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Breakthrough Method to Permit Quantification of Thousands of Proteins in Needle Biopsy Samples in 12 hours Presented at Major International Scientific Meeting; Method Enabled by Pressure BioSciences' PCT Sample Preparation Platform

PCT-dependent Method Provides High Quality Mass Spectrometry-based Proteomic Analysis in Small Needle Biopsy Samples for the First Time, Offering Potential to Vastly Improve Drug Discovery and Design Programs and Diagnostic Insights in Research and Clinical Laboratories Worldwide

SOUTH EASTON, Mass., Oct. 27, 2014 /PRNewswire/ -- Pressure BioSciences, Inc. (OTCQB: PBIO) ("PBI" or the "Company"), a worldwide leader in the development and sale of high pressure-based sample preparation systems to the life sciences research market, today announced that Professor Ruedi Aebersold and his team presented a novel, accurate, highly reproducible, and robust method to allow – for the first time – routine high-throughput protein analysis on small needle biopsy samples by mass spectrometry (generally the method of choice for high-throughput protein analysis) within 12 hours. The method combines PBI's patented pressure cycling technology ("PCT") sample preparation platform with the novel SWATH mass spectrometry method developed by Dr. Aebersold's group in collaboration with AB SCIEX. Professor Aebersold and his team discussed their findings in several well-attended presentations at the 13th Human Proteome Organization World Congress, held October 5-8, in Madrid, Spain.

Proteomics is the study of the structure and function of proteins. Mass spectrometry is the method of choice for the high-throughput measurement of proteins (usually in 1,000s) in a single experiment. Mass spectrometry-based proteomic studies have provided novel, critical insights into molecular and cellular biology in recent years. Such studies have transformed the understanding of proteins, the framework of most living organisms (including humans). Mass spectrometry-based proteomics has the potential to improve human health by offering better diagnosis, prevention, control, prognosis, and treatment of disorders and diseases, as well as development of potential cures for various diseases, afflictions, and conditions, such as breast cancer and ulcerative colitis.

Needle biopsy tissues are the biospecimens most relevant to the pathology of diseases,

particularly cancer. They are routinely sampled in many hospitals and research laboratories. Large efforts have been invested in genomic (e.g., DNA) analysis of such samples; however, methods allowing high throughput proteomic analysis are currently not readily available. Typical mass spectrometric-based proteomic experiments require relatively large sample amounts, laborious sample processing that can lead to significant technical variation, and lengthy analysis in the mass spectrometer, all of which excludes the practical application of mass spectrometry analysis on the small needle biopsy samples routinely found in clinical settings.

Professor Ruedi Aebersold, Professor of Molecular Systems Biology at ETH Zurich and the University of Zurich, and a recognized international authority in proteomics and mass spectrometry, said: "Needle biopsy tissue samples contain thousands of proteins, the analysis of which is crucial to personalized medicine, as well as to drug discovery and development. In the past, because of the small amount of tissue in the needle biopsy sample and shortcomings in available analytical methods, it was nearly impossible to obtain accurate quantities of 1,000s of proteins expressed in such samples."

Dr. Aebersold continued: "We are working with AB SCIEX and have jointly developed a new and improved mass spectrometric method called SWATH that accurately quantifies thousands of proteins with a high degree of reproducibility across large sample cohorts. We combined SWATH with PBI's PCT microtube method (including the new micro-Pestle), which resulted in significantly improved mass spectrometric proteomic data from needle biopsy samples. We believe this method, which we call PCT-SWATH, will greatly enhance proteomic analysis of needle biopsy samples in both clinical and research settings. This in turn should lead to better drug discovery and design, shortened time to discovery, and measurable advances in personalized medicine, especially in the areas of cancer diagnosis and treatment. The data generated by the method from each sample also represent a permanent digital record that can be retrospectively re-searched in silico to test new hypotheses as they emerge."

Mr. Jeffrey N. Peterson, Chairman of the Board of PBI, said: "Mass spectrometry-based protein analytical methods have begun to move into the personalized medicine field. These diagnostic and prognostic tools offer the potential to save many lives and greatly improve therapeutic outcomes. The PCT-SWATH method introduced by Dr. Aebersold and his team appears to offer a superior workflow for preparing very small samples for analysis, such as routinely collected needle biopsy specimens. We believe the market for such a method is very large and underserved. We plan to focus greater efforts in this area over the coming months, as we believe PCT-SWATH has the potential to significantly enhance drug discovery and design, particularly as it relates to the many studies using small needle biopsy samples."

Mr. Richard T. Schumacher, President and CEO of PBI, said: "We believe there are millions of needle biopsy samples analyzed worldwide every year, in both research and clinical laboratory settings. We further believe that a significant amount of proteomic information contained in the biopsy tissue is never revealed by current analytical methods, because of the inability to routinely analyze these proteins by mass spectrometry. Finally, we believe that the PCT-SWATH method developed by Dr. Aebersold and his team with their colleagues at AB SCIEX results in significantly improved analysis of needle biopsy tissue, which if adopted by the thousands of research and clinical laboratories analyzing needle

biopsy tissue, could result in greatly increased sales of our PCT product line of instruments and consumables."

About Pressure BioSciences, Inc.

Pressure BioSciences, Inc. ("PBI") (OTCQB: PBIO) develops, markets, and sells proprietary laboratory instrumentation and associated consumables to the estimated $6 billion life sciences sample preparation market. 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. To date, we have installed over 250 PCT systems in approximately 160 sites worldwide. There are over 100 publications citing the advantages of the PCT platform over competitive methods, many from key opinion leaders. Our primary application development and sales efforts are in the biomarker discovery and forensics areas. Customers also use our products in other areas, such as drug discovery & design, bio-therapeutics characterization, soil & plant biology, vaccine development, histology, and counter-bioterror applications.

Forward Looking Statements

Statements contained in this press release regarding PBI's intentions, hopes, beliefs, expectations, or predictions of the future are "forward-looking" statements within the meaning of the Private Securities Litigation Reform Act of 1995. These statements are based upon the Company's current expectations, forecasts, and assumptions that are subject to risks, uncertainties, and other factors that could cause actual outcomes and results to differ materially from those indicated by these forward-looking statements. 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, 2013, 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
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