

December 17, 2020



# **Pressure BioSciences PCT Platform at Forefront in Generating Pivotal Findings by Diverse COVID-19 Research Teams in USA, China, and Europe**

## **PCT's Effectiveness and Reproducibility Impacts Research Results and Fills Critical Role in Achieving Important Insights for the Development of New and Improved COVID-19 Diagnostics and Therapeutics**

SOUTH EASTON, Mass., Dec. 17, 2020 /PRNewswire/ -- Pressure BioSciences, Inc. (OTCQB: PBIO) ("PBI" or the "Company"), a leader in the development and sale of broadly enabling, pressure-based instruments, consumables, and platform technology solutions to the worldwide biotechnology, biotherapeutics, cosmetics, nutraceuticals, and food & beverage industries, today announced a remarkable convergence of global research teams announcing pivotal new insights into COVID-19 biology and disease processes. These data point to potential new pathways to next generation diagnostics and treatments. All teams selected PBI's Pressure Cycling Technology ("PCT") platform for their critical sample preparation steps, to help ensure that the greatest abundance and diversity of reproducible results would be revealed in the thousands of proteins involved in the affected biochemical pathways.

The year 2020 will be forever remembered for the outbreak of the COVID-19 pandemic, wreaking a devastating swath of death, damaged lives, and economic destruction globally. Legions of workers in healthcare and essential services have heroically stood up for this challenge. Thousands of scientists worldwide mobilized into a juggernaut seeking out the unique differences and clues in the SARS-CoV-2 virus and probing for their interaction with the complexities of diverse human responses to infection, to illuminate potent insights into the development of more effective diagnosis, assessment, and treatment. While the first batches of vaccine from several manufacturers are now being shipped, the battle against COVID-19 is far from over. The SARS-CoV-2 virus is a highly variable and rapidly evolving pathogen. It is still not known how long immunity lasts after vaccination. Moreover, as the pandemic continues, initial drugs and vaccines could become less effective against mutated viral strains, as they appear. It is important that scientists continue to monitor and study the virus, to ensure that the arsenal of therapeutics, vaccines, and diagnostics being used to fight this pathogen remain highly effective.

Dr. Alexander V. Lazarev, Chief Science Officer of PBI, said: "The compelling history of scientists worldwide publishing on PBI's PCT-based Barocycler system has resulted in its establishment as the method of choice for many teams who recognize that no compromise can be allowed in the critical stage of sample preparation as they work to ensure that the most complete, informative, robust and reproducible data are captured. Recent publications

and reports from three independent laboratories located on three different continents highlighted the importance of PBI's highly effective and reproducible PCT sample preparation platform in studies designed to generate a more thorough understanding of the SARS-CoV-2 biology, etiology, and human response to infection.

### **Georgetown University (Washington DC, U.S.)**

A recent publication from the scientific team at the Clinical and Translational Glycoscience Research Center ([glycomics.georgetown.edu](http://glycomics.georgetown.edu)) at Georgetown University headed by Associate Professor Miloslav Sanda, Ph.D. highlighted the use of the PCT Barocycler EXT sample preparation system in preparing SARS-CoV-2 glycoprotein samples for analysis.

Prof. Radoslav Goldman, senior author on the publication, said: "Development of effective antiviral therapies and vaccines requires detailed characterization of the SARS-CoV-2 proteins. The SARS-CoV-2 spike protein controls binding of the virus to human cells; consequently, it is a prime immunization and biotherapeutic target. Our study substantially expands current knowledge of the spike protein's glycosylation, which has significant influence on viral activation and infectivity. We believe that our data will help in the development of better vaccines and therapies against this devastating disease."

### **Westlake University (Hangzhou, China)**

A recent publication from the scientific team at Westlake University headed by Dr. Tiannan Guo, M.D., Ph.D., in collaboration with multiple clinical centers throughout China, discussed findings regarding the impact of COVID-19 infection on protein expression and biochemical processes in the multi-organ injuries experienced by COVID-19 patients.

Dr. Guo, lead study author, commented: "We used multiple Barocycler instruments in preparing 144 tissue samples from seven organs obtained during autopsies of 19 COVID-19 patients. We compared the results to 74 control samples from 56 non-COVID-19 cases. Our team characterized 11,394 proteins, of which over 5,000 proteins were clearly different in COVID-19 patients compared to controls. We believe our study findings offer important new insights on potential therapies."

### **Steinbeis Centre (Russelsheim, Germany)**

Professor Michael Przybylski, director of the Steinbeis Centre for Biopolymer Analysis & Biomedical Mass Spectrometry, heads a research project in collaboration with University Clinics in Darmstadt and Klinikum Giessen, Germany targeting the identification of epitopes, the specific regions of pathogen proteins that are recognized by antibodies formed in patients who are infected with SARS-CoV-2.

Professor Przybylski said: "Understanding which antibodies are capable of neutralizing the SARS-CoV-2 virus is crucial for the development of effective vaccines and anti-viral therapeutics. Characterization of antibody-binding epitopes has historically been performed by indirect methods, e.g., computer-based prediction algorithms. Our team is using a combination of high-pressure treatment in a PCT Barocycler system, followed by selection of strongly bound antibody fragments by a technique called Surface Plasmon Resonance. Finally, identification is then done by mass spectrometry. As a result, we are able to directly identify antibody regions involved in the capture and neutralization of the viral

pathogen. We believe this novel method - in which PBI's PCT Barocycler protein digestion system plays a critical role - will be instrumental in the future development of new, more efficient vaccines and biotherapeutics, as well as more sensitive and specific diagnostic tests for COVID-19 disease."

Mr. Richard T. Schumacher, President and CEO of PBI, summed up the findings of the three research groups: "We congratulate the scientists at Georgetown, West Lake, and the Steinbeis Centre for their terrific work in elucidating the protein structure of the SARS-CoV-2 virus, especially the critical spike protein; in highlighting disease processes of COVID-19 within multiple organs in infected patients; and for the identification of antibody regions involved in the capture and neutralization of SARS-CoV-2 virus. This information is critical to the design and development of future vaccines, drugs, and diagnostics. The more we know about the SARS-CoV-2 virus, and other potential pathogen threats, the better prepared we will be to prevent future outbreaks/pandemics. Our team is very proud that the PCT platform played an important role in this work. We look forward to bringing the significant capabilities of the PCT platform to many additional academic, government, and industry scientists working on COVID-19 and future biological threats."

### **About the Life Sciences Investor Forum**

The Life Sciences Investor Forum is a live, interactive investor event held quarterly for public and private companies, investors, and industry professionals from around the world. This day-long, virtual event will showcase live company presentations and interactive discussions focused on the life sciences industry. PBI's President and CEO, Mr. Richard T. Schumacher, is scheduled to present at 11am ET.

DATE: Thursday, December 17, 2020

TIME: 11am ET

LINK: <https://bit.ly/3mPSVko>

### **About Pressure BioSciences, Inc.**

Pressure BioSciences, Inc. (OTCQB: PBIO) is a leader in the development and sale of innovative, broadly enabling, pressure-based solutions for the worldwide life sciences and other industries. Our products 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). Our primary focus is 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. Additionally, 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.

## Forward Looking Statements

This press release contains forward-looking statements. These statements relate to future events or our future financial performance and involve known and unknown risks, uncertainties and other factors that may cause our or our industry's actual results, levels of activity, performance, or achievements to be materially different from any future results, levels of activity, performance or achievements expressed, implied or inferred by these forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "could," "would," "expects," "plans," "intends," "anticipates," "believes," estimates," "predicts," "projects," "potential" or "continue" or the negative of such terms and other comparable terminology. These statements are only predictions based on our current expectations and projections about future events. You should not place undue reliance on these statements. In evaluating these statements, you should specifically consider various factors. Actual events or results may differ materially. These and other factors may cause our actual results to differ materially from any forward-looking statement. These risks, uncertainties, and other factors include, but are not limited to, the risks and uncertainties discussed under the heading "Risk Factors" in the Company's Annual Report on Form 10-K for the year ended December 31, 2019, and other reports filed by the Company from time to time with the SEC. The Company undertakes no obligation to update any of the information included in this release, except as otherwise required by law.

For more information about PBI and this press release, please click on the following website link:

<http://www.pressurebiosciences.com>

Please visit us on Facebook, LinkedIn, and Twitter.

### Press Contacts:

Richard T. Schumacher, President & CEO  
+1 (508) 230-1828 (T)

Alexander V. Lazarev, Ph.D., Chief Science Officer  
+1 (508) 230-1829 (F)

View original content: <http://www.prnewswire.com/news-releases/pressure-biosciences-pct-platform-at-forefront-in-generating-pivotal-findings-by-diverse-covid-19-research-teams-in-usa-china-and-europe-301195100.html>

SOURCE Pressure BioSciences, Inc.