
- the potential size of the market for biological sample preparation, biopharma contract services and Ultra Shear Technology;
- general economic conditions;
- the anticipated future financial performance and business operations of our company;
- our reasons for focusing certain resources in the PCT market for genomic, proteomic, lipidomic and small molecule sample preparation;
- the importance of mass spectrometry as a laboratory tool;
- the advantages of PCT over other current technologies as a method of biological sample preparation and protein characterization in biomarker discovery, forensics, and histology, as well as for other applications;
- the capabilities and benefits of our PCT Sample Preparation System, consumables and other products;
- our belief that laboratory scientists will achieve results comparable with those reported to date by certain research scientists who have published or presented publicly on PCT and our other products and services;
- our ability to retain our core group of scientific, administrative and sales personnel; and
- our ability to expand our customer base in sample preparation and for other applications of PCT and our other products and services.

These forward-looking statements are only predictions and involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements, expressed or implied, by such forward-looking statements. Also, these forward-looking statements represent our estimates and assumptions only as of the date of this Annual Report on Form 10-K. Except as otherwise required by law, we expressly disclaim any obligation or undertaking to release publicly any updates or revisions to any forward-looking statement contained in this Annual Report on Form 10-K to reflect any change in our expectations or any change in events, conditions or circumstances on which any of our forward-looking statements are based. Factors that could cause or contribute to differences in our future financial and other results include those discussed in the risk factors set forth in Part I, Item 1A of this Annual Report on Form 10-K as well as those discussed elsewhere in this Annual Report on Form 10-K. We qualify all of our forward-looking statements by these cautionary statements.

ITEM 1. BUSINESS.

Overview

We are a leader in the development and sale of innovative, broadly enabling, high pressure-based platform technologies and related consumables for the worldwide life sciences, agriculture, food and beverage, and other key industries. Our solutions are based on the unique properties of both constant (i.e., static) and alternating (i.e., pressure cycling technology, or “PCT”) hydrostatic pressure. PCT is a patented enabling technology platform that uses alternating cycles of hydrostatic pressure between ambient and ultra-high levels to safely and reproducibly control bio-molecular interactions (e.g., cell lysis, biomolecule extraction). Historically, our primary focus has been in the development of PCT-based products for biomarker and target discovery, drug design and development, biotherapeutics characterization and quality control, soil & plant biology, forensics, and counter-bioterror applications. In more recent years, major new market opportunities have emerged in the use of our pressure-based technologies in the following areas: (1) the use of our recently acquired, patented technology from BaroFold, Inc. (the “BaroFold” technology platform) to allow entry into the bio-pharma contract services sector, and (2) the use of our recently-patented, scalable, high-efficiency, pressure-based Ultra Shear Technology (“UST”) platform to (i) create stable nanoemulsions of otherwise immiscible fluids (e.g., oils and water) and to (ii) prepare higher quality, homogenized, extended shelf-life or room temperature stable low-acid liquid foods that cannot be acceptably preserved using existing non-thermal technologies.

On February 8, 2021, PBI announced plans to acquire the assets of a global eco-friendly agrochemical supplier. This opportunity is attractive as it has the potential of readily producing significant revenue, as well as the potential to apply the UST technology to improve some of the product line. In July 2021, a newly-formed subsidiary of PBI, PBI Agrochem, leased a warehouse in Sparks, NV, and hired a warehouse manager. See the further description of this possible transaction in Item 1 – Business – “The PBI Agrochem Platform.”

The PCT Platform

a. Description

The instruments, consumables and software used to perform PCT (the “PCT Platform”) use alternating cycles of hydrostatic pressure between ambient and ultra-high levels to safely and reproducibly control bio-molecular interactions (e.g., critical steps performed by hundreds of thousands of scientists worldwide, such as cell lysis and biomolecule extraction). Our primary focus is in making our recently released, GMP-compliant, next generation PCT-based Barocycler 2320 EXT instrument available globally to biopharmaceutical drug manufacturers to accelerate biologics development by streamlining workflows for the design, development, characterization and quality control of biotherapeutic drugs. The PCT Platform is also used in such areas as biomarker and target discovery, soil & plant biology, anti-bioterror, and forensics. We currently have hundreds of PCT instrument systems placed in approximately 200 academic, government, pharmaceutical, and biotech research laboratories worldwide. There are over 120 independent, peer-reviewed publications highlighting the advantages of using the PCT Platform in scientific research studies, many from key opinion leaders worldwide. The PCT Platform is offered through the Company’s Research Products & Services Group.

We are focused on solving the challenging problems inherent in biological sample preparation, a crucial laboratory step performed by scientists worldwide working in biological life sciences research. Sample preparation is a term that refers to a wide range of activities that precede most forms of scientific analysis. Sample preparation is often complex, time-consuming and, in our belief, one of the most error-prone steps of scientific research. It is a widely-used laboratory undertaking – the requirements of which drive what we believe is a large and growing worldwide market. We have developed and patented a novel, enabling technology platform that offers revolutionary speed and reproducible control in the sample preparation process. It is based on harnessing the unique properties of high hydrostatic pressure. This process, which we refer to as Pressure Cycling Technology, or PCT, uses alternating cycles of hydrostatic pressure between ambient and ultra-high levels i.e., 20,000 psi or greater to safely, conveniently and reproducibly control the actions of molecules in biological samples, such as cells and tissues from human, animal, plant and microbial sources.

PCT is an enabling platform technology based on a physical process that had not previously been used to control bio-molecular interactions. PCT uses unique instrumentation that is capable of cycling pressure between ambient and ultra-high levels at controlled temperatures and specific time intervals, to rapidly and repeatedly control the interactions of bio-molecules, such as proteins, DNA, RNA, lipids and small molecules. Our laboratory instrument family, the Barocycler, and our proprietary consumables product line, which include our unique MicroTubes, MicroCaps, MicroPestles, and PULSE (Pressure Used to Lyse Samples for Extraction) Tubes, and application specific kits (containing consumable products and reagents), together make up our PCT Sample Preparation System (the “PCT SPS”).

In 2015, together with an investment bank, we formed a subsidiary called Pressure BioSciences Europe (“PBI Europe”) in Poland. We have 49% non-controlling ownership interest with the investment bank retaining 51%. As a result of subsequent changes in the Polish government, initial plans for PBI Europe have not been pursued. Throughout 2021, PBI Europe did not have any operating activities and we cannot reasonably predict when operations will commence.

Sample preparation is widely regarded as a significant impediment to research and discovery and sample extraction is generally regarded as one of the key parts of sample preparation. The process of preparing samples for genomic, proteomic, lipidomic, and small molecule studies includes a crucial step called sample extraction or sample disruption. This is the process of extracting biomolecules such as nucleic acid i.e., DNA and/or RNA, as well as proteins, lipids, or small molecules from the plant or animal cells and tissues that are being studied. The majority of our current sales and marketing efforts are based upon our belief that pressure cycling technology provides a superior solution for sample extraction when compared to other available technologies or procedures, and thus might significantly improve the quality and efficiency of sample preparation and subsequent test result.

Within the broad field of biological sample preparation, we focus the majority of our PCT and constant pressure (“CP”) product development efforts in three specific areas: biomarker discovery, precision medicine and forensics. We believe that our existing PCT and CP-based instrumentation and related consumable products fill an important and growing need in the sample preparation market for the safe, rapid, versatile, reproducible and more complete extraction of nucleic acids, proteins, lipids, and small molecules from a wide variety of plant, animal, and microbiological cells and tissues.

Biomarker Discovery and Precision Medicine

The most commonly used technique worldwide for the preservation of cancer and other tissues for long-term storage and subsequent pathology evaluation is to process them into formalin-fixed, paraffin-embedded (“FFPE”) samples. We believe that the quality and analysis of FFPE tissues is highly problematic, and that PCT offers significant advantages over current processing methods, including standardization, speed, biomolecule recovery, and safety.

Our customers include researchers at academic laboratories, government agencies, biotechnology companies, pharmaceutical companies and other life science institutions in the Americas, Europe, Asia, Africa and Australia/Pacific. Our goal is to continue aggressive market penetration in these target areas. We also believe that there is a significant opportunity to sell and/or lease additional Barocycler instrumentation to additional laboratories at current customer institutions.

If we are successful in commercializing PCT in applications beyond our current focus area of genomic, proteomic, lipidomic, and small molecule sample preparation, and if we are successful in our attempts to attract additional capital, our potential customer base could expand to include hospitals, reference laboratories, pharmaceutical manufacturing plants and other sites involved in each specific application. If we are successful in forensics, our potential customers could be forensic laboratories, military and other government agencies. If we are successful in biomarker discovery and precision medicine - specifically the extraction of biomolecules from FFPE tissues, our potential customers could be pharmaceutical companies, hospitals, and laboratories focused on drug discovery or differentiation of disease states, subtypes and susceptibility to alternative treatments.

Forensics

The detection of DNA has become a part of the analysis of forensic samples by laboratories and criminal justice agencies worldwide in their efforts to identify the perpetrators of violent crimes and missing persons. Scientists from the University of North Texas and Florida International University have reported improvements in DNA yield from forensic samples (e.g., bone and hair) when using the PCT platform in the sample preparation process. We believe that PCT may be capable of differentially extracting DNA from sperm cells and female epithelial cells captured in swabs collected from rape victims and subsequently stored in rape kits. We also believe that there are many completed rape kits that remain untested for reasons such as cost, time and quality of results. We further believe that the ability to differentially extract DNA from sperm and not epithelial cells could reduce the cost of such testing, while increasing the quality, safety and speed of the testing process.

b. Market

We focus most of our research and development and commercialization efforts on sample preparation and quality control analysis for genomic, proteomic, lipidomic, and small molecule studies. This market is comprised of academic and government research institutions, biotechnology and pharmaceutical companies, and other public and private laboratories that are engaged in studying genomic, proteomic and small molecule material within plant and animal cells and tissues. We elected to initially focus our resources in the market of genomic, proteomic and small molecule sample preparation because we believe it is an area that:

- is a rapidly growing market;
- has a large and immediate need for better technology;
- is comprised mostly of research laboratories, which are subject to minimal governmental regulation;
- is the least technically challenging application for the development of our products;
- is compatible with our technical core competency; and
- we currently have strong patent protection.

We believe that our existing PCT and CP-based instrumentation and related consumable products fill an important and growing need in the sample preparation market for the safe, rapid, versatile, reproducible and more complete extraction of nucleic acids, proteins and small molecules from a wide variety of plant and animal cells and tissues.

Biomarker Discovery - Mass Spectrometry

A biomarker is any substance (e.g., protein, DNA) that can be used as an indicator of the presence or absence of a particular disease-state or condition, and/or to predict or measure the progression and effects of therapy. Biomarkers can help in the diagnosis, prognosis, therapy selection and monitoring, prevention, surveillance, control, and cure of diseases and medical conditions.

A mass spectrometer is a laboratory instrument used in the analysis of biological samples, often focused on proteins, in life sciences research. It is frequently used to help discover biomarkers. According to the November 2017 published market report by Markets and Markets “Mass Spectrometry Market by Application (Pharmaceuticals, Biotechnology, Environmental testing), Platform (Single mass spectrometry (Quadrupole, TOF & Ion Trap), Hybrid mass spectrometry (Triple Quadrupole, QTOF & FTMS)) – Global Forecast to 2022, the global mass spectrometry market is expected to grow from USD 3.44 billion in 2016 to USD 5.27 billion by 2022, at a CAGR of 7.4% from 2015 to 2020. We believe PCT and CP-based products offer significant advantages in speed and quality compared with current techniques used in the preparation of samples for mass spectrometry analysis.

Biomarker Discovery – Precision Medicine

Precision medicine is an approach to patient care that allows doctors to select treatments that are most likely to help patients based on a specific biomolecular understanding of their disease. The hope of precision medicine is that treatments will one day be tailored to the unique biomolecular variations specific to each person’s disease.

A significant roadblock in obtaining necessary information to advance precision medicine – specifically in proteogenomics, is sample preparation and the time required using conventional methods. We believe our PCT workflows address this roadblock by providing a rapid, reproducible means of extracting biomarkers from patient samples in a clinically relevant timeframe of 2 hours.

Biomarker Discovery – Cancer and Tumor Microenvironment

The most commonly used technique worldwide for the preservation of cancer and other tissues for subsequent pathology evaluation is formalin-fixation followed by paraffin-embedding, or FFPE. We believe that the quality and analysis of FFPE tissues is highly problematic, and that PCT offers significant advantages over current processing methods, including standardization, speed, biomolecule recovery, and safety.

Biopharmaceutical Quality Control

A critical step in biopharmaceutical manufacturing processes is quality control, involving characterization of the resulting biotherapeutics via peptide mapping and analysis of post-translational modifications. Peptide mapping can be used in drug discovery and throughout the manufacturing process for quality control between batches to produce a unique ‘fingerprint’ of an individual protein and to compare this with the theoretical gene-derived amino acid sequence. Using conventional methods this process can take overnight or more. We believe our PCT workflows offer a significant advantage to this process by offering a significant reduction in time and improvement in reproducibility with a GMP compliant platform. Many protein-based pharmaceuticals undergo specific enzymatic and chemical modifications (such as glycosylation, when specific carbohydrate moieties, glycans, are attached to the protein core, thus helping them remain active longer in the patient’s bloodstream). Similar to peptide mapping, analysis of glycans, also critical quality attributes of biologic drugs, requires tedious sample preparation steps that can be significantly accelerated and rendered more reproducible by PCT workflows.

Our customers include researchers at academic laboratories, government agencies, biotechnology companies, pharmaceutical companies and other life science institutions in the Americas, Europe, Asia, Africa and Australia/Pacific. Our goal is to continue aggressive market penetration in these target areas. We also believe that there is a significant opportunity to sell and/or lease additional Barocycler instrumentation to additional laboratories within current customer organizations.

Sample Extraction Process

The process of preparing samples for genomic, proteomic and small molecule studies includes a crucial step called sample extraction or sample disruption. This is the process of extracting nucleic acid i.e., DNA and/or RNA, proteins or small molecules from the plant or animal cells and tissues that are being studied. Sample preparation is widely regarded as a significant impediment to research and discovery and sample extraction is generally regarded as one of the key parts of sample preparation. Our current commercialization efforts are based upon our belief that pressure cycling technology provides a superior solution to sample extraction compared with other available technologies or procedures and can thus significantly improve the quality of sample preparation, and thus the quality of the test result.

c. Products

We believe our PCT and CP products allow researchers to improve scientific research studies in the life sciences field. Our products are developed with the expectation of meeting or exceeding the needs of research scientists while enhancing the safety, speed and quality that is available to them with existing sample preparation methods.

Barocycler Instrumentation

Our Barocycler product line consists of laboratory instrumentation that subjects a sample to cycles of pressure from ambient (approximately 14.5 psi) to ultra-high levels (20,000 psi or greater) and then back to ambient, in a precisely controlled manner.

Our instruments (the Barocycler 2320EXT, the HUB440 and the HUB880) use cycles of high, hydrostatic pressure to quickly and efficiently break up the cellular structures of a specimen to release proteins, nucleic acids, lipids and small molecules from the specimen into our consumable processing tubes, referred to as our PULSE Tubes and MicroTubes. Our instruments have temperature control options (on-board heating via internal heating jacket or heating and chilling via an external circulating water-bath), automatic fill and dispensing valves, and an integrated touchscreen for interfacing with an onboard micro-processor or computer. The microprocessor, computer or laptop computer are capable of saving specific PCT protocols, so the researcher can achieve maximum reproducibility for the preparation of nucleic acids, proteins, lipids, or small molecules from various biological samples. Our Barocycler instruments, consumable products and application specific kits make up our PCT Sample Preparation System.

Barocycler 2320EXTREME - The Barocycler 2320EXT is the flagship of the Company's Barocycler line of PCT-based instruments. It weighs approximately 80lbs, delivers a maximum pressure of 45,000 psi, and can process either up to 16 MicroTubes simultaneously or one PULSE Tube. The working temperature range is 4 – 95°C and is controlled via an on-board electric heating jacket or external circulating water bath. All tests are entered and recorded on a touch screen interface. Information from each test run (pressure profile, cycle number, and temperature) is recorded and can be stored on the instrument, on a USB drive, or networked into the user's lab computer system. Pressure profiles can be manipulated in a number of ways, including static high pressure holds and pressure ramp programs. The Barocycler 2320EXT is pneumatic and requires an input air source of only 100psi to achieve and cycle at high pressure.

The Barocycler 2320EXT was developed to support the PCT-HD/PCT-SWATH application. PCT-HD enables faster, less cumbersome and higher quality processing of biopsy tissues. With homogenization, extraction, and digestion of proteins occurring in a single PCT MicroTube under high pressure, this protocol can yield analytical results in under four hours from the start of tissue processing. PCT-HD was developed by our scientists and engineers in collaboration with Professor Ruedi Aebersold and Dr. Tiannan Guo of the Institute of Molecular Systems Biology, ETH Zurich, and the University of Zurich, both in Zurich, Switzerland. Drs. Aebersold and Guo combined PCT-HD with SCIEX's SWATH-Mass Spectrometry – calling the resulting method "PCT-SWATH".

Barocyler HUB440 –We believe the Barocyler HUB440 is the first portable, ready to use, “plug-and-play” high pressure generator for the laboratory bench. The Barocyler HUB440 is capable of creating and controlling hydrostatic pressure from 500 psi to 58,000 psi and is designed for easy and flexible interfacing with a wide variety of user-specified pressure vessels. It is computer controlled and runs on software that was developed by us to allow data logging and sophisticated algorithms for controlling pressure and temperature. We own the rights and have a license to use the specialty LabVIEW software. We believe that over the coming years, the Barocyler HUB440 may become one of the main products in our pressure-based instrument line.

Barocyler HUB880 - The Barocyler HUB880 is a compact, portable, bench-top, ultra-high pressure generator with vessel interface flexibility similar to the HUB440, that uses an air pressure-to-liquid pressure intensifier allowing the user to generate fluid pressure as high as 90,000 psi with input air pressure of just 126 psi. The HUB880 can be operated through a simple front panel or controlled using an optional external Data Acquisition and Control Module for dynamic pressure control. We believe that the HUB880 will be well accepted by scientists that need to achieve super high pressure, such as those working in the life science research, food safety and vaccine industries.

The Shredder SG3 –The Shredder SG3 is a low shear mechanical homogenization system for use with tough, fibrous and other difficult-to-disrupt tissues and organisms. The Shredder SG3 System uses a variety of Shredder PULSE Tubes to directly and rapidly grind a biological sample which, when combined with selected buffers, can provide effective extraction of proteins, DNA, RNA, lipids and small molecules from tissues and organisms. The Shredder SG3 is also used to isolate intact and functional mitochondria from tissues. The Shredder SG3 features a three-position force setting lever, which enables the operator to select and apply reproducible force to the sample during the shredding process and eliminates the need for the operator to exert force for long periods when processing one or more samples.

Barocyler Consumable Products

PCT MicroTubes – PCT MicroTubes are made from a unique fluoropolymer, fluorinated ethylene propylene (FEP). FEP is highly inert and retains its integrity within an extremely wide temperature range (-200°C to 100°C), while providing important limited flexibility behavior for PCT applications. MicroTubes hold a maximum total volume of 150 microliters. PCT MicroTubes must be used with either PCT-MicroCaps or PCT-MicroPestles.

PCT-MicroCaps – PCT MicroCaps are made from polytetrafluoroethylene (PTFE). The PCT MicroCaps are available in three sizes to accommodate total sample volume: 50, 100 and 150uL. 50uL MicroCaps are used with samples ≤50uL, 100uL MicroCaps are used with samples between 50-100uL, and 150uL MicroCaps are used with samples between 100-150uL.

PCT-Micro Pestle - PCT μPestles are made from polytetrafluoroethylene (PTFE), a synthetic fluoropolymer of tetrafluoroethylene, also known as Teflon (by DuPont Co). PTFE is practically inert; the only chemicals known to affect it are certain alkali metals and most highly reactive fluorinating agents. PCT μPestles, in conjunction with PCT MicroTubes, are designed to enhance the extraction of proteins, lipids, DNA, RNA and small molecules from minute amounts (0.5 – 3.0 mg) of solid tissue in extraction reagent volumes as low as 20-30 μL. PCT MicroTubes and PCT μPestles use PCT to effectively disrupt soft tissues and lyse their cells. As a result, the tissue sample trapped between the MicroTube walls and the μPestles shaft is crushed on every pressure cycle. This mechanical action, combined with the extraction ability of the buffer under high pressure, results in highly effective tissue homogenization and extraction.

PCT μPestles and PCT MicroTubes, together with a PBI Barocyler, comprise the PCT Micro-Pestle System, which provides a fast, safe, and efficient means of extraction from extremely small amounts of solid samples such as soft tissue biopsies. The PCT μPestle System can be used in any PBI Barocyler.

We believe our development of these various consumable products has helped, and will continue to help, drive the adoption of PCT within the life sciences market.

d. Customers

Our customers include researchers at academic laboratories, government agencies, biotechnology companies, pharmaceutical firms, and other life science institutions throughout the Americas, Europe, Asia, Africa and Australia/Pacific. Our goal is to continue aggressive market penetration to target groups in these geographical areas. We also believe that there is a significant opportunity to sell and/or lease additional Barocyler instrumentation to additional laboratories within current customer organizations.

If we are successful in commercializing PCT in applications beyond our current focus area of genomic, proteomic, lipidomic, and small molecule sample preparation, and if we are successful in our attempts to attract additional capital, our potential customer base could expand to include:

- Hospitals
- Reference laboratories
- Government laboratories (e.g., FDA, USDA, NIH, FBI, and police)
- Pharmaceutical/biotech/diagnostic companies
- Laboratories focused on drug discovery, cancer research, and precision medicine

e. Competition

We compete with companies that have existing technologies for the extraction of nucleic acids, proteins, lipids, and small molecules from cells and tissues, including methods such as mortar and pestle grinding, sonication, rotor-stator homogenization, French Press, bead beating, freezer milling, enzymatic digestion, and chemical dissolution. We believe that there are a number of significant issues related to the use of these methods, including: complexity, sample containment, cross-contamination, shearing of biomolecules of interest, limited applicability to different sample types, ease-of-use, reproducibility, and cost. We believe that our PCT Sample Preparation System offers a number of significant advantages over these methods, including:

- labor reduction
- temperature control
- precision
- reproducibility
- versatility
- efficiency
- simplicity
- safety

To be competitive in the industry, we believe we must be able to clearly and conclusively demonstrate to potential customers that our products provide these improved performance capabilities. We strongly believe that our PCT Sample Preparation System is a novel and enabling system for genomic, proteomic, and small molecule sample preparation. As such, many users of current manual techniques will need to be willing to challenge their existing methods of sample preparation and invest time to evaluate a method that could change their overall workflow in the sample preparation process, prior to adopting our technology.

Further, we are aware that the cost of the PCT Sample Preparation System may be greater than the cost of many of the other methods currently employed. Consequently, we are focusing our sales efforts on those product attributes that we believe will be most important and appealing to potential customers; namely versatility, reproducibility, quality, and safety.

f. Manufacturing and Supply

We currently manufacture and assemble the Barocycler 2320EXT, Barocycler HUB440, HUB880, the SHREDDER SG3, and most of our consumables at our South Easton, MA facility. We will regularly reassess the tradeoffs between in-house assembly versus the benefits of outsourced relationships for of the entire Barocycler product line, and future instruments.

We utilize a few contract manufacturers of certain parts for our Barocycler product line. They provide us with precision manufacturing services to meet our specific application and operational requirements.

At this time, we believe that this approach is the most cost-effective method for us to obtain ISO Certified, CE and CSA Marked instruments.

g. Research and Development

Our research and development activities are split into two functional areas: Applications Development and Engineering.

1. *Applications Development R&D*: Our highly educated and trained staff has years of experience in molecular and cellular biology, virology, and proteomics. Our team of scientists focuses on the development and continued improvement of the PCT Sample Preparation System and on PCT-dependent genomic, proteomic, lipidomic, and small molecule sample preparation applications. Dr. Alexander Lazarev, our Chief Science Officer, meets regularly with our sales, marketing, and engineering staff to discuss market needs and trends. Our applications research and development team is responsible for the technical review of all scientific collaborations, for the support of our marketing and sales departments through the generation of internal data in a number of areas of market interest, and in the development of commercially-viable PCT-dependent products.
2. *Engineering R&D*: Our engineering research and development team is focused on the design and development of new and improved instrumentation and consumable products to support the commercialization of PCT. Our engineering department is led by Dr. Edmund Ting, our Senior Vice President of Engineering. The primary focus of our engineering group is to develop and continually improve our line of PCT-based instruments and consumables, ensure seamless production processes, help perform installations and field service, and work with our application scientists to enhance our PCT-based systems for the mass spectrometry and other markets.

Collaboration Program

Our Collaboration Program is an important element of our business strategy. Initiating a collaboration with a researcher involves the installation of a Barocycler instrument for an agreed upon period of time of approximately three to twelve months, a financial commitment that is beneficial to both the collaborator and PBI, and the execution of an agreed upon work plan. Our primary objectives for entering into a collaboration agreement include:

- the development of a new application for PCT and CP in sample preparation;
- the advancement and validation of our understanding of PCT and CP within an area of life sciences in which we already offer products;
- the demonstration of the effectiveness of PCT and CP by specific research scientists, particularly Key Opinion Leaders (“KOLs”), who we believe can have a positive impact on market acceptance of PCT; and
- the expectation of peer-reviewed publications and/or presentations at scientific meetings by a third party, especially a KOL, on the merits of PCT and CP.

Since we initiated our collaboration program, third party researchers have cited the use of our PCT platform in nearly 200 peer-reviewed publications and dozens of scientific presentations. We believe that this program has provided and continues to provide us with independent and objective data about PCT from well-respected laboratories in the United States and throughout the rest of the world. We believe this program has been responsible for the sale of multiple Barocycler instruments over the past few years and will continue to help to increase the sales of instrument systems in the future.

Active Collaborations:

- a. RedShiftBio Inc.
- b. Thomas Conrads, Inova Schar Cancer Center
- c. Christine Vogel, NYU
- d. Leica Microsystems, GmbH
- e. Dr. Michael Przybylksi, Steinbeis Centre for Biopolymer Analysis and Biological Mass Spectrometry
- f. Dr.V.M. Balasubramaniam, The Ohio State University
- g. University of Delaware
- h. Dr. Jennifer Van Eyk, Cedars Sinai Medical Center

Other Fields of Use and Applications for PCT

Our research and development efforts have shown that, in addition to genomic, proteomic, lipidomic, and small molecule sample preparation, PCT is potentially beneficial in a number of other areas of the life sciences, including pathogen inactivation, protein purification, control of chemical (particularly enzymatic) reactions, and immunodiagnostics. Other applications in the sample preparation market include forensics and histology, as discussed above. Our pursuit of these markets, however, depends on a number of factors, including our success in commercializing PCT in the area of sample preparation, our judgment regarding the investment required to be successful in these areas, the value of these markets to PBI, and the availability of sufficient financial resources. Below is a brief explanation of each of these additional potential applications and a short description of why we believe PCT can be used to improve scientific studies in these areas.

Protein Purification

Many vaccines and drugs are comprised of proteins. These proteins need to be purified from complex mixtures as part of the manufacturing process. Current purification techniques often result in the loss of a significant amount of the protein. Therefore, any method that could increase the amount of protein being recovered in the purification step, could subsequently lead to a reduction in cost to the manufacturer. We believe we have successfully generated proof-of-concept that PCT can satisfy this need. We believe that compared with current purification procedures, a process that uses PCT has the potential to increase protein recovery, increase the quality of the product, and lower production costs. We have been issued U.S. patents in this area.

Pathogen Inactivation

Biological products intended for human use, such as blood, vaccines and drugs, are put through rigorous processing protocols in an effort to minimize the potential of that product to transmit disease. These protocols may include methods to remove infectious materials such as pre-processing testing, filtration or chromatography, or methods to inactivate infectious agents that are not captured in the removal steps such as pasteurization, irradiation and solvent detergent inactivation. Notwithstanding current diligence in both the removal and inactivation steps, significant concern remains that some pathogens (e.g., bacteria, viruses, spores) capable of transmitting infection to recipients may not be removed or inactivated with current procedures. In addition, some removal and inactivation methods may not be useful because of cost, safety, ease-of-use or other practical concerns. To that end, we believe that a superior inactivation method is needed that can safely, rapidly and inexpensively inactivate pathogens in blood, vaccines and drugs without the need for chemical or other potentially toxic additives. We have successfully generated proof-of-concept that PCT can satisfy this need. We believe that compared with current procedures, a process that uses PCT has the potential to increase safety and yield, lower cost and decrease the potential side effects of current methods. We have been issued U.S. patents for this PCT-dependent inactivation technology.

Control of Chemical (Particularly Enzymatic) Reactions

Chemical reactions encompass many important interactions in nature. Methods used to control chemical reactions could have a positive effect on the quality, speed, and overall result of the reaction. The control and detection of chemical reactions is particularly useful in the biotechnology field for synthesizing and characterizing such molecules as nucleic acids and polypeptides. We believe that PCT offers distinct advantages in controlling chemical reactions over current methods, since PCT can provide precise, automated control over the timing and synchronization of chemical reactions, particularly enzymatic reactions. We have been issued U.S. patents in this area.

Immunodiagnosics

Many tests used in the clinical laboratory today are based on the formation of a complex between two proteins, such as an antigen and an antibody. Such “immunodiagnostic” methods are used for the detection of infectious agents such as the human immunodeficiency virus (“HIV”), hepatitis viruses, West Nile virus, and others, as well as for endocrine, drug testing and cancer diagnostics. We have generated proof-of-concept that PCT may be used to control biomolecular interactions between proteins, such as antigens and antibodies. We believe this capability may provide a greater degree of sensitivity and quantitative accuracy in immunodiagnostic testing than that offered by methods that are available today. We have been issued U.S. patents in this area.

Extended Service Contracts

We offer extended service contracts on our laboratory instrumentation to all of our customers. These service contracts allow a customer who purchases a Barocycler instrument to receive on-site scheduled preventative maintenance, on-site repair and replacement of all worn or defective component parts, and telephone support, all at no incremental cost for the life of the service contract. We offer one-year and four-year extended service contracts to customers who purchase Barocycler instruments.

The BaroFold Platform

a. Description

The need for the efficient production of recombinant protein biopharmaceuticals has grown rapidly and demand for them will continue to grow as a result of their high specificity and efficacy. Protein drugs are being manufactured in a variety of host organisms. With the rapid growth in biosimilars (less expensive versions of popular biopharmaceuticals that are manufactured and marketed after the expiration of the original patents), expression in bacteria is beginning to play a major role in this industry, particularly when the biological activity of the protein product is not dependent on post-translational modifications. Overexpression of proteins in bacteria often results in the accumulation of the protein product in inactive insoluble deposits inside the cells, called inclusion bodies. Inclusion bodies protect the protein of interest from degradation and present a simple and convenient ways to extract and purify it. Moreover, if the protein of interest is toxic or lethal to the host cell, then inclusion body expression may be the only available production method. However, the challenge of protein production in bacterial systems most often lies in conversion of inactive and misfolded proteins in the inclusion bodies into soluble, properly folded bioactive products. This conversion process is called protein refolding. Traditional methods of protein refolding rely on using high concentrations of chemical denaturants and detergents to unfold misshapen proteins, disentangle inactive aggregated proteins and to dissolve them, followed by up to 100-fold dilution or dialysis to remove interfering chemicals and then letting the proteins refold into their desired active forms. Since chemically-driven unfolding is harsh, it tends to destroy most protein structure, some of which could be beneficial for subsequent refolding. Moreover, dilution- or dialysis-based methods take a long time and produce very low yields of refolded protein, while most of the unfolded protein material tends to get lost into irreversible aggregation. Overall, traditional refolding methods are usually inefficient, include multiple costly steps and have very low recovery yields. Pressure-mediated disaggregation and unfolding and refolding of proteins offers an attractive pathway for achieving much higher yields of correctly folded proteins with desired efficaciousness, produced at much lower cost, versus traditional chemically driven methodologies.

Acquisition of BaroFold's PreEMT™ high-pressure protein refolding technology in December 2017

Our acquisition of the assets of BaroFold, Inc. have significantly increased PBI's intellectual property portfolio in high-pressure technologies with the addition of eight issued and several pending patents. These patents give PBI the ability to operate in several important areas for biologics research and manufacturing: protein folding, re-folding and disaggregation. The patents also provide PBI the right to grant licenses to third parties to practice the BaroFold technology in both research laboratories and in biopharmaceutical manufacturing.

Biopharmaceutical products are typically large-molecule protein therapeutics produced via complex biological manufacturing processes that can result in undesirable protein misfolding and aggregation outcomes. Misfolded or aggregated proteins typically lack therapeutic activity and can present health risks to patients, requiring robust remediation within pharmaceutical manufacturing processes. The BaroFold technology improves the quality of manufacturing, decreases manufacturing costs (as much as \$2-10M/year per commercial biologic drug), and facilitates achievement of proper activity from difficult-to-manufacture proteins.

BaroFold technology utilizes high pressure instead of, or in synergy with, chemical denaturants, offering significantly milder conditions for unfolding and disaggregation of proteins in inclusion bodies. As a result, subsequent refolding can be carried out faster, more efficiently, and in much smaller volumes. Pressure-based unfolding of proteins in inclusion bodies tends to only partially unfold the protein and preserve some beneficial structures that could help to guide the refolding process into the desired outcomes. Consequently, higher yields of active protein and faster manufacturing turn-around further lower the cost of biopharmaceutical production. Moreover, lower requirements for harsh chemical reagents in high pressure refolding process result in decrease or elimination of associated hazardous waste generated from chemical removal processes, leading to further cost reduction and protection of the environment.

The instruments, consumables and software used to practice the BaroFold technology (the “BaroFold Platform”) can be used to significantly lower the cost, boost production yield, and improve the quality of protein therapeutics. It employs high pressure for the disaggregation and controlled refolding of proteins to their native structures at yields and efficiencies not achievable using existing technologies. The BaroFold Platform has been shown to remove protein aggregates in biotherapeutic drug manufacturing, thereby improving product efficacy and safety for both new-drug entities and biosimilar products. The BaroFold Platform can help companies create novel protein therapeutics, accelerate therapeutic protein development, manufacture follow-on biologics, and significantly optimize life-cycle management of protein therapeutics. It is scalable and practical for standard manufacturing processes. This unique technology platform can help protein-based biopharmaceutical companies create and manufacture high quality, novel protein therapeutics and lower the cost of existing formulations. Research and manufacturing licenses are available.

b. Market

The global biopharmaceuticals market was valued at \$237 billion in 2018 and is estimated to be valued at \$389 billion in 2024, witnessing a CAGR of 8.59%. The market growth is attributed to the growing acceptance for biopharmaceuticals due to their ability to treat previously untreatable or poorly managed diseases, resulting in huge market demand for biopharmaceuticals.

We believe that biopharmaceuticals offer several benefits, such as highly effective and potent action, fewer side effects, and the potential to actually cure diseases rather than merely treat the symptoms, which have significantly increased the demand for biopharmaceutical products.

The predominant majority of biopharmaceutical products are recombinant proteins. Typical examples of such proteins are vaccines, monoclonal antibodies (MAbs), growth factors (such as Erythropoietin), hormones (such as insulin or HGH), receptor ligands, recombinant enzymes (Caspase, Cathepsin, etc.), blood factors and other therapeutic and research reagent proteins. Recombinant protein production can be done in bacteria or in cell cultures derived from higher organisms. Due to significant time and cost savings, attention to protein production in bacterial hosts has recently spiked, predominantly driven by rapid growth of biosimilars, antibody-drug conjugates (ADCs) and fusion proteins that are lethal to non-bacterial host cells. A major area of challenge in the biopharmaceuticals industry results from suboptimal folding configurations and/or agglomeration of proteins during production and storage, requiring subsequent remediation via unfolding and controlled refolding of these therapeutic proteins into their optimal configurations. Following initial penetration and acceleration through conversion of market share from traditional chemical methods, the growth of the protein refolding business is expected to follow the growth trajectory of the entire biopharmaceutical market.

Our BaroFold platform technology has been shown not only to save manufacturing costs and time, but to boost protein yield and minimize protein immunogenicity, resulting in greater efficacy and safety for the patient.

Moreover, PBI's Barocycler line of products can also be utilized in accelerated protein stability testing to guide biopharmaceutical formulation development. PBI has initiated several collaborations, including a co-marketing agreement with RedShift BioAnalytics, Inc., and a research collaboration with the University of Delaware (see the Research and Development section below).

c. Products

Instruments: Barocycler 2320 EXT - a convenient screening tool for protein refolding optimization

Originally developed within the framework of our PCT platform business as a tool for biological sample preparation (as described above), our Barocycler 2320EXT instrument features a "ramp mode" in its control software that makes it ultimately suitable for performing research-scale experiments for protein refolding and disaggregation on a laboratory bench scale. Each protein molecule is biochemically unique and, while pressure is highly efficient in solubilization of practically any misfolded protein contained within inclusion bodies, a unique chemical environment may be required to persuade each unfolded protein molecule to refold into a stable biologically active state. Therefore, development of protein refolding methods requires screening experiments necessary to determine the most optimal composition of the chemical milieu for each protein of interest. The Barocycler 2320EXT is ideally suited for such experiments, providing researchers with abilities to process up to 12 specimens per batch in varying chemical environments. We believe that availability of this affordable screening tool will promote adoption of the high-pressure refolding approach among biopharmaceutical process development teams and academic researchers involved in development of protein biopharmaceuticals. The same instrument is also uniquely suited for studies of thermodynamics of protein aggregation and accelerated protein stability tests.

BaroFold Contract Services

Our BaroFold contract services can be used to significantly impact and improve the quality of large-molecule protein biotherapeutics. These services employ high pressure manipulations for the disaggregation and unfolding of proteins to their native structural states and then controlled refolding of the proteins to the desired therapeutically active state, at yields and efficiencies not achievable using existing technologies. The BaroFold Platform has been shown to eliminate protein aggregation during biotherapeutic drug manufacturing and storage, thereby improving product yield, efficacy and safety for both new-drug entities and biosimilar products. The BaroFold platform can help companies create novel protein therapeutics, accelerate therapeutic protein development, manufacture follow-on biologics, and enable life-cycle management of protein therapeutics. It is scalable and practical for standard manufacturing processes. This unique technology platform can help protein-based biopharmaceutical companies create and manufacture high quality, novel protein therapeutics and lower the cost of existing formulations. Research and manufacturing licenses are available.

d. Customers (examples only, not current customers for confidentiality reasons)

Biopharmaceutical companies (Roche, Novartis A.G., Sanofi, Biogen-Idec, Abbvie, Inc., Amgen, Takeda, Pfizer, Merck & Co., etc.)

Biosimilars companies (Teva, Sandoz, Hospira, Mylan, Allergan, Biocon, Momenta., etc.)

Biopharmaceutical Contract Development and Manufacturing Organizations (Boehringer-Ingelheim, Lonza, Samsung Biologics, Catalent Pharma Solutions, Thermo Fisher Scientific, Fujifilm, etc.)

Life science research reagent manufacturers (Thermo Scientific, GE Healthcare, Danaher Corporation, Millipore-Sigma, Bio-Techne R&D Systems, etc.)

Academic research laboratories involved in development of protein pharmaceuticals, expression of recombinant proteins, protein structure analysis and biophysical characterization.

e. Competition

Over two decades, BaroFold, Inc. built an intellectual property portfolio centered around the use of hydrostatic pressure for protein refolding and disaggregation. Following BaroFold's acquisition by PBI in 2017, this portfolio, combined with the PBI patents in adjacent areas, puts PBI in a unique position worldwide to commercialize, practice and license out the right to practice high pressure protein refolding, disaggregation and accelerated stability testing. There is no direct competition to PBI that is using high pressure for these applications. Competing traditional approaches use chemicals for refolding and appear inferior in many aspects, as described above.

f. Manufacturing and Supply

Manufacturing of the Barocycler 2320EXT has been covered above, since this instrument shares its utility with applications of PCT technology platform. The PCT MicroTube consumable line is also shared between these two application areas.

PBI currently develops GMP-compliant, pilot-scale, high-pressure systems for processing of protein batches up to 10L in volume at pressure up to 60,000 psi.

In order to provide access for our customers to manufacturing scale high pressure equipment, PBI is currently in negotiations with several HPP (High Pressure Processing) equipment vendors supplying large pressure systems to food manufacturers. Upon successful feasibility studies conducted by customers themselves, or within the framework of BaroFold Contract Services, PBI will act as a contractor to assist protein refolding customers in scaling up the process and identifying, procuring and validating appropriate large-scale equipment for high pressure protein refolding.

g. Research and Development

The PBI team has gained access to a significant body of research data through acquisition of the assets of BaroFold, Inc. BaroFold has spent over two decades perfecting high-pressure protein refolding applications and produced many publications and patents (see below). Our team's experience in high pressure refolding is being used in Contract Service work currently offered by PBI to our biopharmaceutical customers, as described above. As an equipment vendor, PBI has a goal of taking advantage of these R&D instrument assets and turning a benchtop high pressure protein refolding solution into a convenient, popular and easily accessible workflow for thousands of laboratories worldwide. As the knowledge about this method spreads and feasibility of great economic impact of utilizing this approach at a production scale is demonstrated, PBI plans to license high pressure refolding methods to its biopharmaceutical customers.

Additionally, several new applications of high pressure in biopharmaceutical development are stemming from a combined BaroFold and PBI intellectual property portfolio. One of these highly promising applications, namely, pressure-assisted accelerated protein stability testing, is currently being developed by PBI's R&D team in collaboration with the Center for Biomanufacturing Science and Technology of the University of Delaware, headed by Professor Christopher J. Roberts. Many protein biopharmaceuticals must be kept in solution. Any physical factors such as exposure to temperature fluctuations in storage and shipment, mechanical vibration, exposure to light, etc., could promote protein aggregation, if the biotherapeutic protein is stored in a suboptimal chemical environment. Protein aggregates tend to be highly immunogenic, i.e., causing a patient's immune system to recognize protein drug as a foreign object and destroy it, leading to undesired inflammatory response and counteracting the desired therapeutic effect. Each protein drug may require optimization of its chemical environment (formulations development) to guarantee maximal stability and shelf life. Meanwhile, high pressure is a convenient tool for controlled protein unfolding. Partially unfolded proteins tend to aggregate more rapidly. Brief exposure of the protein drug in a specific formulation to a "pressure shock" can be used to promote aggregation, allowing researchers to screen for best formulations that prevent drug aggregation in a matter of only a few days. Conventional approaches for accelerated stability testing utilize exposure to high temperature. Since thermal effects on proteins are stochastic (i.e., random), there is little chance that every protein molecule will follow the same fate after thermal shock. Pressure exerts its effect on all protein molecules of the same type/conformation in exactly the same manner, making the pressure shock more effective in such studies. Our collaborative research program with Professor Roberts's team is directed towards development of validated workflows for high pressure accelerated stability testing.

The UST Platform

a. Description

The UST Platform is based on the use of intense shear forces generated from ultra-high pressure (greater than 20,000 psi) discharged through a dynamically-controlled nanometer-scale valve orifice. UST has been shown to turn hydrophobic extracts into stable, effectively water-soluble formulations on a small, laboratory scale. The UST Platform offers the potential to produce stable nanoemulsions of oil-like products in water. Such formulations could potentially have enormous success in many markets, including pharmaceuticals, nutraceuticals (such as medically important plant oil extracts like CBD-enriched plant oil soluble in water), cosmetic and personal care products, liquid foods and beverages, agrochemicals, as well as inks, paints, lubricants and other industrial products. We believe that UST has the potential to play a significant role in a number of commercially important areas, including (i) the creation of stable nanoemulsions of otherwise immiscible fluids (e.g., oils and water), and (ii) the preparation of higher quality, homogenized, extended shelf-life or room temperature stable low-acid liquid foods that cannot be effectively preserved using existing non-thermal technologies, e.g., dairy products.

UST is an emerging technology that combines intense fluid shear with an instant, short-lived burst of heat achieved by specialized high-pressure equipment that can produce commercially sterile, pumpable, homogeneous fluid products. The UST process can provide energetic cellular disruption that results in the inactivation of bacteria, bacterial spores, viruses, and enzymes. Depending on operating conditions, low nano-scale emulsions (nanoemulsions) of oil and water mixtures can be produced that have been shown to have improved room-temperature shelf stability, and superior sensory profiles (taste, smell, texture and appearance). Of particular importance, oil-based active components delivered in such extreme nano-emulsions in water facilitates greatly improved absorption and bioavailability in the water-based biochemistry of humans, animals and plants, allowing for much lower loading quantities of actives required in manufacture, while ensuring safer and more controlled effective dosing.

The Company received its second US patent in 2021 to complement two patents in China on UST, focused on a low cost, scalable approach for product manufacturing. The Company believes this method can find use in various nanoemulsion applications for pharmaceutical (e.g., drug delivery), biotechnology (e.g., protein recovery, biomolecule extraction), agrochemical, cosmetics, and food (e.g., shelf-stable "clean label" products). We plan to design, develop, manufacture, and market UST-based production instruments, services and production to the life sciences and other industries. We initiated the process to build full-scale UST systems initially at two sites, in order to address current customer demands and the belief that a large number of food, cosmetics, nutraceuticals, pharmaceutical, and other companies will follow. We expect to have a mix of sales of instruments, service contracts, leases and tolling for production.

b. Market

In 2019, we focused efforts on developing and demonstrating the UST protocol and seeding early adopters, which would provide insights into market, formulation, product development, and ultimately end product requirements. Our initial market focus has been on cannabis extracts, as this market's unmet needs for nanoemulsions solutions offer high visibility and ready access to funding, versus many other important target markets, such as Cosmetics, Food and Beverage, Nutraceutical, Pharmaceutical, and Industrial fluids and lubricants. In 2020, we refined the Ultra Shear Technology™ K45 instrument allowing us to run samples for multiple potential customers, which demonstrated the goal of producing room-temperature-stable, transparent nanoemulsions. (Transparency is achieved when nanoemulsion droplet sizes are below ~150nm or smaller than the wavelength of visible light – an important indicator of achievement of extremely low-scale nanoemulsions.) We secured orders from companies for 15 units, which is the target number for our first production run. We also moved forward in the development of the BaroShear Mini: bench-top, laboratory-based instrument for research, formulation, and small volume processing; and the BaroShear Max; high-volume, industrial-scale, clean-in-place (CIP), production instrument. In 2021, we demonstrated that our CBD nanoemulsion was stable for more than 18 months at room temperature or refrigerated conditions, and after repeated freeze/thaw events. We shipped the first BaroShear Max system to our partners at The Ohio State University. We also initiated to process of setting up two bi-coastal facilities capable of meeting the development and production needs for several customers. In 2022, we plan to commence operation of these new capabilities.

c. Products

The BaroShear Ultra Shear Technology platform development portfolio is currently comprised of three models for use in research, formulation, and processing of oil and water nanoemulsions.

- BaroShear Mini – bench-top instrument to be used for research, formulation, and small volume processing where budget is a concern. Throughput of at least 1mL / minute
- BaroShear K45 – pilot scale, floor standing instrument for throughput of at least 1L / hour.
- BaroShear Max – floor standing, fully automated, CIP industrial production system for throughput of more than 1L / minute.

d. Customers

Cannabis extracts, cosmetic & personal care products, liquid foods & beverages, nutraceuticals, pharmaceuticals, agrochemicals, inks, paints, lubricants and other industrial products, and researchers and processors interested in developing stable, water-soluble nanoemulsions for any application.

e. Competition - High Pressure

- Avestin / ATA Scientific – Australia
- Bee International, Easton, MA – USA
- DyHydromatics, Maynard, MA - USA
- ELVEFLOW an Elvsys brand, Paris, FRANCE
- Microfluidics an IDEX Corp Company, Westwood, MA – USA

f. Manufacturing and Supply

PBI's current strategy is to have the development handled by PBI's development and engineering team, with manufacturing at a combination of our locations, partnered with selected Contract Manufacturing Organization (CMO), and, ultimately, with the end customers, where appropriate. Aftermarket service and support will initially be handled by PBI's service and repair staff. As unit placements grow, we will investigate expansion of PBI's service and support organization or augment it with external partners.

g. Research and Development

PBI's UST engineering team is developing a product portfolio consisting of three model instruments with the following research & formulation, pre-production and production models scheduled for launch as follows:

BaroShear K45 mini – bench-top instrument, Q2 2022

BaroShear K45 – floor standing model, Q4 2022

BaroShear Max – floor standing, fully automated, CIP equipment, prototype delivered to Ohio State University – Q4 2021. Commercial release planned for mid-2022 timeframe.

The PBI Agrochem Platform

In February 2021, PBI announced a signed Letter of Intent to acquire the assets and senior management of a dormant company with an extensive portfolio of innovative agrochemical products, utilizing natural product oils as active ingredients (similar to the use of orange oil or neem oil for pest control). With the intense and growing focus of consumers and governments on the long term environmental and health challenges presented by many conventional agrochemical products, this new class of “green” essential oil agrochemicals that are considered safe for humans and animals represent a highly attractive and high-growth segment of the agrochemicals market.

The ability of PBI to further differentiate the efficiency and cost-effectiveness of these products versus traditional agrochemicals, through the application of UST to obtain all of the benefits of extremely low droplet-size nanoemulsions, offers a compelling growth and profitability acceleration opportunity in the agrochemicals business sector. While PBI is pursuing a lease and license model for the rollout of its UST platform into other business sectors, we elected to test a direct participation model in the agrochemical applications sector.

In July 2021, PBI established PBI Agrochem, Inc., a wholly-owned agrochemicals subsidiary, in order to purchase up to \$1M of “green” agrochemical products from the targeted acquisition, to allow the management of the dormant agrochemicals company to demonstrate the reestablishment of previous business relationships and sales channels, and to provide access to early agrochemical sales revenues for PBI (prior to closing the asset acquisition transaction). PBI Agrochem leased a warehouse near Sparks, NV and hired a warehouse manager to facilitate the shipping, storage and management of the “green” agrochemicals inventory.

The reestablishment of previous business relationships and sales channels proceeded much more slowly during late 2021 than had been forecast by the management of the dormant agrochemicals company. In the 1st Quarter of 2022, PBI Agrochem sales have begun to gain initial traction and are increasing monthly. The management of the dormant agrochemicals company continues to forecast an accelerating reestablishment of its previous customer base and sales, and robust global growth opportunities for its highly desirable “green” agrochemical product solutions. PBI is continuing to evaluate these agrochemical assets and the asset acquisition opportunity.

Other

a. Sales and Marketing

Our marketing and sales functions are led by John Hollister, our Director of Sales and Marketing. Mr. Hollister oversees and directs all marketing and sales activities, including trade show attendance and sponsorship, on-line advertising, website maintenance and improvement, search engine optimization, creation and dissemination of newsletters, market research initiatives, the arrangement of on-location seminars, lectures, and demonstrations of instrumentation and consumables capabilities, and the supervision of our sales and marketing personnel. Mr. Schumacher is also responsible for the overall coordination of our collaboration programs, from initial set-up, research plan design, and training, service, and data analysis. Some of these responsibilities are shared with other departments such as Research and Development, but marketing and sales drives the collaborative process. Mr. Schumacher is also responsible for the continued coordination and support of our foreign distribution partners. The Company is in the process of recruiting a field sales person.

Our sales and marketing efforts are centered on using the independent data developed and disseminated by our collaboration partners to help drive the installed base of our PCT Sample Preparation System, BaroFold services, and BaroShear UST platform. The development of scientific data by our partners and our internal researchers provides our sales and marketing staff with additional tools that are essential in selling existing and newly developed paradigm-shifting, high-value technologies and services. We believe that partnering with seasoned, capable equipment distribution partners in the cannabis and other laboratory / process markets will drive lead generation and purchase orders faster than if we were to build our own sales force.

b. Marketing Strategy

We recognize that our enabling PCT, BaroFold, and UST pressure platforms are powerful, novel platform technologies. We also recognize that the power of pressure in today's laboratories is not yet widely known and utilized by researchers. Our first goal is to greatly broaden the awareness of pressure and its applications among research scientists and to ensure they know that these technologies exist through our high-pressure instruments, requisite consumables, and unique services. To accomplish this expansion of knowledge about the power of pressure and the subsequent adoption of our pressure-based technology platforms, we have developed and are implementing a multi-faceted approach to marketing our products and services.

Key Opinion Leaders and Publications

To initially reach scientists, we have established collaborations with key opinion leaders (KOL) who recognized early the potential for our pressure-based platforms and who went on to report their discoveries in peer reviewed journals. Among the KOLs working with us is Dr. Ruedi Aebersold (Head of the Department of Biology, ETH, Zurich). Dr. Aebersold, a pioneer in proteomics, worked with our scientists and engineers to develop PCT-SWATH (aka PCT-HD), a superior method for the extraction and preparation of proteins from samples intended for analysis by mass spectrometry. Other KOLs include Dr. Jennifer van Eyk (Director of Advanced Clinical Biosystems Institute in the Department of Biomedical Sciences, Cedar Sinai, Los Angeles, CA) and Dr. Wayne Hubble (Jules Stein Professor at the University of California, LA). Dr. van Eyk is a recognized expert in the causes of heart disease and is using PCT in her attempt to discover cardiac disease biomarkers. Dr. Hubble, a member of the National Academy of Sciences, is a leader in the field of electron paramagnetic resonance (EPR). He uses PCT in his studies of protein-protein interactions, so very important in the discovery of drug targets and drug design. The publications and presentations of these and other world class scientists have been invaluable in gaining initial entry of PCT in several areas of research. In addition to publications by our numerous KOLs, there are also many additional peer reviewed publications from dozens of other scientists discussing the advantages of the PCT platform in bio-molecule sample preparation, as well as the advantages of our BaroFold technology and our UST platform. To this end, we do all we can to disseminate the work of these scientists in an effort to increase the exposure of PCT, BaroFold, and UST to the worldwide research community.

Broadcasting Our PCT, BaroFold and UST Platform Technologies and Products

1. We attend, exhibit, and present at top scientific meetings such as the American Society of Mass Spectrometry (ASMS) and both the US and International meetings of the Human Proteome Organization (HUPO). These meetings are an opportunity to present our technology and to showcase our products to scientists who require sample preparation in their research studies.
2. Routine and timely "blast" emails to scientists in our database. Topics include new PCT-related publications, announcements of meetings, product advertisements, and a quarterly newsletter. The database we use is proprietary, as it has been built from attending scientific meetings and searching the internet for relevant publications and contact information. Pardot Marketing automation software is utilized for routing email campaigns, allowing us to measure customer engagement with our landing pages, articles and emails.
3. We manage our database with Salesforce, a state-of-the-art Customer Relationship Management (CRM) system. Through Salesforce, we employ the marketing automation software Pardot to manage our email blasts. Pardot enables us to assess open rates, levels of interest, and to create automatic and constant contact with potential clients.
4. We use social media platforms like LinkedIn, Twitter and Facebook to broadcast publications, webinars, our presence at scientific meetings, and press releases. We employ LeadForensics and SRAX to amplify our targeting and social media efforts. Social media enables us to easily reach scientists world-wide.
5. We significantly upgraded our website. The upgraded website contains a state-of-the art search engine that enables researchers to rapidly find PCT-related publications and products.
6. The website contains product information, published articles, and videos of our products to foster engagement, product interest, leads, order placement, and learning.
7. Our scientists regularly present their findings and discuss our products at scientific sessions at regional, national, and international scientific conferences, and at corporate, government, and academic laboratories.
8. In addition to electronic advertising, we have used and will continue to use print media to showcase our products.

In 2022, we plan to expand our Sales and Marketing team, in order to support these efforts.

c. Foreign Distribution Network

We have previously established distribution arrangements covering China, Poland, South Korea, Japan, and 24 countries in Western Europe.

On December 3, 2021, we entered into a two-year distribution agreement with Westlake Omics Biotechnology, Ltd, in Hangzhou, China. We believe that they are committed and capable of rapidly expanding the market for Barocyclers in China.

In February 2016, we entered into a three-year distribution agreement with *Bioanalytic* of Poland, pursuant to which PBI granted *Bioanalytic* exclusive distribution rights to all of our PCT products in Poland... In August of 2021, we expanded our relationship with *Bioanalytic* to reflect an exclusive distribution relationship for all of the EU and non-EU members in Western Europe, in addition to Poland. In August 2021, we signed an exclusive distribution agreement with Bioanalytic on Aug 1 2021 that expires on December 31, 2023.

In September of 2016, we entered into a three-year distribution agreement with Vita Co. of Japan, pursuant to which we granted Vita Co. exclusive distribution rights to all of our PCT products in Japan. This agreement expired in 2019. We continue to maintain a distribution relationship with Vita and are in contract renewal discussions.

In September of 2016, we entered into a distribution agreement with I&L GmbH of Germany, pursuant to which we granted I&L exclusive distribution rights to all of our products until March 30, 2018 in the countries designated as Western Europe (Andorra, Austria, Belgium, Denmark, Finland, France, Germany, Gibraltar, Greece, Iceland, Italy, Ireland, Liechtenstein, Luxembourg, Malta, Monaco, Norway, Netherlands, Portugal, San Marino, Spain, Sweden, Switzerland, and the United Kingdom). This agreement expired March 31, 2020. In February of 2021, we were informed that I&L had determined that they were not going to renew their exclusive distributor relationship with PBI.

In January 2020, we entered into a three-year distribution agreement with SCINCO Co., LTD of South Korea, pursuant to which PBI granted SCINCO exclusive distribution rights to all of our PCT products in South Korea.

Non-Exclusive and Other Distribution Agreements

In November 2011, we entered into a distributor agreement with OROBOROS Instruments Corp. (“*OROBOROS*”) of Austria, pursuant to which we granted OROBOROS non-exclusive world-wide distribution rights to our Shredder SG3 System and related products.

We are also the exclusive distributor, throughout the Americas, for Constant Systems, Ltd.’s (“*CS*”) cell disruption equipment, parts, and consumables. CS, a British company located northwest of London, England, has been providing niche biomedical equipment, related consumable products, and services to a global client base since 1989. CS designs, develops, and manufactures high pressure cell disruption equipment used by life sciences laboratories worldwide, particularly disruption systems for the extraction of proteins. The CS equipment provides a constant and controlled cell disruptive environment, giving the user superior, constant, and reproducible results whatever the application. CS has over 900 units installed in over 40 countries worldwide. The CS cell disruption equipment has proven performance in the extraction of cellular components, such as protein from yeast, bacteria, mammalian cells, and other sample types.

The CS pressure-based cell disruption equipment and our PCT-based instrumentation complement each other in several important ways. While both the CS and our technologies are based on high pressure, each product line has fundamental scientific capabilities that the other does not offer. Our PCT Platform uses certain patented pressure mechanisms to achieve small-scale, molecular level effects. CS’s technology uses different, proprietary pressure mechanisms for larger-scale, non-molecular level processing. In a number of routine laboratory applications, such as protein extraction, both effects can be critical to success. Therefore, for protein extraction and a number of other important scientific applications, we believe laboratories will benefit by using the CS and PBI products, either separately or together.

In June 2013, CS and PBI signed an expanded distribution agreement that made us the exclusive distributor of CS products throughout all of the Americas until the end of 2019. In October 2021, we renewed this distribution agreement for an additional two years.

d. Intellectual Property

We believe that protection of our patents and other intellectual property is essential to our business. Subject to the availability of sufficient financial resources, our practice is to file patent applications to protect technology, inventions, and improvements to inventions that are important to our business development. We also rely on trade secrets, know-how, and technological innovations to develop and maintain our potential competitive position.

To date, we have been awarded 26 total United States and foreign patents related to our PCT technology platform, and one US patent and two additional patents in China related to our Ultra Shear Technology. We also received eight patents with our purchase of the assets of BaroFold in December 2017.

The Company received one US patent and two patents in China for UST, focused on a low-cost scalable approach for product manufacturing. The Company believes this method can find use in various nanoemulsion applications for pharmaceutical (e.g., drug delivery), biotechnology (e.g., protein recovery, biomolecule extraction), and food/beverage (e.g., shelf-stable “clean label”) products. We plan to design, develop, manufacture, and market three different modules of BaroShear UST platform:

1. a bench-top, research/formulation, low-throughput instrument that we will license for formulation development;
2. a lab-or pilot scale production instrument that we will license into life science companies and other industries;
3. a production scale UST-based instrument for manufacturing applications that we will license to food, cosmetics, nutraceuticals, and other processors worldwide.

Our issued patents expire between 2022 and 2030. Any failure to obtain and maintain adequate patent protection may adversely affect our ability to enter into, or affect the terms of, any arrangement for the marketing, sale or licensing of any of our products or technology platforms. It may also allow our competitors to duplicate our products without our permission and without compensation.

BioMolecular Assays, Inc.

In 1996, we acquired our initial equity interest in BioSeq, Inc., which at the time was developing our original pressure cycling technology. BioSeq, Inc. acquired its pressure cycling technology from BioMolecular Assays, Inc. under a technology transfer and patent assignment agreement. In 1998, we purchased all of the remaining outstanding capital stock of BioSeq, Inc., and at such time, the technology transfer and patent assignment agreement was amended to require us to pay BioMolecular Assays, Inc., a 5% royalty on our sales of products or services that incorporate or utilize the original pressure cycling technology that BioSeq, Inc. acquired from BioMolecular Assays, Inc. We were also required to pay BioMolecular Assays, Inc. 5% of the proceeds from any sale, transfer or license of all or any portion of the original pressure cycling technology. These payment obligations terminated March 7, 2016.

In connection with our acquisition of BioSeq, Inc., we licensed certain limited rights to the original pressure cycling technology back to BioMolecular Assays, Inc. This license is non-exclusive and limits the use of the original pressure cycling technology by BioMolecular Assays, Inc. solely for molecular applications in scientific research and development and in scientific plant research and development. BioMolecular Assays, Inc. is required to pay us a royalty equal to 20% of any license or other fees and royalties, but not including research support and similar payments, it receives in connection with any sale, assignment, license or other transfer of any rights granted to BioMolecular Assays, Inc. under the license. BioMolecular Assays, Inc. was required to pay us these royalties until the expiration in March 2016 of the patents held by BioSeq, Inc. since 1998. We have not received any royalty payments from BioMolecular Assays, Inc. under this license.

Battelle Memorial Institute

In December 2008, we entered into an exclusive patent license agreement with the Battelle Memorial Institute (“*Battelle*”). The licensed technology is the subject of a patent application filed by Battelle in 2008 and relates to a method and a system for improving the analysis of protein samples, including through an automated system utilizing pressure and a pre-selected agent to obtain a digested sample in a significantly shorter period of time than current methods, while maintaining the integrity of the sample throughout the preparatory process. In addition to royalty payments on net sales of “licensed products,” we are obligated to make minimum royalty payments for each year that we retain the rights outlined in the patent license agreement and we are required to have our first commercial sale of the licensed products within one year following the issuance of the patent covered by the licensed technology. After re-negotiating the terms of the contract in 2013, the minimum annual royalty was \$1,200 in 2014 and \$2,000 in 2015; the minimum royalties were \$3,000 in 2016, \$4,000 in 2017 and \$5,000 in 2018 and each calendar year thereafter during the term of the agreement.

e. Developments and Accomplishments

We reported a number of accomplishments in 2021:

- On December 22: PBI shatters preconceived nanoemulsion stability, performance, and production limits, produces CBD oil nanoemulsions with 18-month stability... portends revolution in multiple major markets.
- On November 17: Q3 financial results: solid YTD growth - total revenue up 60%, operating loss reduced 16%.

- On November 11: Second U.S. patent awarded for revolutionary UST platform: for innovative nanogap valve.
- On November 4: BaroFold Platform Unleashes Hidden Growth Engine as Strong Demand for Protein Therapeutics Leverages PBI's Protein Refolding Technology.
- On September 30: PBI reports its UST platform successfully transforms Neem Oil into a novel, highly potent nanoemulsion for more effective agrochemical applications
- On September 29: PBI announced forward integration plans for Ultra Shear Technology (UST) demonstration and for manufacturing partnerships on U.S. east and west coasts.
- On August 19: PBI reports Q2 financial results, including a 127% growth in total revenue, 178% growth in instrument sales, 298% growth in UST/BaroFold services, and a concomitant 51% decrease in operating loss.
- On August 18: PBI expands on recent announcements (i) \$1M in orders for PBI Agrochem, (ii) growth plan and goals for 2nd half of 2021, and (iii) pending acquisition of eco-friendly assets at the August 18 Emerging Growth Investor Conference.
- On August 12: PBI's new green, eco-friendly wholly-owned agrochem subsidiary (PBI Agrochem) receives over \$1,000,000 in orders in first month of operations.
- On August 5: PBI unveils aggressive growth plan and goals for second half 2021; Company marches toward UST commercial release; uplisting, and profitability.
- On July 21: PBI's President & CEO Ric Schumacher spoke at the July 21st Emerging Growth Conference where he expanded on the recent UST platform breakthroughs and impending agrochem asset acquisition.
- On July 21: PBI announces major business expansion, establishing eco-friendly agrochemicals subsidiary and initiating plans to drive accretive 2021 revenue.
- On July 13: PBI's UST-enabled nanoemulsions soar past one-year stability goal; results open explosive growth potential for water-soluble, CBD-infused beverages worldwide.
- On July 1: PBI reported its novel UST platform delivered breakthrough nanoemulsion processing for one of the world's most potent antioxidants – Astaxanthin.
- On July 23: PBI presented a corporate overview - including a discussion of its resurgent revenue growth in 2021, the potential impact of the anticipated commercial release of its revolutionary Ultra Shear Technology™ (UST™) platform by Q4 2021, and its impending acquisition of assets of a global, eco-friendly agrochemicals at the Emerging Growth Conference.
- On May 19: PBI reports resurgent growth in 1st Quarter 2021: total revenue up 121%, instrument sales up 235%, consumable sales up 81%, gross margins up (31-60%), and operating loss down 23%.
- On May 13: PBI was awarded three additional patents for its revolutionary Ultra Shear Technology™ (UST™) platform, all entitled "System for High Pressure, High Shear Processing of Fluids". The new patents, awarded in Japan (No. 6843063), Australia (No. 2016243553), and China (ZL201680026865.2), bring the Company's Intellectual Property ("IP") estate to a total of 6 issued patents for UST and 29 issued patents overall.
- On March 15: PBI discussed partnerships with Leica Microsystems (cancer diagnostics) and Ohio State University (food industry consortium) with the Stock Day Podcast.
- On March 4: PBI reported that the transformative impact of the food industry consortium formed by Pressure BioSciences and Ohio State University was discussed in a showcase video from Emerging Technology Insider.
- On February 24: PBI and Ohio State University announced the formation of a food industry consortium to advance commercialization of the Company's Ultra Shear Technology (UST) platform.
- On January 20: PBI targeted a revolution in effectiveness of therapeutics via improved drug delivery and dosing safety when the Company announced a collaboration with SinuSys Corp to improve and optimize their lead sinus health product candidate prior to Phase IIb trials.

f. Liquidity

Management has developed a plan to continue operations. This plan includes controlling expenses, streamlining operations, and obtaining capital through equity and/or debt financing. We have been successful in raising cash through debt and equity offerings in the past. We have efforts in place to continue to raise cash through debt and equity offerings.

Although we have successfully completed equity financings and reduced expenses in the past, we cannot assure our investors that our plans to address these matters in the future will be successful. Additional financing may not be available to us on a timely basis or on terms acceptable to us, if at all. In the event we are unable to raise sufficient funds on terms acceptable to us, we may be required to:

- severely limit or cease our operations or otherwise reduce planned expenditures and forego other business opportunities, which could harm our business. The accompanying financial statements do not include adjustments that may be required in the event of the disposal of assets or the discontinuation of the business;
- obtain financing with terms that may have the effect of diluting or adversely affecting the holdings or the rights of the holders of our capital stock; or
- obtain funds through arrangements with future collaboration partners or others that may require us to relinquish rights to some or all of our technologies or products.

g. Regulation

Many of our activities are subject to regulation by governmental authorities within the United States and similar bodies outside of the United States. The regulatory authorities may govern the collection, testing, manufacturing, safety, efficacy, labeling, storage, record keeping, transportation, approval, advertising, and promotion of our products, as well as the training of our employees.

Currently, our PCT commercialization efforts are focused in the area of genomic, proteomic, lipidomic, and small molecule sample preparation. We do not believe that our current Barocycler products used in sample preparation are considered “medical devices” under the United States Food, Drug and Cosmetic Act (the “*FDA Act*”) and we do not believe that we are subject to the law’s general control provisions that include requirements for registration, listing of devices, quality regulations, labeling and prohibitions against misbranding and adulteration. We also do not believe that we are subject to regulatory inspection and scrutiny. If, however, we are successful in commercializing PCT in applications beyond our current focus area of genomic, proteomic, lipidomic, and small molecule sample preparation, such as protein purification, pathogen inactivation and immunodiagnosics, our products may be considered “medical devices” under the FDA Act, at which point we would be subject to the law’s general control provisions and regulation by the FDA that include requirements for registration listing of devices, quality regulations, labeling, and prohibitions against misbranding and adulteration. The process of obtaining approval to market these devices in the other potential applications of PCT would be costly and time consuming and could possibly prohibit us from pursuing such markets.

Some of our devices may also become subject to the European Pressure Equipment Directive, which requires certain pressure equipment meet certain quality and safety standards. We do not believe that we are currently subject to this directive because our Barocycler instruments are below the threshold documented in the text of the directive. If our interpretation were to be challenged, we could incur significant costs defending the challenge, and we could face production and selling delays, all of which could harm our business.

We self-certified that our Barocycler instrumentation was electromagnetically compatible, or “CE” compliant, which means that our Barocycler instruments meet the essential requirements of the relevant European health, safety and environmental protection legislation. In order to maintain our CE Marking, a requirement to sell equipment in many countries of the European Union, we are obligated to uphold certain safety and quality standards. Due to outsourcing manufacturing to CBM, an ISO certified contract manufacturer, for all Barocycler 2320 EXT instruments currently in inventory or sold in 2021, we believe compliance with CE and other required marks and certifications is well controlled.

h. Employees

At December 31, 2021, we had twelve (12) full-time employees. All employees enter into confidentiality agreements intended to protect our proprietary information. We believe that our relations with our employees are good. None of our employees are represented by a labor union. Our performance depends on our ability to attract and retain qualified professional, scientific and technical staff. The level of competition among employers for skilled personnel is high. Subject to our limited financial resources, we attempt to maintain employee benefit plans to enhance employee morale, professional commitment and work productivity and provide an incentive for employees to remain with us.

i. Corporate Information

We were incorporated in the Commonwealth of Massachusetts in August 1978 as Boston Biomedica, Inc. In 1996, Boston Biomedica completed a successful initial public offering and was listed on the NASDAQ market (where we maintained a listing until 2012). In September 2004, we completed the sale of Boston Biomedica’s core business units and began to focus exclusively on the development and commercialization of the PCT platform. Following this change in business strategy, we changed our legal name from Boston Biomedica, Inc. to Pressure BioSciences, Inc. We began operations as PBI in February 2005, research and development activities in April 2006, early marketing and selling activities of our Barocycler instruments in late 2007, and active marketing and selling of our PCT-based instrument platform in 2012.

j. Available Information

Our Internet website address is <http://www.pressurebiosciences.com>. Through our website, we make available, free of charge, reports that we file with the Securities and Exchange Commission (“*SEC*”), which include, but are not limited to, our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any and all amendments to such reports, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. These SEC reports can be also accessed through the investor relations section of our website. The information found on our website is not part of this or any other report we file with or furnish to the SEC.

ITEM 1A. RISK FACTORS.

This Annual Report on Form 10-K contains forward-looking statements that involve risks and uncertainties, such as statements of our objectives, expectations and intentions. The cautionary statements made in this Annual Report on Form 10-K should be read as applicable to all forward-looking statements wherever they appear in this report. Our actual results could differ materially from those discussed herein. Factors that could cause or contribute to such differences include those discussed below, as well as those discussed elsewhere in this Annual Report on Form 10-K.

RISKS RELATED TO OUR COMPANY

We have received an opinion from our independent registered public accounting firm expressing substantial doubt regarding our ability to continue as a going concern.

The audit report issued by our independent registered public accounting firm on our audited consolidated financial statements for the fiscal year ended December 31, 2021 contains an explanatory paragraph regarding our ability to continue as a going concern. The audit report states that our auditing firm determined that there was substantial doubt in our ability to continue as a going concern due to the risk that we may not have sufficient cash and liquid assets at December 31, 2021 to cover our operating and capital requirements for the next twelve-month period; and if sufficient cash cannot be obtained, we would have to substantially alter, or possibly even discontinue, operations. The accompanying consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Management has developed a plan to continue operations. This plan includes continued control of expenses and obtaining equity or debt financing. Although we have successfully completed equity financings and reduced expenses in the past, we cannot assure you that our plans to address these matters in the future will be successful.

The factors described above could adversely affect our ability to obtain additional financing on favorable terms, if at all, and may cause investors to have reservations about our long-term prospects and may adversely affect our relationships with customers. There can be no assurance that our auditing firm will not issue the same opinion in the future. If we cannot successfully continue as a going concern, our stockholders may lose their entire investment.

Our revenue is dependent upon acceptance of our products by the market. The failure of such acceptance will cause us to curtail or cease operations.

Our revenue comes from the sale of our products. As a result, we will continue to incur operating losses until such time as sales of our products reach a mature level and we are able to generate sufficient revenue from the sale of our products to meet our operating expenses. There can be no assurance that customers will adopt our technology and products, or that businesses and prospective customers will agree to pay for our products. In the event that we are not able to significantly increase the number of customers that purchase our products, or if we are unable to charge the necessary prices, our financial condition and results of operations will be materially and adversely affected.

Our business could be adversely affected if we fail to implement and maintain effective disclosure controls and procedures and internal control over financial reporting.

We concluded that as of December 31, 2021, our disclosure controls and procedures and our internal control over financial reporting were not effective. We have determined that we have limited resources for adequate personnel to prepare and file reports under the Securities Exchange Act of 1934 within the required time periods and that material weaknesses in our internal control over financial reporting exist relating to our accounting for complex equity transactions. If we are unable to implement and maintain effective disclosure controls and procedures and remediate the material weaknesses in a timely manner, or if we identify other material weaknesses in the future, our ability to produce accurate and timely financial statements and public reports could be impaired, which could adversely affect our business and financial condition. We identified a lack of sufficient segregation of duties. Specifically, this material weakness is such that the design over these areas relies primarily on detective controls and could be strengthened by adding preventive controls to properly safeguard assets. In addition, investors may lose confidence in our reported information and the market price of our common stock may decline.

We have a history of operating losses, anticipate future losses and may never be profitable.

We have experienced significant operating losses in each period since we began investing resources in PCT and CP. These losses have resulted principally from research and development, sales and marketing, and general and administrative expenses associated with the development of our PCT business and more recently our BaroFold and UST business. During the year ended December 31, 2021, we recorded a net loss available to common shareholders of \$22,685,459 or (\$3.42) per share, as compared with \$17,584,710 or (\$5.32) per share, for the corresponding period in 2020. We expect to continue to incur operating losses until sales increase substantially. We cannot be certain when, if ever, we will become profitable. Even if we were to become profitable, we might not be able to sustain such profitability on a quarterly or annual basis.

If we are unable to obtain additional financing, business operations will be harmed and if we do obtain additional financing then existing shareholders may suffer substantial dilution.

We need substantial capital to implement our sales distribution strategy for our current products and to develop and commercialize future products using our high-pressure technology products and services across all of our targeted markets. Our capital requirements will depend on many factors, including but not limited to:

- the problems, delays, expenses, and complications frequently encountered by early-stage companies;
- market acceptance of our high-pressure technology products and services;
- the success of our sales and marketing programs; and
- changes in economic, regulatory or competitive conditions in the markets we intend to serve.

We expect the net proceeds from our financing plans, along with our current cash position, will enable us to fund our operating expenses and capital expenditure requirements for at least the next 24 months, during which time we expect to achieve profitability. If we do not achieve profitability as planned, we anticipate that we will need to raise additional capital to fund our operations and to otherwise implement our overall business strategy. We currently do not have any contracts or commitments for additional financing. There can be no assurance that financing will be available in amounts or on terms acceptable to us, if at all. Any additional equity financing may involve substantial dilution to then existing shareholders.

If adequate funds are not available or if we fail to obtain acceptable additional financing, we may be required to:

- severely limit or cease our operations or otherwise reduce planned expenditures and forego other business opportunities, which could harm our business;
- obtain financing, including but not limited to via the issuance of convertible notes, with terms that may have the effect of substantially diluting or adversely affecting the holdings or the rights of the holders of our capital stock; or
- obtain funds through arrangements with future collaboration partners or others that may require us to relinquish rights to some or all of our technologies or products.

We have incurred substantial debt, which could impair our flexibility and access to capital and adversely affect our financial position, and our business would be materially adversely affected if we are unable to service our debt obligations.

As described in Note 9 to our audited financial statements, as of December 31, 2021, there were \$14.4 million in convertible notes outstanding some of which is past due. One lender holds approximately \$9.4 million of this debt. In addition, as of December 31, 2021 we were making daily payments of \$1,279 and one payment per week of \$11,305 to service Merchant Agreements. As of March 31, 2022 we were making weekly payments totaling \$30,295 to service Merchant Agreements.

We may incur additional indebtedness from time to time to implement our sales distribution strategy for our current products and to develop and commercialize future products using our high-pressure technology products and services across all of our targeted markets.

Our substantial indebtedness may:

- require us to use a substantial portion of our cash flow from operations and / or to issue substantial amounts of shares of common stock (which may result in substantial dilution to our existing stockholders) to service our debt;
- increase our vulnerability to economic downturns and adverse competitive and industry conditions and place us at a competitive disadvantage compared to those of our competitors that are less leveraged; or
- limit our flexibility in planning for, or reacting to, changes in our business and our industry and limit our ability to pursue other business opportunities, borrow more money for operations or capital in the future, and implement our business strategies.

In addition, our cash balance is significantly less than the principal amount of our outstanding debt, and we may not generate sufficient cash flow from our operations to pay our substantial debt. Any debt financing that is available could cause us to incur substantial costs and subject us to covenants that significantly restrict our ability to conduct our business.

Our financial results depend on revenues from our high-pressure technology products and services, and from government grants.

We currently rely on revenues from PCT, CP, BaroFold and UST technology products and services, and from revenues derived from grants awarded to us by governmental agencies, such as the National Institutes of Health. Through 2021, we have not yet achieved product readiness for BaroFold and UST, and/or market acceptance of our product offerings, to the extent necessary to achieve revenue growth sufficient to establish profitability. Competition for government grants is very intense, and we can provide no assurance that we will continue to be awarded grants in the future. If we are unable to increase revenues from sales of our high-pressure technology products and services and government grants, our business will fail.

We may be unable to obtain market acceptance of our high-pressure technology products and services.

Many of the initial sales of our pressure cycling technology products and services have been to our collaborators, following their use of our products in studies undertaken in sample preparation for genomics, proteomics, lipidomics, and small molecules studies. Later sales have been to key opinion leaders. Our technology requires scientists and researchers to adopt a method of sample extraction that is different from existing techniques. Our PCT sample preparation system is also more costly than most existing techniques. Our ability to obtain market acceptance will depend, in part, on our ability to demonstrate to our potential customers that the benefits and advantages of our technology outweigh the increased cost of our technology compared with existing methods of sample extraction. Similar early technology introduction, trial and acceptance challenges must be surmounted for the BaroFold and UST products and services, as well. If we are unable to demonstrate the benefits and advantages of our products and technology as compared with existing technologies, we will not gain market acceptance and our business will fail.

Our business may be harmed if we encounter problems, delays, expenses, and complications that often affect companies that have not achieved significant market acceptance.

Our high-pressure technology businesses will continue to face challenges in achieving market acceptance. If we encounter problems, delays, expenses and complications, many of which may be beyond our control or may harm our business or prospects. These include:

- availability of adequate financing;
- unanticipated problems and costs relating to the development, testing, production, marketing, and sale of our products;
- delays and costs associated with our ability to attract and retain key personnel; and
- competition.

The sales cycle of our high-pressure technology products is lengthy. We have incurred and may continue to incur significant expenses and we may not generate any significant revenue related to those products.

Many of our current and potential customers have required between three and six months or more to test and evaluate our high-pressure technology products. This increases the possibility that a customer may decide to cancel its order or otherwise change its plans, which could reduce or eliminate our sales to that potential customer. As a result of this lengthy sales cycle, we have incurred and may continue to incur significant research and development, selling and marketing, and general and administrative expense related to customers from whom we have not yet generated any revenue from our products, and from whom we may never generate the anticipated revenue if a customer is not satisfied with the results of the evaluation of our products or if a customer cancels or changes its plans.

Our business could be harmed if our products contain undetected errors or defects.

We are continuously developing new and improving our existing, high-pressure technology products and we expect to do so across many areas of life sciences applications depending upon the availability of our resources. Newly introduced products can contain undetected errors or defects. In addition, these products may not meet their performance specifications under all conditions or for all applications. If, despite internal testing and testing by our collaborators, any of our products contain errors or defects or fail to meet customer specifications, then we may be required to enhance or improve those products or technologies. We may not be able to do so on a timely basis, if at all, and may only be able to do so at considerable expense. In addition, any significant reliability problems could result in adverse customer reaction, negative publicity or legal claims and could harm our business and prospects.

Our success may depend on our ability to manage growth effectively.

Our failure to manage growth effectively could harm our business and prospects. Given our limited resources and personnel, growth of our business could place significant strain on our management, information technology systems, sources of manufacturing capacity and other resources. To properly manage our growth, we may need to hire additional employees and identify new sources of manufacturing capabilities. Failure to effectively manage our growth could make it difficult to manufacture our products and fill orders, as well as lead to declines in product quality or increased costs, any of which would adversely impact our business and results of operations.

Our success is substantially dependent on the continued service of our senior management.

Our success is substantially dependent on the continued service of our senior management, specifically our Chief Executive Officer, Richard T. Schumacher. The loss of the services of any of our senior management could make it more difficult to successfully operate our business and achieve our business goals. In addition, our failure to retain existing engineering, research and development, operations, and marketing/sales personnel could harm our product development capabilities and customer and employee relationships, delay the growth of sales of our products, and result in the loss of key information, expertise, or know-how.

We may not be able to hire or retain the number of qualified personnel, particularly engineering and sales personnel, required for our business, which would harm the development and sales of our products and limit our ability to grow.

Competition in our industry for senior management, technical, sales, marketing, finance and other key personnel is intense. If we are unable to retain our existing personnel, or attract and train additional qualified personnel, either because of competition in our industry for such personnel or because of insufficient financial resources, our growth may be limited. Our success also depends in particular on our ability to identify, hire, train and retain qualified engineering and sales personnel with experience in design, development and sales of laboratory equipment.

Our reliance on a single third party for all of our manufacturing, and certain of our engineering, and other related services could harm our business.

We currently solely rely on CBM Industries, a third-party contract manufacturer, to manufacture our Barocycler 2320EXT instrumentation, provide manufacturing expertise, and manage the majority of our sub-contractor supplier relationships for this instrument. Because of our dependence on one manufacturer, our success will depend, in part, on the ability of CBM to manufacture our products cost effectively, in sufficient quantities to meet our customer demand, if and when such demand occurs, and meeting our quality requirements. If CBM experiences manufacturing problems or delays, or if CBM decides not to continue to provide us with these services, our business may be harmed. While we believe other contract manufacturers are available to address our manufacturing and engineering needs, if we find it necessary to replace CBM, there will be a disruption in our business and we would incur additional costs and delays that would harm our business.

Our failure to manage current or future alliances or joint ventures effectively may harm our business.

We have entered into business relationships with four distribution partners and one co-marketing partner, and we may enter into additional alliances, joint ventures or other business relationships to further develop, market and sell our pressure cycling technology product line. We may not be able to:

- identify appropriate candidates for alliances, joint ventures or other business relationships;
- assure that any candidate for an alliance, joint venture or business relationship will provide us with the support anticipated;
- successfully negotiate an alliance, joint venture or business relationship on terms that are advantageous to us; or
- successfully manage any alliance or joint venture.

Furthermore, any alliance, joint venture or other business relationship may divert management time and resources. Entering into a disadvantageous alliance, joint venture or business relationship, failing to manage an alliance, joint venture or business relationship effectively, or failing to comply with any obligations in connection therewith, could harm our business and prospects.

We may not be successful in growing our international sales.

We cannot guarantee that we will successfully develop our international sales channels to enable us to generate significant revenue from international sales. We currently have four international distribution agreements that cover 24 countries in Europe, Asia and Australia. We have generated limited sales to date from international sales and cannot guarantee that we will be able to increase our sales. As we expand, our international operations may be subject to numerous risks and challenges, including:

- multiple, conflicting and changing governmental laws and regulations, including those that regulate high pressure equipment;
- reduced protection for intellectual property rights in some countries;
- protectionist laws and business practices that favor local companies;
- political and economic changes and disruptions;
- export and import controls;
- tariff regulations; and
- currency fluctuations.

Our operating results are subject to quarterly variation. Our operating results may fluctuate significantly from period to period depending on a variety of factors, including but not limited to the following:

- our ability to increase our sales of our pressure cycling technology products for sample preparation on a consistent quarterly or annual basis;
- the lengthy sales cycle for our products;
- the product mix of the Barocycler instruments we install in a given period, and whether the installations are completed pursuant to sales, rental or lease arrangements, and the average selling prices that we are able to command for our products;
- our ability to manage our costs and expenses;
- our ability to continue our research and development activities without incurring unexpected costs and expenses; and
- our ability to comply with state and federal regulations without incurring unexpected costs and expenses.

Our instrumentation operates at high pressures and may therefore become subject to certain regulations in the European Community. Regulation of high-pressure equipment may limit or hinder our development and sale of future instrumentation.

Our Barocycler instruments operate at high pressures. If our Barocycler instruments exceed certain pressure levels, our products may become subject to the European Pressure Equipment Directive, which requires certain pressure equipment meet certain quality and safety standards. We do not believe that we are subject to this directive because our Barocycler instruments are currently below the threshold documented in the text of the directive. If our interpretation were to be challenged, we could incur significant costs defending the challenge, and we could face production and selling delays, all of which could harm our business.

We expect that we will be subject to regulation in the United States, such as by the Food and Drug Administration, and overseas, if and when we begin to invest more resources in the development and commercialization of PCT in applications outside of sample preparation for the research field.

Our current pressure cycling technology products in the area of sample preparation for the research field are not regulated by the FDA. Certain applications in which we intend to develop and commercialize pressure cycling technology, such as protein purification, pathogen inactivation and immunodiagnostics, are expected to require regulatory approvals or clearances from regulatory agencies, such as the FDA, prior to commercialization, when we expand our commercialization activities outside of the research field. We expect that obtaining these approvals or clearances will require a significant investment of time and capital resources and there can be no assurance that such investments will receive approvals or clearances that would allow us to commercialize the technology for these applications.

If we are unable to protect our patents and other proprietary technology relating to our pressure cycling technology products, our business will be harmed.

Our ability to further develop and successfully commercialize our products will depend, in part, on our ability to enforce our patents, preserve our trade secrets, and operate without infringing the proprietary rights of third parties. To date, we have been awarded 26 total United States and foreign patents related to our PCT technology platform, and one US patent and two additional patents in China related to our Ultra Shear Technology. We also received eight patents with our purchase of the assets of BaroFold in December 2017.

There can be no assurance that (a) any patent applications filed by us will result in issued patents; (b) patent protection will be secured for any particular technology; (c) any patents that have been or may be issued to us will be valid or enforceable; (d) any patents will provide meaningful protection to us; (e) others will not be able to design around our patents; and (f) our patents will provide a competitive advantage or have commercial value. The failure to obtain adequate patent protection would have a material adverse effect on us and may adversely affect our ability to enter into, or affect the terms of, any arrangement for the marketing or sale of any product.

Our patents may be challenged by others.

We could incur substantial costs in patent proceedings, including interference proceedings before the United States Patent and Trademark Office, and comparable proceedings before similar agencies in other countries, in connection with any claims that may arise in the future. These proceedings could result in adverse decisions about the patentability of our inventions and products, as well as about the enforceability, validity, or scope of protection afforded by the patents.

If we are unable to maintain the confidentiality of our trade secrets and proprietary knowledge, others may develop technology and products that could prevent the successful commercialization of our products.

We rely on trade secrets and other unpatented proprietary information in our product development activities. To the extent we rely on trade secrets and unpatented know-how to maintain our competitive technological position, there can be no assurance that others may not independently develop the same or similar technologies. We seek to protect our trade secrets and proprietary knowledge, in part, through confidentiality agreements with our employees, consultants, advisors and contractors. These agreements may not be sufficient to effectively prevent disclosure of our confidential information and may not provide us with an adequate remedy in the event of unauthorized disclosure of such information. If our employees, consultants, advisors, or contractors develop inventions or processes independently that may be applicable to our products, disputes may arise about ownership of proprietary rights to those inventions and processes. Such inventions and processes will not necessarily become our property but may remain the property of those persons or their employers. Protracted and costly litigation could be necessary to enforce and determine the scope of our proprietary rights. Failure to obtain or maintain trade secret protection, for any reason, could harm our business.

If we infringe on the intellectual property rights of others, our business may be harmed.

It is possible that the manufacture, use or sale of our pressure cycling technology products or services may infringe patent or other intellectual property rights of others. We may be unable to avoid infringement of the patent or other intellectual property rights of others and may be required to seek a license, defend an infringement action, or challenge the validity of the patents or other intellectual property rights in court. We may be unable to secure a license on terms and conditions acceptable to us, if at all. Also, we may not prevail in any patent or other intellectual property rights litigation. Patent or other intellectual property rights litigation is costly and time-consuming, and there can be no assurance that we will have sufficient resources to bring any possible litigation related to such infringement to a successful conclusion. If we do not obtain a license under such patents or other intellectual property rights, or if we are found liable for infringement, or if we are unsuccessful in having such patents declared invalid, we may be liable for significant monetary damages, may encounter significant delays in successfully commercializing and developing our pressure cycling technology products, or may be precluded from participating in the manufacture, use, or sale of our pressure cycling technology products or services requiring such licenses.

We may be unable to adequately respond to rapid changes in technology and the development of new industry standards.

The introduction of products and services embodying new technology and the emergence of new industry standards may render our existing pressure cycling technology products and related services obsolete and unmarketable if we are unable to adapt to change. We may be unable to allocate the funds necessary to improve our current products or introduce new products to address our customers' needs and respond to technological change. In the event that other companies develop more technologically advanced products, our competitive position relative to such companies would be harmed.

We may not be able to compete successfully with others that are developing or have developed competitive technologies and products.

A number of companies have developed, or are expected to develop, products that compete or will compete with our products. We compete with companies that have existing technologies for the extraction of nucleic acids, proteins and small molecules from cells and tissues, including but not limited to methods such as mortar and pestle, sonication, rotor-stator homogenization, French press, bead beating, freezer milling, enzymatic digestion, and chemical dissolution.

We are aware that there are additional companies pursuing new technologies with similar goals to the products developed or being developed by us. Some of the companies with which we now compete, or may compete in the future, have or may have more extensive research, marketing, and manufacturing capabilities, more experience in genomics and proteomics sample preparation, protein purification, pathogen inactivation, immunodiagnosics, and DNA sequencing and significantly greater technical, personnel and financial resources than we do, and may be better positioned to continue to improve their technology to compete in an evolving industry. To compete, we must be able to demonstrate to potential customers that our products provide improved performance and capabilities. Our failure to compete successfully could harm our business and prospects.

We will need to increase the size of our organization and may experience difficulties in managing growth.

We are a small company with a minimal number of employees. We expect to experience a period of expansion in headcount, facilities, infrastructure and overhead and anticipate that further expansion will be required to address potential growth and market opportunities. Future growth will impose significant added responsibilities on members of management, including the need to identify, recruit, maintain and integrate new managers. Our future financial performance and its ability to compete effectively will depend, in part, on its ability to manage any future growth effectively.

Provisions in our articles of organization and bylaws may discourage or frustrate stockholders' attempts to remove or replace our current management.

Our articles of organization and bylaws contain provisions that may make it more difficult or discourage changes in our management that our stockholders may consider to be favorable. These provisions include:

- a classified board of directors;

- advance notice for stockholder nominations to the board of directors;
- limitations on the ability of stockholders to remove directors; and
- a provision that allows a majority of the directors to fill vacancies on the board of directors.

These provisions could prevent or frustrate attempts to make changes in our management that our stockholders consider to be beneficial and could limit the price that our stockholders might receive in the future for shares of our common stock.

The costs of compliance with the reporting obligations of the Exchange Act, and with the requirements of the Sarbanes-Oxley Act of 2002 and the Dodd-Frank Wall Street Reform and Consumer Protection Act, may place a strain on our limited resources and our management's attention may be diverted from other business concerns.

As a result of the regulatory requirements applicable to public companies, we incur legal, accounting, and other expenses that are significant in relation to the size of our Company including expenses related to complying with the Sarbanes-Oxley Act of 2002 and the Dodd-Frank Wall Street Reform and Consumer Protection Act, as well as rules subsequently implemented by the SEC and OTC Markets Group, Inc. These requirements have placed and will continue to place a strain on our systems and on our management and financial resources.

Certain of our net deferred tax assets could be substantially limited if we experience an ownership change as defined in the Internal Revenue Code.

Certain of our net operating losses (“NOLs”) give rise to net deferred tax assets. Our ability to utilize NOLs and to offset our future taxable income and/or to recover previously paid taxes would be limited if we were to undergo an “ownership change” within the meaning of Section 382 of the Internal Revenue Code (the “Code”). In general, an “ownership change” occurs whenever the percentage of the stock of a corporation owned by “5 percent shareholders,” within the meaning of Section 382 of the Code, increases by more than 50 percentage points over the lowest percentage of the stock of such corporation owned by such “5 percent shareholders” at any time over the preceding three years.

An ownership change under Section 382 of the Code would establish an annual limitation on the amount of NOLs we could utilize to offset our taxable income in any single taxable year to an amount equal to (i) the product of a specified rate, which is published by the U.S. Treasury, and the aggregate value of our outstanding stock plus; and (ii) the amount of unutilized limitation from prior years. The application of these limitations might prevent full utilization of the deferred tax assets attributable to our NOLs. We may have or will have experienced an ownership change as defined by Section 382 through the sale of equity and, therefore, we will consider whether the sale of equity units will result in limitations of our net operating losses under Section 382 when we start to generate taxable income. However, whether a change in ownership occurs in the future is largely outside of our control, and there can be no assurance that such a change will not occur.

We continue to face risks related to Novel Coronavirus (COVID-19) which could continue to significantly disrupt our research and development, operations, sales, and financial results.

Our business was adversely impacted by the effects of the Novel Coronavirus (COVID-19). In addition to global macroeconomic effects, the Novel Coronavirus (COVID-19) outbreak and any other related adverse public health developments could continue to cause disruption to our operations, research and development, and sales activities. Our third-party manufacturers, third-party distributors, and our customers have been and will be disrupted by worker absenteeism, quarantines and restrictions on employees’ ability to work, office and factory closures, disruptions to ports and other shipping infrastructure, border closures, or other travel or health-related restrictions. Depending on the magnitude of such effects on our activities or the operations of our third-party manufacturers and third-party distributors, the supply of our products will be delayed, which could adversely affect our business, operations and customer relationships. In addition, the Novel Coronavirus (COVID-19) or other disease outbreak will in the short-run and may over the longer term adversely affect the economies and financial markets of many countries, resulting in an economic downturn that will affect demand for our products and impact our operating results. There can be no assurance that any decrease in sales resulting from the Novel Coronavirus (COVID-19) will be offset by increased sales in subsequent periods. Although the magnitude of the impact of the Novel Coronavirus (COVID-19) outbreak on our business and operations remains uncertain, the continued spread of the Novel Coronavirus (COVID-19) or the occurrence of other epidemics and the imposition of related public health measures and travel and business restrictions will adversely impact our business, financial condition, operating results and cash flows. In addition, we have experienced and will experience disruptions to our business operations resulting from quarantines, self-isolations, or other movement and restrictions on the ability of our employees to perform their jobs that may impact our ability to develop and design our products in a timely manner or meet required milestones or customer commitments.

RISKS RELATED TO OWNERSHIP OF OUR SECURITIES

The holders of our Common Stock could suffer substantial dilution due to our corporate financing practices.

The holders of our common stock could suffer substantial dilution due to our corporate financing practices, which, in the past few years, have included private placements and a registered direct offering. As of December 31, 2021, there were 8,196,894 shares of common stock issued and outstanding (the 9,120,526 shares listed on the balance sheet includes shares we were obligated to issue as of that date that had not yet been issued). As of December 31, 2021 there were 300 shares of Series D Convertible Preferred Stock issued and outstanding and convertible into 25,000 shares of common stock, 80,570 shares of Series G Convertible Preferred Stock issued and outstanding convertible into 26,857 shares of common stock, 10,000 shares of Series H Convertible Preferred Stock issued and outstanding convertible into 33,334 shares of common stock, 21 shares of Series H2 Convertible Preferred Stock issued and outstanding convertible into 70,000 shares of common stock, 3,458 shares of Series J Convertible Preferred Stock issued and outstanding convertible into 115,267 shares of common stock, 6,880 shares of Series K Convertible Preferred Stock issued and outstanding convertible into 229,334 shares of common stock and 8,649 shares of Series AA Convertible Preferred Stock issued and outstanding convertible into 8,649,000 shares of common stock.

Further, in connection with private placement offerings and the Series D registered direct offering, we issued warrants to purchase common stock. In addition, as of December 31, 2021, we had issued notes and debentures convertible into common stock at \$2.50 per common share and outstanding options and warrants to purchase an aggregate of 17,540,209 shares of common stock; and debt convertible into 5,232,118 shares of common stock.

If all of the outstanding shares of Series D Convertible Preferred Stock, Series G Convertible Preferred Stock, Series H Convertible Preferred Stock, Series H2 Convertible Preferred Stock, Series J Convertible Preferred Stock, Series K Convertible Preferred Stock and Series AA Convertible Preferred Stock were converted into shares of common stock and all outstanding options and warrants to purchase shares of common stock were exercised and all convertible notes and debentures were converted, each as of December 31, 2021, an additional 31,921,119 shares of common stock would be issued and outstanding. This additional issuance of shares of common stock would cause immediate and substantial dilution to our existing stockholders and could cause a significant reduction in the market price of our common stock.

From time to time, we also may increase the number of shares available for issuance in connection with our equity compensation plan, we may adopt new equity compensation plans, and we may issue awards to our employees and others who provide services to us outside the terms of our equity compensation plans. Our board of directors may fix and determine the designations, rights, preferences or other variations of each class or series of preferred stock and may choose to issue some or all of such shares to provide additional financing in the future.

The issuance of any securities for acquisition, licensing or financing efforts, upon conversion of any preferred stock or exercise of warrants, pursuant to our equity compensation plans, or otherwise may result in a reduction of the book value and market price of the outstanding shares of our common stock. If we issue any such additional securities, such issuance will cause a reduction in the proportionate ownership and voting power of all current stockholders. Further, such issuance may result in a change in control of our Company.

Sales of a significant number of shares of our common stock in the public market or the perception of such possible sales, could depress the market price of our common stock.

Sales of a substantial number of shares of our common stock in the public markets, which include an offering of our preferred stock or common stock could depress the market price of our common stock and impair our ability to raise capital through the sale of additional equity or equity-related securities. We cannot predict the effect that future sales of our common stock or other equity-related securities would have on the market price of our common stock.

Our share price could be volatile and our trading volume may fluctuate substantially.

The price of common stock has been and may in the future continue to be extremely volatile. Many factors could have a significant impact on the future price of our shares of common stock, including:

- our inability to raise additional capital to fund our operations, whether through the issuance of equity securities or debt;
- our failure to successfully implement our business objectives;
- compliance with ongoing regulatory requirements;
- market acceptance of our products;
- technological innovations and new commercial products by our competitors;
- changes in government regulations;
- general economic conditions and other external factors;
- actual or anticipated fluctuations in our quarterly financial and operating results; and
- the degree of trading liquidity in our shares of common stock.

A decline in the price of our shares of common stock could affect our ability to raise further working capital and adversely impact our ability to continue operations.

The relatively low price of our shares of common stock, and a decline in the price of our shares of common stock, could result in a reduction in the liquidity of our common stock and a reduction in our ability to raise capital. Because a significant portion of our operations has been and will continue to be financed through the sale of equity securities, a decline in the price of our shares of common stock could be especially detrimental to our liquidity and our operations. Such reductions and declines may force us to reallocate funds from other planned uses and may have a significant negative effect on our business plans and operations, including our ability to continue our current operations. If the price for our shares of common stock declines, it may be more difficult to raise additional capital. If we are unable to raise sufficient capital, and we are unable to generate funds from operations sufficient to meet our obligations, we will not have the resources to continue our operations.

The market price for our shares of common stock may also be affected by our ability to meet or exceed expectations of analysts or investors. Any failure to meet these expectations, even if minor, may have a material adverse effect on the market price of our shares of common stock.

Financial Industry Regulatory Authority (“FINRA”) sales practice requirements may also limit a stockholder’s ability to buy and sell our common stock.

FINRA has adopted rules that require that in recommending an investment to a customer, a broker-dealer must have reasonable grounds for believing that the investment is suitable for that customer. Prior to recommending speculative low-priced securities to their non-institutional customers, broker-dealers must make reasonable efforts to obtain information about the customer’s financial status, tax status, investment objectives and other information. Under interpretations of these rules, FINRA believes that there is a high probability that speculative low-priced securities will not be suitable for at least some customers. FINRA requirements make it more difficult for broker-dealers to recommend that their customers buy our common stock, which may limit your ability to buy and sell our common stock and have an adverse effect on the market for our shares.

Our Common Stock is subject to the “Penny Stock” rules of the SEC and the trading market in our securities is limited, which makes transactions in our stock cumbersome and may reduce the value of an investment in our stock.

The Securities and Exchange Commission has adopted Rule 15g-9 which establishes the definition of a “penny stock,” for the purposes relevant to us, as any equity security that has a market price of less than \$5.00 per share or with an exercise price of less than \$5.00 per share, subject to certain exceptions. For any transaction involving a penny stock, unless exempt, the rules require:

- That a broker or dealer approve a person’s account for transactions in penny stocks; and
- The broker or dealer receives from the investor a written agreement to the transaction, setting forth the identity and quantity of the penny stock to be purchased.

In order to approve a person’s account for transactions in penny stocks, the broker or dealer must:

- Obtain financial information and investment experience objectives of the person; and
- Make a reasonable determination that the transactions in penny stocks are suitable for that person and the person has sufficient knowledge and experience in financial matters to be capable of evaluating the risks of transactions in penny stocks.

The broker or dealer must also deliver, prior to any transaction in a penny stock, a disclosure schedule prescribed by the Commission relating to the penny stock market, which, in highlight form:

- Sets forth the basis on which the broker or dealer made the suitability determination; and
- That the broker or dealer received a signed, written agreement from the investor prior to the transaction.

Generally, brokers may be less willing to execute transactions in securities subject to the “penny stock” rules. This may make it more difficult for investors to dispose of our common stock and cause a decline in the market value of our stock.

Disclosure also has to be made about the risks of investing in penny stocks in both public offerings and in secondary trading and about the commissions payable to both the broker-dealer and the registered representative, current quotations for the securities and the rights and remedies available to an investor in cases of fraud in penny stock transactions. Finally, monthly statements have to be sent disclosing recent price information for the penny stock held in the account and information on the limited market in penny stocks.

We have never declared or paid a cash dividend on our common stock and we do not expect to pay cash dividends on our common stock in the foreseeable future.

Our shares of Series D Convertible Preferred Stock are entitled to certain rights, privileges and preferences over our common stock, including a preference upon a liquidation of our Company, which will reduce amounts available for distribution to the holders of our common stock.

The holders of our shares of Series D are entitled to payment, prior to payment to the holders of common stock in the event of liquidation of the Company. If we are dissolved, liquidated or wound up at a time when the Series D Preferred Stock remain outstanding, the holders of the Series D Preferred Stock will be entitled to receive only an amount equal to the liquidation preference (as it may be adjusted from time to time), plus any accumulated and unpaid dividends, to the extent that we have funds legally available. Any remaining assets will be distributable to holders of our other equity securities.

Shares eligible for future sale may adversely affect the market.

From time to time, certain of our stockholders may be eligible to sell all or some of their shares of common stock by means of ordinary brokerage transactions in the open market pursuant to Rule 144 promulgated under the Securities Act, subject to certain limitations. In general, pursuant to amended Rule 144, non-affiliate stockholders may sell freely after six months subject only to the current public information requirement. Affiliates may sell after six months subject to the Rule 144 volume, manner of sale (for equity securities), current public information and notice requirements. Any substantial sales of our common stock pursuant to Rule 144 may have a material adverse effect on the market price of our common stock.

We currently do not intend to pay dividends on our common stock. As result, your only opportunity to achieve a return on your investment is if the price of our common stock appreciates.

We currently do not expect to declare or pay dividends on our common stock. In addition, in the future we may enter into agreements that prohibit or restrict our ability to declare or pay dividends on our common stock. As a result, your only opportunity to achieve a return on your investment will be if the market price of our common stock appreciates and you sell your shares at a profit.

We could issue additional common stock, which might dilute the book value of our Common Stock.

Our Board of Directors has authority, without action or vote of our shareholders, to issue all or a part of our authorized but unissued shares. Such stock issuances could be made at a price that reflects a discount or a premium from the then-current trading price of our common stock. In addition, in order to raise capital, we may need to issue securities that are convertible into or exchangeable for our common stock. These issuances would dilute the percentage ownership interest, which would have the effect of reducing your influence on matters on which our shareholders vote and might dilute the book value of our common stock. Shareholders may incur additional dilution if holders of stock warrants or options, whether currently outstanding or subsequently granted, exercise their options, or if warrant holders exercise their warrants to purchase shares of our common stock.

ITEM 1B. UNRESOLVED STAFF COMMENTS.

Not Applicable.

ITEM 2. PROPERTIES.

Our corporate office is currently located at 14 Norfolk Avenue, South Easton, Massachusetts 02375. We are currently paying \$6,950 per month, on a lease extension, signed on December 31, 2021, that expires December 31, 2022, for our corporate office. We expanded our space to include offices, warehouse and a loading dock on the first floor starting May 1, 2017 with a monthly rent increase already reflected in the current payments.

On October 18, 2017 we signed a lease extension for our lab space in Medford, MA. The lease will now expire on December 30, 2023 and required monthly payments of \$7,282 that started January 1, 2021 subject to annual cost of living increases. The lease shall be automatically extended for additional three years unless either party terminates at least six months prior to the expiration of the current lease term.

On August 9, 2021, we entered into an operating lease agreement for our warehouse space in Sparks, NV for the period from September 1, 2021 through September 30, 2026. The lease contains escalating payments during the lease period. The lease can be extended for an additional three years if the Company provides notice at least six months prior to the expiration of the current lease term.

ITEM 3. LEGAL PROCEEDINGS.

We are not currently involved in any litigation that we believe could have a material adverse effect on our financial condition or results of operations. There is no action, suit, or proceeding by any court, public board, government agency, self-regulatory organization or body pending or, to the knowledge of the executive officers of our Company or our subsidiaries, threatened against or affecting our Company, our common stock, our subsidiaries or of our companies or our subsidiaries' officers or directors in their capacities as such, in which an adverse decision could have a material adverse effect.

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.

Our common stock is currently traded on the OTCQB tier of the OTC Markets under the trading symbol "PBIO."

Authorized Capital

As of December 31, 2021, we were authorized to issue 100,000,000 shares of common stock, \$.01 par value, and 1,000,000 shares of preferred stock, \$.01 par value. Of the 1,000,000 shares of preferred stock, 20,000 shares were designated as Series A Junior Participating Preferred Stock, 313,960 shares as Series A Convertible Preferred Stock, 279,256 shares as Series B Convertible Preferred Stock, 88,098 shares as Series C Convertible Preferred Stock, 850 shares as Series D Convertible Preferred Stock, 500 shares as Series E Convertible Preferred Stock, 240,000 shares as Series G Convertible Preferred Stock, 10,000 shares as Series H Convertible Preferred Stock, 21 shares as Series H2 Convertible Preferred Stock, 6,250 shares as Series J Convertible Preferred Stock, 15,000 shares as Series K Convertible Preferred Stock and 10,000 shares of Series AA Convertible Preferred Stock.

As of December 31, 2021, there were 8,196,894 shares of common stock issued and outstanding (the 9,120,526 shares listed on the balance sheet includes shares we were obligated to issue as of that date that had not yet been issued). Similarly, at such time, there were no shares of outstanding Series A Junior Participating Preferred Stock; Series A Convertible Preferred Stock; Series B Convertible Preferred Stock; Series C Convertible Preferred Stock; and Series E Convertible Preferred Stock. As of December 31, 2021 there were 300 shares of Series D Convertible Preferred Stock issued and outstanding and convertible into 25,000 shares of common stock, 80,570 shares of Series G Convertible Preferred Stock issued and outstanding convertible into 26,857 shares of common stock, 10,000 shares of Series H Convertible Preferred Stock issued and outstanding convertible into 33,334 shares of common stock, 21 shares of Series H2 Convertible Preferred Stock issued and outstanding convertible into 70,000 shares of common stock, 3,458 shares of Series J Convertible Preferred Stock issued and outstanding convertible into 115,267 shares of common stock, 6,880 shares of Series K Convertible Preferred Stock issued and outstanding convertible into 229,334 shares of common stock and 8,649 shares of Series AA Convertible Preferred Stock issued and outstanding convertible into 8,649,000 shares of common stock.

Approximate Number of Equity Security Holders

As of December 31, 2021, there were approximately 180 stockholders of record. Because shares of our common stock are held by depositaries, brokers and other nominees, the number of beneficial holders of our shares is substantially larger than the number of stockholders of record.

Dividends

We have never declared or paid any cash dividends on common stock and do not plan to pay any cash dividends on common stock in the foreseeable future.

As of December 31, 2021, dividends issued or to be issued on convertible preferred stock for the years ended December 31, 2021 and 2020 are outlined in the table below.

Dividends paid in common stock or cash For The Year Ended December 31,			Dividends Payable As Of December 31,		
	2021	2020		2021	2020
Series D	\$ -	\$ -	Series D	\$ -	\$ -
Series G	-	-	Series G	-	-
Series H	-	-	Series H	-	-
Series H2	-	-	Series H2	-	-
Series J	-	-	Series J	-	-
Series K	-	-	Series K	-	-
Series AA	184,274	299,709	Series AA	4,370,665	3,247,202
	<u>\$ 184,274</u>	<u>\$ 299,709</u>		<u>\$ 4,370,665</u>	<u>\$ 3,247,202</u>

Unregistered Sales of Equity Securities and Use of Proceeds

During the year ended December 31, 2021, we issued securities that were not registered under the Securities Act, and were not previously disclosed in a Quarterly Report on Form 10-Q or a Current Report on Form 8-K as listed below. Except where noted, all of the securities discussed in this Item 5 were issued in reliance on the exemption under Section 4(a)(2) of the Securities Act.

On various dates in the quarter ended December 31, 2021 the Company issued a total of 52,000 shares with a fair value of \$95,520 in conjunction with the signing of new convertible loans; 85,000 shares with a fair value of \$215,050 were issued to investor relations firms for services rendered; 160,000 shares with a fair value of \$400,000 were issued upon the conversion of convertible loans; and 26,306 shares with a fair value of \$69,976 were issued in lieu of cash for the 8% dividend on Series AA Convertible Preferred Stock and 532,900 of the shares with a fair value of \$1,270,439 were issued for interest payments on debt.

ITEM 6. SELECTED FINANCIAL DATA.

Not Applicable.

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

OVERVIEW

We are a leader in the development & sale of innovative, broadly enabling, pressure-based platform solutions for the worldwide life sciences industry. Our solutions are based on the unique properties of both constant (i.e., static) and alternating (i.e., pressure cycling technology, or "PCT") hydrostatic pressure. PCT is a patented enabling technology platform that uses alternating cycles of hydrostatic pressure between ambient and ultra-high levels to safely and reproducibly control bio-molecular interactions (e.g., cell lysis, biomolecule extraction). Historically, our primary focus has been in the development of PCT-based products for biomarker and target discovery, drug design and development, biotherapeutics characterization and quality control, soil & plant biology, forensics, and counter-bioterror applications. In more recent years, major new market opportunities have emerged in the use of our pressure-based technologies in the following areas: (1) the use of our recently acquired, patented technology from BaroFold, Inc. (the "BaroFold" technology platform) to allow entry into the bio-pharma contract services sector, and (2) the use of our recently-patented, scalable, high-efficiency, pressure-based Ultra Shear Technology ("UST") platform to (i) create stable nanoemulsions of otherwise immiscible fluids (e.g., oils and water) and to (ii) prepare higher quality, homogenized, extended shelf-life or room temperature stable low-acid liquid foods that cannot be effectively preserved using existing non-thermal technologies.

On February 8, 2021, PBI announced plans to acquire the assets of a global eco-friendly agrochemical supplier. This opportunity is attractive as it has the potential of readily producing significant revenue, as well as the potential to apply the UST technology to improve some of the product line. In July 2021, a newly-formed subsidiary of PBI, PBI Agrochem, leased a warehouse in Sparks, NV, and hired a warehouse manager. See the further description of this possible transaction in Item 1 – Business – "The PBI Agrochem Platform."

Patents

To date, we have been awarded 26 total United States and foreign patents related to our PCT technology platform, and one US patent and two additional patents in China related to our Ultra Shear Technology. We also received eight patents with our purchase of the assets of BaroFold in December 2017. PBI also has 19 pending patents in the USA, Canada, Europe, Australia, China, and Taiwan.

Primary Fields of Use and Application for PCT

Sample preparation is widely regarded as a significant impediment to research and discovery and sample extraction is generally regarded as one of the key parts of sample preparation. The process of preparing samples for genomic, proteomic, lipidomic, and small molecule studies includes a crucial step called sample extraction or sample disruption. This is the process of extracting biomolecules such as nucleic acid i.e., DNA and/or RNA, proteins, lipids, or small molecules from the plant or animal cells and tissues that are being studied. Our current commercialization efforts are based upon our belief that pressure cycling technology provides a superior solution for sample extraction when compared to other available technologies or procedures and thus might significantly improve the quality of sample preparation, and thus the quality of the test result.

Within the broad field of biological sample preparation, in particular sample extraction, we focus the majority of our PCT and constant pressure (“CP”) product development efforts in three specific areas: biomarker discovery (primarily through mass spectrometric analysis), forensics, and histology. We believe that our existing PCT and CP-based instrumentation and related consumable products fill an important and growing need in the sample preparation market for the safe, rapid, versatile, reproducible and quality extraction of nucleic acids, proteins, lipids, and small molecules from a wide variety of plant, animal, and microbiological cells and tissues.

Biomarker Discovery and Precision Medicine

The most commonly used technique worldwide for the preservation of cancer and other tissues for long-term storage and subsequent pathology evaluation is to process them into formalin-fixed, paraffin-embedded (“FFPE”) samples. We believe that the quality and analysis of FFPE tissues is highly problematic, and that PCT offers significant advantages over current processing methods, including standardization, speed, biomolecule recovery, and safety.

Our customers include researchers at academic laboratories, government agencies, biotechnology companies, pharmaceutical companies and other life science institutions in the Americas, Europe, Asia, Africa and Australia/Pacific. Our goal is to continue aggressive market penetration in these target areas. We also believe that there is a significant opportunity to sell and/or lease additional Barocycler instrumentation to additional laboratories within current customer organizations.

If we are successful in commercializing PCT in applications beyond our current focus area of genomic, proteomic, lipidomic, and small molecule sample preparation, and if we are successful in our attempts to attract additional capital, our potential customer base could expand to include hospitals, reference laboratories, pharmaceutical manufacturing plants and other sites involved in each specific application. If we are successful in forensics, our potential customers could be forensic laboratories, military and other government agencies. If we are successful in biomarker discovery and precision medicine - specifically the extraction of biomolecules from FFPE tissues, our potential customers could be pharmaceutical companies, hospitals, and laboratories focused on drug discovery or differentiation of disease states, subtypes and susceptibility to alternative treatments.

Forensics

The detection of DNA has become a part of the analysis of forensic samples by laboratories and criminal justice agencies worldwide in their efforts to identify the perpetrators of violent crimes and missing persons. Scientists from the University of North Texas and Florida International University have reported improvements in DNA yield from forensic samples (e.g., bone and hair) when using the PCT platform in the sample preparation process. We believe that PCT may be capable of differentially extracting DNA from sperm cells and female epithelial cells captured in swabs collected from rape victims and subsequently stored in rape kits. We also believe that there are many completed rape kits that remain untested for reasons such as cost, time and quality of results. We further believe that the ability to differentially extract DNA from sperm and not epithelial cells could reduce the cost of such testing, while increasing the quality, safety and speed of the testing process.

Going Concern

We have experienced negative cash flows from operations since our inception. As of December 31, 2021, we did not have adequate working capital resources to satisfy our current liabilities and as a result we have substantial doubt about our ability to continue as a going concern. Based on our current projections, including equity financing subsequent to December 31, 2021, we believe we will have the cash resources that will enable us to continue to fund normal operations into the foreseeable future.

The audit report issued by our independent registered public accounting firm on our audited consolidated financial statements for the fiscal year ended December 31, 2021, contains an explanatory paragraph regarding our ability to continue as a going concern. The audit report issued by our independent registered public accounting firm for our financial statements for the fiscal year ended December 31, 2021 states that our auditing firm has substantial doubt in our ability to continue as a going concern due to the risk that we may not have sufficient cash and liquid assets to cover our operating and capital requirements for the next twelve-month period; and, if sufficient cash cannot be obtained, we would have to substantially alter, or possibly even discontinue, operations. The accompanying financial statements do not include any adjustments that might result from the outcome of this uncertainty.

The conditions described above could adversely affect our ability to obtain additional financing on favorable terms, if at all, and may cause investors to have reservations about our long-term prospects, and may adversely affect our relationships with customers. There can be no assurance that our auditing firm will not issue the same opinion in the future. If we cannot successfully continue as a going concern, our stockholders may lose their entire investment in us.

RESULTS OF OPERATIONS

Year Ended December 31, 2021 as compared with December 31, 2020

Products and Services Revenue

Revenue from the sale of products and services was \$2,002,365 in the year ended December 31, 2021 compared with \$1,220,591 in the year ended December 31, 2020, a 64% increase. Revenue included sales of both PBI and Constant System pressure-based products, sales of BaroFold Contract Services and sales of PBI Agrochem products. Sales of instrumentation increased in 2021 by \$517,502 or 98%, from \$529,343 in 2020 to \$1,046,845 in 2021. Sales of consumables were \$274,108 for the year ended December 31, 2021 compared to \$204,889 for the same period in 2020, an increase of \$69,219 or 34%. Sales of BaroFold Contract Services increased by 38% from \$160,085 in 2020 to \$221,218 in 2021. Products, Services, and Other Revenue included \$11,046 from non-cash transactions in the current year while the prior year included non-cash transactions of \$12,663. Revenue from non-cash transactions was recognized based on the carrying value of the assets involved per ASC 845.

Cost of Products and Services

The cost of products and services was \$942,383 for the year ended December 31, 2021, compared with \$582,854 in 2020. Our overall gross profit margin increased to 53% for the year ended December 31, 2021 from 52% for the year ended December 31, 2020.

Research and Development

Research and development expenses were \$1,101,509 for 2021 compared to \$1,143,420 in 2020, a decrease of \$41,911 or 4%.

Selling and Marketing

Selling and marketing expenses were \$324,728 in 2021 compared to \$649,783 in 2020, a decrease of \$325,055, or 50%. The reported decrease was attributable to reduced employees in sales and marketing.

General and Administrative

General and administrative costs were \$3,818,892 in the year ended December 31, 2021, as compared with \$3,430,321 in 2020, an increase of \$388,571 or 11%. The reported increase was attributable to increased investor relations expenses.

Operating Loss

Our operating loss was \$4,185,147 for the year ended December 31, 2021 as compared to \$4,585,787 for the prior year, a decrease of \$400,640 or 9%. This decrease in operating loss was attributable to increases in revenue and gross margin in 2021.

Interest Expense

Interest expense totaled \$14,450,241 for the year ended December 31, 2021 as compared to interest expense of \$8,344,236 for the year ended December 31, 2020. The increase in interest expense in the year ended December 31, 2021, compared to the corresponding prior period is attributable to the increase in convertible debt and the issuance of common stock for interest paid-in-kind.

Unrealized gain on investment in equity securities

Unrealized loss on investments in equity securities was \$457,025 for the year ended December 31, 2021 compared to an unrealized gain of \$500,358 for the year ended December 31, 2020. The reported decrease was attributable to the decrease in the market price of the Company's investment in Nexity. As of December 31, 2021, we held 100,250 shares of common stock of Nexity Global SA, (a Polish publicly traded company).

Loss on extinguishment of liabilities

In connection with payments of interest in common stock and debt extensions, we calculated net losses on extinguishment of liabilities of \$1,061,073 in the year ended December 31, 2021 and net losses of \$3,575,878 in the year ended December 31, 2020. The decrease is attributable to extension fees incurred and warrants issued in 2020 for the Standstill and Forbearance Agreements and other loan extensions and the \$734,077 of gains recognized in 2021 for the forgiveness of our two PPP loans by the U.S.

Net Loss attributable to common stockholders

During the year ended December 31, 2021, we recorded a net loss attributable to common shareholders of \$22,685,459 or (\$3.42) per share, as compared with a net loss available to common shareholders of \$17,584,710 or (\$5.32) per share during the year ended December 31, 2020. This decrease in the loss per share is principally attributable to the 101% increase in weighted average shares outstanding in the year ended December 31, 2021.

LIQUIDITY AND FINANCIAL CONDITION

As of December 31, 2021, we did not have adequate working capital resources to satisfy our current liabilities. We have been successful in raising cash through debt and equity offerings in the past. We have efforts in place to continue to raise cash through debt and equity offerings.

We believe our current and projected capital raising plans, and our projected continued increases in revenue, will enable us to extend our cash resources for the foreseeable future. Although we have successfully completed equity and debt financings and reduced expenses in the past, we cannot assure you that our plans to address these matters in the future will be successful.

We believe we will need approximately \$12 million in additional capital to fund our three-pronged operational plan, which was designed to help increase revenues and reach profitability, by:

- A. reducing/eliminating debt and cleaning up the balance sheet;
- B. funding UST development, instrument build and commercialization;
- C. facilitating up-listing PBIO to a major exchange; and
- D. providing a minimum of two years of operational and growth capital

However, if we are unable to obtain such funds through sales, the capital markets or other source of financing on acceptable terms, or at all, we will likely be required to cease our operations, pursue a plan to sell our operating assets, or otherwise modify our business strategy, which could materially harm our future business prospects. These conditions raise substantive doubt about our ability to continue as a going concern.

Net cash used in operating activities was \$4,868,573 for the year ended December 31, 2021 as compared with \$4,883,194 for the year ended December 31, 2020.

Net cash used in investing activities for the year ended December 31, 2021 totaled \$122,945 compared to \$796,663 for the year ended December 31, 2020. Cash capital expenditures in the prior year included loan advances to our then pending merger partner and purchases of laboratory and technology equipment.

Net cash provided by financing activities for the year ended December 31, 2021 was \$5,105,289 as compared with \$5,668,772 for the year ended December 31, 2020. In 2021, the Company received net proceeds of \$1,015,000 from the sale of Series AA convertible preferred stock and loans in the aggregate amount of \$7,779,538 during the year and we made payments on new and existing debt of \$3,704,022.

Our common stock is currently traded on the OTCQB tier of the OTC Markets under the trading symbol "PBIO."

COMMITMENTS AND CONTINGENCIES

Battelle Memorial Institute

In December 2008, we entered into an exclusive patent license agreement with the Battelle Memorial Institute (“*Battelle*”). The licensed technology is described in the patent application filed by Battelle on July 31, 2008 (US serial number 12/183,219). This application includes subject matter related to a method and a system for improving the analysis of protein samples including, through an automated system, utilizing pressure and a pre-selected agent to obtain a digested sample in a significantly shorter period of time than current methods, while maintaining the integrity of the sample throughout the preparatory process. Pursuant to the terms of the agreement, we paid Battelle a non-refundable initial fee of \$35,000. In addition to royalty payments on net sales on “licensed products,” we are obligated to make minimum royalty payments for each year we retain the rights outlined in the patent license agreement; and, we are required to have our first commercial sale of the licensed products within one year following the issuance of the patent covered by the licensed technology. After re-negotiating the terms of the contract in 2013, the minimum annual royalty was \$1,200 in 2014 and \$2,000 in 2015; the minimum royalties were \$3,000 in 2016, \$4,000 in 2017 and \$5,000 in 2018 and each calendar year thereafter during the term of the agreement.

Target Discovery Inc.

In March 2010, we signed a strategic product licensing, manufacturing, co-marketing, and collaborative research and development agreement with Target Discovery Inc. (“*TDP*”), a related party. Under the terms of the agreement, we have been licensed by TDI to manufacture and sell a highly innovative line of chemicals used in the preparation of tissues for scientific analysis (“*TDI reagents*”). The TDI reagents were designed for use in combination with our pressure cycling technology. The respective companies believe that the combination of PCT and the TDI reagents can fill an existing need in life science research for an automated method for rapid extraction and recovery of intact, functional proteins associated with cell membranes in tissue samples. We did not incur any royalty obligation under this agreement in 2017 or 2016. We executed an amendment to this agreement on October 1, 2016 wherein we agreed to pay a monthly fee of \$1,400 for the use of a lab bench, shared space and other utilities, and \$2,000 per day for technical support services as needed. Mr. Jeffrey N. Peterson, the chief executive officer of TDI, has served as a director of the Company since July 2011 and as Chairman of the Board starting in 2012. For the years ended December 31, 2020 and 2021, we reported expenses of \$82,800 and \$86,800, respectively for these arrangements.

Severance and Change of Control Agreements

Each of Mr. Schumacher, Dr. Ting, and Dr. Lazarev, executive officers of the Company, are entitled to receive a severance payment if terminated by us without cause. The severance benefits would include a payment in an amount equal to one year of such executive officer’s annualized base salary compensation plus accrued paid time off. Additionally, the officer will be entitled to receive medical and dental insurance coverage for one year following the date of termination.

Pursuant to severance agreements with each of Mr. Schumacher, Dr. Ting, and Dr. Lazarev, each such executive officer is entitled to receive a change of control payment in an amount equal to one year (other than Mr. Schumacher) of such executive officer’s annualized base salary compensation, accrued paid time off, and medical and dental coverage, in the event the officer is terminated as a result of a change of control of our Company. In the case of Mr. Schumacher, his payment is equal to two years of annualized base salary compensation, accrued paid time off, and two years of medical and dental coverage.

Pursuant to our equity incentive plans, any unvested stock options held by a named executive officer will become fully vested upon a change in control (as defined in the 2005 Equity Incentive Plan) of our Company.

Lease Commitments

We lease building space under non-cancelable leases in South Easton, MA, and lab space in Medford, MA and warehouse space in Sparks, NV. Rental costs are expensed as incurred. During 2021 and 2020 we incurred \$203,367 and \$182,783, respectively, in rent expense for the use of our corporate office, warehouse and research and development facilities.

Following is a schedule by year of future minimum rental payments required under operating leases with initial or remaining non-cancelable lease terms in excess of one year as of December 31, 2021:

2022	\$	230,318
2023		149,299
2024		64,393
2025		66,969
2026		51,778
Thereafter		-
	\$	<u>562,757</u>

Off-Balance Sheet Arrangements

We did not have any off-balance sheet arrangements as of December 31, 2021 and December 31, 2020.

CRITICAL ACCOUNTING POLICIES 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, assumptions and judgments that affect the amounts reported in the financial statements, including the notes thereto. We consider critical accounting policies to be those that require more significant judgments and estimates in the preparation of our financial statements, including the following: long lived assets; intangible assets valuations; and income tax valuations. Management relies on historical experience and other assumptions believed to be reasonable in making its judgment and estimates. Actual results could differ materially from those estimates.

Management believes its application of accounting policies, and the estimates inherently required therein, are reasonable. These accounting policies and estimates are periodically reevaluated, and adjustments are made when facts and circumstances dictate a change.

Recent Accounting Standards

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies and adopted by the Company as of the specified effective date. The Company believes that the impact of recently issued standards that are not yet effective will not have a material impact on its financial position or results of operations upon adoption.

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

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors of
Pressure BioSciences, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Pressure Biosciences, Inc. and its subsidiaries (collectively, the “Company”) as of December 31, 2021 and 2020, and the related consolidated statements of operations, changes in stockholders’ deficit, and cash flows for the years then ended, 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 their operations and their cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Going Concern Matter

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 2 to the financial statements, the Company has a working capital deficit, has incurred recurring net losses and negative cash flows from operations. These conditions raise substantial doubt about its ability to continue as a going concern. Management’s plans in regard to these matters are also described in Note 2. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

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

Critical audit matters 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 judgements. We determined that there are no critical audit matters.

/s/ MaloneBailey, LLP

www.malonebailey.com

We have served as the Company’s auditor since 2015.

Houston, Texas

April 4, 2022

PRESSURE BIOSCIENCES, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
DECEMBER 31, 2021 AND 2020

<u>ASSETS</u>	<u>December 31, 2021</u>	<u>December 31, 2020</u>
CURRENT ASSETS		
Cash and cash equivalents	\$ 132,311	\$ 18,540
Accounts receivable	154,746	131,228
Inventories, net of \$342,496 reserve at December 31, 2021 and December 31, 2020	1,147,554	592,767
Prepaid expenses and other current assets	422,617	314,936
Total current assets	1,857,228	1,057,471
Investment in equity securities	59,976	517,001
Property and equipment, net	115,846	16,490
Right of use asset leases	395,565	221,432
Intangible assets, net	403,846	490,385
TOTAL ASSETS	\$ 2,832,461	\$ 2,302,779
LIABILITIES AND STOCKHOLDERS' DEFICIT		
CURRENT LIABILITIES		
Accounts payable	\$ 527,924	\$ 771,945
Accrued employee compensation	117,680	417,578
Accrued professional fees and other	1,955,672	2,037,806
Other current liabilities	7,757,217	6,330,722
Deferred revenue	37,124	47,328
Convertible debt, net of unamortized discounts of \$1,536,649 and \$3,948,167, respectively	12,839,813	7,545,670
Other debt	1,256,840	1,135,469
Operating lease liability	132,996	65,193
Other related party debt	-	166,000
Total current liabilities	24,625,266	18,517,711
LONG TERM LIABILITIES		
Long term debt	150,000	527,039
Operating lease liability – long term	262,569	156,239
Deferred revenue	3,587	19,382
TOTAL LIABILITIES	25,041,422	19,220,371
COMMITMENTS AND CONTINGENCIES (Note 8)		
STOCKHOLDERS' DEFICIT		
Series D Convertible Preferred Stock, \$.01 par value; 850 shares authorized; 300 shares issued and outstanding on December 31, 2021 and 2020, respectively (Liquidation value of \$300,000)	3	3
Series G Convertible Preferred Stock, \$.01 par value; 240,000 shares authorized; 80,570 shares issued and outstanding on December 31, 2021 and 2020, respectively	806	806
Series H Convertible Preferred Stock, \$.01 par value; 10,000 shares authorized; 10,000 shares issued and outstanding on December 31, 2021 and 2020, respectively	100	100
Series H2 Convertible Preferred Stock, \$.01 par value; 21 shares authorized; 21 shares issued and outstanding on December 31, 2021 and 2020, respectively	-	-
Series J Convertible Preferred Stock, \$.01 par value; 6,250 shares authorized; 3,458 shares issued and outstanding on December 31, 2021 and 2020, respectively	35	35
Series K Convertible Preferred Stock, \$.01 par value; 15,000 shares authorized; 6,880 shares issued and outstanding on December 31, 2021 and 2020, respectively	68	68
Series AA Convertible Preferred Stock, \$.01 par value; 10,000 shares authorized; 8,649 and 8,043 shares issued and outstanding on December 31, 2021 and 2020, respectively	87	81
Common stock, \$.01 par value; 100,000,000 shares authorized; 9,120,526 and 4,168,324 shares issued and outstanding on December 31, 2021 and 2020 respectively	91,206	41,683
Warrants to acquire common stock	31,715,154	29,192,471
Additional paid-in capital	64,261,048	50,312,968
Accumulated deficit	(118,277,468)	(96,465,807)
Total stockholders' deficit	(22,208,961)	(16,917,592)
TOTAL LIABILITIES AND STOCKHOLDERS' DEFICIT	\$ 2,832,461	\$ 2,302,779

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

PRESSURE BIOSCIENCES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
FOR THE YEARS ENDED DECEMBER 31, 2021 AND 2020

	For the Year Ended December 31,	
	2021	2020
Revenue:		
Products, services, other	\$ 2,002,365	\$ 1,220,591
Costs and expenses:		
Cost of products and services	942,383	582,854
Research and development	1,101,509	1,143,420
Selling and marketing	324,728	649,783
General and administrative	3,818,892	3,430,321
Total operating costs and expenses	<u>6,187,512</u>	<u>5,806,378</u>
Operating loss	(4,185,147)	(4,585,787)
Other (expense) income:		
Interest expense, net	(14,450,241)	(8,344,236)
Unrealized (loss) gain on investment in equity securities	(457,025)	500,358
Loss on extinguishment of liabilities	(1,061,073)	(3,575,878)
Total other expense	<u>(15,968,339)</u>	<u>(11,419,756)</u>
Net loss	<u>\$ (20,153,486)</u>	<u>\$ (16,005,543)</u>
Deemed dividends on beneficial conversion feature	(873,798)	(61,180)
Preferred stock dividends	(1,658,175)	(1,517,987)
Net loss attributable to common shareholders	<u>\$ (22,685,459)</u>	<u>\$ (17,584,710)</u>
Net loss per share - basic and diluted	\$ (3.42)	\$ (5.32)
Weighted average common stock shares outstanding used in the basic and diluted net loss per share calculation	6,636,523	3,304,187

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

PRESSURE BIOSCIENCES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' DEFICIT
FOR THE YEARS ENDED DECEMBER 31, 2021 AND 2020

	Series D Preferred Stock		Series G Preferred Stock		Series H Preferred Stock		Series H(2) Preferred Stock	
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount
BALANCE, December 31, 2020	300	\$ 3	80,570	\$ 806	10,000	\$ 100	21	\$ -
Stock-based compensation	-	-	-	-	-	-	-	-
Stock option exercise	-	-	-	-	-	-	-	-
Issuance of common stock for non-cash warrant exercise	-	-	-	-	-	-	-	-
Beneficial conversion feature on debt	-	-	-	-	-	-	-	-
Beneficial conversion option on convertible preferred stock	-	-	-	-	-	-	-	-
Deemed dividend on convertible preferred stock	-	-	-	-	-	-	-	-
Preferred stock issued for debt settlement	-	-	-	-	-	-	-	-
Conversion of debt and interest for common stock	-	-	-	-	-	-	-	-
Issuance of common stock for dividends paid-in-kind	-	-	-	-	-	-	-	-
Issuance of common stock for interest paid-in-kind	-	-	-	-	-	-	-	-
Issuance of common stock for services	-	-	-	-	-	-	-	-
Series AA Preferred Stock offering	-	-	-	-	-	-	-	-
Series AA Preferred Stock dividend	-	-	-	-	-	-	-	-
Stock issued with debt	-	-	-	-	-	-	-	-
Issuance of common stock warrants for interest paid-in-kind	-	-	-	-	-	-	-	-
Warrants issued with debt	-	-	-	-	-	-	-	-
Warrants issued for debt settlement	-	-	-	-	-	-	-	-
Net loss	-	-	-	-	-	-	-	-
BALANCE, December 31, 2021	300	\$ 3	80,570	\$ 806	10,000	\$ 100	21	\$ -

	Series J Preferred Stock		Series K Preferred Stock		Series AA Preferred Stock		Common Stock	
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount
BALANCE, December 31, 2020	3,458	\$ 35	6,880	\$ 68	8,043	81	4,168,324	\$ 41,683
Stock-based compensation	-	-	-	-	-	-	-	-
Stock option exercise	-	-	-	-	-	-	21,411	214
Issuance of common stock for non-cash warrant exercise	-	-	-	-	-	-	36,290	363
Beneficial conversion feature on debt	-	-	-	-	-	-	-	-
Beneficial conversion option on convertible preferred stock	-	-	-	-	-	-	-	-
Deemed dividend on convertible preferred stock	-	-	-	-	-	-	-	-
Preferred stock issued for debt settlement	-	-	-	-	200	2	-	-
Conversion of debt and interest for common stock	-	-	-	-	-	-	1,195,996	11,960
Issuance of common stock for dividends paid-in-kind	-	-	-	-	-	-	82,373	823
Issuance of common stock for interest paid-in-kind	-	-	-	-	-	-	2,883,282	28,835
Issuance of common stock for services	-	-	-	-	-	-	333,200	3,332
Series AA Preferred Stock offering	-	-	-	-	406	4	-	-
Series AA Preferred Stock dividend	-	-	-	-	-	-	-	-
Stock issued with debt	-	-	-	-	-	-	399,650	3,996
Issuance of common stock warrants for interest paid-in-kind	-	-	-	-	-	-	-	-
Warrants issued with debt	-	-	-	-	-	-	-	-
Warrants issued for debt settlement	-	-	-	-	-	-	-	-
Net loss	-	-	-	-	-	-	-	-
BALANCE, December 31, 2021	3,458	\$ 35	6,880	\$ 68	8,649	\$ 87	9,120,526	\$ 91,206

	Stock Warrants	Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Deficit
BALANCE, December 31, 2020	\$ 29,192,471	\$ 50,312,968	\$ (96,465,807)	\$ (16,917,592)
Stock-based compensation	-	254,615	-	254,615
Stock option exercise	-	14,559	-	14,773
Issuance of common stock for non-cash warrant exercise	(343,201)	342,838	-	-
Beneficial conversion feature on debt	-	1,320,331	-	1,320,331
Beneficial conversion option on convertible preferred stock	-	873,798	-	873,798
Deemed dividend on convertible preferred stock	-	(873,798)	-	(873,798)
Preferred stock issued for debt settlement	245,635	277,617	-	523,254
Conversion of debt and interest for common stock	-	2,978,030	-	2,989,990
Issuance of common stock for dividends paid-in-kind	-	183,451	-	184,274
Issuance of common stock for interest paid-in-kind	-	6,636,821	-	6,665,656
Issuance of common stock for services	-	791,230	-	794,562
Series AA Preferred Stock offering	509,130	505,866	-	1,015,000
Series AA Preferred Stock dividend	-	-	(1,658,175)	(1,658,175)
Stock issued with debt	-	642,722	-	646,718
Issuance of common stock warrants for interest paid-in-kind	600,298	-	-	600,298
Warrants issued with debt	1,403,546	-	-	1,403,546
Warrants issued for debt settlement	107,275	-	-	107,275
Net loss	-	-	(20,153,486)	(20,153,486)
BALANCE, December 31, 2021	\$ 31,715,154	\$ 64,261,048	\$ (118,277,468)	\$ (22,208,961)

PRESSURE BIOSCIENCES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' DEFICIT
FOR THE YEARS ENDED DECEMBER 31, 2021 AND 2020

	Series D Preferred Stock		Series G Preferred Stock		Series H Preferred Stock		Series H(2) Preferred Stock	
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount
BALANCE, December 31, 2019	300	\$ 3	80,570	\$ 806	10,000	\$ 100	21	\$ -
Stock-based compensation	-	-	-	-	-	-	-	-
Beneficial conversion feature on debt	-	-	-	-	-	-	-	-
Beneficial conversion option on convertible preferred stock	-	-	-	-	-	-	-	-
Deemed dividend-beneficial conversion feature	-	-	-	-	-	-	-	-
Common stock issued for debt settlement	-	-	-	-	-	-	-	-
Conversion of debt and interest for common stock	-	-	-	-	-	-	-	-
Conversion of debt into Series AA convertible preferred stock	-	-	-	-	-	-	-	-
Issuance of common stock for dividends paid-in-kind	-	-	-	-	-	-	-	-
Issuance of common stock for interest paid-in-kind	-	-	-	-	-	-	-	-
Issuance of common stock for services	-	-	-	-	-	-	-	-
Issuance of common stock to settle accrued liabilities	-	-	-	-	-	-	-	-
Preferred Stock offering	-	-	-	-	-	-	-	-
Series AA Preferred Stock dividend	-	-	-	-	-	-	-	-
Common stock issued with debt	-	-	-	-	-	-	-	-
Warrants issued for debt extension	-	-	-	-	-	-	-	-
Warrants issued for debt settlement	-	-	-	-	-	-	-	-
Warrants issued with debt	-	-	-	-	-	-	-	-
Net loss	-	-	-	-	-	-	-	-
BALANCE, December 31, 2020	300	\$ 3	80,570	\$ 806	10,000	\$ 100	21	\$ -

	Series J Preferred Stock		Series K Preferred Stock		Series AA Preferred Stock		Common Stock	
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount
BALANCE, December 31, 2019	3,458	\$ 35	6,880	\$ 68	7,939	80	2,549,620	\$ 25,496
Stock-based compensation	-	-	-	-	-	-	-	-
Beneficial conversion feature on debt	-	-	-	-	-	-	-	-
Beneficial conversion option on convertible preferred stock	-	-	-	-	-	-	-	-
Deemed dividend-beneficial conversion feature	-	-	-	-	-	-	-	-
Common stock issued for debt settlement	-	-	-	-	-	-	188,778	1,888
Conversion of debt and interest for common stock	-	-	-	-	-	-	871,309	8,712
Conversion of debt into Series AA convertible preferred stock	-	-	-	-	44	-	-	-
Issuance of common stock for dividends paid-in-kind	-	-	-	-	-	-	122,135	1,222
Issuance of common stock for interest paid-in-kind	-	-	-	-	-	-	134,482	1,345
Issuance of common stock for services	-	-	-	-	-	-	76,800	768
Issuance of common stock to settle accrued liabilities	-	-	-	-	-	-	66,500	665
Preferred Stock offering	-	-	-	-	60	1	-	-
Series AA Preferred Stock dividend	-	-	-	-	-	-	-	-
Common stock issued with debt	-	-	-	-	-	-	158,700	1,587
Warrants issued for debt extension	-	-	-	-	-	-	-	-
Warrants issued for debt settlement	-	-	-	-	-	-	-	-
Warrants issued with debt	-	-	-	-	-	-	-	-
Net loss	-	-	-	-	-	-	-	-
BALANCE, December 31, 2020	3,458	\$ 35	6,880	\$ 68	8,043	\$ 81	4,168,324	\$ 41,683

	Stock Warrants	Additional Paid-In Capital	Accumulated other comprehensive loss	Accumulated Deficit	Total Stockholders' Deficit
BALANCE, December 31, 2019	\$ 22,599,177	\$ 44,261,105	\$ -	\$ (78,942,277)	\$ (12,055,407)
Stock-based compensation	-	488,792	-	-	488,792
Beneficial conversion feature on debt	-	1,756,311	-	-	1,756,311
Beneficial conversion option on convertible preferred stock	-	61,180	-	-	61,180
Deemed dividend-beneficial conversion feature	-	(61,180)	-	-	(61,180)
Common stock issued for debt settlement	-	372,662	-	-	374,550
Conversion of debt and interest for common stock	-	2,211,730	-	-	2,220,442
Conversion of debt into Series AA convertible preferred stock	38,783	71,217	-	-	110,000
Issuance of common stock for dividends paid-in-kind	-	298,487	-	-	299,709
Issuance of common stock for interest paid-in-kind	-	253,914	-	-	255,259
Issuance of common stock for services	-	178,309	-	-	179,077
Issuance of common stock to settle accrued liabilities	-	127,190	-	-	127,855
Preferred Stock offering	69,580	80,419	-	-	150,000
Series AA Preferred Stock dividend	-	-	-	(1,517,987)	(1,517,987)
Common stock issued with debt	-	212,832	-	-	214,419
Warrants issued for debt extension	1,282,560	-	-	-	1,282,560
Warrants issued for debt settlement	338,412	-	-	-	338,412
Warrants issued with debt	4,863,959	-	-	-	4,863,959
Net loss	-	-	-	(16,005,543)	(16,005,543)
BALANCE, December 31, 2020	\$ 29,192,471	\$ 50,312,968	\$ -	\$ (96,465,807)	\$ (16,917,592)

PRESSURE BIOSCIENCES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2021 AND 2020

	For the Year Ended December 31,	
	2021	2020
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net loss	\$ (20,153,486)	\$ (16,005,543)
Adjustments to reconcile net loss to net cash used in operating activities:		
Non-cash lease expense	65,194	76,586
Gain on loan forgiveness	(734,077)	-
Common stock and warrants issued for interest and extension fees	7,265,954	255,259
Depreciation and amortization	110,128	127,301
Accretion of discount on loan receivable	-	(6,250)
Accretion of interest and amortization of debt discount	6,738,802	5,436,863
Loss (Gain) on investment in equity securities	457,025	(500,358)
Loss on extinguishment of accrued liabilities and debt	130,279	1,036,638
Stock-based compensation expense	254,615	488,792
Common stock issued for services	794,562	179,077
Changes in operating assets and liabilities:		
Accounts receivable	(23,518)	98,174
Inventories	(554,787)	24,949
Prepaid expenses and other assets	(107,681)	(101,387)
Accounts payable	(226,771)	(43,819)
Accrued employee compensation	15,106	(33,622)
Operating lease liability	(65,194)	(76,586)
Deferred revenue and other accrued expenses	1,165,276	4,160,732
Net cash used in operating activities	<u>(4,868,573)</u>	<u>(4,883,194)</u>
CASH FLOWS FROM INVESTING ACTIVITIES:		
Advance on loan receivable	-	(795,000)
Purchases of property plant and equipment	(122,945)	(1,663)
Net cash used in investing activities	<u>(122,945)</u>	<u>(796,663)</u>
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from related party debt	254,600	283,700
Payment on related party debt	(354,600)	(199,200)
Net proceeds from convertible debt	5,514,250	8,296,800
Payments on convertible debt	(1,833,295)	(2,857,007)
Net proceeds from non-convertible debt	2,010,688	1,290,539
Payments on non-convertible debt	(1,516,127)	(1,296,060)
Net proceeds from stock option exercises	14,773	-
Net proceeds from the issuance of Series AA Convertible Preferred Stock	1,015,000	150,000
Net cash provided by financing activities	<u>5,105,289</u>	<u>5,668,772</u>
NET (DECREASE) IN CASH AND CASH EQUIVALENTS	113,771	(11,085)
CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR	18,540	29,625
CASH AND CASH EQUIVALENTS AT END OF YEAR	<u>\$ 132,311</u>	<u>\$ 18,540</u>
SUPPLEMENTAL INFORMATION		
Interest paid in cash	\$ 921,569	\$ 764,600
NON CASH TRANSACTIONS:		
Conversion of debt for Series AA preferred stock	500,250	110,000
Discount due to beneficial conversion feature	1,320,331	1,756,311
Discount from warrants issued with debt	1,403,546	4,863,959
Common stock issued in lieu of cash for dividend	184,274	299,709
Common stock issued with debt	646,718	214,419
Common stock issued to settle accrued liabilities	-	127,855
Common stock issued for debt settlement	-	374,550
Common stock issued for cashless warrants exercise	363	-
Conversion of debt and interest into common stock	2,989,990	2,220,442
Preferred stock dividend	1,658,175	1,517,987
Deemed dividend-beneficial conversion feature	873,798	61,180
Loan extension fees and interest added to principal	-	152,552
Recognition of right of use asset and liability	239,327	221,432

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

PRESSURE BIOSCIENCES, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(1) Business Overview

Pressure Biosciences, Inc. (“we”, “our”, “the Company”) develops and sells innovative, broadly enabling, high pressure-based platform technologies and related consumables for the worldwide life sciences, agriculture, food and beverage, and other key industries. Our solutions are based on the unique properties of both constant (i.e., static) and alternating (i.e., pressure cycling technology, or “PCT”) hydrostatic pressure. PCT is a patented enabling technology platform that uses alternating cycles of hydrostatic pressure between ambient and ultra-high levels to safely and reproducibly control bio-molecular interactions (e.g., cell lysis, biomolecule extraction). Historically, our primary focus has been in the development of PCT-based products for biomarker and target discovery, drug design and development, biotherapeutics characterization and quality control, soil & plant biology, forensics, and counter-bioterror applications. In more recent years, major new market opportunities have emerged in the use of our pressure-based technologies in the following areas: (1) the use of our recently acquired, patented technology from BaroFold, Inc. (the “BaroFold” technology) to allow entry into the bio-pharma contract services sector, and (2) the use of our recently-patented, scalable, high-efficiency, pressure-based Ultra Shear Technology (“UST”) platform to (i) create stable nanoemulsions of otherwise immiscible fluids (e.g., oils and water) and to (ii) prepare higher quality, homogenized, extended shelf-life or room temperature stable low-acid liquid foods that cannot be effectively preserved using existing non-thermal technologies.

On February 8, 2021, PBI announced plans to acquire the assets of a global eco-friendly agrochemical supplier. On April 14, 2021, PBI finalized terms and executed a new letter of intent to purchase the assets of the agrochemical supplier. This opportunity is attractive as it has the potential of readily producing significant revenue, as well as the potential to apply the UST technology to improve some of the product line. In July 2021, a newly-formed subsidiary of PBI, PBI Agrochem, leased a warehouse in Carson City, NV, and hired a warehouse manager.

(2) Going Concern

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern, which contemplates the realization of assets and the liquidation of liabilities in the normal course of business. However, we have experienced negative cash flows from operations since our inception. As of December 31, 2021, we do not have adequate working capital resources to satisfy our current liabilities and as a result, there is substantial doubt regarding our ability to continue as a going concern. We have been successful in raising cash through debt and equity offerings in the past and as described in Notes 9 and 10 and have completed debt financing subsequent to December 31, 2021. We have financing efforts in place to continue to raise cash through debt and equity offerings.

Management has developed a plan to continue operations. This plan includes obtaining equity or debt financing. During the year ended December 31, 2021 we received \$7,779,538 net proceeds in additional convertible and non-convertible debt. We also received \$1,015,000 in net proceeds from the sale of Series AA Preferred Stock during the year. Although we have successfully completed financings and reduced expenses in the past, we cannot assure you that our plans to address these matters in the future will be successful.

Management’s plans to alleviate these conditions that raise substantial doubt regarding the Company’s ability to continue as a going concern include pursuing one or more of the following options to raise additional funding, none of which can be guaranteed or are entirely within the Company’s control:

- Raise funding through the possible additional sales of the Company’s common stock, including public or private equity financings.
- Raise additional loan funding.
- Continue to seek commercial partners to accelerate revenue growth from the PCT, BaroFold, and UST technology platforms.
- Earn payments pursuant to potential collaboration and license agreements for BaroFold patents.
- Seek strategic direct equity investments from existing and new commercial partners

There can be no assurance, however, that the Company will receive cash proceeds from any of these potential resources or, to the extent cash proceeds are received, those proceeds would be sufficient to support the Company's operations for at least the next twelve months from the date of filing this Annual Report on Form 10-K.

Generally, management's plans must be approved before the date the financial statements are issued to be considered probable of being effectively implemented. The future receipt of potential funding from the Company's collaborators and other resources is not considered probable at this time because none of the Company's current plans have been finalized at the time of filing this Annual Report on Form 10-K. Accordingly, substantial doubt is deemed to exist about the Company's ability to continue as a going concern within one year after the date these financial statements are issued.

The Company believes that its \$132,311 in cash and cash equivalents at December 31, 2021 and additional debt and equity financings would allow it to fund its planned operations into the first quarter of 2022. This estimate assumes no additional funding from new partnership agreements, and no accelerated repayment of its term loans. Accordingly, the timing and nature of activities contemplated for the remainder of 2022 and thereafter will be conducted subject to the availability of sufficient financial resources.

If the Company is unable to raise capital when needed or on attractive terms, or if it is unable to procure partnership arrangements to advance its programs, the Company would be forced to delay, reduce or eliminate its research and development programs and any future commercialization efforts.

The accompanying financial statements have been prepared on a going concern basis, which contemplates the realization of assets and satisfaction of liabilities in the ordinary course of business. The financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might result from the outcome of the uncertainties described above.

(3) Summary of Significant Accounting Policies

i. Principles of Consolidation

The consolidated financial statements include the accounts of Pressure BioSciences, Inc., and its wholly-owned subsidiaries PBI BioSeq, Inc and PBI Agrochem, Inc. All intercompany accounts and transactions have been eliminated in consolidation.

ii. Use of Estimates

To prepare our consolidated financial statements in conformity with accounting principles generally accepted in the United States of America, we are required to make significant 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. In addition, significant estimates were made in projecting future cash flows to quantify impairment of assets, deferred tax assets, the costs associated with fulfilling our warranty obligations for the instruments that we sell, and the estimates employed in our calculation of fair value of stock options awarded, beneficial conversion features and derivative liabilities. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results could differ from the estimates and assumptions used.

iii Recent Accounting Pronouncement

In June 2016, the FASB issued ASU 2016-13, Measurement of Credit Losses on Financial Instruments. The standard is effective for the Company for interim and annual periods beginning after December 15, 2022. The Company is evaluating the impact of this standard on its Consolidated Financial Statements.

In August 2020, the Financial Accounting Standards Board ("FASB") issued ASU 2020-06, Debt with Conversion and Other Options and Derivatives and Hedging - Contracts in Entity's Own Equity. The standard is effective for interim and annual periods beginning after December 15, 2023 for the Company. The Company is evaluating the impact of this standard on its Consolidated Financial Statements.

iv. Revenue Recognition

We recognize revenue in accordance with FASB ASC 606, *Revenue from Contracts with Customers*, and ASC 340-40, *Other Assets and Deferred Costs—Contracts with Customers*. Revenue is measured based on a consideration specified in a contract with a customer, and excludes any sales incentives and amounts collected on behalf of third parties. We enter into sales contracts that may consist of multiple distinct performance obligations where certain performance obligations of the sales contract are not delivered in one reporting period. We measure and allocate revenue according to ASC 606-10.

We identify a performance obligation as distinct if both the following criteria are true: the customer can benefit from the good or service either on its own or together with other resources that are readily available to the customer and the entity's promise to transfer the good or service to the customer is separately identifiable from other promises in the contract. Determining the standalone selling price ("SSP") and allocation of consideration from a contract to the individual performance obligations, and the appropriate timing of revenue recognition, is the result of significant qualitative and quantitative judgments. Management considers a variety of factors such as historical sales, usage rates, costs, and expected margin, which may vary over time depending upon the unique facts and circumstances related to each performance obligation in making these estimates. While changes in the allocation of the SSP between performance obligations will not affect the amount of total revenue recognized for a particular contract, any material changes could impact the timing of revenue recognition, which would have a material effect on our financial position and result of operations. This is because the contract consideration is allocated to each performance obligation, delivered or undelivered, at the inception of the contract based on the SSP of each distinct performance obligation.

Taxes assessed by a governmental authority that are both imposed on and concurrent with a specific revenue-producing transaction, that are collected by the Company from a customer, are excluded from revenue.

Shipping and handling costs associated with outbound freight after control over a product has transferred to a customer are accounted for as a fulfillment cost and are included in cost of revenues as consistent with treatment in prior periods.

Our current Barocyler instruments require a basic level of instrumentation expertise to set-up for initial operation. To support a favorable first experience for our customers, upon customer request, and for an additional fee, we will send a highly trained technical representative to the customer site to install Barocyclers that we sell, lease, or rent through our domestic sales force. The installation process includes uncrating and setting up the instrument, followed by introductory user training. Our sales arrangements do not provide our customers with a right of return. Any shipping costs billed to customers are recognized as revenue.

The majority of our instrument and consumable contracts contain pricing that is based on the market price for the product at the time of delivery. Our obligations to deliver product volumes are typically satisfied and revenue is recognized when control of the product transfers to our customers. Concurrent with the transfer of control, we typically receive the right to payment for the shipped product and the customer has significant risks and rewards of ownership of the product. Payment terms require customers to pay shortly after delivery and do not contain significant financing components.

Revenue from scientific services customers is recognized upon completion of each stage of service as defined in service agreements.

We apply ASC 845, "Accounting for Non-Monetary Transactions", to account for products and services sold through non-cash transactions based on the fair values of the products and services involved, where such values can be determined. Non-cash exchanges would require revenue to be recognized at recorded cost or carrying value of the assets or services sold if any of the following conditions apply:

- a) The fair value of the asset or service involved is not determinable.
- b) The transaction is an exchange of a product or property held for sale in the ordinary course of business for a product or property to be sold in the same line of business to facilitate sales to customers other than the parties to the exchange.
- c) The transaction lacks commercial substance.

We recognize revenue for non-cash transactions at recorded cost or carrying value of the assets or services sold.

We account for lease agreements of our instruments in accordance with ASC 842, *Leases*. We record revenue over the life of the lease term and we record depreciation expense on a straight-line basis over the thirty-six-month estimated useful life of the Barocyler instrument. The depreciation expense associated with assets under lease agreement is included in the "Cost of PCT products and services" line item in our accompanying consolidated statements of operations. Many of our lease and rental agreements allow the lessee to purchase the instrument at any point during the term of the agreement with partial or full credit for payments previously made. We pay all maintenance costs associated with the instrument during the term of the leases.

Revenue from government grants is recorded when expenses are incurred under the grant in accordance with the terms of the grant award.

Deferred revenue represents amounts received from grants and service contracts for which the related revenues have not been recognized because one or more of the revenue recognition criteria have not been met. Revenue from service contracts is recorded ratably over the length of the contract.

Disaggregation of revenue

In the following table, revenue is disaggregated by primary geographical market, major product line, and timing of revenue recognition.

<i>In thousands of US dollars (\$)</i>	Year Ended December 31,	
	2021	2020
Primary geographical markets		
North America	1,179	844
Europe	289	88
Asia	534	289
	<u>2,002</u>	<u>1,221</u>

Major products/services lines	Year Ended December 31,	
	2021	2020
Hardware	1,104	568
Consumables	274	205
Contract research services	268	193
Agrochem Products	29	-
Sample preparation accessories	140	116
Technical support/extended service contracts	119	96
Shipping and handling	51	29
Other	17	14
	<u>2,002</u>	<u>1,221</u>

Timing of revenue recognition	Year Ended December 31,	
	2021	2020
Transferred at a point in time	1,674	978
Transferred over time	328	243
	<u>2,002</u>	<u>1,221</u>

Contract balances

<i>In thousands of US dollars (\$)</i>	December 31, 2021	December 31, 2020
Receivables, which are included in 'Accounts Receivable'	155	131
Contract liabilities (deferred revenue)	41	67

Transaction price allocated to the remaining performance obligations

The following table includes estimated revenue expected to be recognized in the future related to performance obligations that are unsatisfied (or partially unsatisfied) at the end of the reporting period.

<i>In thousands of US dollars (\$)</i>	2022	2023	Total
Extended warranty service	37	4	41

All consideration from contracts with customers is included in the amounts presented above.

Contract Costs

The Company recognizes the incremental costs of obtaining contracts as an expense when incurred if the amortization period of the assets that the Company otherwise would have recognized is one year or less. These costs are included in selling, general, and administrative expenses. The costs to obtain a contract are recorded immediately in the period when the revenue is recognized either upon shipment or installation. The costs to obtain a service contract are considered immaterial when spread over the life of the contract so the Company records the costs immediately upon billing.

v. Beneficial Conversion Features

In accordance with FASB ASC 470-20, “Debt with Conversion and Other Options” the Company records a beneficial conversion feature (“BCF”) related to the issuance of convertible debt or preferred stock instruments that have conversion features at fixed rates that are in-the-money when issued. The BCF for the convertible instruments is recognized and measured by allocating a portion of the proceeds equal to the intrinsic value of that feature to additional paid-in capital. The intrinsic value is generally calculated at the commitment date as the difference between the conversion price and the fair value of the common stock or other securities into which the security is convertible, multiplied by the number of shares into which the security is convertible. If certain other securities are issued with the convertible security, the proceeds are allocated among the different components. The portion of the proceeds allocated to the convertible security is divided by the contractual number of the conversion shares to determine the effective conversion price, which is used to measure the BCF. The effective conversion price is used to compute the intrinsic value. The value of the BCF is limited to the basis that is initially allocated to the convertible security.

vi. Cash and Cash Equivalents

Our policy is to invest available cash in short-term, investment grade interest-bearing obligations, including money market funds, and bank and corporate debt instruments. Securities purchased with initial maturities of three months or less are valued at cost plus accrued interest, which approximates fair value, and are classified as cash equivalents.

vii. Research and Development

Research and development costs, which are comprised of costs incurred in performing research and development activities including wages and associated employee benefits, facilities, consumable products and overhead costs that are expensed as incurred. In support of our research and development activities we utilize our Barocycler instruments that are capitalized as fixed assets and depreciated over their expected useful life.

viii. Inventories

Inventories are valued at the lower of cost (average cost) or net realizable value. The cost of Barocyclers consists of the cost charged by the contract manufacturer. The cost of manufactured goods includes material, freight-in, direct labor, and applicable overhead. The composition of inventory as of December 31, is as follows:

	2021	2020
Raw materials	\$ 296,892	\$ 217,682
Finished goods	1,193,158	717,581
Inventory reserve	(342,496)	(342,496)
Total	<u>\$ 1,147,554</u>	<u>\$ 592,767</u>

ix. Property and Equipment

Property and equipment are stated at cost, less accumulated depreciation. For financial reporting purposes, depreciation is recognized using the straight-line method, allocating the cost of the assets over their estimated useful lives of three years for certain laboratory equipment, from three to five years for management information systems and office equipment, and three years for all PCT finished units classified as fixed assets.

x. Intangible Assets

We have classified as intangible assets, costs associated with the fair value of acquired intellectual property. Intangible assets, including patents, are being amortized on a straight-line basis over nine years. We perform an annual review of our intangible assets for impairment. We capitalize any costs to renew or extend the term of our intangible assets. When impairment is indicated, any excess of carrying value over fair value is recorded as a loss. As of December 31, 2021, and 2020, the outstanding balance for intangible assets was \$403,846 and \$490,385, respectively.

xi. Long-Lived Assets

The Company's long-lived assets are reviewed for impairment in accordance with the guidance of the FASB ASC 360-10-05, *Property, Plant, and Equipment*, whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable. Recoverability of an asset to be held and used is measured by a comparison of the carrying amount of an asset to the future undiscounted cash flows expected to be generated by the asset. If such asset is considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the asset exceeds its fair value. Through December 31, 2021, the Company had not experienced impairment losses on its long-lived assets.

xii. Concentrations

Credit Risk

Our financial instruments that potentially subject us to concentrations of credit risk consist primarily of cash, cash equivalents and trade receivables. We have cash investment policies which, among other things, limit investments to investment-grade securities. We perform ongoing credit evaluations of our customers, and the risk with respect to trade receivables is further mitigated by the fact that many of our customers are government institutions and university labs. Allowances are provided for estimated amounts of accounts receivable which may not be collected. At December 31, 2021, we determined that no allowance against accounts receivable was necessary.

The following table illustrates the level of concentration of the below two groups within revenue as a percentage of total revenues during the years ended December 31:

	<u>2021</u>	<u>2020</u>
Top Five Customers	44%	33%
Federal Agencies	6%	4%

The following table illustrates the level of concentration of the below two groups within accounts receivable as a percentage of total accounts receivable balance as of December 31:

	<u>2021</u>	<u>2020</u>
Top Five Customers	82%	89%
Federal Agencies	5%	10%

Investment in Equity Securities

As of December 31, 2021, we held 100,250 shares of common stock of Nexity Global SA, (a Polish publicly traded company). On October 23, 2020 Everest Investments S.A. changed its name to Nexity Global S.A. Nexity is and Everest was listed on the Warsaw Stock Exchange.

We had exchanged 33,334 shares of our common stock for the 100,250 shares we had held in Everest (before the Nexity Merger). We account for this investment in accordance with ASC 320 "Investments — Debt and Equity Securities." ASC 320 requires equity investments with readily determinable fair values to be measured at fair value with changes in fair value recognized in net income.

As of December 31, 2021, our consolidated balance sheet reflected the fair value, determined on a recurring basis based on Level 1 inputs, of our investment in Nexity to be \$59,976. We recorded \$457,025 as unrealized losses during the year ended December 31, 2021 for changes in market value.

xiii. Computation of Loss per Share

Basic loss per share is computed by dividing loss available to common shareholders by the weighted average number of common shares outstanding. Diluted loss per share is computed by dividing loss available to common shareholders by the weighted average number of common shares outstanding plus additional common shares that would have been outstanding if dilutive potential common shares had been issued. For purposes of this calculation, convertible preferred stock, common stock dividends, warrants to acquire preferred stock convertible into common stock, and warrants and options to acquire common stock, are all considered common stock equivalents in periods in which they have a dilutive effect and are excluded from this calculation in periods in which these are anti-dilutive. The following table illustrates our computation of loss per share for the years ended December 31:

	<u>2021</u>	<u>2020</u>
<u>Numerator:</u>		
Net loss attributable to common shareholders	\$ (22,685,459)	\$ (17,584,710)
<u>Denominator for basic and diluted loss per share:</u>		
Weighted average common shares outstanding	<u>6,636,523</u>	<u>3,304,187</u>
Loss per common share - basic and diluted	<u>\$ (3.42)</u>	<u>\$ (5.32)</u>

The following table presents securities that could potentially dilute basic loss per share in the future. For all periods presented, the potentially dilutive securities were not included in the computation of diluted loss per share because these securities would have been anti-dilutive for the years ended December 31:

	<u>2021</u>	<u>2020</u>
Stock options	1,333,101	1,355,901
Convertible debt	5,232,118	4,474,868
Common stock warrants	16,207,108	14,434,702
Convertible preferred stock:		
Series D Convertible Preferred	25,000	25,000
Series G Convertible Preferred	26,857	26,857
Series H Convertible Preferred	33,334	33,334
Series H2 Convertible Preferred	70,000	70,000
Series J Convertible Preferred	115,267	115,267
Series K Convertible Preferred	229,334	229,334
Series AA Convertible Preferred	8,649,000	8,043,000
	<u>31,921,119</u>	<u>28,808,263</u>

xiv. Accounting for Income Taxes

We account for income taxes under the asset and liability method, which requires recognition of deferred tax assets, subject to valuation allowances, and liabilities for the expected future tax consequences of events that have been included in the consolidated financial statements or tax returns. Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting and income tax purposes. The Company considers many factors when assessing the likelihood of future realization of our deferred tax assets, including recent cumulative earnings experience by taxing jurisdiction, expectations of future taxable income or loss, the carry-forward periods available to us for tax reporting purposes, and other relevant factors. A valuation allowance is established if it is more likely than not that all or a portion of the net deferred tax assets will not be realized. If substantial changes in the Company's ownership should occur, as defined in Section 382 of the Internal Revenue Code, there could be significant limitations on the amount of net loss carry forwards that could be used to offset future taxable income.

Tax positions must meet a "more likely than not" recognition threshold at the effective date to be recognized. At December 31, 2021 and 2020, the Company did not have any uncertain tax positions. No interest and penalties related to uncertain tax positions were accrued at December 31, 2021 and 2020.

xv. Accounting for Stock-Based Compensation

We maintain equity compensation plans under which incentive stock options and non-qualified stock options are granted to employees, independent members of our Board of Directors and outside consultants. We recognize equity compensation expense over the requisite service period using the Black-Scholes formula to estimate the fair value of the stock options on the date of grant. Employee and non employee awards are accounted for under ASC 718 where the awards are valued at grant date.

Determining Fair Value of Stock Option Grants

Valuation and Amortization Method - The fair value of each option award is estimated on the date of grant using the Black-Scholes pricing model based on certain assumptions. The estimated fair value of employee stock options is amortized to expense using the straight-line method over the vesting period, which generally is over three years.

Expected Term - The Company uses the simplified calculation of expected life, described in the FASB ASC 718, *Compensation-Stock Compensation*, as the Company does not currently have sufficient historical exercise data on which to base an estimate of expected term. Using this method, the expected term is determined using the average of the vesting period and the contractual life of the stock options granted.

Expected Volatility - Expected volatility is based on the Company's historical stock volatility data over the expected term of the award.

Risk-Free Interest Rate - The Company bases the risk-free interest rate used in the Black-Scholes valuation method on the implied yield currently available on U.S. Treasury zero-coupon issues with an equivalent remaining term.

Forfeitures - As required by FASB ASC 718, *Compensation-Stock Compensation*, the Company records stock-based compensation expense only for those awards that are expected to vest. The Company estimated a forfeiture rate of 5% for awards granted based on historical experience and future expectations of options vesting. We used this historical rate as our assumption in calculating future stock-based compensation expense.

The following table summarizes the assumptions we utilized for grants of stock options to the three sub-groups of our stock option recipients during the year ended December 31, 2021:

Assumptions	CEO, other Officers and Employees
Expected life	6.0(yrs)
Expected volatility	155.02%
Risk-free interest rate	0.62%
Forfeiture rate	5.00%
Expected dividend yield	0.0%

We recognized stock-based compensation expense of \$254,615 and \$488,792 for the years ended December 31, 2021 and 2020, respectively. The following table summarizes the effect of this stock-based compensation expense within each of the line items within our accompanying consolidated statements of operations for the years ended December 31:

	2021	2020
Research and development	\$ 128,094	\$ 141,202
Selling and marketing	22,233	34,142
General and administrative	104,288	313,448
Total stock-based compensation expense	<u>\$ 254,615</u>	<u>\$ 488,792</u>

During the years ended December 31, 2021 and 2020, the total fair value of stock options awarded was \$49,135 and \$0, respectively.

As of December 31, 2021, total unrecognized compensation cost related to the unvested stock-based awards was \$140,455, which is expected to be recognized over weighted average period of 1.09 years.

xvi. Advertising

Advertising costs are expensed as incurred. We incurred \$17,594 in 2021 and \$19,572 in 2020 for advertising.

xvii. Fair Value of Financial Instruments

Due to their short maturities, the carrying amounts for cash and cash equivalents, accounts receivable, accounts payable, accrued expenses and debt approximate their fair value. The carrying amount of long-term debt approximates fair value due to interest rates that approximate prevailing market rates.

xviii. Fair Value Measurements

The Company follows the guidance of FASB ASC Topic 820, “Fair Value Measurements and Disclosures” (“ASC 820”) as it related to financial assets and financial liabilities that are recognized or disclosed at fair value in the consolidated financial statements on a recurring basis.

The Company generally defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (exit price). The Company uses a three-tier fair value hierarchy, which classifies the inputs used in measuring fair values. These tiers include: Level 1, defined as observable inputs such as quoted prices for identical instruments in active markets; 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.

Financial assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. The Company has determined that its financial assets are currently classified within Level 1. The Company does not have any financial liabilities that are required to be measured on a recurring basis at December 31, 2021 and 2020.

The following tables set forth the Company’s financial assets that were accounted for at fair value on a recurring basis as of December 31, 2021:

	December 31, 2021	Fair value measurements at December 31, 2021 using:		
		Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Equity Securities	\$ 59,976	\$ 59,976	-	-
Total Financial Assets	\$ 59,976	\$ 59,976	\$ -	\$ -

The following tables set forth the Company’s financial assets that were accounted for at fair value on a recurring basis as of December 31, 2020:

	December 31, 2020	Fair value measurements at December 31, 2020 using:		
		Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Equity Securities	517,001	517,001	-	-
Total Financial Assets	\$ 517,001	\$ 517,001	\$ -	\$ -

(4) Property and Equipment, net

Property and equipment as of December 31, 2021 and 2020 consisted of the following components:

	December 31,	
	2021	2020
Laboratory and manufacturing equipment	\$ 353,379	\$ 240,670
Office equipment	194,999	184,763
Leasehold improvements	25,248	25,248
PCT collaboration, demonstration and leased systems	53,098	53,098
Total property and equipment	626,724	503,779
Less accumulated depreciation	(510,878)	(487,289)
Net book value	\$ 115,846	\$ 16,490

Depreciation expense for the years ended December 31, 2021 and 2020 was \$23,589 and \$40,763, respectively.

(5) Intangible Assets

Intangible assets as of December 31, 2021 reflect the purchase price attributable to patents received in connection with the acquisition of assets of BaroFold Corp. Acquired BaroFold patents are being amortized to expense on a straight line basis at the rate of \$80,000 per year over their estimated remaining useful lives of approximately 9 years. The estimated aggregate amortization expense for each of the five succeeding fiscal years is \$80,000 annually. We performed a review of our intangible assets for impairment. When impairment is indicated, any excess of carrying value over fair value is recorded as a loss. An impairment analysis of intangible assets was performed as of December 31, 2021. We have concluded that there is no impairment of intangible assets. Intangible assets at December 31, 2021 and 2020 consisted of the following:

	December 31,	
	2021	2020
BaroFold Patents	\$ 750,000	\$ 750,000
Less accumulated amortization	(346,154)	(259,615)
Net book value	\$ 403,846	\$ 490,385

Amortization expense for each of the years ended December 31, 2021 and 2020 was \$86,539 and \$86,538, respectively.

(6) Retirement Plan

We provide all of our employees with the opportunity to participate in our retirement savings plan. Our retirement savings plan has been qualified under Section 401(k) of the Internal Revenue Code. Eligible employees are permitted to contribute to the plan through payroll deductions within statutory limitations and subject to any limitations included in the plan. During 2021 and 2020 we contributed \$11,752 and \$13,436, respectively, in the form of discretionary Company-matching contributions.

(7) Income Taxes

Tax positions must meet a “more likely than not” recognition threshold at the effective date to be recognized. At December 31, 2021 and 2020, the Company did not have any uncertain tax positions. No interest and penalties related to uncertain tax positions were accrued at December 31, 2021 and 2020. Our tax returns for fiscal years 2018, 2019 and 2020 are open to examination.

Significant items making up the deferred tax assets and deferred tax liabilities as of December 31, 2021 and 2020 are as follows:

	2021	2020
Long term deferred taxes:		
Inventories	\$ 93,570	\$ 93,570
Accrued expenses	91,792	156,699
Other	15,169	15,169
Non-cash, stock-based compensation, nonqualified	814,202	1,206,664
Impairment loss on investment	104,609	104,609
Operating loss carry forwards and tax credits	28,435,535	22,062,690
Less: valuation allowance	(29,554,877)	(23,639,401)
Total net deferred tax assets	\$ -	\$ -

A valuation allowance is established if it is more likely than not that all or a portion of the deferred tax asset will not be realized. Accordingly, we established a valuation allowance in 2021 and 2020 for the full amount of our deferred tax assets for the uncertainty of realization. We believe that based on our projection of future taxable operating income for the foreseeable future, it is more likely than not that we will not be able to realize the benefit of the deferred tax asset at December 31, 2021.

We have net operating loss carry-forwards for federal income tax purposes of approximately \$98,933,918 as of December 31, 2021. Included in these numbers are loss carry-forwards that were obtained through the acquisition of BioSeq, Inc. and are subject to Section 382 NOL limitations. These net operating loss carry-forwards expire at various dates from 2022 through 2037. Under the Tax Reform Act, NOL's generated after December 31, 2017 can offset only 80% of a corporation's taxable income in any year. With limited exceptions, NOL's generated after 2017, \$57,298,328, cannot be carried back, but they can be carried forward indefinitely.

We have net operating loss carry-forwards for state income tax purposes of approximately \$94,663,553 at December 31, 2021. These net operating loss carry-forwards expire at various dates from 2031 through 2038.

We have research and development tax credit carry-forwards for federal income tax purposes of approximately \$1,288,308 as of December 31, 2021 and research and development tax credit carry-forwards for state income tax purposes of approximately \$306,425 as of December 31, 2021. The federal credit carry-forwards expire at various dates from 2022 through 2037. The state credit carry-forwards expire at various dates from 2023 through 2034.

The following table reconciles the U.S. Federal statutory tax rate to the Company's effective tax rate:

	<u>2021</u>	<u>2020</u>
Statutory U.S. Federal tax rate	21%	21%
Permanent differences	(0)%	(0)%
State tax expense	0%	0%
Refundable AMT and R&D tax credit	0%	0%
Valuation allowance	(21)%	(21)%
Effective tax rate	<u>-%</u>	<u>-%</u>

(8) Commitments and Contingencies

Operating Leases

The Company accounts for its leases under ASC 842. The Company has elected to apply the short-term lease exception to leases of one year or less.

Our corporate office is currently located at 14 Norfolk Avenue, South Easton, Massachusetts 02375. We are currently paying \$6,950 per month, on a lease extension, signed on December 31, 2021, that expires December 31, 2022, for our corporate office. We expanded our space to include offices, warehouse and a loading dock on the first floor starting May 1, 2017 with a monthly rent increase already reflected in the current payments.

We extended our lease for our space in Medford, MA (the "Medford Lease") from December 30, 2020 to December 30, 2023. The lease required monthly payments of \$7,282 subject to annual cost of living increases. The lease shall be automatically extended for additional three years unless either party terminates at least six months prior to the expiration of the current lease term.

The Company accounted for the lease extension of our Medford Lease as a lease modification under ASC 842. At the effective date of modification, the Company recorded an adjustment to the right-of-use asset and lease liability in the amount of \$221,432 based on the net present value of lease payments discounted using an estimated borrowing rate of 12%.

On August 9, 2021, we entered into an operating lease agreement for our warehouse space in Sparks, NV (the "Sparks Lease") for the period from September 1, 2021 through September 30, 2026. The lease contains escalating payments during the lease period. The lease can be extended for an additional three years if the Company provides notice at least six months prior to the expiration of the current lease term.

The Company accounted for the Sparks Lease as an operating lease under ASC 842. Upon the commencement of the lease, the Company recorded a right-of-use asset and lease liability in the amount of \$239,327 based on the net present value of lease payments discounted using an estimated borrowing rate of 12%.

Following is a schedule by years of future minimum rental payments required under operating leases with initial or remaining non-cancelable lease terms in excess of one year as of December 31, 2021:

2022	\$	230,318
2023		149,299
2024		64,393
2025		66,969
2026		51,778
Thereafter		-
	<u>\$</u>	<u>562,757</u>

Battelle Memorial Institute

In December 2008, we entered into an exclusive patent license agreement with the Battelle Memorial Institute (“*Battelle*”). The licensed technology is the subject of a patent application filed by Battelle in 2008 and relates to a method and a system for improving the analysis of protein samples, including through an automated system utilizing pressure and a pre-selected agent to obtain a digested sample in a significantly shorter period of time than current methods, while maintaining the integrity of the sample throughout the preparatory process. In addition to royalty payments on net sales on “licensed products,” we are obligated to make minimum royalty payments for each year that we retain the rights outlined in the patent license agreement and we are required to have our first commercial sale of the licensed products within one year following the issuance of the patent covered by the licensed technology. After re-negotiating the terms of the contract in 2013, the minimum annual royalty was \$1,200 in 2014 and \$2,000 in 2015; the minimum royalties were \$3,000 in 2016, \$4,000 in 2017 and \$5,000 in 2018 and each calendar year thereafter during the term of the agreement.

Target Discovery Inc.

In March 2010, we signed a strategic product licensing, manufacturing, co-marketing, and collaborative research and development agreement with Target Discovery Inc. (“*TDI*”), a related party. Under the terms of the agreement, we have been licensed by TDI to manufacture and sell a highly innovative line of chemicals used in the preparation of tissues for scientific analysis (“*TDI reagents*”). The TDI reagents were designed for use in combination with our pressure cycling technology. The companies believe that the combination of PCT and the TDI reagents can fill an existing need in life science research for an automated method for rapid extraction and recovery of intact, functional proteins associated with cell membranes in tissue samples. We did not incur any royalty obligation under this agreement in 2021 or 2020.

In April 2012, we signed a non-exclusive license agreement with TDI to grant the non-exclusive use of our pressure cycling technology. We executed an amendment to this agreement on October 1, 2016 wherein we agreed to pay a monthly fee of \$1,400 for the use of a lab bench, shared space and other utilities, and \$2,000 per day for technical support services as needed. The agreement requires TDI to pay the Company a minimum royalty fee of \$60,000 in 2020 and \$60,000 in 2021. For the years ended December 31, 2020 and 2021, we reported expenses of \$82,800 and \$86,800, respectively for these arrangements.

Severance and Change of Control Agreements

Each of Mr. Schumacher, and Drs. Ting, and Lazarev, executive officers of the Company, are entitled to receive a severance payment if terminated by us without cause. The severance benefits would include a payment in an amount equal to one year of such executive officer’s annualized base salary compensation plus accrued paid time off. Additionally, the officer will be entitled to receive medical and dental insurance coverage for one year following the date of termination.

Each of these executive officers, other than Mr. Schumacher, is entitled to receive a change of control payment in an amount equal to one year of such executive officer’s annualized base salary compensation, accrued paid time off, and medical and dental coverage, in the event of their termination upon a change of control of the Company. In the case of Mr. Schumacher, this payment would be equal to two years of annualized base salary compensation, accrued paid time off, and two years of medical and dental coverage. The severance payment is meant to induce the aforementioned executives to remain in the employ of the Company, in general; and particularly in the occurrence of a change in control, as a disincentive to the control change.

(9) Convertible Debt and Other Debt

Convertible Debt

On various dates during the year ended December 31, 2020, the Company issued convertible notes for net proceeds of approximately \$8.3 million which contained varied terms and conditions as follows: a) 6-12 month maturity date; b) interest rates of 10-18% per annum c) convertible to the Company’s common stock at issuance at a fixed rate of \$2.50. These notes were issued with shares of common stock or warrants to purchase common stock that were fairly valued at issuance dates. The aggregate relative fair value of the shares of common stock issued with the notes of \$214,419 was recorded as a debt discount to be amortized over the term of the notes. The aggregate relative fair value of the warrants issued with the notes of \$4.9 million was also recorded as a debt discount to be amortized over the term of the notes. We then computed the effective conversion price of the notes and recorded a BCF of \$1.8 million as a debt discount to be amortized over the term of the notes. Finally, we evaluated our convertible notes for derivative liability treatment on an on-going basis and have determined that all our notes did not qualify for derivative accounting treatment at December 31, 2020. In the year ended December 31, 2020 the amortization of debt discount on convertible notes was \$5,118,222.

On various dates during the year ended December 31, 2021, the Company issued convertible notes for net proceeds of approximately \$5.5 million which contained varied terms and conditions as follows: a) 6-12 month maturity date; b) interest rates of 10-18% per annum and c) convertible to the Company’s common stock at issuance at fixed rates of \$2.50 and \$3.00 or at a variable conversion rates upon the Company’s up-listing to NASDAQ or NYSE or an event of default. These notes were issued with shares of common stock or warrants to purchase common stock that were fair valued at issuance dates. The aggregate relative fair value of the shares of common stock issued with the notes of \$646,718 was recorded as a debt discount to be amortized over the term of the notes. The aggregate relative fair value of \$1.4 million for the warrants issued with the notes was recorded as a debt discount to be amortized over the term of the notes. We then computed the effective conversion price of the notes and recorded a BCF of \$1.3 million as a debt discount to be amortized over the term of the notes. Finally, we evaluated our convertible notes for derivative liability treatment on an on-going basis and have determined that all our notes did not qualify for derivative accounting treatment at December 31, 2021. In the year ended December 31, 2021 the amortization of debt discount on convertible notes was approximately \$6.7 million.

The specific terms of the convertible notes and outstanding balances as of December 31, 2021 are listed in the tables below.

Inception Date	Term	Loan Amount	Outstanding balance with OID	Original Issue Discount (OID)	Interest Rate	Conversion Price	Deferred Finance Fees	Discount for conversion feature and warrants/shares
May 17, 2018 (1)(2)	12 months	\$ 380,000	\$ 166,703	\$ 15,200	8%	\$ 2.50	\$ 15,200	\$ 332,407
January 3, 2019 (1)(4)	6 months	\$ 50,000	\$ 50,000	\$ 2,500	24%	\$ 7.50	\$ 2,500	\$ -
June 4, 2019 (1)(2)	9 months	\$ 500,000	\$ 302,484	\$ -	8%	\$ 2.50	\$ 40,500	\$ 70,631
July 19, 2019 (1) (2)	12 months	\$ 115,000	\$ 115,000	\$ -	4%	\$ 2.50	\$ 5,750	\$ 15,460
September 27, 2019 (1) (2)	12 months	\$ 78,750	\$ 78,750	\$ -	4%	\$ 2.50	\$ 3,750	\$ 13,759
October 24, 2019 (1) (2)	12 months	\$ 78,750	\$ 78,750	\$ -	4%	\$ 2.50	\$ 3,750	\$ -
November 15, 2019 (1)	12 months	\$ 385,000	\$ 320,000	\$ 35,000	10%	\$ 2.50	\$ 35,000	\$ 90,917
January 2, 2020 (1)	12 months	\$ 330,000	\$ 330,000	\$ 30,000	10%	\$ 2.50	\$ 30,000	\$ 91,606
January 24, 2020 (1)	12 months	\$ 247,500	\$ 247,500	\$ 22,500	10%	\$ 2.50	\$ 22,500	\$ 89,707
January 29, 2020 (1)	12 months	\$ 363,000	\$ 363,000	\$ 33,000	10%	\$ 2.50	\$ 33,000	\$ 297,000
February 12, 2020 (1)	12 months	\$ 275,000	\$ 275,000	\$ 25,000	10%	\$ 2.50	\$ 25,000	\$ 225,000
February 19, 2020 (1)	12 months	\$ 165,000	\$ 165,000	\$ 15,000	10%	\$ 2.50	\$ 15,000	\$ 135,000
March 11, 2020 (1)	12 months	\$ 330,000	\$ 330,000	\$ 30,000	10%	\$ 2.50	\$ 30,000	\$ 232,810
March 13, 2020 (1)	12 months	\$ 165,000	\$ 165,000	\$ 15,000	10%	\$ 2.50	\$ 15,000	\$ 60,705
March 26, 2020 (1)	12 months	\$ 111,100	\$ 111,100	\$ 10,100	10%	\$ 2.50	\$ 10,100	\$ 90,900
April 8, 2020 (1)	12 months	\$ 276,100	\$ 276,100	\$ 25,100	10%	\$ 2.50	\$ 25,000	\$ 221,654
April 17, 2020 (1)	12 months	\$ 143,750	\$ 143,750	\$ 18,750	10%	\$ 2.50	\$ -	\$ 96,208
April 30, 2020 (1)	12 months	\$ 546,250	\$ 546,250	\$ 71,250	10%	\$ 2.50	\$ 47,500	\$ 427,500
May 6, 2020 (1)	12 months	\$ 460,000	\$ 460,000	\$ 60,000	10%	\$ 2.50	\$ 40,000	\$ 360,000
May 18, 2020 (1)	12 months	\$ 546,250	\$ 221,250	\$ 46,250	10%	\$ 2.50	\$ 35,500	\$ 439,500
June 2, 2020 (1)	12 months	\$ 902,750	\$ 652,750	\$ 92,750	10%	\$ 2.50	\$ 58,900	\$ 708,500
June 12, 2020 (1)	12 months	\$ 57,500	\$ 57,500	\$ 7,500	10%	\$ 2.50	\$ 5,000	\$ 45,000
June 22, 2020 (1)	12 months	\$ 138,000	\$ 138,000	\$ 18,000	10%	\$ 2.50	\$ 12,000	\$ 108,000
July 7, 2020 (1)	12 months	\$ 586,500	\$ 586,500	\$ 76,500	10%	\$ 2.50	\$ 51,000	\$ 400,234
July 17, 2020 (1)	12 months	\$ 362,250	\$ 362,250	\$ 47,250	10%	\$ 2.50	\$ 31,500	\$ 185,698
July 29, 2020 (1)	12 months	\$ 345,000	\$ 345,000	\$ 45,000	10%	\$ 2.50	\$ 30,000	\$ 241,245
July 21, 2020 (1) (5)	12 months	\$ 115,000	\$ 115,000	\$ 15,000	10%	\$ 2.50	\$ 10,000	\$ 24,875
August 14, 2020 (1)	12 months	\$ 762,450	\$ 462,450	\$ 69,450	10%	\$ 2.50	\$ 66,300	\$ 580,124
September 10, 2020 (1)	12 months	\$ 391,000	\$ 391,000	\$ 51,000	10%	\$ 2.50	\$ 34,000	\$ 231,043
September 21, 2020 (1) (5)	12 months	\$ 345,000	\$ 345,000	\$ 45,000	10%	\$ 2.50	\$ 30,000	\$ 66,375
September 23, 2020 (1) (5)	12 months	\$ 115,000	\$ 15,000	\$ 15,000	10%	\$ 2.50	\$ 10,000	\$ 20,500
September 25, 2020 (1) (5)	12 months	\$ 115,000	\$ 115,000	\$ 15,000	10%	\$ 2.50	\$ -	\$ 19,125
December 3, 2020 (1)	12 months	\$ 299,000	\$ 299,000	\$ 39,000	10%	\$ 2.50	\$ 26,000	\$ 197,882
October 22, 2020 (1) (5)	12 months	\$ 115,000	\$ 115,000	\$ 15,000	10%	\$ 2.50	\$ 10,000	\$ 18,875
February 17, 2021 (1)	12 months	\$ 230,000	\$ 230,000	\$ 30,000	10%	\$ 2.50	\$ 20,000	\$ 180,000
March 23, 2021 (1)	12 months	\$ 55,000	\$ 55,000	\$ 5,000	10%	\$ 2.50	\$ -	\$ 36,431
May 24, 2021(1)	6 months	\$ 54,625	\$ 4,625	\$ 7,125	12%	\$ 2.50	\$ -	\$ -
May 6, 2021	12 months	\$ 402,500	\$ 402,500	\$ 52,500	10%	\$ 2.50	\$ 35,000	\$ 312,551
June 17, 2021	12 months	\$ 230,000	\$ 230,000	\$ 30,000	10%	\$ 2.50	\$ 20,000	\$ 144,760
June 25, 2021	12 months	\$ 977,500	\$ 977,500	\$ 127,500	10%	\$ 2.50	\$ -	\$ 773,802
May 20, 2021	12 months	\$ 180,000	\$ 30,000	\$ 30,000	10%	\$ 2.50	\$ 15,000	\$ 25,824
June 3, 2021	6 months	\$ 50,000	\$ 50,000	\$ 1,500	12%	\$ 2.50	\$ -	\$ 7,948
June 28, 2021	12 months	\$ 350,000	\$ 350,000	\$ 35,000	12%	(6)	\$ 22,750	\$ 267,250
July 3, 2021	12 months	\$ 115,000	\$ 115,000	\$ 15,000	10%	\$ 2.50	\$ 10,000	\$ 90,000
July 1, 2021	6 months	\$ 260,000	\$ 260,000	\$ 10,000	12%	\$ 2.50	\$ -	\$ 89,640
July 6, 2021	6 months	\$ 125,000	\$ 125,000	\$ -	12%	\$ 2.50	\$ -	\$ 42,031
July 6, 2021	6 months	\$ 125,000	\$ 125,000	\$ -	12%	\$ 2.50	\$ -	\$ 42,031
July 15, 2021 (1)	6 months	\$ 100,000	\$ 100,000	\$ 5,000	12%	(7)	\$ -	\$ 57,716
July 16, 2021	6 months	\$ 50,000	\$ 50,000	\$ 2,000	12%	\$ 3.00	\$ -	\$ 40,806
July 16, 2021 (3)	6 months	\$ 306,250	\$ 306,250	\$ 56,250	(3)	(8)	\$ 22,500	\$ 227,500
July 16, 2021 (3)	6 months	\$ 306,250	\$ 306,250	\$ 56,250	(3)	(8)	\$ 12,500	\$ 237,500
July 16, 2021 (3)	6 months	\$ 122,500	\$ 122,500	\$ 22,500	(3)	(8)	\$ 5,000	\$ 95,000
August 31, 2021 (1)	6 months	\$ 189,750	\$ 189,750	\$ 24,750	10%	(9)	\$ 16,500	\$ 148,500
Sept. 8, 2021	8 months	\$ 78,000	\$ 78,000	\$ 3,000	12%	(7)	\$ -	\$ 40,449
Sept. 10, 2021	8 months	\$ 100,000	\$ 100,000	\$ 4,000	12%	(7)	\$ -	\$ 43,520
Sept. 15, 2021 (1)	6 months	\$ 250,000	\$ 250,000	\$ 12,500	12%	(7)	\$ -	\$ 108,801
Sept. 16, 2021	6 months	\$ 250,000	\$ 250,000	\$ 12,500	12%	(7)	\$ -	\$ 112,337
Sept. 24, 2021	8 months	\$ 125,000	\$ 125,000	\$ 6,250	12%	(7)	\$ -	\$ 61,876
Sept. 15, 2021	6 months	\$ 250,000	\$ 250,000	\$ 37,500	12%	(7)	\$ 30,000	\$ -
October 21, 2021 (5)	12 months	\$ 189,750	\$ 189,750	\$ 24,750	12%	\$ 2.50	\$ 16,500	\$ 87,332
November 1, 2021 (5)	12 months	\$ 189,750	\$ 189,750	\$ 24,750	12%	\$ 2.50	\$ -	\$ 96,991
December 7, 2021	12 months	\$ 169,500	\$ 169,500	\$ 19,500	12%	(10)	\$ 3,750	\$ -
			<u>\$ 14,376,462</u>	<u>\$ 1,661,225</u>			<u>\$ 1,039,250</u>	<u>\$ 9,508,836</u>

- (1) The Note is past due. The Company and the lender are negotiating in good faith to extend the loan.
- (2) The Company and lender have agreed to the extension of the Standstill and Forbearance agreements (as described below).
- (3) Note is secured by the assets of the Company's subsidiary, PBI Agrochem, Inc. and Interest rate is. 18.4% OID.
- (4) During the year ended December 31, 2020 the Company entered into Rate Modification Agreements with these lenders. In these agreements five lenders agreed to reduce their interest rate and were granted the right to convert loans using a variable conversion price if more than one other variable rate lender converted at a variable rate.
- (5) The Company has agreed to issue shares of its common stock to lenders if their notes are not repaid by a defined date.
- (6) Loan is not convertible until 180 days from the date of issuance of the Note and following an Event of Default will be convertible at the lesser of \$2.50 per share or 90% of the lowest trading price over the previous 20 days. The loan is guaranteed by the Company's Chief Executive Officer, but the lender may only enforce this

guarantee after certain conditions have been met, specifically after (i) the occurrence of an Event of Default (as defined in the Note), (ii) the failure of the Company to cure the Default in 10 business days, and (iii) a failure by the Company to issue, or cause to be issued, shares of its common stock upon submission by the lender of a notice of conversion.

- (7) Notes can be voluntarily converted before maturity at \$2.50 per share or mandatorily converted on up-list at lower of \$2.50 or up-list price.
- (8) Notes can be converted at the lesser of \$2.50 per share or 25% discount to the opening price of the Company's first day of trading on either Nasdaq or NYSE. In addition, if the Company fails to pay the Note in cash on maturity date, the conversion price will be adjusted to the lesser of original conversion price or the product of the VWAP of the common stock for the 5 trading dates immediately prior to the maturity date multiplied by 0.75.
- (9) Conversion price of this note is \$2.50 and will be adjusted to, upon an Event of Default, the lower of (i) the Conversion Price or (ii) a 25% discount to the 5-day average VWAP of the stock prior to Default. Additionally, if an up-list to a national exchange occurs while this Note is outstanding, the Conversion Price shall be changed to the lower of (i) the Conversion Price or (ii) a 25% discount to the up-list price.
- (10) Loan is convertible, upon an event of default, at the lowest closing bid price for the Company's common stock for the five trading days prior to conversion.

As of December 31, 2021 one lender holds approximately \$9.4 million of the \$14.4 million convertible notes outstanding.

For the year ended December 31, 2021, the Company recognized amortization expense related to the debt discounts indicated above of \$6,689,238. The unamortized debt discounts as of December 31, 2021 related to the convertible debentures amounted to \$1,536,649. For the year ended December 31, 2020, the Company recognized amortization expense related to the debt discounts indicated above \$5,118,222. The unamortized debt discounts as of December 31, 2020 related to the convertible debentures and other convertible notes amounted to \$3,948,167.

Standstill and Forbearance Agreements

The Company has entered into Standstill and Forbearance Agreements with lenders who hold variable-rate convertible notes with a total principal as of June 30, 2021 of \$1.57 million. Pursuant to the Standstill and Forbearance Agreements, the lenders agreed to not convert any portion of their notes into shares of common stock at a variable rate until March 31, 2021 for convertible notes with a principal balance of \$469,000 and until April 16, 2021 for convertible notes with a principal balance of \$1.1 million. During the third quarter of 2021, the Company settled three lenders (five notes) with total principal of \$827,500, leaving two final lenders (five notes) with total principal of \$741,500 outstanding. For the year ended December 31, 2021, the Company incurred interest, penalties, and fees of approximately \$1.47 million in connection with Standstill and Forbearance agreements. (See Note 11)

Convertible Loan Modifications and Extinguishments

We refinanced certain convertible loans during the years ended December 31, 2021 and 2020 at substantially the same terms for extensions ranging over a period of three to six months. We amortized any remaining unamortized debt discount as of the modification date over the remaining, extended term of the new loans. We applied ASC 470 of modification accounting to the debt instruments which were modified during the period or those settled with new notes issued concurrently for the same amounts but different maturity dates. The terms such as the interest rate, prepayment penalties, and default rates will be the same over the new extensions. According to ASC 470, an exchange of debt instruments between or a modification of a debt instrument by a debtor and a creditor in a nontroubled debt situation is deemed to have been accomplished with debt instruments that are substantially different if the present value of the cash flows under the terms of the new debt instrument is at least 10 percent different from the present value of the remaining cash flows under the terms of the original instrument. If the terms of a debt instrument are changed or modified and the cash flow effect on a present value basis is less than 10 percent, the debt instruments are not considered to be substantially different and will be accounted for as modifications.

The cash flows of new debt exceeded 10% of the remaining cash flows of the original debt on several loans in 2021 and 2020. We recorded losses on extinguishment of liabilities of \$1,795,150 in 2021 and \$3,575,878 in 2020. Our gains and losses were measured by calculating the difference of the fair value of the new debt and the carrying value of the old debt.

The following table provides a summary of the changes in convertible debt, net of unamortized discounts, during 2021:

	2021
Balance at January 1,	\$ 7,545,670
Issuance of convertible debt, face value	6,406,375
Deferred financing cost	(892,125)
Beneficial conversion feature on convertible note	(1,320,331)
Debt discount from shares and warrants issued with debt	(2,050,264)
Conversion of debt into equity	(1,705,455)
Payments	(1,833,295)
Accretion of interest and amortization of debt discount to interest expense through December 31	6,689,238
Balance at December 31	12,839,813
Less: current portion	12,839,813
Convertible debt, long-term portion	\$ -

Other Notes

On September 9, 2019 and February 28, 2020 we received a total of \$966,500 unsecured non-convertible loans from a private investor with a one-month term. During the year ended December 31, 2020, the Company received net proceeds of \$463,500, issued 150,000 warrants to purchase common stock (five-year term and \$3.50 exercise price) and repaid \$275,000. The relative fair value of \$185,660 of the warrants issued with the note was recorded as a debt discount to be amortized over the term of the notes. As of December 31, 2021 and 2020 the Company owes \$691,500 and \$691,500, respectively on these notes which are past due. The Company and the investor are negotiating in good faith to extend the loans.

On October 1, 2019, the Company and the holder of the \$170,000 non-convertible loan issued in May 2017 agreed to extend the term of the loan to December 31, 2019. The Company agreed to issue 1,200 shares of its common stock per month while the note remains outstanding. The note will continue to earn 10% annual interest. The loan is currently past due and the Company and the investor are negotiating in good faith to extend the loan.

On October 11, 2019 we received a non-convertible loan with a one month term and a 2% interest charge for \$25,000 from a private investor. In the year ended December 31, 2021 the Company issued 17 shares of Series AA preferred stock and 17,000 warrants to acquire common stock (five year term and \$3.50 exercise price) to the investor to settle principal and interest on this loan (see Note 10).

Merchant Agreements

During the years ended December 31, 2021 and 2020 we signed various Merchant Agreements which are secured by second position rights to all customer receipts until the loan has been repaid in full and subject to interest rates of 9.3% - 14% per month. As illustrated in the following table, under the terms of these agreements, we received the disclosed Purchase Price and agreed to repay the disclosed Purchase Amount, which is collected by the Merchant lenders at the disclosed Daily Payment Rate. The Company's Chief Executive Officer personally guarantees the performance of the loan issued December 21, 2021.

The following table shows our Merchant Agreements as of December 31, 2021:

<u>Inception Date</u>	<u>Purchase Price</u>	<u>Purchased Amount</u>	<u>Outstanding Balance</u>	<u>Payment frequency</u>	<u>Payment Rate</u>	<u>Deferred Finance Fees</u>
December 21, 2021	\$ 400,000	\$ 520,000	\$ 390,120	Weekly	11,305.00	\$ 6,000
July 6, 2021	125,000	166,250	8,790	Daily	1,279.00	2,500
	<u>\$ 525,000</u>	<u>\$ 686,250</u>	<u>\$ 398,910</u>			<u>\$ 8,500</u>

The following table shows our Merchant Agreements as of December 31, 2020:

<u>Inception Date</u>	<u>Purchase Price</u>	<u>Purchased Amount</u>	<u>Outstanding Balance</u>	<u>Payment frequency</u>	<u>Payment Rate</u>	<u>Deferred Finance Fees</u>
November 5, 2020	\$ 200,000	\$ 275,800	\$ 163,955	Daily	1,724.00	\$ -
November 19, 2020	100,000	137,900	85,013	Daily	985.00	-
	<u>\$ 300,000</u>	<u>\$ 413,700</u>	<u>\$ 248,968</u>			<u>\$ -</u>

We have accounted for the Merchant Agreements as loans under ASC 860 because while we provided rights to current and future receipts, we still had control over the receipts. The difference between the Purchase Amount and the Purchase Price is imputed interest that is recorded as interest expense when paid each day.

We amortized \$49,564 and \$318,641 of debt discounts during the years ended December 31, 2021 and 2020, respectively for all non-convertible notes. The total unamortized discount for all non-convertible notes as of December 31, 2021 and 2020 was \$0 and \$0, respectively.

Related Party Notes

During the year ended December 31, 2021, we received short-term non-convertible loans of \$254,600 from related parties and repaid \$354,600 of related party loans. These notes bear interest ranging from 0% to 15% interest and are due upon demand. In this period we also issued 69.5 shares of Series AA preferred stock and 69,450 warrants to acquire common stock (five-year term and \$3.50 exercise price) to settle \$66,000 principal and \$107,625 interest (see Note 10).

Long term debt

During the year ended December 31, 2020, the Company borrowed \$527,039 through COVID-19 programs that were sponsored by the United States and administered by the Small Business Administration (the "SBA"). The most notable programs were the Payroll Protection Program (or "2020 PPP") and the Economic Injury Disaster Loan program (or "EIDL"). Under the 2020 PPP, the Company borrowed \$367,039 (two-year term and 1% interest rate per annum). The Company's EIDL loan, \$150,000, accrues interest at 3.75% and requires monthly payments of \$731 for principal and interest beginning in June 2021. The balance of the principal will be due in 30 years. In connection with the EIDL loan the Company entered into a security agreement with the SBA, whereby the Company granted the SBA a security interest in all of the Company's right, title and interest in all of the Company's assets.

During the year ended December 31, 2021, the Company borrowed \$367,039 through a second Payroll Protection program (or "2021 PPP") and extended the monthly payment date on the EIDL loan to December 2022. During the year ended December 31, 2021 the 2020 PPP was forgiven by the United States and SBA and in 2022 the 2021 PPP was similarly forgiven.

(10) Stockholders' (Deficit)

Preferred Stock

We are authorized to issue 1,000,000 shares of preferred stock with a par value of \$0.01. Of the 1,000,000 shares of preferred stock:

- 1) 20,000 shares have been designated as Series A Junior Participating Preferred Stock ("Junior A")
- 2) 313,960 shares have been designated as Series A Convertible Preferred Stock ("Series A")
- 3) 279,256 shares have been designated as Series B Convertible Preferred Stock ("Series B")
- 4) 88,098 shares have been designated as Series C Convertible Preferred Stock ("Series C")
- 5) 850 shares have been designated as Series D Convertible Preferred Stock ("Series D")
- 6) 500 shares have been designated as Series E Convertible Preferred Stock ("Series E")
- 7) 240,000 shares have been designated as Series G Convertible Preferred Stock ("Series G")
- 8) 10,000 shares have been designated as Series H Convertible Preferred Stock ("Series H")
- 9) 21 shares have been designated as Series H2 Convertible Preferred Stock ("Series H2")
- 10) 6,250 shares have been designated as Series J Convertible Preferred Stock ("Series J")
- 11) 15,000 shares have been designated as Series K Convertible Preferred Stock ("Series K")
- 12) 10,000 shares have been designated as Series AA Convertible Preferred Stock ("Series AA")

As of December 31, 2021, there were no shares of Junior A issued and outstanding, and no shares of Series A, B, C, and E issued and outstanding.

Series D Convertible Preferred Stock

On November 11, 2011, we completed a registered direct offering, pursuant to which we sold an aggregate of 843 units for a purchase price of \$1,000 per unit, resulting in gross proceeds to us of \$843,000 (the "Series D Placement"). Each unit ("Series D Unit") consisted of (i) one share of Series D Convertible Preferred Stock, \$0.01 par value per share (the "Series D Convertible Preferred Stock") convertible into 84 shares of our common stock, (subject to adjustment for stock splits, stock dividends, recapitalization, etc.) and (ii) one five-year warrant to purchase approximately 21 shares of our common stock at a per share exercise price of \$24.30, subject to adjustment as provided in the Warrants ("Series D Warrant"). The Series D Warrants were exercisable beginning on May 11, 2012 and until the close of business on the fifth anniversary of the initial exercise date. There are currently no Series D Warrants outstanding.

The Series D Convertible Preferred Stock will rank senior to the Company's common stock with respect to payments made upon liquidation, winding up or dissolution. Upon any liquidation, dissolution or winding up of the Company, after payment of the Company's debts and liabilities, and before any payment is made to the holders of any junior securities, the holders of Series D Convertible Preferred Stock will first be entitled to be paid \$1,000 per share subject to adjustment for accrued but unpaid dividends.

We may not pay any dividends on shares of common stock unless we also pay dividends on the Series D Convertible Preferred Stock in the same form and amount, on an as-if-converted basis, as dividends actually paid on shares of our common stock. Except for such dividends, no other dividends may be paid on the Series D Convertible Preferred Stock.

Each share of Series D Convertible Preferred Stock is convertible into 84 shares of common stock (based upon an initial conversion price of \$19.50 per share) at any time at the option of the holder, subject to adjustment for stock splits, stock dividends, combinations, and similar recapitalization transactions (the "*Series D Conversion Ratio*"). Subject to certain exceptions, if the Company issues any shares of common stock or common stock equivalents at a per share price that is lower than the conversion price of the Series D Convertible Preferred Stock, the conversion price will be reduced to the per share price at which such shares of common stock or common stock equivalents are issued. Each share of Series D Convertible Preferred Stock will automatically be converted into shares of common stock at the Series D Conversion Ratio then in effect if, after six months from the closing of the Series D Placement, the common stock trades on the OTCQB (or other primary trading market or exchange on which the common stock is then traded) at a price equal to at least 300% of the then effective Series D Convertible Preferred Stock conversion price for 20 out of 30 consecutive trading days with each trading day having a volume of at least \$50,000. Unless waived under certain circumstances by the holder of the Series D Convertible Preferred Stock, such holder's Series D Convertible Preferred Stock may not be converted if upon such conversion the holder's beneficial ownership would exceed certain thresholds.

In addition, in the event we consummate a merger or consolidation with or into another person or other reorganization event in which our shares of common stock are converted or exchanged for securities, cash or other property, or we sell, lease, license or otherwise dispose of all or substantially all of our assets or we or another person acquire 50% or more of our outstanding shares of common stock, then following such event, the holders of the Series D Convertible Preferred Stock will be entitled to receive upon conversion of the Series D Convertible Preferred Stock the same kind and amount of securities, cash or property which the holders of the Series D Convertible Preferred Stock would have received had they converted the Series D Convertible Preferred Stock immediately prior to such fundamental transaction.

The holders of Series D Convertible Preferred Stock are not entitled to vote on any matters presented to the stockholders of the Company for their action or consideration at any meeting of stockholders of the Company (or by written consent of stockholders in lieu of meeting), except that the holders of Series D Convertible Preferred Stock may vote separately as a class on any matters that would (i) amend, our Restated Articles of Organization, as amended, in a manner that adversely affects the rights of the Series D Convertible Preferred Stock, (ii) alter or change adversely the powers, preferences or rights of the Series D Convertible Preferred Stock or alter or amend the certificate of designation, (iii) authorize or create any class of shares ranking as to dividends, redemption or distribution of assets upon liquidation senior to, or otherwise *pari passu* with, the Series D Convertible Preferred Stock, or (iv) increase the number of authorized shares of Series D Convertible Preferred Stock.

If, within 12 months of the initial issuance of the Series D Convertible Preferred Stock, we issue any common stock, common stock equivalents, indebtedness or any combination thereof (a "*Subsequent Financing*"), the holders of Series D Convertible Preferred Stock will have the right to participate on a pro-rata basis in up to 50% of such Subsequent Financing.

Series D Warrants

On May 10, 2017, we received net proceeds of \$140,214 from the exercise of 19,889 stock purchase warrants from the Series D registered direct offering on November 10, 2011. In consideration for the warrant exercises, we issued to the investors warrants to purchase 39,778 shares of our Common Stock at an exercise price per share equal to \$8.40 per share. The warrants expired on the third year anniversary date. We determined the fair value of \$186,802 for these warrants and recorded the value as other expenses. All of these warrants have expired.

Series G Convertible Preferred Stock

On July 6 and November 15, 2012, we completed a private placement, pursuant to which we sold an aggregate of 4,844 units for a purchase price of \$150.00 per unit (the "Series G Purchase Price"), resulting in gross proceeds to us of \$726,600 (the "*Series G Private Placement*"). Each unit ("*Series G Unit*") consists of (i) one share of Series G Convertible Preferred Stock, \$0.01 par value per share (the "Series G Preferred Stock") convertible into 1 share of our common stock, (subject to adjustment for stock splits, stock dividends, recapitalization, etc.) and (ii) a three-year warrant to purchase 1 share of our common stock at a per share exercise price of \$15.00 (the "*Series G Warrant*"). The Series G Warrants will be exercisable until the close of business on the third anniversary of the applicable closing date of the Series G Private Placement. There are currently no Series G Warrants outstanding.

Each share of Series G Preferred Stock will receive a cumulative dividend at the annual rate of (i) four percent (4%) on those shares of Series G Preferred Stock purchased from the Company by an individual purchaser with an aggregate investment of less than \$100,000, (ii) six percent (6%) on those shares of Series G Preferred Stock purchased from the Company by an individual purchaser with an aggregate investment of at least \$100,000 but less than \$250,000, and (iii) twelve percent (12%) on those shares of Series G Preferred Stock purchased from the Company by an individual purchaser with an aggregate investment of at least \$250,000. Dividends accruing on the Series G Preferred Stock shall accrue from day to day until, and shall be paid within fifteen (15) days of, the first anniversary of, the original issue date of the Series G Preferred Stock; provided, however, if any shares of the Company's Series E Preferred Stock are outstanding at such time, payment of the accrued dividends on the Series G Preferred Stock shall be deferred until no such shares of Series E Convertible Preferred Stock remain outstanding. The Company may pay accrued dividends on the Series G Preferred Stock in cash or in shares of its common stock equal to the volume weighted average price of the common stock as reported by the OTCQB for the ten (10) trading days immediately preceding the Series G's first anniversary.

At the election of the Company and upon required advanced notice, each share of Series G Preferred Stock will automatically be converted into shares of common stock at the Conversion Ratio then in effect: (i) if, after 6 months from the original issuance date of the Series G Preferred Stock, the common stock trades on the OTCQB (or other primary trading market or exchange on which the common stock is then traded) at a price equal to at least \$22.50, for 7 out of 10 consecutive trading days with average daily trading volume of at least 334 shares, (ii) on or after the first anniversary of the original issuance date of the Series G Preferred Stock or (iii) upon completion of a firm-commitment underwritten registered public offering by the Company at a per share price equal to at least \$22.50, with aggregate gross proceeds to the Company of not less than \$2.5 million. Unless waived under certain circumstances by the holder of the Series G Preferred Stock, such holder's Series G Preferred Stock may not be converted if upon such conversion the holder's beneficial ownership would exceed certain thresholds.

The holders of Series G Preferred Stock are not entitled to vote on any matters presented to the stockholders of the Company for their action or consideration at any meeting of stockholders of the Company (or by written consent of stockholders in lieu of meeting), except as required by law.

Series H Convertible Preferred Stock

On December 28, 2012 the Company amended the Articles of Incorporation to authorize 10,000 shares of Series H Convertible Preferred Stock. On January 4, 2013, the Company reported that it had entered into a securities purchase and exchange agreement with an investor, pursuant to which the Company agreed to exchange 33,334 shares of the Company's common stock, par value \$0.01 per share of common stock held by the investor for an aggregate of 10,000 shares of a newly created series of preferred stock, designated Series H Convertible Preferred Stock, par value \$0.01 per share (the "*Series H Preferred Stock*") in a non-cash transaction. The investor originally purchased the common stock from the Company for \$24.08 per share. The exchange ratio was 4 shares of common stock per share of Series H Preferred Stock at a stated conversion price of \$24.08 per share.

Series H2 Convertible Preferred Stock

On December 23, 2014 the Company amended the Articles of Incorporation to authorize 21 shares of Series H2 Convertible Preferred Stock. On December 23, 2014, the Company reported that it had entered into a securities purchase and exchange agreement with an investor, pursuant to which the Company agreed to exchange 70,000 shares of the Company's common stock, par value \$0.01 per share of common stock held by the investor for an aggregate of 21 shares of a newly created series of preferred stock, designated Series H2 Convertible Preferred Stock, par value \$0.01 per share (the "*Series H2 Preferred Stock*") in a non-cash transaction. The investor originally acquired the common stock from the Company for \$7.50 per share in the warrant reset transaction on December 23, 2014. The exchange ratio was 3,334 shares of common stock per share of Series H2 Preferred Stock at a stated conversion price of \$7.50 per share.

Series J Convertible Preferred Stock

On February 6, March 28 and May 20, 2013, the Company entered into a Securities Purchase with various individuals pursuant to which the Company sold an aggregate of 5,087.5 units for a purchase price of \$400.00 per unit (the "Purchase Price"), or an aggregate Purchase Price of \$2,034,700. Each unit purchased in the initial tranche consists of (i) one share of a newly created series of preferred stock, designated Series J Convertible Preferred Stock, par value \$0.01 per share (the "*Series J Convertible Preferred Stock*"), convertible into 34 shares of the Company's common stock, par value \$0.01 per share and (ii) a warrant to purchase 34 shares of common stock at an exercise price equal to \$12.00 per share. The warrants expired three years from the issuance date.

From the date of issuance of any shares of Series J Convertible Preferred Stock and until the earlier of the first anniversary of such date, the voluntary conversion of any shares of Series J Convertible Preferred Stock, or the date of any mandatory conversion (solely under the Company's control based upon certain triggering events) of the Series J Convertible Preferred Stock, dividends will accrue on each share of Series J Convertible Preferred Stock at an annual rate of (i) four percent (4%) of the Purchase Price on those shares of Series J Convertible Preferred Stock purchased from the Company pursuant to the Securities Purchase Agreement by an individual purchaser who purchased from the Company shares of Series J Convertible Preferred Stock with an aggregate Purchase Price of less than \$250,000, and (ii) six percent (6%) of the Purchase Price on those shares of Series J Convertible Preferred Stock purchased from the Company pursuant to the Securities Purchase Agreement by an individual purchaser who purchased shares of Series J Convertible Preferred Stock with an aggregate purchase price of at least \$250,000. Dividends accruing on the Series J Convertible Preferred Stock shall accrue from day to day until the earlier of the first anniversary of the date of issuance of such shares of Series J Convertible Stock, the voluntary conversion of any shares of Series J Convertible Preferred Stock, or the date of any mandatory conversion of the Series J Convertible Preferred Stock, and shall be paid, as applicable, within fifteen (15) days of the first anniversary of the original issue date of the Series J Convertible Preferred Stock, within five (5) days of the voluntary conversion of shares of the Series J Convertible Preferred Stock, or within five (5) days of the mandatory conversion of shares of the Series J Convertible Preferred Stock. The Company may pay accrued dividends on the Series J Convertible Preferred Stock in cash or, in the sole discretion of the Board of Directors of the Company, in shares of its common stock in accordance with a specified formula.

Each share of Series J Convertible Preferred Stock is convertible into 34 shares of common stock at the option of the holder on or after the six-month anniversary of the issuance of such share, subject to adjustment for stock splits, stock dividends, recapitalizations and similar transactions (the "Conversion Ratio"). Unless waived under certain circumstances by the holder of Series J Convertible Preferred Stock, such holder's shares of Series J Convertible Preferred Stock may not be converted if upon such conversion the holder's beneficial ownership would exceed certain thresholds.

At the election of the Company and upon required advance notice, each share of Series J Convertible Preferred Stock will automatically be converted into shares of common stock at the Conversion Ratio then in effect: (i) on or after the six-month anniversary of the original issuance date of the Series J Convertible Preferred Stock, the common stock trades on the OTCQB (or other primary trading market or exchange on which the common stock is then traded) at a price per share equal to at least \$24.00 for 7 out of 10 consecutive trading days with average daily trading volume of at least 1,667 shares, (ii) on the first anniversary of the original issuance date of the Series J Convertible Preferred Stock or (iii) within three days of the completion of a firm-commitment underwritten registered public offering by the Company at a per share price equal to at least \$24.00, with aggregate gross proceeds to the Company of not less than \$2.5 million. Unless waived under certain circumstances by the holder of the Series J Convertible Preferred Stock, such holder's Series J Convertible Preferred Stock may not be converted if upon such conversion the holder's beneficial ownership would exceed certain thresholds.

The holders of Series J Convertible Preferred Stock are not entitled to vote on any matters presented to the stockholders of the Company for their action or consideration at any meeting of stockholders of the Company (or by written consent of stockholders in lieu of meeting), except as required by law.

Series K Convertible Preferred Stock

From the date of issuance of any shares of Series K Convertible Preferred Stock and until the earlier of the first anniversary of such date, the voluntary conversion of any shares of Series K Convertible Preferred Stock, or the date of any mandatory conversion (solely under the Company's control based upon certain triggering events) of the Series K Convertible Preferred Stock, dividends will accrue on each share of Series K Convertible Preferred Stock at an annual rate of (i) four percent (4%) of the Purchase Price on those shares of Series K Convertible Preferred Stock purchased from the Company pursuant to the Securities Purchase Agreement by an individual purchaser who purchased from the Company shares of Series K Convertible Preferred Stock with an aggregate Purchase Price of less than \$100,000, and (ii) six percent (6%) of the Purchase Price on those shares of Series K Convertible Preferred Stock purchased from the Company pursuant to the Securities Purchase Agreement by an individual purchaser who purchased shares of Series K Convertible Preferred Stock with an aggregate purchase price of at least \$100,000. Dividends accruing on the Series K Convertible Preferred Stock shall accrue from day to day until the earlier of the first anniversary of the date of issuance of such shares of Series K Convertible Stock, the voluntary conversion of any shares of Series K Convertible Preferred Stock, or the date of any mandatory conversion of the Series K Convertible Preferred Stock, and shall be paid, as applicable, within fifteen (15) days of the first anniversary of the original issue date of the Series K Convertible Preferred Stock, within five (5) days of the voluntary conversion of shares of the Series K Convertible Preferred Stock, or within five (5) days of the mandatory conversion of shares of the Series K Convertible Preferred Stock. The Company may pay accrued dividends on the Series K Convertible Preferred Stock in cash or, in the sole discretion of the Board of Directors of the Company, in shares of its common stock in accordance with a specified formula.

Each share of Series K Convertible Preferred Stock is convertible into 34 shares of common stock at the option of the holder on or after the six-month anniversary of the issuance of such share, subject to adjustment for stock splits, stock dividends, recapitalizations and similar transactions (the "Conversion Ratio"). Unless waived under certain circumstances by the holder of Series K Convertible Preferred Stock, such holder's shares of Series K Convertible Preferred Stock may not be converted if upon such conversion the holder's beneficial ownership would exceed certain thresholds.

At the election of the Company and upon required advance notice, each share of Series K Convertible Preferred Stock will automatically be converted into shares of common stock at the Conversion Ratio then in effect: (i) on or after the six-month anniversary of the original issuance date of the Series K Convertible Preferred Stock, the common stock trades on the OTCQB (or other primary trading market or exchange on which the common stock is then traded) at a price per share equal to at least \$24.00 for 7 out of 10 consecutive trading days with average daily trading volume of at least 1,667 shares, (ii) on the first anniversary of the original issuance date of the Series K Convertible Preferred Stock or (iii) within three days of the completion of a firm-commitment underwritten registered public offering by the Company at a per share price equal to at least \$24.00, with aggregate gross proceeds to the Company of not less than \$2.5 million. Unless waived under certain circumstances by the holder of the Series K Convertible Preferred Stock, such holder's Series K Convertible Preferred Stock may not be converted if upon such conversion the holder's beneficial ownership would exceed certain thresholds.

The holders of Series K Convertible Preferred Stock are not entitled to vote on any matters presented to the stockholders of the Company for their action or consideration at any meeting of stockholders of the Company (or by written consent of stockholders in lieu of meeting), except as required by law.

Series AA Convertible Preferred Stock and Warrants

During the year ended December 31, 2020, the Company entered into Securities Purchase Agreements with accredited investors pursuant to which the Company sold an aggregate of 60 shares of Series AA Convertible Preferred Stock, each preferred share convertible into 1,000 shares of the Company's common stock, par value \$0.01 per share, for an aggregate Purchase price of approximately \$150,000. We issued to the investors warrants to purchase an aggregate 60,000 shares of common stock with an exercise price of \$3.50 per share. The Company did not incur any placement agent fees for this transaction. In this time we also converted \$110,000 of debt into 44 shares of Series AA preferred stock and 44,000 warrants to acquire common stock (five-year term and \$3.50 exercise price). The relative fair value of warrants is \$38,783.

During the year ended December 31, 2021, the Company entered into Securities Purchase Agreements with accredited investors pursuant to which the Company sold an aggregate of 406 shares of Series AA Convertible Preferred Stock, each preferred share convertible into 1,000 shares of the Company's common stock, par value \$0.01 per share, for an aggregate Purchase price of approximately \$1,015,000. We issued to the investors warrants to purchase an aggregate 406,000 shares of common stock with an exercise price of \$3.50 per share. The Company did not incur any placement agent fees for this transaction. The relative fair value of warrants is \$509,130. In this time the Company also issued 200 shares of Series AA Preferred Stock and 200,100 warrants to acquire common stock (five year term and \$3.50 exercise price) for settlement of liabilities, including accrued expense, accrued Compensation to employees and non-convertible debt and related interest. The relative fair value of warrants is \$245,635. The Company also recognized a \$23,004 loss on settlement of liabilities, which is included in losses on extinguishment of liabilities on the consolidated statement of operations.

The issuances of our convertible preferred stock and common stock purchase warrants are accounted for under the fair value and relative fair value method.

The warrant is first analyzed per its terms as to whether it has derivative features or not. If the warrant is determined to be a derivative, then it is measured at fair value using the Black Scholes Option Model and recorded as a liability on the balance sheet. The warrant is re-measured at its then current fair value at each subsequent reporting date (it is "marked-to-market").

If the warrant is determined to not have derivative features, it is recorded into equity at its fair value using the Black Scholes option model, however, limited to a relative fair value based upon the percentage of its fair value to the total fair value including the fair value of the convertible preferred stock.

We analyzed these warrants issued in 2021 and determined that they were not considered derivatives and therefore recorded the aggregate relative fair value of \$509,130 into equity relating to the 406,000 investor warrants issued during 2021.

We analyzed the warrants issued in 2020 and determined that they were not considered derivatives and therefore recorded the aggregate relative fair value of \$69,580 into equity relating to the 60,000 investor warrants issued during 2020.

The convertible preferred stock is recorded at its fair value, limited to a relative fair value based upon the percentage of its fair value to the total fair value including the fair value of the warrant. Further, the convertible preferred stock is examined for any intrinsic BCF of which the convertible price of the preferred stock is less than the closing stock price on date of issuance. If the relative fair value method is used to value the convertible preferred stock and there is an intrinsic BCF, a further analysis is undertaken of the BCF using an effective conversion price which assumes the conversion price is the relative fair value divided by the number of shares of common stock the convertible preferred stock is converted into by its terms. The adjusted BCF value of \$873,798 and \$61,180 was accounted for as a deemed dividend within equity and was included in the earnings per share calculation for the years ended December 31, 2021 and 2020, respectively.

Common Stock

Stock Options and Warrants

At the Company's December 30, 2021 Special Meeting, the shareholder's approved the 2021 Equity Incentive Plan (the "2021 Plan") pursuant to which 3,000,000 shares of our common stock were reserved for issuance upon exercise of stock options or other equity awards. Consistent with the Company's existing 2013 Equity Incentive plan (the "2013 plan"), under the 2021 plan, we may award stock options, shares of common stock, and other equity interests in the Company to employees, officers, directors, consultants, and advisors, and to any other persons the Board of Directors deems appropriate. As of December 31, 2021, options to acquire 1,333,101 shares were outstanding under these Plans.

All of the outstanding non-qualified options had an exercise price that was at or above the Company's common stock share price at time of issuance.

As of December 31, 2020, total unrecognized compensation cost related to the unvested stock-based awards was \$304,900, which is expected to be recognized over weighted average period of 1.59 years. The aggregate intrinsic value associated with the options outstanding and exercisable and the aggregate intrinsic value associated with the warrants outstanding and exercisable as of December 31, 2020, based on the December 31, 2020 closing stock price of \$2.12, was \$1,240,469. At this time the warrants had a weighted average remaining contractual term of 3.10 years and zero intrinsic value. During the year ended December 31, 2021 the Company issued 24,000 stock options to an employee (\$49,135 fair value, \$2.17 exercise price, three-year vesting term and ten-year expiration term).

As of December 31, 2021, total unrecognized compensation cost related to the unvested stock-based awards was \$140,455, which is expected to be recognized over weighted average period of 1.09 years. The aggregate intrinsic value associated with the options outstanding and exercisable and the aggregate intrinsic value associated with the warrants outstanding and exercisable as of December 31, 2021, based on the December 31, 2021 closing stock price of \$2.31, was \$2,124,104. At this time the warrants had a weighted average remaining contractual term of 2.39 years and zero intrinsic value.

The following tables summarize information concerning options and warrants outstanding and exercisable:

	Stock Options		Warrants		Total	
	Shares	Weighted Average price per share	Shares	Weighted Average price per share	Shares	Exercisable
Balance outstanding, January 1, 2020	1,396,302	\$ 0.69	9,893,034	\$ 3.52	11,289,336	10,148,543
Granted	-	-	4,925,031	3.50	4,925,031	-
Exercised	-	-	-	-	-	-
Expired	-	-	(383,363)	4.01	(383,363)	-
Forfeited	(40,401)	0.78	-	-	(40,401)	-
Balance outstanding, December 31, 2020	1,355,901	\$ 0.71	14,434,702	\$ 3.50	15,790,603	15,302,830
Granted	24,000	2.17	2,235,408	3.57	2,259,408	-
Exercised	(21,411)	0.69	(187,500)	3.50	(208,911)	-
Expired	-	-	(275,502)	3.50	(275,502)	-
Forfeited	(25,389)	0.69	-	-	(25,389)	-
Balance outstanding, December 31, 2021	1,333,101	\$ 0.72	16,207,108	\$ 3.50	17,540,209	17,308,567

	Options Outstanding				Options Exercisable		
	Range of Exercise Prices	Number of Options	Weighted Average		Number of Options	Weighted Average	
Remaining Contractual Life (Years)			Exercise Price	Remaining Contractual Life (Years)		Exercise Price	
\$ 0.69 - \$ 1.00	1,309,101	7.7	\$ 0.69	1,101,459	7.6	\$ 0.69	
\$ 1.01 - \$ 3.00	24,000	9.1	\$ 2.17	-	-	\$ -	
	1,333,101	7.8	\$ 0.72	1,101,459	7.6	\$ 0.69	

Common Stock Issuances

On various dates in the year ended December 31, 2021 the Company issued 333,200 shares with a fair value of \$794,562 for services rendered; 36,290 shares for a cashless warrant exercise; 82,373 shares with a fair value of \$184,274 in lieu of cash for the 8% dividend on Series AA Convertible Preferred Stock; 1,195,996 shares with a fair value of \$2,989,990 for the conversion of debt and interest for common stock; 2,883,282 shares with a fair value of \$6,665,656 for debt extension, settlement and interest payments, 21,411 shares for stock option exercises (at an exercise price of \$0.69) and 399,650 shares with a fair value of \$646,718 in conjunction with the signing of new convertible loans. During this period, we also issued 1,146,945 warrants (three to five-year term at a \$3.50 to \$5.00 exercise price) to acquire common stock at a fair value of \$1.4 million to lenders in conjunction with signing of new convertible loans. We also issued 71,042 warrants (3-year term at \$3.5 exercise price) to acquire common stock at a fair value of \$107,275 to lender in for debt settlement.

As profiled in the following table, for seven loans we are obligated to issue common stock if not paid by defined dates.

Loan	Loan Issuance Date	Loan Principal	Percentage of Loan Principal Issuable	Defined Date	Shares Issuable Frequency
Loan 1	July 21, 2020	\$ 115,000	0.0435%	September 30, 2020	Monthly
Loan 2	September 21, 2020	\$ 345,000	0.0362%	November 16, 2020	Weekly
Loan 3	September 23, 2020	\$ 15,000	0.0652%	December 1, 2020	Weekly
Loan 4	September 25, 2020	\$ 115,000	0.0652%	December 1, 2020	Weekly
Loan 5	October 22, 2020	\$ 115,000	0.0652%	December 1, 2020	Weekly
Loan 6	October 21, 2021	\$ 189,750	0.0435%	January 2, 2022	Weekly
Loan 7	November 1, 2021	\$ 189,750	0.0435%	January 2, 2022	Weekly

During the year ended December 31, 2021, the Company accrued \$6,288,529 in interest expense for these obligations to issue common stock.

For our loan dated December 23, 2020, we are obligated to issue 100,000 warrants if the loan is not repaid before January 23, 2021 and an additional 10,000 shares of common stock and 100,000 warrants if the loan is not repaid before February 23, 2021. We are also obligated to issue 10,000 shares of common stock and 200,000 warrants if the loan is not repaid before March 23, 2021. During the year ended December 31, 2021 the Company issued 400,000 warrants to this lender (\$3.50 exercise price and five-year term) with a fair value of \$600,298. The Company is also obligated to issue 10,000 shares of common stock to this lender every 31 days up to the loan's maturity date on June 23, 2021.

On various dates in the year ended December 31, 2020 the Company issued a total of 1,618,704 shares of restricted common stock at a fair value of approximately \$3,671,311 to accredited investors. 76,800 of the shares with a fair value of \$179,077 were issued for services rendered; 122,135 of the shares with a fair value of \$299,709 were issued in lieu of cash for the 8% dividend on Series AA Convertible Preferred Stock; 871,309 of the shares with a fair value of \$2,220,442 were issued for the conversion of debt and interest for common stock; 323,260 of the shares with a fair value of \$629,809 were issued for debt extension, settlement and interest payments, 66,500 shares with a fair value of \$127,855 were issued to settle an accrued liability and 158,700 of the shares with a fair value of \$214,419 were issued in conjunction with the signing of new convertible loans.

(11) Subsequent Events

From January 1, 2022 through March 31, 2022 the Company received two convertible loans for \$145,487, which each carry a 12% annual interest rate and eight and twelve month terms. One loan is convertible at \$2.50 per share other than in an event of default otherwise upon an event of default, the conversion price will be at 75% of the lowest trading price for the common stock over five days before conversion. The other loan is convertible, upon an event of default, at 75% of the lowest trading price for the common stock over five days before conversion. In this period, the Company also borrowed \$177,500 from related parties with 10% original issue discount and 12% annual interest rate, and entered into two new Merchant Cash lender agreements (collecting \$361,120 and obligating the Company to pay \$18,990 each week to the lenders).

In this time the Company also rolled over two loans totaling \$475,000 (dated June 30, 2021, and June 28, 2021) into new loans totaling \$1,200,000 with terms extended six to eight months. The Company issued 132,000 shares of common stock as origination fees for the new loans. Separately, during this period the Company extended five loans totaling \$1,045,000 (dated July 16, 2021, June 30, 2021, July 16, 2021, July 16, 2021 and July 16, 2021) for five to six months with new principal of \$1,095,250 issuing 147,500 shares of common stock as extension fees.

During this period the Company also issued 140,200 shares to a lender who converted \$350,500 of liabilities and debt principal (principally \$258,385 in penalties) into common stock, repaid a convertible loan dated September 24, 2020 for \$134,805 (comprised of principal and accrued interest) and issued 37,000 shares of common stock and 30,000 warrants to acquire common stock (three year term and \$3.50 strike price) to consultants for investor relations services. In this time the Company also repaid \$107,000 of debt in cash.

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

None

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our Securities Exchange Act of 1934 filings are 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 President and Chief Executive Officer (Principal Executive Officer) and Chief Financial Officer (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 assurance of achieving the desired control objectives, as ours are designed to do, and management was necessarily required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

As of December 31, 2021, 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 Securities Exchange Act of 1934. Based upon that evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were not effective as of December 31, 2021 due to limited resources for adequate personnel to prepare and file reports under the Securities Exchange Act of 1934 within the required periods, and material weaknesses in our internal control over financial reporting relating to our accounting for complex equity transactions as described below under the heading "Report of Management on Internal Control over Financial Reporting". Management plans to remediate this weakness by taking the actions described below.

Report of Management on Internal Control over Financial Reporting

We are responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rule 13a-15(f) and 15d-15(f) under the Exchange Act, as a process designed by, or under the supervision of our principal executive and principal financial officers and effected by our board of directors, management and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

- pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and disposition of our assets;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorization of our management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Our internal control system is designed to provide reasonable assurance to our management and board of directors regarding the preparation and fair presentation of financial statements. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risks that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

We have assessed the effectiveness of our internal control over financial reporting as of December 31, 2021. In making this assessment, we used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework (2013).

Based on this assessment, management believes that, as of December 31, 2021, the Company did not maintain effective internal control over financial reporting because of the effect of material weaknesses in our internal control over financial reporting discussed below.

Public Company Accounting Oversight Board Auditing Standard No. 2 defines a material weakness as a significant deficiency, or combination of significant deficiencies, that results in there being a more than remote likelihood that a material misstatement of the annual or interim financial statements will not be prevented or detected on a timely basis. Based upon this definition, our management concluded that, as of December 31, 2021, a material weakness existed in our internal control over financial reporting related to accounting for complex equity transactions.

Specifically, we identified material weaknesses in our internal control over financial reporting related to the following matters:

- We identified a lack of sufficient segregation of duties. Specifically, this material weakness is such that the design over these areas relies primarily on detective controls and could be strengthened by adding preventative controls to properly safeguard Company assets.
- Management has identified a lack of sufficient personnel in the accounting function due to our limited resources with appropriate skills, training and experience to perform the review processes to ensure the complete and proper application of generally accepted accounting principles, particularly as it relates to valuation of warrants and other complex debt /equity transactions. Specifically, this material weakness resulted in audit adjustments to the annual consolidated financial statements and revisions to related disclosures.
- Limited policies and procedures that cover recording and reporting of financial transactions.
- Lack of multiple levels of review over the financial reporting process

Our plan to remediate those material weaknesses is as follows:

- Improve the effectiveness of the accounting group by augmenting our existing resources with additional consultants or employees to assist in the analysis and recording of complex accounting transactions, and to simultaneously achieve desired organizational structuring for improved segregation of duties. We plan to mitigate this identified deficiency by hiring an independent consultant once we generate significantly more revenue or raise significant additional working capital.
- Improve expert review and achieve desired segregation procedures by strengthening cross approval of various functions including quarterly internal audit procedures where appropriate.

Changes in Internal Control Over Financial Reporting

There have been no changes in our internal control over financial reporting that occurred during the fourth quarter of 2021 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION.

None.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS.

Not applicable.

PART III**ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE****Directors**

The following table sets forth information about the individuals who serve as our directors as of December 31, 2021.

Name	Age	Position	Board Committees	Term of office expires:
Richard T. Schumacher	71	President, Chief Executive Officer, Interim Chief Financial Officer, Treasurer, Clerk and Director		2023
Jeffrey N. Peterson	66	Chairman of the Board	Audit, Compensation, Nominating	2024
Dr. Mickey Urdea	69	Director	Scientific Advisory Board	2024
Vito J. Mangiardi	73	Director	Audit, Compensation, Nominating	2022
Kevin A. Pollack	51	Director	Audit, Compensation, Nominating	2022

The following noteworthy experience, qualifications, attributes and skills for each Board member, together with the biographical information for each nominee described below, led to our conclusion that the person should serve as a director in light of our business and structure:

Mr. Richard T. Schumacher, the founder of the Company, has served as a director of the Company since 1978. He has served as the Company's Chief Executive Officer since April 16, 2004 and President since September 14, 2004, and Interim Chief Financial Officer since November 27, 2019. He previously served as Chief Executive Officer and Chairman of the Board of the Company from 1992 to February 2003. From July 9, 2003 until April 14, 2004 he served as a consultant to the Company pursuant to a consulting agreement. He served as President of the Company from August 1978 to August 1999. Mr. Schumacher served as the Director of Infectious Disease Services for Clinical Sciences Laboratory, a New England-based medical reference laboratory, from 1986 to 1988. From 1972 to 1985, Mr. Schumacher was a research scientist and clinical laboratory director at the Center for Blood Research, a nonprofit medical research institute associated with Harvard Medical School. Mr. Schumacher received a B.S. in Zoology from the University of New Hampshire.

Mr. Jeffrey N. Peterson has served as a director of the Company since July 2011 and as Chairman of the Board starting in 2012. Since 1999, he has served as the Chief Executive Officer of Target Discovery, Inc. ("TDI"), a personalized medicine diagnostics (PMDx) and analytical testing solutions company. Mr. Peterson also serves as Chairman and CEO of TDI's majority-owned subsidiary, Veritomyx, Inc., which is commercializing software tools for more sensitive, complete and accurate identification and characterization of all large and small molecular components of complex samples. Mr. Peterson served as Chairman of the Board of Imaging3, a publicly traded company on the OTCQB, an innovative medical and industrial imaging company, from March 2018 through July 2019. Prior to incorporating and founding TDI, Mr. Peterson served as CEO of Sharpe, Peterson, Ocheltree & Associates, an international business development consulting firm assisting Fortune 500 and many smaller firms in business expansion and strategy. Prior to that, he spent 9 years in key management roles in Abbott Laboratories' Diagnostics and International (Pharmaceuticals, Hospital Products, Nutritionals, and Consumer) businesses, last serving as CEO and General Manager of Abbott South Africa. Mr. Peterson's experience prior to Abbott Laboratories included 11 years with General Electric's Engineered Materials and Plastics businesses, spanning roles in strategic planning, business development, technology licensing, marketing and sales, operations, quality control and R&D. Mr. Peterson holds BSChE and MSChE (Chemical Engineering) degrees from MIT, as well as 6 issued US patents. He served as Chair Emeritus of the BayBio Institute, a non-profit organization serving the life science community, and on the Board of BayBio, a trade association for the life sciences industry in Northern California. He served as a cofounder of the Coalition for 21st Century Medicine, and of BIO's Personalized Medicine & Diagnostics Working Group. He served on the Board of Advisors for the Center for Professional Development and Entrepreneurship at the University of Texas MD Anderson Cancer Center. He currently serves on the Advisory Board of the California Technology Council.

Mr. Vito J. Mangiardi has served as a director of the Company since July 2012. Mr. Mangiardi is an accomplished senior executive with proven experience as a President, CEO and COO in the Life Sciences and Bio-Energy product and service sectors. He is a strong P&L performer and corporate strategist in General Management, Operations, Sales/Marketing, and Science. Mr. Mangiardi has held positions as a Research Chemist for Bio-Rad Laboratories, Inc.; Sales & Marketing Director for Baxter Travenol, Inc.; Executive VP and COO for Quintiles Transnational Corp.; President and CEO of Diagnostics Laboratories, Inc., Clingenix, Inc., and Bilcare, Inc.; and President of AAI Pharma, Inc. More recently he was the COO/Deputy Director of Operations and Production at the University of California Lawrence Berkeley National Laboratory Joint Genome Institute. Mr. Mangiardi has experience with three start-ups, two midsize, and several mature companies, and has international experience leading and managing organizations on four continents. He has vast experience in leading alliances, acquisitions, due diligence, and post-acquisition assimilation. Mr. Mangiardi has been on the Board of Directors of three companies and has proven success in working with both national and international investment groups to raise funds. Mr. Mangiardi earned a BS in Biology/Chemistry from Eastern Illinois University and two MBA degrees from Golden Gate University - in General Management and in Marketing. Mr. Mangiardi is listed as an inventor in four patents and various publications in protein separation techniques in the area of metabolism, thyroid, anemia/hematology and cancer, and is a member of numerous professional organizations. Mr. Mangiardi is the founding partner, President and CEO of Marin Bay Partners, LLC (MBP), a consulting firm focused on life sciences, pharmaceutical development and clinical diagnostics.

Mr. Kevin A. Pollack has served as a director of the Company since July 2012. From 2017 to 2018, Mr. Pollack served as an advisor to Opiant Pharmaceuticals, Inc. (OPNT-NASDAQ), a pharmaceutical company with a mission to create best-in-class medicines for the treatment of addictions and drug overdose. He previously served as its Chief Financial Officer and as a member of its Board of Directors from 2012 until 2017. He also serves as President of Short Hills Capital LLC. Previously, Mr. Pollack worked in asset management at Paragon Capital LP, focusing primarily on U.S.-listed companies, and as an investment banker at Banc of America Securities LLC, focusing on corporate finance and mergers and acquisitions. Mr. Pollack started his career at Sidley Austin LLP (formerly Brown & Wood LLP) as a securities attorney focusing on corporate finance, and mergers and acquisitions. He served on the Board of Directors of Taronis Fuels, Inc. (TRNF-OTCQB) from 2019 to 2021 and served on the Board of Directors of BBHC, Inc., formerly a publicly traded company, from 2012 until 2020. Mr. Pollack graduated *magna cum laude* from the Wharton School of the University of Pennsylvania and received a dual J.D./M.B.A. from Vanderbilt University, where he graduated with *Beta Gamma Sigma* honors.

Dr. Michael S. Urdea has served as a director of the Company since February 8, 2013. Dr. Urdea founded and is a Founder and Partner for Halteres Associates, a biotechnology consulting firm. He also founded and served as Chief Executive Officer of Tethys Bioscience, a proteomics-based diagnostics company involved in preventative personalized medicine. Additionally, Dr. Urdea is a founder and the Chairman of Catalysis Foundation for Health, an organization addressing gaps in global healthcare caused by inefficiencies in disease diagnosis and monitoring. He serves as an expert consultant to the life sciences industry and is on the scientific advisory boards and boards of directors of a number of biotechnology, diagnostics, venture capital and philanthropic organizations. Prior to his current business activities, Dr. Urdea founded the Nucleic Acid Diagnostics group at Chiron Corporation, and with colleagues, invented branched DNA molecules for amplification of signal in nucleic acid complexes. Application of this technology resulted in the first commercial products for quantification of human hepatitis B, hepatitis C, and human immunodeficiency viruses (HBV, HCV, and HIV, respectively). He then became business head of the Molecular Diagnostics Group and Chief Scientific Officer at Bayer Diagnostics. He continues to serve as a diagnostics industry, product development and scientific advisor to the Bill and Melinda Gates Foundation, acted as co-chair of two of the Grand Challenges grant review committees, and served as a member of its Diagnostic Forum. Dr. Urdea is an author on nearly 200 peer-reviewed scientific publications, nearly 300 abstracts and international scientific presentations, and more than 100 issued and pending patents. He received his BS in Biology and Chemistry from Northern Arizona University in Flagstaff and his Ph.D. in Biochemistry from Washington State University.

Executive Officers

Our executive officers are appointed by, and serve at the discretion of, our board of directors. The following table sets forth information about our executive officers.

Name	Age	Position
Richard T. Schumacher	71	President, Chief Executive Officer, Interim Chief Financial Officer, Treasurer, Clerk and Director
Edmund Ting, Ph.D.	67	Senior Vice President of Engineering
Alexander Lazarev, Ph.D.	57	Chief Science Officer

Mr. Richard T. Schumacher – Mr. Schumacher’s biography can be found under the Directors heading.

Dr. Edmund Ting joined us as Senior Vice President of Engineering on April 24, 2006. Prior to joining us, Dr. Ting served as the Chief Research Officer of Avure Technologies, a leading worldwide manufacturer of high pressure hydrostatic processing equipment for the food and materials processing industry, where he worked from 2001 to 2006. From 1990 to 2001, Dr. Ting was employed by Flow International Corporation, a world leader in the ultrahigh pressure waterjet cutting technology market, and the parent company of Avure Technologies until November 2005. Dr. Ting last held the position of Vice President of Engineering Research and Development at Flow International Corporation. From 1984 to 1990, Dr. Ting was a research scientist and then a group leader at Grumman Aerospace Corporation. Dr. Ting earned a Bachelor of Science degree in mechanical engineering from Northeastern University and a Science Doctorate in materials science and engineering from the Massachusetts Institute of Technology.

Dr. Alexander Lazarev has served as our Chief Science Officer since 2019. Prior to that, he serviced as our Vice President of Research and Development since 2007, and he served as our Director of Research and Development, since joining us in 2006. Prior to joining us, Dr. Lazarev worked as a Visiting Scientist at the Barnett Institute of Chemical and Biological Analysis at Northeastern University in 2005, and served as a Director of New Technology Development at Proteome Systems, Inc., where he was involved in research and development of innovative proteomic analysis applications from 2001 until early 2006. From 1998 to 2001, Dr. Lazarev was employed as Senior Scientist at the Proteomics Division of Genomic Solutions, Inc. Prior to his employment at Genomic Solutions, Inc., Dr. Lazarev was employed in an analytical contract service startup company, PhytoChem Technologies, Inc., which was founded as a spin-off from ESA, Inc. in 1997. Previously, Dr. Lazarev held various scientific positions at the Ohio State University School of Medicine and the Uniformed Services University of Health Sciences. Most of his scientific career has been dedicated to development of methods and applications for biochemical analysis. Since 2005, Dr. Lazarev has been elected as an Executive Board member of the MASSEP.org, a non-profit scientific discussion forum dedicated to the promotion and improvement of chromatography and other analytical technologies. Dr. Lazarev earned his undergraduate and graduate degrees at the University of Kazan, Russian Federation.

Code of Ethics

Pursuant to Section 406 of the Sarbanes-Oxley Act of 2002, we have adopted a Code of Ethics for senior financial officers that applies to our principal executive officer, principal financial officer, principal accounting officer, controller, and other persons performing similar functions. A copy of the code of ethics is posted on and may be obtained free of charge from our internet website at <http://www.pressurebiosciences.com>. If we make any amendments to this Code of Ethics or grant any waiver, including any implicit waiver, from a provision of this Code of Ethics to our principal executive officer, principal financial officer, principal accounting officer, controller, or other persons performing similar functions, we will disclose the nature of such amendment or waiver, the name of the person to whom the waiver was granted and the date of waiver in a Current Report on Form 8-K.

Corporate Governance

Term of Office

Our directors are appointed for a three-year term to hold office until the annual general meeting of our shareholders or until removed from office in accordance with our bylaws. Our officers are appointed by our board of directors and hold office until removed by the board.

Audit Committee

The Audit Committee was established in accordance with Section 3(a)(58)(A) of the Securities Exchange Act of 1934. Messrs. Pollack (chairman), Mangiardi and Peterson are currently the members of the Audit Committee.

The Board of Directors has determined that Mr. Pollack qualifies as an “audit committee financial expert” as defined in Item 407(d)(5) of Regulation S-K and is “independent” as defined by SEC and OTC Market rules.

The Audit Committee operates pursuant to a written charter (the “*Audit Committee Charter*”), a current copy of which is publicly available on the investor relations portion of the Company’s website at www.pressurebiosciences.com. Under the provisions of the Audit Committee Charter, the primary functions of the Audit Committee are to assist the Board of Directors with the oversight of (i) the Company’s financial reporting process, accounting functions, and internal controls, and (ii) the qualifications, independence, appointment, retention, compensation, and performance of the Company’s independent registered public accounting firm. The Audit Committee is also responsible for the establishment of “whistle-blowing” procedures, and the oversight of other compliance matters.

Compensation Committee

The Board of Directors has a Compensation Committee, consisting of Messrs. Peterson, Pollack and Mangiardi. The Compensation Committee’s duties include (i) reviewing and approving our executive compensation, (ii) reviewing the recommendations of the president and chief executive officer regarding the compensation of our executive officers, (iii) evaluating the performance of the president and chief executive officer, (iv) overseeing the administration and approval of grants of stock options and other equity awards under our equity incentive plans, and (v) recommending compensation for our board of directors and each committee thereof for review and approval by the board of directors. The Compensation Committee operates pursuant to a written charter, a current copy of which is publicly available on the investor relations portion of our website at www.pressurebiosciences.com.

Involvement in Certain Legal Proceedings

To the best of our knowledge, none of our directors or executive officers has, during the past ten years:

- been convicted in a criminal proceeding or been subject to a pending criminal proceeding (excluding traffic violations and other minor offenses);
- had any bankruptcy petition filed by or against the business or property of the person, or of any partnership, corporation or business association of which he was a general partner or executive officer, either at the time of the bankruptcy filing or within two years prior to that time;
- been subject to any order, judgment, or decree, not subsequently reversed, suspended or vacated, of any court of competent jurisdiction or federal or state authority, permanently or temporarily enjoining, barring, suspending or otherwise limiting, his involvement in any type of business, securities, futures, commodities, investment, banking, savings and loan, or insurance activities, or to be associated with persons engaged in any such activity;
- been found by a court of competent jurisdiction in a civil action or by the Securities and Exchange Commission or the Commodity Futures Trading Commission to have violated a federal or state securities or commodities law, and the judgment has not been reversed, suspended, or vacated;
- been the subject of, or a party to, any federal or state judicial or administrative order, judgment, decree, or finding, not subsequently reversed, suspended or vacated (not including any settlement of a civil proceeding among private litigants), relating to an alleged violation of any federal or state securities or commodities law or regulation, any law or regulation respecting financial institutions or insurance companies including, but not limited to, a temporary or permanent injunction, order of disgorgement or restitution, civil money penalty or temporary or permanent cease-and-desist order, or removal or prohibition order, or any law or regulation prohibiting mail or wire fraud or fraud in connection with any business entity; or
- been the subject of, or a party to, any sanction or order, not subsequently reversed, suspended or vacated, of any self-regulatory organization (as defined in Section 3(a)(26) of the Exchange Act), any registered entity (as defined in Section 1(a)(29) of the Commodity Exchange Act), or any equivalent exchange, association, entity or organization that has disciplinary authority over its members or persons associated with a member.

Except as set forth in our discussion below in “Certain Relationships and Related Transactions,” none of our directors or executive officers has been involved in any transactions with us or any of our directors, executive officers, affiliates or associates which are required to be disclosed pursuant to the rules and regulations of the Commission.

ITEM 11. EXECUTIVE COMPENSATION

Executive Officer Compensation

Summary Compensation Table

The Summary Compensation Table below sets forth the total compensation paid or earned for the fiscal years ended December 31, 2021 and 2020 for: (i) each individual serving as our chief executive officer (“CEO”) or acting in a similar capacity during any part of fiscal 2021; and (ii) the other two most highly paid executive officers (collectively, the “Named Executive Officers”) who were serving as executive officers at the end of fiscal 2021.

Name and Principal Position	Fiscal Year	Salary ⁽¹⁾	Bonus	Stock Awards ⁽²⁾	Option Awards ⁽³⁾	Non-Qualified Deferred Compensation Earning	All other Compensation ⁽⁴⁾	Total
Richard T. Schumacher President, CEO	2021	\$ 308,962	\$ -	\$ 58,228	\$ -	\$ -	\$ 46,216	\$ 413,406
	2020	308,962	-	-	-	-	11,631	320,593
Edmund Ting, Ph.D. Senior Vice President of Engineering	2021	207,480	-	-	-	-	49,439	256,919
	2020	207,480	-	-	-	-	3,106	210,586
Alexander Lazarev, Ph.D. Vice President of Research and Development	2021	200,000	-	66,151	-	-	2,338	268,489
	2020	200,000	-	-	-	-	6,554	206,554

(1) Salary refers to base salary compensation paid through our normal payroll process. No bonus was paid to any named executive officer for 2021 or 2020.

(2) Amounts represent common stock issued at \$2.50 per share for the Company’s PTO buyback program.

(3) Amounts shown do not reflect compensation received by the Named Executive Officers. Instead, the amounts shown are the aggregate grant date fair value as determined pursuant to FASB ASC 718, Compensation-Stock Compensation. Please refer to Note 3, xiii, “Accounting for Stock-Based Compensation” in the accompanying Notes to Consolidated Financial Statements for the fiscal year ended December 31, 2021, for the relevant assumptions used to determine the valuation of stock option grants.

(4) “All Other Compensation” includes our Company match to the executives’ 401(k) contribution, premiums paid on life insurance for the executives, and cash compensation for the Company’s PTO buyback program. All of these benefits are available to all of our employees. In the case of Mr. Schumacher, “All Other Compensation” also includes \$8,379 in premiums we paid for a life insurance policy to which Mr. Schumacher’s wife is the beneficiary. “All Other Compensation” for Dr. Ting includes \$6,000 paid to Dr. Ting in lieu of his participation in the medical benefit plan offered by the Company.

Outstanding Equity Awards at Fiscal Year End

The following table sets forth certain information regarding outstanding stock options awards for each of the Named Executive Officers as of December 31, 2021.

Name	Option Awards		Option Exercise Price (\$)	Option Expiration Date
	Number of Securities Underlying Unexercised Options Exercisable	Number of Securities Underlying Unexercised Options Unexercisable ⁽¹⁾		
Richard T. Schumacher President, CEO	10,000 324,501	- 98,167	\$ 0.69 \$ 0.69	7/18/2028 12/19/2028
Edmund Y. Ting, Ph.D Senior Vice President of Engineering	21,185 58,870	- 26,685	\$ 0.69 \$ 0.69	7/18/2028 12/19/2028
Alexander V. Lazarev, Ph.D Vice President of Research & Development	17,835 50,670	- 40,670	\$ 0.69 \$ 0.69	7/18/2028 12/19/2028

(1) All unvested stock options listed in this column were granted to the Named Executive Officer pursuant to our 2013 Equity Incentive Plan. On December 19, 2019, all outstanding options were repriced and re-issued pursuant to this plan. All options expire ten years after the date of grant. Unvested stock options become fully vested and exercisable upon a change of control of our company.

Retirement Plan

All employees, including the named executive officers, may participate in our 401(k) Plan. Under the 401(k) Plan, employees may elect to make before tax contributions of up to 60% of their base salary, subject to current Internal Revenue Service limits. The 401(k) Plan does not permit an investment in our common stock. We match employee contributions up to 50% of the first 2% of the employee's earnings. Our contribution is 100% vested immediately.

Severance Arrangements

Each of Mr. Schumacher, Dr. Ting, Dr. and Lazarev, executive officers of the Company, are entitled to receive a severance payment if terminated by us without cause. The severance benefits would include a payment in an amount equal to one year of such executive officer's annualized base salary compensation plus accrued paid time off. Additionally, the officer will be entitled to receive medical and dental insurance coverage for one year following the date of termination.

Change-in-Control Arrangements

Pursuant to severance agreements with each of Mr. Schumacher, Dr. Ting, and Dr. Lazarev, each such executive officers, is entitled to receive a change of control payment in an amount equal to one year (other than Mr. Schumacher) of such executive officer's annualized base salary compensation, accrued paid time off, and medical and dental coverage, in the event of their termination upon a change of control of our Company. In the case of Mr. Schumacher, his payment is equal to two years of annualized base salary compensation, accrued paid time off, and two years of medical and dental coverage.

Pursuant to our equity incentive plans, any unvested stock options held by a named executive officer will become fully vested upon a change in control (as defined in the 2005 Equity Incentive Plan) of our Company.

Director Compensation and Benefits

The following table sets forth certain information regarding compensation earned or paid to our directors during fiscal 2021.

Name	Fees Earned or Paid in Cash (\$) ⁽¹⁾	Stock Awards (\$)	Option Awards (\$)	Total (\$)
Vito J. Mangiardi	70,000	-	-	70,000
Jeffrey N. Peterson	107,500	-	-	107,500
Kevin A. Pollack	72,500	-	-	72,500
Michael S. Urdea, Ph. D.	50,000	-	-	50,000

Our non-employee directors receive the following compensation for service as a director:

(1) Each director currently earns a quarterly stipend of \$10,000 for attending meetings of the full board of directors (whether telephonic or in-person) and fees ranging from \$5,000 to \$20,000 for chairing and attending committee meetings in 2021. Mr. Peterson currently earns \$20,000 per quarter as chairman of the board of directors. There is no limit to the number of board of directors or committee meetings that may be called.

The following table shows the total number of outstanding stock options as of December 31, 2021 that have been issued as director compensation. The Company did not issue any stock options as director compensation in 2021.

Name	Aggregate Number of Stock Options Outstanding
Vito J. Mangiardi	70,408
Jeffrey N. Peterson	120,312
Kevin A. Pollack	70,408
Michael S. Urdea, Ph. D.	52,072

General

Messrs. Peterson, Pollack and Mangiardi are currently the members of the Compensation Committee. The Compensation Committee operates pursuant to a written charter, a current copy of which is publicly available on the investor relations portion of our website at www.pressurebiosciences.com. The primary functions of the Compensation Committee include (i) reviewing and approving our executive compensation, (ii) reviewing the recommendations of the president and chief executive officer regarding the compensation of our executive officers, (iii) evaluating the performance of the president and chief executive officer, (iv) overseeing the administration and approval of grants of stock options and other equity awards under our equity incentive plans, and (v) recommending compensation for our board of directors and each committee thereof for review and approval by the board of directors.

The Compensation Committee may form and delegate authority to one or more subcommittees as it deems appropriate from time to time under the circumstances (including (a) a subcommittee consisting of a single member and (b) a subcommittee consisting of at least two members, each of whom qualifies as a “non-employee director,” as such term is defined from time to time in Rule 16b-3 promulgated under the Securities Exchange Act of 1934, and an “outside director,” as such term is defined from time to time in Section 162(m) of the Internal Revenue Code of 1986, as amended, and the rules and regulations there under).

Compensation Objectives

In light of the relatively early stage of commercialization of our products, we recognize the importance of attracting and retaining key employees with sufficient experience, skills, and qualifications in areas vital to our success, such as operations, finance, sales and marketing, research and development, engineering, and individuals who are committed to our short- and long-term goals. The Compensation Committee has designed our executive compensation programs with the intent of attracting, motivating, and retaining experienced executives and, subject to our limited financial resources, rewarding them for their contributions by offering them a competitive base salary, potential for annual cash incentive bonuses, and long-term equity-based incentives, typically in the form of stock options. The Compensation Committee strives to balance the need to retain key employees with financial prudence given our history of operating losses, limited financial resources and the early stage of our commercialization.

Executive Officers and Director Compensation Process

The Compensation Committee considers and determines executive compensation according to an annual objective setting and measurement cycle. Specifically, corporate goals for the year are initially developed by our executive officers and are then presented to our board of directors and Compensation Committee for review and approval. Individual goals are intended to focus on contributions that facilitate the achievement of the corporate goals. Individual goals are first proposed by each executive officer, other than the president and CEO, then discussed by the entire senior executive management team and ultimately compiled and prepared for submission to our board of directors and the Compensation Committee, by the president and chief executive officer. The Compensation Committee sets and approves the goals for the president and chief executive officer. Generally, corporate and individual goals are set during the first quarter of each calendar year. The objective setting process is coordinated with our annual financial planning and budgeting process so our board of directors and Compensation Committee can consider overall corporate and individual objectives in the context of budget constraints and cost control considerations. Annual salary increases, bonuses, and equity awards, such as stock option grants, if any, are tied to the achievement of these corporate and individual performance goals as well as our financial position and prospects.

Under the annual performance review program, the Compensation Committee evaluates individual performance against the goals for the recently completed year. The Compensation Committee’s evaluation generally occurs in the first quarter of the following year. The evaluation of each executive (other than the president and chief executive officer) begins with a written self-assessment submitted by the executive to the president and chief executive officer. The president and chief executive officer then prepares a written evaluation based on the executive’s self-assessment, the president and chief executive officer’s evaluation, and input from others within the Company. This process leads to a recommendation by the president and chief executive officer for a salary increase, bonus, and equity award, if any, which is then considered by the Compensation Committee. In the case of the president and chief executive officer, the Compensation Committee conducts his performance evaluation and determines his compensation, including salary increase, bonus, and equity awards, if any. We generally expect, but are not required, to implement salary increases, bonuses, and equity awards, for all executive officers, if and to the extent granted, by April 1 of each year.

Non-employee director compensation is set by our board of directors upon the recommendation of the Compensation Committee. In developing its recommendations, the Compensation Committee is guided by the following goals: compensation should be fair relative to the required services for directors of comparable companies in our industry and at our Company’s stage of development; compensation should align directors’ interests with the long-term interest of stockholders; the structure of the compensation should be simple, transparent, and easy for stockholders to understand; and compensation should be consistent with the financial resources, prospects, and competitive outlook for the Company.

In evaluating executive officer and director compensation, the Compensation Committee considers the practices of companies of similar size, geographic location, and market focus. In order to develop reasonable benchmark data the Compensation Committee has referred to publicly available sources such as www.salary.com and the BioWorld Survey. While the Compensation Committee does not believe benchmarking is appropriate as a stand-alone tool for setting compensation due to the unique aspects of our business objectives and current stage of development, the Compensation Committee generally believes that gathering this compensation information is an important part of its compensation-related decision making process.

The Compensation Committee has the authority to hire and fire advisors and compensation consultants as needed and approve their fees. No advisors or compensation consultants were hired or fired in fiscal 2021. The Compensation Committee is also authorized to delegate any of its responsibilities to sub committees or individuals as it deems appropriate. The Compensation Committee did not delegate any of its responsibilities in fiscal 2021.

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

Beneficial Ownership Information

The following table sets forth certain information as of March 31, 2022 concerning the beneficial ownership of common stock for: (i) each director and director nominee, (ii) each Named Executive Officer in the Summary Compensation Table under “Executive Compensation” above, (iii) all executive officers and directors as a group, and (iv) each person (including any “group” as that term is used in Section 13(d)(3) of the Exchange Act) known by us to be the beneficial owner of 5% or more of our common stock. The address for each of the persons below who are beneficial owners of 5% or more of our common stock is our corporate address at 14 Norfolk Avenue, South Easton, MA 02375.

Beneficial ownership has been determined in accordance with the rules of the SEC and is calculated based on 8,712,494 shares of our common stock issued and outstanding as of March 31, 2022. Shares of common stock subject to options, warrants, preferred stock or other securities convertible into common stock that are currently exercisable or convertible, or exercisable or convertible within 60 days of March 15, 2022, are deemed outstanding for computing the percentage of the person holding the option, warrant, preferred stock, or convertible security but are not deemed outstanding for computing the percentage of any other person.

Except as indicated by the footnotes below, we believe, based on the information furnished to us, that the persons and entities named in the table below have sole voting and investment power with respect to all shares of common stock that they beneficially own.

Name of Beneficial Owner	Amount and Nature of Beneficial Ownership	Percent of Class (1)
Richard T. Schumacher(2)	462,868	5.1%
Jeffrey N. Peterson(3)	275,953	3.1%
Kevin A. Pollack(4)	134,264	1.5%
Michael S. Urdea(5)	111,834	1.3%
Vito J. Mangiardi(6)	92,308	1.1%
Edmund Y. Ting, Ph.D.(7)	89,765	1.0%
Alexander V. Lazarev, Ph.D.(8)	129,447	1.5%
All Executive Officers and Directors as a Group (9)	1,296,439	13.1%

- 1) Percentage of ownership is based on 8,712,494 shares of our common stock outstanding as of March 31, 2022.
- 2) Includes (i) 360,557 shares of Common Stock issuable upon exercise of options; (ii) 32,091 shares of Common Stock issuable upon the exercise of warrants and (iii) 32,091 shares of common stock issuable upon conversion of Series AA Convertible Preferred Stock and (iv) 38,129 shares of Common Stock. Does not include 672 shares of Common Stock held by Mr. Schumacher's minor son as Mr. Schumacher's wife exercises all voting and investment control over such shares.
- 3) Includes (i) 120,312 shares of Common Stock issuable upon exercise of options; (ii) 65,200 shares of Common Stock issuable upon the exercise of warrants; (iii) 65,200 shares of common stock issuable upon conversion of Series AA Convertible Preferred Stock; and (iv) 25,241 shares of Common Stock.
- 4) Includes (i) 70,408 shares of Common Stock issuable upon exercise of options; (ii) 20,534 shares of Common Stock issuable upon exercise of warrants; (iii) 20,534 shares of common stock issuable upon conversion of Series AA Convertible Preferred Stock; and (iv) 22,788 shares of Common Stock.
- 5) Includes (i) 52,072 shares of Common Stock issuable upon exercise of options; (ii) 20,200 shares of Common Stock issuable upon exercise of warrants; (iii) 20,200 shares of common stock issuable upon conversion of Series AA Convertible Preferred Stock; and (iv) 19,362 shares of Common Stock.
- 6) Includes (i) 70,408 shares of Common Stock issuable upon exercise of options; (ii) 4,400 shares of Common Stock issuable upon exercise of warrants; (iii) 4,400 shares of common stock issuable upon conversion of Series AA Convertible Preferred Stock; and (iv) 13,100 shares of Common Stock.
- 7) Includes (i) 88,950 shares of Common Stock issuable upon exercise of options and (ii) 815 shares of Common Stock.
- 8) Includes (i) 76,117 shares of Common Stock issuable upon exercise of options; (ii) 26,460 shares of Common Stock issuable upon exercise of warrants; (iii) 26,460 shares of common stock issuable upon conversion of Series AA Convertible Preferred Stock; and (ii) 410 shares of Common Stock.
- 9) Includes (i) 838,824 shares of Common Stock issuable upon exercise of options; (ii) 168,885 shares of Common Stock issuable upon the exercise of warrants; (iii) 168,885 shares of Common Stock issuable upon conversion of Series AA Convertible Preferred Stock and (iv) 119,845 shares of Common Stock.

Equity Compensation Plan Information

We maintain a number of equity compensation plans for employees, officers, directors and other entities and individuals whose efforts contribute to our success. The table below sets forth certain information as of our fiscal year ended December 31, 2021 regarding the shares of our common stock available for grant or granted under our equity compensation plans.

Plan Category	Number of securities to be issued upon exercise of outstanding options	Weighted-average exercise price of outstanding options	Number of securities available for future issuance under equity compensation plans
Equity compensation plan approved by security holders - 2013 Equity Incentive Plan	1,333,101	\$ 0.72	1,645,488
Equity compensation plan approved by security holders - 2021 Equity Incentive Plan	3,000,000	-	3,000,000

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

The following is a summary of transactions since January 1, 2020 to which we have been or will be a party in which the amount involved exceeded or will exceed \$25,675 (one percent of the average of our total assets at year-end for our last two completed fiscal years) and in which any of our directors, executive officers or beneficial holders of more than 5% of any class of our capital stock, or any immediate family member of, or person sharing a household with, any of these individuals, had or will have a direct or indirect material interest, other than compensation arrangements that are described under the section captioned “Executive Compensation.”

In March 2010, we signed a strategic product licensing, manufacturing, co-marketing, and collaborative research and development agreement with Target Discovery Inc. (“*TDI*”), a related party. Under the terms of the agreement, we have been licensed by TDI to manufacture and sell a highly innovative line of chemicals used in the preparation of tissues for scientific analysis (“*TDI reagents*”). The TDI reagents were designed for use in combination with our pressure cycling technology. The respective companies believe that the combination of PCT and the TDI reagents can fill an existing need in life science research for an automated method for rapid extraction and recovery of intact, functional proteins associated with cell membranes in tissue samples. We did not incur any royalty obligation under this agreement in 2017 or 2016. We executed an amendment to this agreement on October 1, 2016 wherein we agreed to pay a monthly fee of \$1,400 for the use of a lab bench, shared space and other utilities, and \$2,000 per day for technical support services as needed. Mr. Jeffrey N. Peterson, the chief executive officer of TDI, has served as a director of the Company since July 2011 and as Chairman of the Board starting in 2012. For the years ended December 31, 2020 and 2021, we reported expenses of \$82,800 and \$86,800, respectively for these arrangements.

Related Party Notes

During the year ended December 31, 2021, we received short-term non-convertible loans of \$254,600 from related parties. The loans were repaid in full as of December 31, 2021.

Board Independence

Our board of directors has reviewed the qualifications of each of Messrs. Peterson, Mangiardi, Pollack, and Dr. Urdea constituting more than a majority of our directors and has affirmatively determined that each individual is “independent” as such term is defined under the current listing standards of the OTC Markets. The board of directors has determined that none of these directors has a material relationship with us that would interfere with the exercise of independent judgment. In addition, each member of the Audit Committee is independent as required under Section 10A(m)(3) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”).

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The Audit Committee appointed MaloneBailey LLP, an independent registered public accounting firm, to audit the Company’s consolidated financial statements for the fiscal year ended December 31, 2021.

Independent Registered Public Accounting Fees

The following is a summary of the fees billed to the Company by MaloneBailey LLP, the Company’s independent registered public accounting firm, respectively for the fiscal year ended December 31, 2021 and 2020:

	<u>Fiscal 2021 Fees</u>	<u>Fiscal 2020 Fees</u>
Audit Fees	\$ 160,000	\$ 155,000
Audit-Related Fees	-	-
Tax and Other Fees	-	-
	<u>\$ 160,000</u>	<u>\$ 155,000</u>

Audit Fees. Consists of fees billed for professional services performed for the audit of our annual financial statements, the review of interim financial statements, and related services that are normally provided in connection with registration statements, including the registration statement for our public offering.

Audit-Related Fees. Consists of aggregate fees billed for assurance and related services that are reasonably related to the performance of the audit or review of the Company’s consolidated financial statements and are not reported under “Audit Fees.”

Audit Committee Policy on Pre-Approval of Services

The Audit Committee’s policy is to pre-approve all audit and permissible non-audit services provided by the independent registered public accounting firm. These services may include audit services, audit-related services, tax services, and other services. Pre-approval is generally provided for up to one year. The Audit Committee may also pre-approve particular services on a case-by-case basis.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES.

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed or Furnished Herewith
		Form	Exhibit	Filing Date	
3.1	Restated Articles of Organization of the Company	S-1	3.1	10/08/1996	
3.2	Articles of Amendment to Restated Articles of the Organization of the Company	10-Q	3.1	11/23/2004	
3.3	Articles of Amendment to Restated Articles of the Organization of the Company	8-K	3.1	02/18/2009	
3.4	Articles of Amendment to Restated Articles of the Organization of the Company	8-K	3.1	04/12/2011	
3.5	Articles of Amendment to Restated Articles of the Organization of the Company	8-K	3.1	11/10/2011	
3.6	Articles of Amendment to Restated Articles of the Organization of the Company	8-K	3.1	01/04/2013	
3.7	Articles of Amendment to Restated Articles of the Organization of the Company	8-K	3.1	02/13/2013	
3.8	Articles of Amendment to Restated Articles of the Organization of the Company	8-K	3.1	12/12/2013	
3.9	Articles of Amendment to Restated Articles of the Organization of the Company	8-K	3.1	02/05/2014	
3.10	Articles of Amendment to Restated Articles of the Organization of the Company	8-K	3.1	12/31/2014	
3.11	Articles of Amendment to Restated Articles of the Organization of the Company	8-K	3.1	07/28/2015	
3.12	Amended Certificate of Designation of Series AA Convertible Preferred Stock, filed February 14, 2019.	8-K	3.1	02/15/2019	
3.13	Amendment to Amended and Restated By-Laws of the Company	10-K	3.3	10/08/1996	
3.14	Amendment to Amended and Restated By-Laws of the Company	10-K	3.3	3/31/2003	
4.1	Specimen Certificate for Shares of the Company's common stock	10-KSB	4.1	04/22/2005	

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed or Furnished Herewith
		Form	Exhibit	Filing Date	
4.2	Description of securities registered under Section 12 of the Exchange Act of 1934				X
4.3	Form of Warrant Held by Convertible Note Holders				X
4.4	Form of Convertible Note Currently Outstanding				X
4.5	Form of Convertible Note Currently Outstanding				X
10.1	2013 Equity Incentive Plan.*	S-8	4.1	04/24/2015	
10.2	2021 Equity Incentive Plan.*				X
21.1	List of Subsidiaries				X
23.1	Consent of Independent Registered Public Accounting Firm (Malone Bailey LLP)				X
31.1	Principal Executive Officer Certification Pursuant to Item 601(b)(31) of Regulation S-K, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				X
31.2	Principal Financial Officer Certification Pursuant to Item 601(b)(31) of Regulation S-K, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				X
32.1	Principal Executive Officer Certification Pursuant to Item 601(b)(32) of Regulation S-K, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.**				X
32.2	Principal Financial Officer Certification Pursuant to Item 601(b)(32) of Regulation S-K, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.**				X
101.INS	Inline XBRL Instance Document				
101.SCH	Inline XBRL Taxonomy Extension Schema Document				
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document				
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document				
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document				
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document				
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)				

*Management contract or compensatory plan or arrangement.

**In accordance with SEC Release 33-8238, Exhibits 32.1 and 32.2 are furnished and not filed.

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.

Date: April 5, 2022

Pressure BioSciences, Inc.

By: /s/ Richard T. Schumacher
Richard T. Schumacher
President and Chief Executive Officer

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

<u>Name</u>	<u>Capacity</u>	<u>Date</u>
<u>/s/ Richard T. Schumacher</u> Richard T. Schumacher	President, Chief Executive Officer, Interim Chief Financial Officer, Treasurer, Clerk and Director (Principal Executive Officer, Principal Financial Officer and Principal Accounting Officer)	April 5, 2022
<u>/s/ Jeffrey N. Peterson</u> Jeffrey N. Peterson	Chairman of the Board of Directors	April 5, 2022
<u>/s/ Mickey Urdea</u> Michael S. Urdea, Ph.D.	Director	April 5, 2022
<u>/s/ Vito Mangiardi</u> Vito J. Mangiardi	Director	April 5, 2022
<u>/s/ Kevin Pollack</u> Kevin A. Pollack	Director	April 5, 2022

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

Set forth below is the description of the common stock, par value \$0.01 per share (the "Common Stock") of Pressure BioSciences, Inc. ("we" or "our"). The following description summarizes the most important terms of these securities. This summary does not purport to be complete and is qualified in its entirety by the provisions of our Restated Articles of Organization, as amended (the "Articles"), and our Amended and Restated By-laws, as amended (the "By-laws"), copies of which have been previously filed with the Securities and Exchange Commission and are incorporated by reference into the Annual Report on Form 10-K for the year ended December 31, 2021. You should refer to our Articles, By-laws and the applicable provisions of the Massachusetts General Laws, for a complete description.

The Common Stock is the only class of our securities currently registered under Section 12 of the Securities Exchange Act of 1934. Our Common Stock is quoted on the OTCQB under the symbol "PBIO."

Authorized Common Stock

Our authorized Common Stock consists of 100,000,000 shares.

Dividend Rights

Subject to limitations under the Massachusetts General Laws and to preferences that may apply to any shares of preferred stock outstanding at the time, the holders of our Common Stock are entitled to receive dividends out of funds legally available if our Board of Directors, in its discretion, determines to declare and pay dividends and then only at the times and in the amounts that our Board of Directors may determine.

Voting Rights

Holders of our Common Stock are entitled to one vote for each share held on all matters properly submitted to a vote of stockholders on which holders of Common Stock are entitled to vote. We have not provided for cumulative voting for the election of directors in our Certificate. The directors are elected by a plurality of the outstanding shares entitled to vote on the election of directors. On all other matters the affirmative vote of a majority of the voting power of the shares present or represented by proxy at the meeting and entitled to vote on the subject matter constitutes the act of the stockholders, except as otherwise expressly provided by the Nevada Revised Statutes.

No Preemptive or Similar Rights

Our Common Stock is not entitled to preemptive rights, and is not subject to conversion, redemption or sinking fund provisions.

Right to Receive Liquidation Distributions

If we become subject to a liquidation, dissolution or winding-up, the assets legally available for distribution to our stockholders would be distributable ratably among the holders of our Common Stock and any participating preferred stock outstanding at that time, subject to prior satisfaction of all outstanding debt and liabilities and the preferential rights of and the payment of liquidation preferences, if any, on any outstanding shares of preferred stock.

Transfer Agent and Registrar

Computershare Trust Company NA is the transfer agent and registrar in respect of the common stock.

NEITHER THIS SECURITY NOR THE SECURITIES FOR WHICH THIS SECURITY IS EXERCISABLE HAVE BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO AN AVAILABLE EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS AS EVIDENCED BY A LEGAL OPINION OF COUNSEL TO THE TRANSFEROR TO SUCH EFFECT, THE SUBSTANCE OF WHICH SHALL BE REASONABLY ACCEPTABLE TO THE COMPANY. THIS SECURITY AND THE SECURITIES ISSUABLE UPON EXERCISE OF THIS SECURITY MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT OR OTHER LOAN SECURED BY SUCH SECURITIES.

**COMMON STOCK PURCHASE WARRANT
PRESSURE BIOSCIENCES, INC.**

Warrant Shares: XXX

Initial Exercise Date: XXXXXX

Issue Date: XXXXXXXX

THIS COMMON STOCK PURCHASE WARRANT (the "Warrant") certifies that, for value received, XXXXXXXXXX or its assigns (the "Holder") is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after XXXXXXXXXX (the "Initial Exercise Date") and on or prior to the close of business on the X-year anniversary of the Initial Exercise Date (the "Termination Date") but not thereafter, to subscribe for and purchase from Pressure BioSciences, Inc., a Massachusetts corporation (the "Company"), up to XXXXXX shares (as subject to adjustment hereunder, the "Warrant Shares") of Common Stock. The purchase price of one share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b).

Section 1. Definitions. Capitalized terms used and not otherwise defined herein shall have the meanings set forth in that certain Subscription Agreement (the "Purchase Agreement"), dated of even date herewith among the Company and the purchaser's signatory thereto.

Section 2. Exercise.

a) Exercise of Warrant. Exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company (or such other office or agency of the Company as it may designate by notice in writing to the registered Holder at the address of the Holder appearing on the books of the Company) of a duly executed facsimile copy of the Notice of Exercise form annexed hereto and within three (3) Trading Days of the date said Notice of Exercise is delivered to the Company, the Company shall have received payment of the aggregate Exercise Price of the shares thereby purchased by wire transfer or cashier's check drawn on a United States bank or, if available, pursuant to the cashless exercise procedure specified in Section 2(c) below. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise form be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation within three (3) Trading Days of the date the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise Form within two (2) Business Days of receipt of such notice. **The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.**

b) Exercise Price. The exercise price per share of the Common Stock under this Warrant shall be \$3.50, subject to adjustment hereunder (the "Exercise Price").

c) Cashless Exercise. This Warrant may be exercised, in whole or in part, by means of a "cashless exercise" in accordance with this Section 2(c), if at any time after the earlier of: (i) the 180 day anniversary of the date of the Purchase Agreement; and (ii) the completion of the then-applicable holding period required by Rule 144, or any successor provision then in effect, there is no effective Registration Statement registering, or no current prospectus available for, the resale of the Warrant Shares by the Holder, then this Warrant may be exercised, in whole or in part, at such time by means of a "cashless exercise." Pursuant to a cashless exercise, the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

- (A) = the VWAP on the Trading Day immediately preceding the date on which Holder elects to exercise this Warrant by means of a "cashless exercise," as set forth in the applicable Notice of Exercise;
- (B) = the Exercise Price of this Warrant, as adjusted hereunder; and
- (X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

d) Mechanics of Exercise.

i. Delivery of Warrant Shares Upon Exercise. Warrant Shares purchased hereunder shall be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder's prime broker with The Depository Trust Company through its Deposit or Withdrawal at Custodian system ("DWAC") if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by the Holder or (B) the shares are eligible for resale by the Holder without the holding period, volume or manner-of-sale limitations pursuant to Rule 144, and otherwise by physical delivery to the address specified by the Holder in the Notice of Exercise by the date that is three (3) Trading Days after the latest of (A) the delivery to the Company of the Notice of Exercise and (B) surrender of this Warrant (if required) (such date, the "Warrant Share Delivery Date"). The Warrant Shares shall be deemed to have been issued, and Holder or any other person so designated to be named therein shall be deemed to have become a holder of record of such shares for all purposes, as of the date the Warrant has been exercised, with payment to the Company of the Exercise Price (or by cashless exercise, if permitted) and all taxes required to be paid by the Holder, if any, pursuant to Section 2(d)(vi) prior to the issuance of such shares, having been paid.

ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise.

iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to an exercise on or before the Warrant Share Delivery Date, and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "Buy-In"), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with an aggregate sale price giving rise to such purchase obligation of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.

v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share.

vi. Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

e) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which are issuable upon: (i) exercise of the remaining, non-exercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates; and (ii) exercise or conversion of the unexercised or non-converted portion of any other securities of the Company subject to a limitation on conversion or exercise analogous to the limitation contained herein (including, without limitation, any other Warrants of the Debentures) beneficially owned by the Holder or any of its Affiliates. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation. To ensure compliance with this restriction, the Holder will be deemed to represent to the Company each time it delivers a Notice of Conversion that such Notice of Conversion has not violated the restrictions set forth in this paragraph and the Company shall have no obligation to verify or confirm the accuracy of such determination. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 2(e), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as stated in the most recent of the following: (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be; (B) a more recent public announcement by the Company; or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of a Holder, the Company shall within two Trading Days confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates since the date as of which such number of outstanding shares of Common Stock was reported. The "Beneficial Ownership Limitation" shall be 4.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant held by the Holder. The Holder, upon not less than 61 days' prior notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 2(e), provided that the Beneficial Ownership Limitation in no event exceeds 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock upon exercise of this Warrant held by the Holder and the provisions of this Section 2(e) shall continue to apply. Any such increase or decrease will not be effective until the 61st day after such notice is delivered to the Company. The Beneficial Ownership Limitation provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation contained herein or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant.

f) Company Warrant Call. Commencing on a date which is 180 days after the Final Closing, the Company shall have the right, subject to satisfaction of the conditions in this Section 2(f), to cause the exercise of this Warrant ("Forced Exercise"). The Company shall deliver prior written notice to the Holder at least ten (10) business days ("Forced Exercise Notice") prior to the effective date (the "Forced Exercise Effective Date") of such Forced Exercise. In order to effectuate a Forced Conversion, the following conditions shall be satisfied as of the Forced Exercise Effective Date: (i) no Event of Default shall have occurred or exist under the Debentures; (ii) the Company shall have satisfied and be current all of its filing requirements under the Securities and Exchange Act of 1934; (iii) the VWAP shall be equal or exceed 300% of the Conversion Price of the Debentures for at least 15 of the prior 20 Trading Days prior to the date of the Forced Exercise Note; (iv) the Warrant Shares may be delivered to the Holder via DWAC; and (v) all of the Warrants issued pursuant to the Purchase Agreement are called by the Company for a Forced Exercise. The Holder shall have the right to exercise this Warrant during such ten (10) days' notice period on a caller's basis pursuant to Section 2(c) above at its option.

Section 3. Certain Adjustments.

a) Stock Dividends and Stock Splits. If the Company, at any time while this Warrant is outstanding:

(i) pays a stock dividend or otherwise makes a distribution or distributions payable in shares of Common Stock on shares of Common Stock or any Common Stock Equivalents (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon conversion of, or payment of interest on, the Debentures or upon the exercise of any options or warrants, including the Warrants); (ii) subdivides outstanding shares of Common Stock into a larger number of shares; (iii) combines (including by way of a reverse stock split) outstanding shares of Common Stock into a smaller number of shares; or (iv) issues, in the event of a reclassification of shares of the Common Stock, any shares of capital stock of the Company, then the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding any treasury shares of the Company) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) Subsequent Equity Sales. If, at any time while this Warrant is outstanding, the Company or any Subsidiary, as applicable, sells or grants any option to purchase, or grants any right to reprice, or otherwise dispose of or issues, any Common Stock or Common Stock Equivalents entitling any Person to acquire shares of Common Stock at an effective price per share that is lower than the then Exercise Price, other than in connection with any Exempt Issuance (as defined below) (such lower price, the "Base Share Price" and such issuances collectively, a "Dilutive Issuance") (if the holder of the Common Stock or Common Stock Equivalents so issued shall at any time, whether by operation of purchase price adjustments, reset provisions, floating conversion, exercise or exchange prices or otherwise, or due to warrants, options or rights per share which are issued in connection with such issuance, be entitled to receive shares of Common Stock at an effective price per share that is lower than the Exercise Price, such issuance shall be deemed to have occurred for less than the Exercise Price on such date of the Dilutive Issuance, then the Exercise Price shall be reduced to equal the Base Share Price. Such adjustment shall be made whenever such Common Stock or Common Stock Equivalents are issued. Notwithstanding the foregoing, no adjustment will be made under this Section 3(b) in respect of an Exempt Issuance. If the Company enters into a Variable Rate Transaction, despite the prohibition thereon in the Purchase Agreement, the Company shall be deemed to have issued Common Stock or Common Stock Equivalents at the lowest possible conversion or exercise price at which such securities may be converted or exercised. The Company shall notify the Holder in writing, no later than the Trading Day following the issuance of any Common Stock or Common Stock Equivalents subject to this Section 3(b), indicating therein the applicable issuance price, or applicable reset price, exchange price, conversion price and other pricing terms (such notice, the "Dilutive Issuance Notice"). For purposes of clarification, whether or not the Company provides a Dilutive Issuance Notice pursuant to this Section 3(b), upon the occurrence of any Dilutive Issuance, the Holder is entitled to receive a number of Warrant Shares based upon the Base Share Price on or after the date of such Dilutive Issuance, regardless of whether the Holder accurately refers to the Base Share Price in the Notice of Exercise. This price adjustment will automatically terminate should the Company's stock begin trading on a national exchange (e.g., OTC Markets or NYSE American). Notwithstanding this Section 3(b), nothing contained herein shall cause the number of warrant shares to increase. Any adjustment herein shall solely be with respect to the Exercise Price.

c) Subsequent Rights Offerings. If the Company, at any time while the Warrant is outstanding, shall issue rights, options or warrants to all holders of Common Stock (and not to the Holder) entitling them to subscribe for or purchase shares of Common Stock at a price per share less than the VWAP on the record date mentioned below, then the Exercise Price shall be multiplied by a fraction, of which the denominator shall be the number of shares of the Common Stock outstanding on the date of issuance of such rights, options or warrants plus the number of additional shares of Common Stock offered for subscription or purchase, and of which the numerator shall be the number of shares of the Common Stock outstanding on the date of issuance of such rights, options or warrants plus the number of shares which the aggregate offering price of the total number of shares so offered (assuming receipt by the Company in full of all consideration payable upon exercise of such rights, options or warrants) would purchase at such VWAP. Such adjustment shall be made whenever such rights, options or warrants are issued, and shall become effective immediately after the record date for the determination of stockholders entitled to receive such rights, options or warrants.

d) Pro Rata Distributions. If the Company, at any time while this Warrant is outstanding, shall distribute to all holders of Common Stock (and not to the Holder) evidences of its indebtedness or assets (including cash and cash dividends) or rights or warrants to subscribe for or purchase any security other than the Common Stock (which shall be subject to Section 3(b)), then in each such case the Exercise Price shall be adjusted by multiplying the Exercise Price in effect immediately prior to the record date fixed for determination of stockholders entitled to receive such distribution by a fraction of which the denominator shall be the VWAP determined as of the record date mentioned above, and of which the numerator shall be such VWAP on such record date less the then per share fair market value at such record date of the portion of such assets or evidence of indebtedness or rights or warrants so distributed applicable to one outstanding share of the Common Stock as determined by the Board of Directors in good faith. In either case the adjustments shall be described in a statement provided to the Holder of the portion of assets or evidences of indebtedness so distributed or such subscription rights applicable to one share of Common Stock. Such adjustment shall be made whenever any such distribution is made and shall become effective immediately after the record date mentioned above.

e) Fundamental Transaction. If, at any time while this Warrant is outstanding: (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person; (ii) the Company, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions; (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of more than 50% of the outstanding Common Stock; (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property; or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires more than 50% of the outstanding shares of Common Stock (not including any shares of Common Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination) (each a "Fundamental Transaction"), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction (without regard to any limitation in Section 2(e) or Section 2(f) on the exercise of this Warrant), the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the "Alternate Consideration") receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 2(e) or Section 2(f) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one (1) share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the "Successor Entity") to assume in writing all of the obligations of the Company under this Warrant and the other Transaction Documents in accordance with the provisions of this Section 3(e) pursuant to written agreements in form and substance reasonably satisfactory to the holders of a majority of the Warrants prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Warrant and the other Transaction Documents referring to the "Company" shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Warrant and the other Transaction Documents with the same effect as if such Successor Entity had been named as the Company herein.

f) Calculations. All calculations under this Section 3 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding any treasury shares of the Company) issued and outstanding.

g) Notice to Holder.

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to each Holder a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment.

ii. Notice to Allow Exercise by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all holders of the Common Stock of rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company is a party, any sale or transfer of all or substantially all of the assets of the Company, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be filed at each office or agency maintained for the purpose of exercise of this Warrant, and shall cause to be delivered to the Holder at its last address as it shall appear upon the Warrant Register of the Company, at least ten (10) calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding the Company or any of the Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

(h) For purposes of this Warrant, the term “Exempt Issuance” shall mean the issuance of (a) shares of Common Stock or options or other stock based awards to employees, officers or directors and consultants of the Company pursuant to the Company’s stock or option plans existing as of the date hereof and to also include up to 1,178,571 shares of Common Stock (subject to adjustment for forward and reverse stock splits, recapitalizations and the like), in the aggregate, to employees, officers or directors and consultants of the Company pursuant to a written agreement, provided that such shares of Common Stock are not registered and carry no registration rights other than on Form S-8, (c) securities upon the exercise or exchange of or conversion of any Securities issued hereunder and/or other securities exercisable or exchangeable for or convertible into shares of Common Stock issued and outstanding on the Original Issue Date of this Debenture, provided that such securities have not been amended since the date of this Agreement to increase the number of such securities or to decrease the exercise price, exchange price or conversion price of such securities, and (d) securities issued pursuant to acquisitions or strategic transactions approved by a majority of the disinterested directors of the Company, provided that any such issuance shall only be to a Person (or to the equity holders of a Person) which is, itself or through its subsidiaries, an operating company or an owner of an asset in a business synergistic with the business of the Company and shall provide to the Company additional benefits in addition to the investment of funds, but shall not include a transaction in which the Company is issuing securities primarily for the purpose of raising capital or to an entity whose primary business is investing in securities.

Section 4. Transfer of Warrant.

a) Transferability. Subject to compliance with any applicable securities laws and the conditions set forth in Section 4(d) hereof and to the provisions of Section 4.1 of the Purchase Agreement, this Warrant and all rights hereunder (including, without limitation, any registration rights) are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company within three (3) Trading Days of the date the Holder delivers an assignment form to the Company assigning this Warrant full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

b) New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the original Issue Date and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the "Warrant Register"), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

d) Transfer Restrictions; Registration Rights. At the time of the surrender of this Warrant in connection with any transfer of this Warrant, the transfer of this Warrant shall be either: (i) registered pursuant to an effective registration statement under the Securities Act and under applicable state securities or blue sky laws or exempt therefrom; or (ii) eligible for resale without holding period, volume or manner-of-sale restrictions or current public information requirements pursuant to Rule 144. The Holder and any permitted transfer shall be entitled to the registration rights with respect to the resale of the Warrant Shares as described under the Purchase Agreement.

e) Representation by the Holder. The Holder, by the acceptance hereof, represents and warrants that it is acquiring this Warrant and, upon any exercise hereof, will acquire the Warrant Shares issuable upon such exercise, for its own account and not with a view to or for distributing or reselling such Warrant Shares or any part thereof in violation of the Securities Act or any applicable state securities law, except pursuant to sales registered or exempted under the Securities Act.

Section 5. Miscellaneous.

a) No Rights as Stockholder Until Exercise. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3.

b) Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c) Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then, such action may be taken or such right may be exercised on the next succeeding Business Day.

d) Authorized Shares.

(i) The Company covenants that during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Stock may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and non-assessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

(ii) Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment. Without limiting the generality of the foregoing, the Company will: (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value; (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant; and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

(iii) Before taking any action which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e) Jurisdiction. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be determined in accordance with the provisions of the Purchase Agreement.

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

g) Non-waiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies, notwithstanding the fact that all rights hereunder terminate on the Termination Date. If the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

h) Notices. Any notice, request or other document required or permitted to be given or delivered to the Holder by the Company shall be delivered in accordance with the notice provisions of the Purchase Agreement.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Stock or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company and the Holder.

m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

o) Governing Law. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflict of laws thereof. Each party agrees that all legal proceedings concerning the interpretation, enforcement and defense of the transactions contemplated by any of the Transaction Documents (whether brought against a party hereto or its respective Affiliates, directors, officers, shareholders, employees or agents) shall be commenced in the state and federal courts sitting in the City of New York, Borough of Manhattan (the "New York Courts"). The Holder and the Company each hereby irrevocably submits to the exclusive jurisdiction of the New York Courts for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein (including with respect to the enforcement of any of the Transaction Documents), and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of such New York Courts, or such New York Courts are improper or inconvenient venue for such proceeding. The Holder and the Company each hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Warrant and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by applicable law. The Holder and the Company each hereby irrevocably waives, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Warrant or the transactions contemplated hereby. If any party shall commence an action or proceeding to enforce any provisions of this Warrant, then the prevailing party in such action or proceeding shall be reimbursed by the other party for its attorneys' fees and other costs and expenses incurred in the investigation, preparation and prosecution of such action or proceeding.

(Signature Page Follows)

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

PRESSURE BIOSCIENCES, INC.

By: _____
Name: Richard T Schumacher
Title: President & CEO

NOTICE OF EXERCISE

TO: PRESSURE BIOSCIENCES, INC.

(1) The undersigned hereby elects to purchase Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

in lawful money of the United States; or

[if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

The Warrant Shares shall be delivered to the following DWAC Account Number:

(4) Accredited Investor. The undersigned is an "accredited investor" as defined in Regulation D promulgated under the Securities Act of 1933, as amended.

[SIGNATURE OF HOLDER]

Name of Investing Entity: _____

Signature of Authorized Signatory of Investing Entity: _____

Name of Authorized Signatory: _____

Title of Authorized Signatory: _____

Date: _____

ASSIGNMENT FORM

(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to purchase shares.)

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: _____ (Please Print)

Address: _____ (Please Print)

Dated: _____

Holder's Signature: _____

Holder's Address: _____

CONFIDENTIAL**PROMISSORY NOTE****Twelve Month Fixed Rate (12%) Convertible Loan**

Loan Amount (Principal):	\$100,000
Points:	4.0 (\$4,000 reduced from Principal)
Cash-in Amount:	\$96,000
Interest:	1% per month, paid monthly on Principal (\$1,000)
Kicker:	10,000 shares restricted common stock – earned upfront
Closing Date: Friday,	April 8, 2022
Due Date (Principal):	April 8, 2023
Due Dates (Interest):	Monthly (May 8, 2022 – April 8, 2023)
Maturity Date:	April 8, 2023 (principal & last interest payment due)
Grace Period (GP) - Interest:	3 Business Days
Penalty after GP - Interest:	\$1,000/week, starts on Day 1 post-GP.
Grace Period (Principal):	5 Business Days
Penalty after GP - Principal:	\$2,000/week, starts on Day 1 post-GP.
Default:	If loan unpaid at end of 5-day GP, PBIO is in Default
Security:	200,000 PBIO Shares Held in Escrow at Computershare
Voluntary Conversion:	Before Maturity Date, at \$2.50/share
Mandatory Conversion:	Upon Up-list @ Lower of \$2.50/share or Up-list Price

ACCEPTED BY

XXXXXXXXXXXXXXXXXX

Accredited Investor

Date_____
Richard T. Schumacher

President & CEO

Date

March 31, 2022.\$100k Note



Pressure BioSciences, Inc.
 14 Norfolk Avenue, South Easton, MA 02375
 TEL 508-230-1828 • FAX 508-230-1829
 www.pressurebiosciences.com

TEMPLATE USE ONLY

NEITHER THIS SECURITY NOR THE SECURITIES INTO WHICH THIS SECURITY IS CONVERTIBLE HAVE BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO AN AVAILABLE EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS AS EVIDENCED BY A LEGAL OPINION OF COUNSEL TO THE TRANSFEROR TO SUCH EFFECT, THE SUBSTANCE OF WHICH SHALL BE REASONABLY ACCEPTABLE TO THE COMPANY. THIS SECURITY AND THE SECURITIES ISSUABLE UPON CONVERSION OF THIS SECURITY MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT OR OTHER LOAN SECURED BY SUCH SECURITIES.

Principal Amount: \$100,000

Original Issue Date: XXXXXXXX, XX 202X

PRESSURE BIOSCIENCES, INC.

**12% CONVERTIBLE
PROMISSORY NOTE
DUE XXXX XX, 202X**

THIS 12% CONVERTIBLE PROMISSORY NOTE is duly authorized and validly issued by Pressure BioSciences, Inc., a Massachusetts corporation, (the "Company"), designated as its 12% Convertible Promissory Note due XXXX XX, 202X (this note, the "Note" and, collectively with any other notes of such series, the "Notes").

FOR VALUE RECEIVED, the Company promises to pay to XXXX or their registered assigns (the "Holder"), or shall have paid pursuant to the terms hereunder, the principal sum of One Hundred Thousand Dollars (\$100,000) (the "Principal Amount") of which Ninety-Six Thousand Dollars (\$96,000) is being delivered to the Borrower by Lender on the Original Issue Date (the "Purchase Price"). The loan is due on the one-year anniversary after the Original Issue Date hereof (the "Maturity Date"), or such earlier date as this Note is required or permitted to be repaid as provided hereunder, and to pay monthly interest to the Holder (based on an annual rate of 12%) on the aggregate unconverted and then outstanding principal amount of this Note in accordance with the provisions hereof. The Holder shall also receive 10,000 shares of restricted common stock of the Company within 10 trading days of the date hereof. This Note is subject to the following additional provisions:

Section 1. Definitions. For the purposes hereof, in addition to the terms defined elsewhere in this Note, (a) capitalized terms not otherwise defined herein shall have the meanings set forth in the Purchase Agreement and (b) the following terms shall have the following meanings:

“Alternate Consideration” shall have the meaning set forth in Section 5(e).

“Authorized Failure Shares” shall have the meaning set forth in Section 4(c)(vi).

“Authorized Share Failure” shall have the meaning set forth in Section 4(c)(vi).

“Bankruptcy Event” means any of the following events: (a) the Company or any Significant Subsidiary (as such term is defined in Rule 1-02(w) of Regulation S-X) thereof commences a case or other proceeding under any bankruptcy, reorganization, arrangement, adjustment of debt, relief of debtors, dissolution, insolvency or liquidation or similar law of any jurisdiction relating to the Company or any Significant Subsidiary thereof, (b) there is commenced against the Company or any Significant Subsidiary thereof any such case or proceeding that is not dismissed within 60 days after commencement, (c) the Company or any Significant Subsidiary thereof is adjudicated insolvent or bankrupt or any order of relief or other order approving any such case or proceeding is entered, (d) the Company or any Significant Subsidiary thereof suffers any appointment of any custodian or the like for it or any substantial part of its property that is not discharged or stayed within 60 calendar days after such appointment, (e) the Company or any Significant Subsidiary thereof makes a general assignment for the benefit of creditors, (f) the Company or any Significant Subsidiary thereof calls a meeting of its creditors with a view to arranging a composition, adjustment or restructuring of its debts or (g) the Company or any Significant Subsidiary thereof, by any act or failure to act, expressly indicates its consent to, approval of or acquiescence in any of the foregoing or takes any corporate or other action for the purpose of effecting any of the foregoing.

“Base Conversion Price” shall have the meaning set forth in Section 5(b).

“Beneficial Ownership Limitation” shall have the meaning set forth in Section 4(d).

“Business Day” means any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which banking institutions in the State of New York are authorized or required by law or other governmental action to close.

“Buy-In” shall have the meaning set forth in Section 4(c)(v).

“Change of Control Transaction” means the occurrence after the date hereof of any of (a) an acquisition after the date hereof by an individual or legal entity or “group” (as described in Rule 13d-5(b)(1) promulgated under the Exchange Act) of effective control (whether through legal or beneficial ownership of capital stock of the Company, by contract or otherwise) of in excess of 50% of the voting securities of the Company (other than by means of conversion or exercise of the Notes and the Securities issued together with the Notes), (b) the Company merges into or consolidates with any other Person, or any Person merges into or consolidates with the Company and, after giving effect to such transaction, the stockholders of the Company immediately prior to such transaction own less than 50% of the aggregate voting power of the Company or the successor entity of such transaction, (c) the Company sells or transfers all or substantially all of its assets to another Person and the stockholders of the Company immediately prior to such transaction own less than 50% of the aggregate voting power of the acquiring entity immediately after the transaction, (d) a replacement at one time or within a one year period of more than one-half of the members of the Board of Directors which is not approved by a majority of those individuals who are members of the Board of Directors on the Original Issue Date (or by those individuals who are serving as members of the Board of Directors on any date whose nomination to the Board of Directors was approved by a majority of the members of the Board of Directors who are members on the date hereof), or (e) the execution by the Company of an agreement to which the Company is a party or by which it is bound, providing for any of the events set forth in clauses (a) through (d) above.

“Conversion” shall have the meaning ascribed to such term in Section 4.

“Conversion Date” shall have the meaning set forth in Section 4(a).

“Conversion Price” shall have the meaning set forth in Section 4(b).

“Conversion Shares” means, collectively, the shares of Common Stock issuable upon conversion of this Note in accordance with the terms hereof.

“Event of Default” shall have the meaning set forth in Section 8(a).

“Exempt Issuance” means the issuance of (a) shares of Common Stock, options or other equity awards (including, without limitation, restricted awards) to employees, consultants, officers or directors of the Company pursuant to any stock or option plan duly adopted for such purpose, by a majority of the non-employee members of the Board of Directors or a majority of the members of a committee of non-employee directors established for such purpose and subsequently ratified by the stockholders of the Company, (b) securities upon the exercise or exchange of or conversion of any Securities issued pursuant to the Purchase Agreement and/or other securities directly or indirectly exercisable or exchangeable for or convertible into shares of Common Stock issued and outstanding on the Original Issue Date, provided that such securities have not been amended since the Original Issue Date to increase the number of such securities or to decrease the exercise price, exchange price or conversion price of such securities, or (c) securities issued pursuant to mergers, consolidations, acquisitions, similar business combinations or strategic transactions approved by a majority of the disinterested directors of the Company, provided that any such issuance shall only be to a Person (or to the equity holders of a Person) which is, itself or through its subsidiaries, an operating company or an owner of an asset in a business synergistic with the business of the Company and shall provide to the Company additional benefits in addition to the investment of funds, but shall not include a transaction in which the Company is issuing securities primarily for the purpose of raising capital or to an entity whose primary business is investing in securities.

“Fundamental Transaction” shall have the meaning set forth in Section 5(e).

“Indebtedness” shall have the meaning ascribed to such term in the Purchase Agreement.

“Late Fees” shall have the meaning set forth in Section 2(d).

“New York Courts” shall have the meaning set forth in Section 9(d).

“Note Register” shall have the meaning set forth in Section 2(c).

“Notice of Conversion” shall have the meaning set forth in Section 4(a).

“Original Issue Date” means the date of the first issuance of the Notes, regardless of any transfers of any Note and regardless of the number of instruments which may be issued to evidence such Notes.

“Purchase Agreement” means the Securities Purchase Agreement, dated as of September 22, 2022, among the Company and the Holder and the other persons signatory thereto, as amended, modified or supplemented from time to time in accordance with its terms.

“Purchase Rights” shall have the meaning set forth in Section 5(c).

“Qualified Offering” means an offering of the Company’s securities, in one or a series of financings, in which the Company receives gross proceeds of at least \$6,000,000.

“Registration Statement” means a registration statement meeting the requirements of the Securities Act and covering the resale of the Underlying Shares by each Holder.

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Share Delivery Date” shall have the meaning set forth in Section 4(c)(ii).

“Successor Entity” shall have the meaning set forth in Section 5(e).

“Trading Day” means a day on which the principal Trading Market is open for trading.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE MKT, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange or the OTC Bulletin Board (or any successors to any of the foregoing).

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market other than the OTC Bulletin Board, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if the Common Stock is then quoted on the OTC Bulletin Board, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the OTC Bulletin Board, (c) if the Common Stock is not then listed or quoted for trading on a Trading Market and if prices for the Common Stock are then reported in the “Pink Sheets” published by Pink OTC Markets, Inc. (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Notes then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

Section 2. Interest. The Company shall pay interest to the Holder on the aggregate outstanding principal amount of this Note at the rate of 12% per annum, which amount shall be payable monthly to the Holder of the Note.

Section 2a. Points. The Company shall pay four (4) points to the Holder, or to the designees of the Holder, on the Closing Date.

Section 3. Registration of Transfers and Exchanges; Registration Rights.

a) Different Denominations. This Note is exchangeable for an equal aggregate principal number of Notes of different authorized denominations, as requested by the Holder surrendering the same. No service charge will be payable for such registration of transfer or exchange.

b) Investment Representations. This Note has been issued subject to certain investment representations of the original Holder set forth in the Purchase Agreement and may be transferred or exchanged only in compliance with the Purchase Agreement and applicable federal and state securities laws and regulations.

c) Reliance on Note Register. Prior to due presentment for transfer to the Company of this Note, the Company and any agent of the Company may treat the Person in whose name this Note is duly registered on the Note Register as the owner hereof for the purpose of receiving payment as herein provided and for all other purposes, whether or not this Note is overdue, and neither the Company nor any such agent shall be affected by notice to the contrary.

Section 4. Conversion.

a) Voluntary and Mandatory Conversion.

i. Voluntary Conversion. At any time after the Original Issue Date until this Note is no longer outstanding, this Note together with any accrued interest shall be convertible, in whole or in part, into shares of Common Stock at the option of the Holder, at any time and from time to time (subject to the conversion limitations set forth in Section 4(d) hereof). The Holder shall effect conversions by delivering to the Company a Notice of Conversion, the form of which is attached hereto as Annex A (each, a "Notice of Conversion"), specifying therein the principal amount and accrued interest of this Note to be converted and the date on which such conversion shall be effected (such date, the "Conversion Date"). If no Conversion Date is specified in a Notice of Conversion, the Conversion Date shall be the date that such Notice of Conversion is deemed delivered hereunder. To effect conversions hereunder, the Holder shall not be required to physically surrender this Note to the Company unless the entire principal amount of this Note, plus all accrued and unpaid interest thereon, has been so converted. Conversions hereunder shall have the effect of lowering the outstanding principal amount of this Note in an amount equal to the applicable conversion. The Holder and the Company shall maintain records showing the principal amount(s) converted and the date of such conversion(s).

ii. Mandatory Conversion. Upon an up-list of the Company to a U.S. national exchange (either NASDAQ or NYSE), after the Original Issue Date and until this Note is no longer outstanding, this Note together with any accrued interest shall be mandatorily convertible, in whole or in part, into shares of Common Stock (subject to the conversion limitations set forth in Section 4(d) hereof). The Holder shall effect conversions by delivering to the Company a Notice of Conversion, the form of which is attached hereto as Annex A (each, a "Notice of Conversion"), specifying therein the principal amount and accrued interest of this Note to be converted. The date on which such conversion shall be effected (such date, the "Conversion Date") shall be the date of the Company's up-list. To effect conversions hereunder, the Holder shall not be required to physically surrender this Note to the Company unless the entire principal amount of this Note, plus all accrued and unpaid interest thereon, has been so converted. Conversions hereunder shall have the effect of lowering the outstanding principal amount of this Note in an amount equal to the applicable conversion. The Holder and the Company shall maintain records showing the principal amount(s) converted and the date of such conversion(s).

b) Conversion Price. The conversion price in effect on any Conversion Date that is not the Up-list date shall be equal to \$2.50 (the "Voluntary Conversion Price"). The conversion price in effect on the Up-list Date shall be the lower of \$2.50 per share or the up-list price (the "Mandatory Conversion Price").

c) Mechanics of Conversion.

i. Conversion Shares Issuable. The number of Conversion Shares issuable upon a conversion hereunder shall be determined by the quotient obtained by dividing (x) the outstanding principal amount of this Note, plus accrued interest by (y) the Conversion Price.

ii. Delivery of Certificate Upon Conversion. Not later than five (5) Trading Days after each Conversion Date (the "Share Delivery Date"), the Company shall deliver, or cause to be delivered, to the Holder a certificate or certificates offered by the Purchase Agreement) representing the number of Conversion Shares being acquired upon the conversion of this Note. On or after the Effective Date, the Company shall use its best efforts to deliver any certificate or certificates required to be delivered by the Company under this Section 4(c) electronically through the Depository Trust Company or another established clearing corporation performing similar functions.

iii. Failure to Deliver Certificates. If, in the case of any Notice of Conversion, such certificate or certificates are not delivered to or as directed by the applicable Holder by the Share Delivery Date, the Holder shall be entitled to elect by written notice to the Company at any time on or before its receipt of such certificate or certificates, to rescind such Conversion, in which event the Company shall promptly return to the Holder any original Note delivered to the Company and the Holder shall promptly return to the Company the Common Stock certificates issued to such Holder pursuant to the rescinded Notice of Conversion.

iv. Obligation Absolute; Partial Liquidated Damages. The Company's obligations to issue and deliver the Conversion Shares upon conversion of this Note in accordance with the terms hereof are absolute and unconditional, irrespective of any action or inaction by the Holder to enforce the same, any waiver or consent with respect to any provision hereof, the recovery of any judgment against any Person or any action to enforce the same, or any setoff, counterclaim, recoupment, limitation or termination, or any breach or alleged breach by the Holder or any other Person of any obligation to the Company or any violation or alleged violation of law by the Holder or any other Person, and irrespective of any other circumstance which might otherwise limit such obligation of the Company to the Holder in connection with the issuance of such Conversion Shares; provided, however, that such delivery shall not operate as a waiver by the Company of any such action the Company may have against the Holder. In the event the Holder of this Note shall elect to convert any or all of the outstanding principal amount hereof, the Company may not refuse conversion based on any claim that the Holder or anyone associated or affiliated with the Holder has been engaged in any violation of law, agreement or for any other reason, unless an injunction from a court, on notice to Holder, restraining and or enjoining conversion of all or part of this Note shall have been sought and obtained, and the Company posts a surety bond for the benefit of the Holder in the amount of 100% of the outstanding principal amount of this Note, which is subject to the injunction, which bond shall remain in effect until the completion of arbitration/litigation of the underlying dispute and the proceeds of which shall be payable to the Holder to the extent it obtains judgment. In the absence of such injunction, the Company shall issue Conversion Shares or, if applicable, cash, upon a properly noticed conversion. If the Company fails for any reason to deliver to the Holder such certificate or certificates pursuant to Section 4(c)(ii) by the Share Delivery Date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of principal amount being converted, \$10 per Trading Day (increasing to \$20 per Trading Day on the fifth (5th) Trading Day after such liquidated damages begin to accrue) for each Trading Day after such Share Delivery Date until such certificates are delivered or Holder rescinds such conversion. Nothing herein shall limit a Holder's right to pursue actual damages or declare an Event of Default pursuant to Section 8 hereof for the Company's failure to deliver Conversion Shares within the period specified herein and the Holder shall have the right to pursue all remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief. The exercise of any such rights shall not prohibit the Holder from seeking to enforce damages pursuant to any other Section hereof or under applicable law.

v. Compensation for Buy-In on Failure to Timely Deliver Certificates Upon Conversion. In addition to any other rights available to the Holder, if the Company fails for any reason to deliver to the Holder such certificate or certificates by the Share Delivery Date pursuant to Section 4(c)(ii), and if after such Share Delivery Date the Holder is required by its brokerage firm to purchase (in an open market transaction or otherwise), or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Conversion Shares which the Holder was entitled to receive upon the conversion relating to such Share Delivery Date (a "Buy-In"), then the Company shall (A) pay in cash to the Holder (in addition to any other remedies available to or elected by the Holder) the amount, if any, by which (x) the Holder's total purchase price (including any brokerage commissions) for the Common Stock so purchased exceeds (y) the product of (1) the aggregate number of shares of Common Stock that the Holder was entitled to receive from the conversion at issue multiplied by (2) the actual sale price at which the sell order giving rise to such purchase obligation was executed (including any brokerage commissions) and (B) at the option of the Holder, either reissue (if surrendered) this Note in a principal amount equal to the principal amount of the attempted conversion (in which case such conversion shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued if the Company had timely complied with its delivery requirements under Section 4(c) (ii). For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted conversion of this Note with respect to which the actual sale price of the Conversion Shares (including any brokerage commissions) giving rise to such purchase obligation was a total of \$10,000 under clause (A) of the immediately preceding sentence, the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver certificates representing shares of Common Stock upon conversion of this Note as required pursuant to the terms hereof.

vi. Reservation of Shares Issuable Upon Conversion. The Company covenants that it will at all times reserve and keep available out of its authorized and unissued shares of Common Stock for the sole purpose of issuance upon conversion of this Note and payment of interest on this Note, each as herein provided, free from preemptive rights or any other actual contingent purchase rights of Persons other than the Holder (and the other Holder of the Notes), not less than such aggregate number of shares equal to two and one half times the number of shares of the Common Stock as shall (subject to the terms and conditions set forth in the Purchase Agreement) be issuable (taking into account the adjustments and restrictions of Section 5) upon the conversion of the then outstanding principal amount of this Note and accrued interest hereunder. The Company covenants that all shares of Common Stock that shall be so issuable shall, upon issue, be duly authorized, validly issued, fully paid and nonassessable, and, if the Registration Statement is then effective under the Securities Act shall be registered for public resale in accordance with such Registration Statement.

vii. Insufficient Authorized Shares. If, notwithstanding Section 4(c)(v), and not in limitation thereof, at any time while any of the Notes remain outstanding the Company does not have a sufficient number of authorized and unreserved shares of Common Stock to satisfy its obligation to reserve for issuance upon conversion of the Notes at least a number of shares of Common Stock equal to the amount specified in Section 4(c)(v) (an “Authorized Share Failure”), then the Company shall immediately take all action necessary to increase the Company’s authorized shares of Common Stock to an amount sufficient to allow the Company to reserve the applicable amount for the Notes then outstanding. Without limiting the generality of the foregoing sentence, as soon as practicable after the date of the occurrence of an Authorized Share Failure, but in no event later than sixty (60) days after the occurrence of such Authorized Share Failure, the Company shall hold a meeting of its stockholders for the approval of an increase in the number of authorized shares of Common Stock. In connection with such meeting, the Company shall provide each stockholder with a proxy statement and shall use its best efforts to solicit its stockholders’ approval of such increase in authorized shares of Common Stock and to cause its board of directors to recommend to the stockholders that they approve such proposal. In the event that the Company is prohibited from issuing shares of Common Stock upon any conversion due to the failure by the Company to have sufficient shares of Common Stock available out of the authorized but unissued shares of Common Stock (such unavailable number of shares of Common Stock, the “Authorized Failure Shares”), in lieu of delivering such Authorized Failure Shares to the Holder, the Company shall pay cash in exchange for the portion of the Note convertible into such Authorized Failure Shares at a price equal to the sum of the product of (x) such number of Authorized Failure Shares and (y) the greatest closing sale price of the Common Stock on any Trading Day during the period commencing on the date the Authorized Failure Shares should have been issued pursuant to the terms of this Note and ending on the date of such issuance of payment under this Section 4(c)(vi).

viii. Fractional Shares. No fractional shares or scrip representing fractional shares shall be issued upon the conversion of this Note. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such conversion, the Company shall at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Conversion Price or round up to the next whole share.

ix. Transfer Taxes and Expenses. The issuance of certificates for shares of the Common Stock on conversion of this Note shall be made without charge to the Holder hereof for any documentary stamp or similar taxes that may be payable in respect of the issue or delivery of such certificates, provided that, the Company shall not be required to pay any tax that may be payable in respect of any transfer involved in the issuance and delivery of any such certificate upon conversion in a name other than that of the Holder of this Note so converted and the Company shall not be required to issue or deliver such certificates unless or until the Person or Persons requesting the issuance thereof shall have paid to the Company the amount of such tax or shall have established to the satisfaction of the Company that such tax has been paid. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Conversion.

d) Holder's Conversion Limitations.

(i) The Company shall not effect any conversion of this Note, and a Holder shall not have the right to convert any portion of this Note, to the extent that after giving effect to the conversion set forth on the applicable Notice of Conversion, the Holder (together with the Holder's Affiliates, and any Persons acting as a group together with the Holder or any of the Holder's Affiliates) would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates shall include the number of shares of Common Stock issuable upon conversion of this Note with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which are issuable upon (i) conversion of the remaining, unconverted principal amount of this Note beneficially owned by the Holder or any of its Affiliates and (ii) exercise or conversion of the unexercised or unconverted portion of any other securities of the Company subject to a limitation on conversion or exercise analogous to the limitation contained herein (including, without limitation, any other Notes) beneficially owned by the Holder or any of its Affiliates. Except as set forth in the preceding sentence, for purposes of this Section 4(d), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. To the extent that the limitation contained in this Section 4(d) applies, the determination of whether this Note is convertible (in relation to other securities owned by the Holder together with any Affiliates) and of which principal amount of this Note is convertible shall be in the sole discretion of the Holder, and the submission of a Notice of Conversion shall be deemed to be the Holder's determination of whether this Note may be converted (in relation to other securities owned by the Holder together with any Affiliates) and which principal amount of this Note is convertible, in each case subject to the Beneficial Ownership Limitation. To ensure compliance with this restriction, the Holder will be deemed to represent to the Company each time it delivers a Notice of Conversion that such Notice of Conversion has not violated the restrictions set forth in this paragraph and the Company shall have no obligation to verify or confirm the accuracy of such determination. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 4(d), in determining the number of outstanding shares of Common Stock, the Holder may rely on the number of outstanding shares of Common Stock as stated in the most recent of the following: (i) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (ii) a more recent public announcement by the Company, or (iii) a more recent written notice by the Company or the Company's transfer agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of a Holder, the Company shall within two Trading Days confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Note, by the Holder or its Affiliates since the date as of which such number of outstanding shares of Common Stock was reported. The "Beneficial Ownership Limitation" shall be 4.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon conversion of this Note held by the Holder. The Holder, upon not less than 61 days' prior notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 4(d). Any such increase or decrease will not be effective until the 61st day after such notice is delivered to the Company. The Beneficial Ownership Limitation provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 4(d) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation contained herein or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Note.

Section 5. Certain Adjustments.

a) Stock Dividends and Stock Splits. If the Company, at any time while this Note is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions payable in shares of Common Stock on shares of Common Stock or any Common Stock Equivalents (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon conversion of, or payment of interest on, the Notes), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of a reverse stock split) outstanding shares of Common Stock into a smaller number of shares or (iv) issues, in the event of a reclassification of shares of the Common Stock, any shares of capital stock of the Company, then the Conversion Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding any treasury shares of the Company) outstanding immediately before such event, and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event. Any adjustment made pursuant to this Section shall become effective immediately after the record date for the determination of stockholder entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) Subsequent Rights Offerings. If the Company, at any time while the Note is outstanding, shall issue rights, options or warrants to all holders of Common Stock (and not to the Holder) entitling them to subscribe for or purchase warrants, securities or other property pro rata to all or substantially all of the record holders of any class of Common Stock (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete conversion of this Note (without taking into account any limitations or restrictions on the convertibility of this Note) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

c) Pro Rata Distributions. If the Company, at any time while this Note is outstanding, shall distribute to all Holders of Common Stock (and not to the Holder) evidences of its indebtedness or assets (including cash and cash dividends) or rights or warrants to subscribe for or purchase any security other than the Common Stock (which shall be subject to Section 3(b)), then in each such case the Conversion Price shall be adjusted by multiplying the Conversion Price in effect immediately prior to the record date fixed for determination of stockholders entitled to receive such distribution by a fraction of which the denominator shall be the VWAP determined as of the record date mentioned above, and of which the numerator shall be such VWAP on such record date less the then per share fair market value at such record date of the portion of such assets or evidence of indebtedness or rights or warrants so distributed applicable to one outstanding share of the Common Stock as determined by the Board of Directors in good faith. In either case the adjustments shall be described in a statement provided to the Holder of the portion of assets or evidences of indebtedness so distributed or such subscription rights applicable to one share of Common Stock. Such adjustment shall be made whenever any such distribution is made and shall become effective immediately after the record date mentioned above.

d) Fundamental Transaction. Except as contemplated in the Proposed Transactions (as such term is defined in the Purchase Agreement), if, at any time while this Note is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person and the Company is not the surviving entity, (ii) the Company, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which Holder of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the Holder of 50% or more of the outstanding Common Stock, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person whereby such other Person acquires more than 50% of the outstanding shares of Common Stock (not including any shares of Common Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination) (each a "Fundamental Transaction"), then, upon any subsequent conversion of this Note, the Holder shall have the right to receive, for each Conversion Share that would have been issuable upon such conversion immediately prior to the occurrence of such Fundamental Transaction (without regard to any limitation in Section 4(d) on the conversion of this Note), the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the "Alternate Consideration") receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Note is convertible immediately prior to such Fundamental Transaction (without regard to any limitation in Section 4(d) on the conversion of this Note). For purposes of any such conversion, the determination of the Conversion Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one (1) share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Conversion Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any conversion of this Note following such Fundamental Transaction. The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the "Successor Entity") to assume in writing all of the obligations of the Company under this Note and the other Transaction Documents (as defined in the Purchase Agreement) in accordance with the provisions of this Section 5(d) and shall, at the option of the holder of this Note, deliver to the Holder in exchange for this Note a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Note which is convertible for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon conversion of this Note (without regard to any limitations on the conversion of this Note) at the closing of such Fundamental Transaction, and with a conversion price which applies the conversion price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such conversion price being for the purpose of protecting the economic value of this Note immediately prior to the consummation of such Fundamental Transaction). Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Note and the other Transaction Documents referring to the "Company" shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Note and the other Transaction Documents with the same effect as if such Successor Entity had been named as the Company herein.

e) Except as hereinafter provided, in case the Company shall at any time after the date hereof issue or sell any shares of Common Stock other than an Exempt Issuance, for an effective consideration per share less than the Conversion Price in effect immediately prior to the issuance or sale of such shares (which shall take into account original issue discounts and other mechanisms which lower the effective price of such security), or without consideration, including but not limited to convertible securities issued before or after the date of this Note which are repriced or exchanged (including via anti-dilution or default provisions), then forthwith upon such issuance or sale, the Conversion Price shall (until another such issuance or sale) be reduced to the price of such lower priced issuance.

For the purposes of any computation to be made in accordance with this Section 5(e) the following provisions shall be applicable:

(i) In case of the issuance or sale of shares of Common Stock for a consideration part or all of which shall be cash, the amount of the cash consideration therefor shall be deemed to be the amount of cash received by the Company for such shares (or, if shares of Common Stock are offered by the Company for subscription, the subscription price, or, if such securities shall be sold to underwriters or dealers for public offering without a subscription offering, the initial public offering price) before deducting therefor any compensation paid or discount allowed in the sale, underwriting or purchase thereof by underwriters or dealers or others performing similar services, or any expenses incurred in connection therewith. If the Company enters into a Variable Rate Transaction, the Company shall be deemed to have issued Common Stock or Common Stock Equivalents at the lowest possible conversion price at which such securities may be converted or exercised.

(ii) In case of the issuance or sale (otherwise than as a dividend or other distribution on any stock of the Company) of shares of Common Stock for a consideration part or all of which shall be other than cash, the amount of the consideration therefor other than cash shall be deemed to be the value of such consideration as determined in good faith by the Board of Directors of the Company.

(iii) Shares of Common Stock issuable by way of dividend or other distribution on any stock of the Company shall be deemed to have been issued immediately after the opening of business on the day following the record date for the determination of shareholders entitled to receive such dividend or other distribution and shall be deemed to have been issued without consideration.

f) Calculations. All calculations under this Section 5 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 5, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding any treasury shares of the Company) issued and outstanding.

g) Notice to the Holder.

i. Adjustment to Conversion Price. Whenever the Conversion Price is adjusted pursuant to any provision of this Section 5, the Company shall promptly deliver to each Holder a notice setting forth the Conversion Price after such adjustment and setting forth a brief statement of the facts requiring such adjustment.

ii. Notice to Allow Conversion by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all Holders of the Common Stock of rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholder of the Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company is a party, any sale or transfer of all or substantially all of the assets of the Company, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be filed at each office or agency maintained for the purpose of conversion of this Note, and shall cause to be delivered to the Holder at its last address as it shall appear upon the Note Register, at least fifteen (15) calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the Holder of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holder of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange, provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding the Company or any of the Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to convert this Note during the 20-day period commencing on the date of such notice through the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

Section 6. [Reserved]

Section 7. Negative Covenants. As long as any portion of this Note remains outstanding, unless the Holder(s) of at least 66% in principal amount of the then outstanding Notes shall have otherwise given prior written consent, the Company shall not, and shall not permit any of the Subsidiaries to, directly or indirectly:

a) amend its charter documents, including, without limitation, its certificate of incorporation and bylaws, in any manner that materially and adversely affects any rights of the Holder;

b) enter into any transaction with any Affiliate of the Company which would be required to be disclosed in any public filing with the Commission, unless such transaction is expressly approved by a majority of the disinterested directors of the Company (even if less than a quorum otherwise required for board approval);

c) incur, guarantee or assume or suffer to exist any Indebtedness, other than the Indebtedness evidenced by this Note and the other Notes, except for debt incurred in the ordinary course of business (including funds from capital raises);

d) sell, lease, license, assign, transfer, spin-off, split-off, close, convey or otherwise dispose of any assets or rights of the Company or any Subsidiary owned or hereafter acquired whether in a single transaction or a series of related transactions, other than (i) sales, leases, licenses, assignments, transfers, conveyances and other dispositions of such assets or rights by the Company and its Subsidiaries in the ordinary course of business consistent with its past practice for fair consideration, (ii) sales of inventory and product in the ordinary course of business consistent with past practice for fair consideration, and (iii) a sale or disposition of assets to a third party that has been approved by the independent members of the Board of Directors;

e) fail to take all action necessary or advisable to maintain all of the Intellectual Property Rights (as defined in the Purchase Agreement) of the Company and/or any of its Subsidiaries that are necessary or material to the conduct of the business of the Company in full force and effect except in connection with the sale or disposition of assets to a third party that has been approved by the independent members of the Board of Directors; or

f) enter into any agreement with respect to any of the foregoing.

Section 8. Events of Default.

a) “Event of Default” means, wherever used herein, any of the following events (whatever the reason for such event and whether such event shall be voluntary or involuntary or effected by operation of law or pursuant to any judgment, decree or order of any court, or any order, rule or regulation of any administrative or governmental body):

i. any default in the payment of (A) the principal amount of any Note or (B) interest, liquidated damages and other amounts owing to the Holder on any Note, as and when the same shall become due and payable (whether on a Conversion Date or the Maturity Date or by acceleration or otherwise) which default, solely in the case of an interest payment or other default under clause (A) and/or (B) above, is not cured within 10 Trading Days;

ii. the Company shall fail to observe or perform any other covenant or agreement contained in the Notes (other than a breach by the Company of its obligations to deliver shares of Common Stock to the Holder upon conversion, which breach is addressed in clause (xi) below) which failure is not cured, if possible to cure, within the earlier to occur of (A) 10 Trading Days after notice of such failure sent by the Holder or by any other Holder to the Company and (B) 10 Trading Days after the Company has become aware of such failure;

iii. a default or event of default (subject to any grace or cure period provided in the applicable agreement, document or instrument) shall have been declared under (A) any of the Transaction Documents;

iv. any representation or warranty made in this Note, any other Transaction Documents, any written statement pursuant hereto or thereto or any other report, financial statement or certificate made or delivered to the Holder shall be untrue or incorrect as of the date when made or deemed made except where such untrue or incorrect statement could not reasonably be expected to have a Material Adverse Effect (as defined in the Securities Purchase Agreement);

v. the Company or any Significant Subsidiary (as such term is defined in Rule 1-02(w) of Regulation S-X) shall be subject to a Bankruptcy Event;

vi. the Company or any Subsidiary shall default on any of its obligations under any mortgage, credit agreement or other facility, indenture agreement, factoring agreement or other instrument under which there may be issued, or by which there may be secured or evidenced, any indebtedness for borrowed money or money due under any long term leasing or factoring arrangement that (a) involves an obligation greater than \$100,000, whether such indebtedness now exists or shall hereafter be created, and (b) results in such indebtedness becoming or being declared due and payable prior to the date on which it would otherwise become due and payable;

vii. the Common Stock shall not be eligible for listing or quotation for trading on a Trading Market and shall not be eligible to resume listing or quotation for trading thereon within five Trading Days;

viii. the Company shall be a party to any Change of Control Transaction or Fundamental Transaction or shall agree to sell or dispose of all or in excess of 50% of its assets in one transaction or a series of related transactions (whether or not such sale would constitute a Change of Control Transaction), except following an approval vote of 66% in principal amount of the then outstanding loans of the Company;

ix. the Company does not meet the current public information requirements under Rule 144 in respect of the Common Stock, subject to a cure period of 10 days;

x. the Company shall fail for any reason to deliver certificates to a Holder prior to the fifth Trading Day after a Conversion Date pursuant to Section 4(c) or the Company shall provide at any time notice to the Holder, including by way of public announcement, of the Company's intention to not honor requests for conversions of any Notes in accordance with the terms hereof;

xi. the Company shall fail for any reason to deliver certificates to a Holder prior to the seventh (7th) Trading Day after a Conversion Date pursuant to Section 4(c), or the Company shall provide at any time notice to the Holder, including by way of public announcement, of the Company's intention to not honor requests for conversions of this Note in accordance with the terms hereof;

xii. the Company fails to file with the Commission any required reports under Section 13 or 15(d) of the Exchange Act such that it is not in compliance with Rule 144(c)(1) (or Rule 144(i)(2), if applicable), which failure is not cured, if possible to cure, within ten (10) Trading Days after the expiration of the applicable grace period permitted under Rule 12b-25 of the Exchange Act, further provided that the Company files a Form 12b-25 for such report; or

xiii. any monetary judgment, writ or similar final process shall be entered or filed against the Company, any subsidiary or any of their respective property or other assets for more than \$100,000, and such judgment, writ or similar final process shall remain unvacated, unbonded or unstayed for a period of 45 calendar days.

b) Remedies Upon Event of Default. If any Event of Default occurs, which default has not been cured within the applicable Grace Period, then (a) the outstanding principal amount of this Note, plus accrued but unpaid interest, plus all interest that would have been earned through the Maturity Date if such interest has not yet accrued, liquidated damages and other amounts owing in respect thereof through the date of acceleration, shall become, at the Holder's election, immediately due and payable in cash at the Redemption Amount. Commencing five days after the occurrence of any Event of Default that results in the eventual acceleration of this Note, the interest rate on this Note shall accrue at an interest rate equal to the lesser of 18% per annum or the maximum rate permitted under applicable law. Upon the payment in full of the Redemption Amount, the Holder shall promptly surrender this Note to or as directed by the Company. In connection with such acceleration described herein, the Holder need not provide, and the Company hereby waives, any presentment, demand, protest or other notice of any kind, and the Holder may immediately and without expiration of any grace period enforce any and all of its rights and remedies hereunder and all other remedies available to it under applicable law. Such acceleration may be rescinded and annulled by Holder at any time prior to payment hereunder and the Holder shall have all rights as a holder of the Note until such time, if any, as the Holder receives full payment pursuant to this Section 8(b). No such rescission or annulment shall affect any subsequent Event of Default or impair any right consequent thereon; and (b) the Holder shall have the right of off-set with the shares of the Company's Common Stock being held in Escrow in the Holder's Name at the Company's Transfer Agent at the time.

Section 9. Registration Rights. The shares of Common Stock issuable upon conversion of this Note shall not be subject to a registration rights agreement.

Section 10. Miscellaneous.

a) Notices. Any and all notices or other communications or deliveries to be provided by the Holder hereunder, including, without limitation, any Notice of Conversion, shall be in writing and delivered personally, by facsimile, or sent by a nationally recognized overnight courier service, addressed to the Company, at the address set forth above, or such other facsimile number or address as the Company may specify for such purposes by notice to the Holder delivered in accordance with this Section 10(a). Any and all notices or other communications or deliveries to be provided by the Company hereunder shall be in writing and delivered personally, by facsimile, or sent by a nationally recognized overnight courier service addressed to the Holder at the facsimile number or address of the Holder appearing on the books of the Company, or if no such facsimile number or address appears on the books of the Company, at the principal place of business of the Holder, as set forth in the Purchase Agreement. Any notice or other communication or deliveries hereunder shall be deemed given and effective on the earliest of (i) the date of transmission, if such notice or communication is delivered via facsimile at the facsimile number set forth on the signature pages attached hereto prior to 5:30 p.m. (New York City time) on any date, (ii) the next Trading Day after the date of transmission, if such notice or communication is delivered via facsimile at the facsimile number set forth on the signature pages attached hereto on a day that is not a Trading Day or later than 5:30 p.m. (New York City time) on any Trading Day, (iii) the second Trading Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service or (iv) upon actual receipt by the party to whom such notice is required to be given.

b) Absolute Obligation. Except as expressly provided herein, no provision of this Note shall alter or impair the obligation of the Company, which is absolute and unconditional, to pay the principal of, liquidated damages and accrued interest, as applicable, on this Note at the time, place, and rate, and in the coin or currency, herein prescribed. This Note is a direct debt obligation of the Company. This Note ranks pari passu with all other Notes now or hereafter issued under the terms set forth herein.

c) Lost or Mutilated Note. If this Note shall be mutilated, lost, stolen or destroyed, the Company shall execute and deliver, in exchange and substitution for and upon cancellation of a mutilated Note, or in lieu of or in substitution for a lost, stolen or destroyed Note, a new Note for the principal amount of this Note so mutilated, lost, stolen or destroyed, but only upon receipt of evidence of such loss, theft or destruction of such Note, and of the ownership hereof, reasonably satisfactory to the Company.

d) Governing Law. All questions concerning the construction, validity, enforcement and interpretation of this Note shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflict of laws thereof. Each party agrees that all legal proceedings concerning the interpretation, enforcement and defense of the transactions contemplated by any of the Transaction Documents (whether brought against a party hereto or its respective Affiliates, directors, officers, shareholder, employees or agents) shall be commenced in the state and federal courts sitting in the City of New York, Borough of Manhattan (the "New York Courts"). Each party hereto hereby irrevocably submits to the exclusive jurisdiction of the New York Courts for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein (including with respect to the enforcement of any of the Transaction Documents), and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of such New York Courts, or such New York Courts are improper or inconvenient venue for such proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Note and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by applicable law. Each party hereto hereby irrevocably waives, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Note or the transactions contemplated hereby. If any party shall commence an action or proceeding to enforce any provisions of this Note, then the prevailing party in such action or proceeding shall be reimbursed by the other party for its attorney's fees and other costs and expenses incurred in the investigation, preparation and prosecution of such action or proceeding.

e) Amendments; Waiver. No provision of this Note may be waived, modified, supplemented or amended except in a written instrument signed, in the case of an amendment, by each of the Company and the Holder or, in the case of a waiver, by the party against whom enforcement of any such waived provision is sought. Any waiver by the Company or the Holder of a breach of any provision of this Note shall not operate as or be construed to be a waiver of any other breach of such provision or of any breach of any other provision of this Note. The failure of the Company or the Holder to insist upon strict adherence to any term of this Note on one or more occasions shall not be considered a waiver or deprive that party of the right thereafter to insist upon strict adherence to that term or any other term of this Note on any other occasion.

f) Severability. If any provision of this Note is invalid, illegal or unenforceable, the balance of this Note shall remain in effect, and if any provision is inapplicable to any Person or circumstance, it shall nevertheless remain applicable to all other Persons and circumstances. If it shall be found that any interest or other amount deemed interest due hereunder violates the applicable law governing usury, the applicable rate of interest due hereunder shall automatically be lowered to equal the maximum rate of interest permitted under applicable law. The Company covenants (to the extent that it may lawfully do so) that it shall not at any time insist upon, plead, or in any manner whatsoever claim or take the benefit or advantage of, any stay, extension or usury law or other law which would prohibit or forgive the Company from paying all or any portion of the principal of or interest on this Note as contemplated herein, wherever enacted, now or at any time hereafter in force, or which may affect the covenants or the performance of this Note, and the Company (to the extent it may lawfully do so) hereby expressly waives all benefits or advantage of any such law, and covenants that it will not, by resort to any such law, hinder, delay or impede the execution of any power herein granted to the Holder, but will suffer and permit the execution of every such as though no such law has been enacted.

g) Successors and Assigns. The terms and conditions of this Note shall inure to the benefit of and be binding upon the respective successors and assigns of the parties. The Company may not assign this note or delegate any of its obligations hereunder without the written consent of the Holder. The Holder may assign this Note, in whole or in part, and its rights hereunder at any time without consent of Company.

h) Next Business Day. Whenever any payment or other obligation hereunder shall be due on a day other than a Business Day, such payment shall be made on the next succeeding Business Day.

i) Headings. The headings contained herein are for convenience only, do not constitute a part of this Note and shall not be deemed to limit or affect any of the provisions hereof.

(Signature Pages Follow)

IN WITNESS WHEREOF, the Company has caused this Note to be duly executed by a duly authorized officer as of the date first above indicated.

PRESSURE BIOSCIENCES, INC.

By:

Name: Richard T. Schumacher

Title:

CEO

Facsimile No. for delivery of Notices: 508-230-1829

ANNEX A NOTICE

OF CONVERSION

The undersigned hereby elects to convert principal under the 12% Convertible Promissory Note due XXXX XX, 202X of Pressure BioSciences, Inc., a Massachusetts corporation (the "Company"), into shares of common stock (the "Common Stock"), of the Company according to the conditions hereof, as of the date written below. If shares of Common Stock are to be issued in the name of a person other than the undersigned, the undersigned will pay all transfer taxes payable with respect thereto and is delivering herewith such certificates and opinions as reasonably requested by the Company in accordance therewith. No fee will be charged to the holder for any conversion, except for such transfer taxes, if any.

By the delivery of this Notice of Conversion the undersigned represents and warrants to the Company that its ownership of the Common Stock does not exceed the amounts specified under Section 4 of this Note, as determined in accordance with Section 13(d) of the Exchange Act.

The undersigned agrees to comply with the prospectus delivery requirements under the applicable securities laws in connection with any transfer of the aforesaid shares of Common Stock.

Conversion calculations:

Date to Effect Conversion: _____

Principal Amount of Note to be Converted:

Number of shares of Common Stock to be issued:

Signature: _____

Name:

Address for Delivery of Common Stock Certificates:

Or

DWAC Instructions:

Broker No: _____

Account No: _____

Schedule 1

CONVERSION SCHEDULE

The 12% Convertible Promissory Notes due XXXX XX, 202X in the aggregate principal amount of \$100,000 is issued by Pressure BioSciences, Inc., a Massachusetts corporation. This Conversion Schedule reflects conversions made under Section 4 of the above referenced Note.

Dated:

Date of Conversion (or for first entry, Original Issue Date)	Amount of Conversion	Aggregate Principal Amount Remaining Subsequent to Conversion (or original Principal Amount)	Company Attest
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PRESSURE BIOSCIENCES, INC.
2021 EQUITY INCENTIVE PLAN

1. Purpose and Eligibility. The purpose of this 2021 Equity Incentive Plan (the “Plan”) of Pressure BioSciences, Inc., a Massachusetts corporation (the “Company”) is to provide stock options, stock issuances and other equity interests in the Company (each, an “Award”) to (a) employees, officers, directors, consultants and advisors of the Company and its Parents and Subsidiaries, and (b) any other Person who is determined by the Board to have made (or is expected to make) contributions to the Company. Any person to whom an Award has been granted under the Plan is called a “Participant.” Additional definitions are contained in Section 10.

2. Administration.

a. Administration by Board of Directors. The Plan will be administered by the Board of Directors of the Company (the “Board”). The Board, in its sole discretion, shall have the authority to grant and amend Awards, to adopt, amend and repeal rules relating to the Plan and to interpret and correct the provisions of the Plan and any Award. The Board shall have authority, subject to the express limitations of the Plan, (i) to construe and determine the respective Stock Option Agreement, Awards and the Plan, (ii) to prescribe, amend and rescind rules and regulations relating to the Plan and any Awards, (iii) to determine the terms and provisions of the respective Stock Option Agreements and Awards, which need not be identical, (iv) to initiate an Option Exchange Program, and (v) to make all other determinations in the judgment of the Board of Directors necessary or desirable for the administration and interpretation of the Plan. The Board may correct any defect or supply any omission or reconcile any inconsistency in the Plan or in any Stock Option Agreement or Award in the manner and to the extent it shall deem expedient to carry the Plan, any Stock Option Agreement or Award into effect and it shall be the sole and final judge of such expediency. All decisions by the Board shall be final and binding on all interested persons. Neither the Company nor any member of the Board shall be liable for any action or determination relating to the Plan.

b. Appointment of Committee. To the extent permitted by applicable law, the Board may delegate any or all of its powers under the Plan to one or more committees or subcommittees of the Board (a “Committee”). All references in the Plan to the “Board” shall mean such Committee or the Board.

c. Delegation to Executive Officers. To the extent permitted by applicable law, the Board may delegate to one or more executive officers of the Company the power to grant Awards and exercise such other powers under the Plan as the Board may determine, provided that the Board shall fix the maximum number of Awards to be granted and the maximum number of shares issuable to any one Participant pursuant to Awards granted by such executive officers.

d. Applicability of Section Rule 16b-3. Notwithstanding anything to the contrary in the foregoing if, or at such time as, the Common Stock is or becomes registered under Section 12 of the Exchange Act of 1934, as amended (the “Exchange Act”), or any successor statute, the Plan shall be administered in a manner consistent with Rule 16b-3 promulgated thereunder, as it may be amended from time to time, or any successor rules (“Rule 16b-3”), such that all subsequent grants of Awards hereunder shall be exempt under such rule. Those provisions of the Plan which make express reference to Rule 16b-3 or which are required in order for certain option transactions to qualify for exemption under Rule 16b-3 shall apply only to such persons as are required to file reports under Section 16 (a) of the Exchange Act (a “Reporting Person”).

e. Applicability of Section 162 (m). Those provisions of the Plan which are required by or make express reference to Section 162 (m) of the Internal Revenue Code or any regulations thereunder, or any successor section of the Code or regulations thereunder (“Section 162 (m)”) shall apply only upon the Company’s becoming a company that is subject to Section 162 (m). Notwithstanding any provisions in this Plan to the contrary, whenever the Board is authorized to exercise its discretion in the administration or amendment of this Plan or any Award hereunder or otherwise, the Board may not exercise such discretion in a manner that would cause any outstanding Award that would otherwise qualify as performance-based compensation under Section 162 (m) to fail to so qualify under Section 162 (m).

3 Stock Available for Awards.

a. Number of Shares. Subject to adjustment under Section 3I, the aggregate number of shares of Common Stock of the Company (the “Common Stock”) that may be issued pursuant to the Plan is 3,000,000. If any Award expires, or is terminated, surrendered or forfeited, in whole or in part, the unissued Common Stock covered by such Award shall again be available for the grant of Awards under the Plan. If an Award granted under the Plan shall expire or terminate for any reason without having been exercised in full, the unpurchased shares subject to such Award shall again be available for subsequent Awards under the Plan, and if shares of Common Stock issued pursuant to the Plan are repurchased by, or are surrendered or forfeited to, the Company at no more than cost, such shares of Common Stock shall again be available for the grant of Awards under the Plan. Shares issued under the Plan may consist in whole or in part of authorized but unissued shares or treasury shares.

b. Per-Participant Limit. Subject to adjustment under Section 3I, no Participant may be granted Awards during any one fiscal year to purchase more than 300,000 shares of Common Stock.

c. Adjustment to Common Stock. Subject to Section 7, in the event of any stock split, reverse stock split stock dividend, extraordinary cash dividend, recapitalization, reorganization, merger, consolidation, combination, exchange of shares, liquidation, spin-off, split-up, or other similar change in capitalization or similar event, (i) the number and class of securities available for Awards under the Plan and the per-Participant share limit, (ii) the number and class of securities, vesting schedule and exercise price per share subject to each outstanding Option, (iii) the repurchase price per security subject to repurchase, and (iv) the terms of each other outstanding stock-based Award shall be adjusted by the Company (or substituted Awards may be made if applicable) to the extent the Board shall determine, in good faith, that such an adjustment (or substitution) is appropriate.

4. Stock Options.

a. General. The Board may grant options to purchase Common Stock (each, an “Option”) and determine the number of shares of Common Stock to be covered by each Option, the exercise price of each Option and the conditions and limitations applicable to the exercise of each Option and the Common Stock issued upon the exercise of each Option, including vesting provisions, repurchase provisions and restrictions relating to applicable federal or state securities laws. Each Option will be evidenced by a Stock Option Agreement, consisting of a Notice of Stock Option Award and a Stock Option Award Agreement (collectively, a “Stock Option Agreement”).

b. Incentive Stock Options. An Option that the Board intends to be an incentive stock option (an “Incentive Stock Option”) as defined in Section 422 of the Code, as amended, or any successor statute (“Section 422”), shall be granted only to an employee of the Company and shall be subject to and shall be construed consistently with the requirements of Section 422 and regulations thereunder. The Board and the Company shall have no liability if an Option or any part thereof that is intended to be an Incentive Stock Option does not qualify as such. An Option or any part thereof that does not qualify as an Incentive Stock Option is referred to herein as a “Nonstatutory Stock Option” or “Nonqualified Stock Option.”

c. Dollar Limitation. For so long as the Code shall so provide, Options granted to any employee under the Plan (and any other incentive stock option plans of the Company) which are intended to qualify as Incentive Stock Options shall not qualify as Incentive Stock Options to the extent that such Options, in the aggregate, become exercisable for the first time in any one calendar year for shares of Common Stock with an aggregate fair market value (determined as of the respective date or dates of grant) of more than \$100,000. The amount of Incentive Stock Options which exceed such \$100,000 limitation shall be deemed to be Nonqualified Stock Options. For the purpose of this limitation, unless otherwise required by the Code or regulations of the Internal Revenue Service or determined by the Board, Options shall be taken into account in the order granted, and the Board may designate that portion of any Incentive Stock Option that shall be treated as Nonqualified Option in the event that the provisions of this paragraph apply to a portion of any Option. The designation described in the preceding sentence may be made at such time as the Committee considers appropriate, including after the issuance of the Option or at the time of its exercise.

d. Exercise Price. The Board shall establish the exercise price (or determine the method by which the exercise price shall be determined) at the time each Option is granted and will specify the exercise price in the applicable Stock Option Agreement. In the case of an Incentive Stock Option granted to a Participant who, at the time of grant of such Option, owns stock representing more than ten percent (10%) of the voting power of all classes of stock of the Company or any parent or subsidiary, then the exercise price shall be no less than 110% of the fair market value of the Common Stock on the date of grant. In the case of a grant of an Incentive Stock Option to any other Participant, the exercise price shall be no less than 100% of the fair market value of the Common Stock on the date of grant.

e. Duration of Options. Each Option shall be exercisable at such times and subject to such terms and conditions as the Board may specify in the applicable Stock Option Agreement; provided that the term of any Incentive Stock Option may not be more than ten (10) years from the date of grant. In the case of an Incentive Stock Option granted to a Participant who, at the time of grant of such Option, owns stock representing more than ten percent (10%) of the voting power of all classes of stock of the Company or any parent or subsidiary, the term of the Option shall be no longer than five (5) years from the date of grant.

f. Exercise of Option. Options may be exercised only by delivery to the Company of a written notice of exercise signed by the proper person together with payment in full as specified in Section 4(g) and the Stock Option Agreement for the number of shares for which the Option is exercised.

g. Payment Upon Exercise. Common Stock purchased upon the exercise of an Option shall be paid for by one or any combination of the following forms of payment as permitted by the Board in its sole and absolute discretion:

i. by check payable to the order of the Company;

ii. only if the Common Stock is then publicly traded, by delivery of an irrevocable and unconditional undertaking by a creditworthy broker to deliver promptly to the Company sufficient funds to pay the exercise price, or delivery by the Participant to the Company of a copy of irrevocable and unconditional instructions to a creditworthy broker to deliver promptly to the Company cash or a check sufficient to pay the exercise price;

iii. to the extent explicitly provided in the applicable Stock Option Agreement, by delivery of shares of Common Stock owned by the Participant valued at fair market value (as determined by the Board or as determined pursuant to the applicable Stock Option Agreement); or

iv. payment of such other lawful consideration as the Board may determine.

Except as otherwise expressly set forth in an Stock Option Award, the Board shall have no obligation to accept consideration other than cash and in particular, unless the Board so expressly provides, in no event will the Company accept the delivery of shares of Common Stock that have not been owned by the participant at least six months prior to the exercise. The fair market value of any shares of the Company's Common Stock or other non-cash consideration which may be delivered upon exercise of an Option shall be determined in such manner as may be prescribed by the Board.

h. Acceleration, Extension, Etc. The Board may, in its sole discretion, and in all instances subject to any relevant tax and accounting considerations which may adversely impact or impair the Company, (i) accelerate the date or dates on which all or any particular Options or Awards granted under the Plan MAY be exercised, or (ii) extend the dates during which all or any particular Options or Awards granted under the Plan may be exercised or vest.

i. Determination of Fair Market Value. If, at the time an Option is granted under the Plan, the Company's Common Stock is publicly traded under the Exchange Act, "fair market value" shall mean (i) if the Common Stock is listed on any established stock exchange or a national market system, including without limitation the Nasdaq National Market or The Nasdaq Small Cap Market of The Nasdaq Stock Market, its fair market value shall be the last reported sales price for such stock (on that date) or the closing bid, if no sales were reported as quoted on such exchange or system as reported in *The Wall Street Journal* or such other source as the Board deems reliable; or (ii) the average of the closing bid and asked prices last quoted (on that date) by an established quotation service for over-the-counter securities, if the Common Stock is not reported on a national market system. In the absence of an established market for the Common Stock, the fair market value thereof shall be determined in good faith by the Board after taking into consideration all factors which it deems appropriate.

5. Restricted Stock

a. Grants. The Board may grant Awards entitling recipients to acquire shares of Common Stock, subject to (i) delivery to the Company by the Participant of a check in an amount at least equal to the par value of the shares purchased, and (ii) the right of the Company to repurchase all or part of such shares at their issue price or other stated or formula price from the Participant in the event that conditions specified by the Board in the applicable Award are not satisfied prior to the end of the applicable restriction period or periods established by the Board for such Award (each, a "Restricted Stock Award").

b. Terms and Conditions. The Board shall determine the terms and conditions of any such Restricted Stock Award. Any stock certificates issued in respect of a Restricted Stock Award shall be registered in the name of the Participant and, unless otherwise determined by the Board, deposited by the Participant, together with a stock power endorsed in blank, with the Company (or its designee). After the expiration of the applicable restriction periods, the Company (or such designee) shall deliver the certificates no longer subject to such restrictions to the Participant or, if the Participant has died, to the beneficiary designated by a Participant, in a manner determined by the Board, to receive amounts due or exercise rights of the Participant in the event of the Participant's death (the "Designated Beneficiary"). In the absence of an effective designation by a Participant, Designated Beneficiary shall mean the Participant's estate.

6. Other Stock-Based Awards. The Board shall have the right to grant other Awards based upon the Common Stock having such terms and conditions as the Board may determine, including, without limitation, the grant of shares based upon certain conditions, the grant of securities convertible into Common Stock and the grant of stock appreciation rights, phantom stock awards or stock units.

7. General Provisions Applicable to Awards

a. Transferability of Awards. Except as the Board may otherwise determine or provide in an Award, Awards shall not be sold, assigned, transferred, pledged or otherwise encumbered by the person to whom they are granted, either voluntarily or by operation of law, except by will or the laws of descent and distribution, and, during the life of the Participant, shall be exercisable only by the Participant; provided, however, that Nonstatutory Options may be transferred pursuant to a qualified domestic relations order (as defined in Employee Retirement Income Security Act of 1974, as amended) or to a grantor-retained annuity trust or a similar estate-planning vehicle in which the trust is bound by all provisions of the Option which are applicable to the optionee. References to a Participant, to the extent relevant in the context, shall include references to authorized transferees.

b. Documentation. Each Award under the Plan shall be evidenced by a written instrument in such form as the Board shall determine or as executed by an officer of the Company pursuant to authority delegated by the Board. Each Award may contain terms and conditions in addition to those set forth in the Plan, provided that such terms and conditions do not contravene the provisions of the Plan or applicable law.

c. Board Discretion. The terms of each type of Award need not be identical, and the Board need not treat Participants uniformly.

d. Additional Award Provisions. The Board may, in its sole discretion, include additional provisions in any Stock Option Agreement or other Award granted under the Plan, including without limitation restrictions on transfer, repurchase rights, commitments to pay cash bonuses, to make, arrange for or guaranty loans or to transfer other property to Participants upon exercise of Awards, or transfer other property to Participants upon exercise of Options, or such other provisions as shall be determined by the Board; provided that such additional provisions shall not be inconsistent with any other term or condition of the Plan or applicable law.

e. Termination of Status. The Board shall determine the effect on an Award of the disability (as defined in Code Section 22(e)(3)), death, retirement, authorized leave of absence or other change in the employment or other status of a Participant and the extent to which, and the period during which, the Participant, or the Participant's legal representative, conservator, guardian or Designated Beneficiary, may exercise rights under the Award, subject to applicable law and the provisions of the Code related to Incentive Stock Options.

f. Acquisition of the Company.

i. Unless otherwise expressly provided in the applicable Stock Option Agreement or Award, upon the occurrence of an Acquisition (as defined below), the Board shall, in its sole discretion as to outstanding Awards (on the same basis or on different bases, as the Board shall specify), take one or more of the following actions:

A. make appropriate provision for the continuation of such Awards by the Company or the assumption of such Awards by the surviving or acquiring entity and by substituting on an equitable basis for the shares then subject to such Awards either (x) the consideration payable with respect to the outstanding shares of Common Stock in connection with the Acquisition, (y) shares of stock of the surviving or acquiring corporation or (z) such other securities as the Board deems appropriate, the fair market value of which (as determined by the Board in its sole discretion) shall not materially differ from the fair market value of the shares of Common Stock subject to such Awards immediately preceding the Acquisition;

B. accelerate the date of exercise or vesting of such Awards or of any installment of any such Awards;

C. permit the exchange of all Awards for the right to participate in any stock option or other employee benefit plan of any successor corporation; or

D. provide for the termination of any such Awards immediately prior to the consummation of the Acquisition; provided that no such termination will be effective if the Acquisition is not consummated.

g. Acquisition Defined. An "Acquisition" shall mean: (i) any merger, business combination, consolidation or purchase of outstanding capital stock of the Company after which the voting securities of the Company outstanding immediately prior thereto represent (either by remaining outstanding or by being converted into voting securities of the surviving or acquiring entity) less than 50% of the combined voting power of the voting securities of the Company or such surviving or acquiring entity outstanding immediately after such event (other than as a result of a financing transaction); or any sale of all or substantially all of the capital stock or assets of the Company (other than in a spin-off or similar transaction).

h. Dissolution or Liquidation. In the event of the proposed dissolution or liquidation of the Company, the Board shall notify each Participant as soon as practicable prior to the effective date of such proposed transaction. The Board in its sole discretion may provide for a Participant to have the right to exercise his or her Award until fifteen (15) days prior to such transaction as to all of the Common Stock covered by the Option or Award, including shares as to which the Option or Award would not otherwise be exercisable, which exercise may in the sole discretion of the Board, be made subject to and conditioned upon the consummation of such proposed transaction. In addition, the Board may provide that any Company repurchase option applicable to any Common Stock purchased upon exercise of an Option or Award shall lapse as to all such Common Stock, provided the proposed dissolution and liquidation takes place at the time and in the manner contemplated. To the extent it has not been previously exercised, an Award will terminate upon the consummation of such proposed action.

i. Assumption of Options Upon Certain Events. In connection with a merger or consolidation of an entity with the Company or the acquisition by the Company of property or stock of an entity, the Board may grant Awards under the Plan in substitution for stock and stock-based awards issued by such entity or an affiliate thereof. The substitute Awards shall be granted on such terms and conditions as the Board considers appropriate in the circumstances.

j. Parachute Payments and Parachute Awards. Notwithstanding the provisions of Section 7(f), if, in connection with an Acquisition described therein, a tax under Section 4999 of the Code would be imposed on the Participant (after taking into account the exceptions set forth in Sections 280G(b)(4) and 280G(b)(5) of the Code), then the number of Awards which shall become exercisable, realizable or vested as provided in such section shall be reduced (or delayed), to the minimum extent necessary, so that no such tax would be imposed on the Participant (the Awards not becoming so accelerated, realizable or vested, the “Parachute Awards”); provided, however, that if the “aggregate present value” of the Parachute Awards would exceed the tax that, but for this sentence, would be imposed on the Participant under Section 4999 of the Code in connection with the Acquisition, then the Awards shall become immediately exercisable, realizable and vested without regard to the provisions of this sentence. For purposes of the preceding sentence, the “aggregate present value” of an Award shall be calculated on an after-tax basis (other than taxes imposed by Section 4999 of the Code) and shall be based on economic principles rather than the principles set forth under Section 280G of the Code and the regulations promulgated thereunder. All determinations required to be made under this Section 7(j) shall be made by the Company.

k. Amendment of Awards. The Board may amend, modify or terminate any outstanding Award including, but not limited to, substituting therefor another Award of the same or a different type, changing the date of exercise or realization, and converting an Incentive Stock Option to a Nonstatutory Stock Option, provided that the Participant’s consent to such action shall be required unless the Board determines that the action, taking into account any related action, would not materially and adversely affect the Participant.

l. Conditions on Delivery of Stock. The Company will not be obligated to deliver any shares of Common Stock pursuant to the Plan or to remove restrictions from shares previously delivered under the Plan until (i) all conditions of the Award have been met or removed to the satisfaction of the Company, (ii) in the opinion of the Company’s counsel, all other legal matters in connection with the issuance and delivery of such shares have been satisfied, including any applicable securities laws and any applicable stock exchange or stock market rules and regulations, and (iii) the Participant has executed and delivered to the Company such representations or agreements as the Company may consider appropriate to satisfy the requirements of any applicable laws, rules or regulations.

m. Acceleration. The Board may at any time provide that any Options shall become immediately exercisable in full or in part, that any Restricted Stock Awards shall be free of some or all restrictions, or that any other stock-based Awards may become exercisable in full or in part or free of some or all restrictions or conditions, or otherwise realizable in full or in part, as the case may be, despite the fact that the foregoing actions may (i) cause the application of Sections 280G and 4999 of the Code if a change in control of the Company occurs, or (ii) disqualify all or part of the Option as an Incentive Stock Option.

8. Withholding. The Company shall have the right to deduct from payments of any kind otherwise due to the optionee or recipient of an Award any federal, state or local taxes of any kind required by law to be withheld with respect to any shares issued upon exercise of Options under the Plan or the purchase of shares subject to the Award. Subject to the prior approval of the Company, which may be withheld by the Company in its sole discretion, the optionee or recipient of an Award may elect to satisfy such obligation, in whole or in part, (a) by causing the Company to withhold shares of Common Stock otherwise issuable pursuant to the exercise of an Option or the purchase of shares subject to an Award or (b) by delivering to the Company shares of Common Stock already owned by the optionee or Award recipient. The shares so delivered or withheld shall have a fair market value of the shares used to satisfy such withholding obligation as shall be determined by the Company as of the date that the amount of tax to be withheld is to be determined. An optionee or Award recipient who has made an election pursuant to this Section may only satisfy his or her withholding obligation with shares of Common Stock which are not subject to any repurchase, forfeiture, unfulfilled vesting or other similar requirements.

9. No Exercise of Option if Engagement or Employment Terminated for Cause. If the employment or engagement of any Participant is terminated “for Cause,” the Award may terminate, upon a determination of the Board, on the date of such termination and the Option shall thereupon not be exercisable to any extent whatsoever. For purposes of this Section 9, “for Cause” shall be defined as follows: (i) if the Participant has executed an employment agreement, the definition of “cause” contained therein, if any, shall govern, or (ii) conduct, as determined by the Board of Directors, involving one or more of the following: (a) gross misconduct or inadequate performance by the Participant which is injurious to the Company; or (b) the commission of an act of embezzlement, fraud or theft, which results in economic loss, damage or injury to the Company; or (c) the unauthorized disclosure of any trade secret or confidential information of the Company (or any client, customer, supplier or other third party who has a business relationship with the Company) or the violation of any noncompetition or nonsolicitation covenant or assignment of inventions obligation with the Company; or (d) the commission of an act which constitutes unfair competition with the Company or which induces any customer or prospective customer of the Company to break a contract with the Company or to decline to do business with the Company; or (e) the indictment of the Participant for a felony serious misdemeanor offense, either in connection with the performance of his obligations to the Company or which shall adversely affect the Participant’s ability to perform such obligations; or (f) the commission of an act of fraud or breach of fiduciary duty which results in loss, damage or injury to the Company; or (g) the failure of the Participant to perform in a material respect his or her employment obligations without proper cause. In making such determination, the Board shall act fairly and in utmost good faith. The Board may in its discretion waive or modify the provisions of this Section at a meeting of the Board with respect to any individual Participant with regard to the facts and circumstances of any particular situation involving a determination under this Section.

10. Miscellaneous.

a. Definitions.

i. "Company," for purposes of eligibility under the Plan, shall include any present or future subsidiary corporations of Pressure BioSciences, Inc., as defined in Section 424(f) of the Code (a "Subsidiary"), and any present or future parent corporation of Pressure BioSciences, Inc., as defined in Section 424(e) of the Code. For purposes of Awards other than Incentive Stock Options, the term "Company" shall include any other business venture in which the Company has a direct or indirect significant interest, as determined by the Board in its sole discretion.

ii. "Code" means the Internal Revenue Code of 1986, as amended, and any regulations promulgated thereunder.

iii. "Employee" for purposes of eligibility under the Plan shall include a person to whom an offer of employment has been extended by the Company.

iv. "Option Exchange Program" means a program whereby outstanding options are exchanged for options with a lower exercise price.

b. No Right to Employment or Other Status. No person shall have any claim or right to be granted an Award, and the grant of an Award shall not be construed as giving a Participant the right to continued employment or any other relationship with the Company. The Company expressly reserves the right at any time to dismiss or otherwise terminate its relationship with a Participant free from any liability or claim under the Plan.

c. No Rights as Stockholder. Subject to the provisions of the applicable Award, no Participant or Designated Beneficiary shall have any rights as a stockholder with respect to any shares of Common Stock to be distributed with respect to an Award until becoming the record holder thereof.

d. Effective Date and Term of Plan. The Plan shall become effective on the date on which it is adopted by the Board. No Awards shall be granted under the Plan after the completion of ten years from the date on which the Plan was adopted by the Board, but Awards previously granted may extend beyond that date.

e. Amendment of Plan. The Board may amend, suspend or terminate the Plan or any portion thereof at any time.

f. Governing Law. The provisions of the Plan and all Awards made hereunder shall be governed by and interpreted in accordance with the laws of the state of incorporation of the Company (The Commonwealth of Massachusetts), without regard to any applicable conflicts of law.

Pressure BioSciences, Inc. – Subsidiaries

PBI Agrochem, Inc. (Massachusetts)

PBI BioSeq, Inc. (Massachusetts)

Pressure BioSciences Europe (Poland)

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statement on Form S-8 (File No. 333-203609) of our report dated April 4, 2022, with respect to the consolidated financial statements of Pressure BioSciences, Inc., which is included in this Annual Report on Form 10-K for the year ended December 31, 2021. Our report contains an explanatory paragraph regarding the Company's ability to continue as a going concern.

/s/ Malone Bailey LLP

www.malonebailey.com

Houston, Texas

April 4, 2022

CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Richard T. Schumacher, certify that:

1. I have reviewed this report on Form 10-K of Pressure BioSciences, 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 Rule 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 subsidiary, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer 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 data; 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

By: /s/ Richard T. Schumacher
Name: Richard T. Schumacher
Title: President and Chief Executive Officer
(Principal Executive Officer)

CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Richard T. Schumacher, certify that:

1. I have reviewed this report on Form 10-K of Pressure BioSciences, 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 Rule 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 subsidiary, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer 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 data; 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

By: /s/ Richard T. Schumacher
Richard T. Schumacher
Interim Chief Financial Officer
(Principal Financial Officer)

Certification
Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
(Subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code)

In connection with the Annual Report on Form 10-K of Pressure BioSciences, Inc., a Massachusetts corporation (the "Company") for the period ended December 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Richard T. Schumacher, President and Chief Executive Officer, of Pressure BioSciences, Inc., a Massachusetts corporation (the "Company"), do hereby certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code) that:

- (1) The Report of the Company fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: April 5, 2022

/s/ Richard T. Schumacher

Richard T. Schumacher
President and Chief Executive Officer
(Principal Executive Officer)

A signed original of this written statement required by Section 906 has been provided to Pressure BioSciences, Inc., and will be retained by Pressure BioSciences, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

Certification
Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
(Subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code)

In connection with the Annual Report on Form 10-K of Pressure BioSciences, Inc., a Massachusetts corporation (the “Company”) for the period ended December 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), Richard T. Schumacher, Chief Financial Officer, of Pressure BioSciences, Inc., a Massachusetts corporation (the “Company”), do hereby certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code) that:

- (1) The Report of the Company fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: April 5, 2022

/s/ Richard T. Schumacher

Richard T. Schumacher
Interim Chief Financial Officer
(Principal Financial Officer)

A signed original of this written statement required by Section 906 has been provided to Pressure BioSciences, Inc., and will be retained by Pressure BioSciences, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.
