

Alan I. Goldberg, Long-term Pressure BioSciences, Inc. Investor and Supporter, Joins the Company's Board of Directors

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South Easton, MA, July 12, 2010 – Pressure BioSciences, Inc. (NASDAQ: PBIO) (“PBI” and the “Company”) today announced that Mr. Alan I. Goldberg has been unanimously elected to fill the open, Class III seat on the Company's Board of Directors, effective Monday, July 12, 2010. This seat has been vacant since shareholders voted to amend the Company's Articles of Incorporation and to divide the Board of Directors into three classes.

R. Wayne Fritzsche, Chairman of the Board, said: “Alan has been a strong supporter of PBI for years, both as an investor and as an independent ‘sounding board’. His knowledge of the capital markets, his personal network, his experiences in assisting small cap companies develop and grow, and his investment expertise will be invaluable to PBI. We are thrilled to have Alan join our Board, especially now, as we begin to focus on the commercialization of several potential “game changing” applications of our novel and powerful pressure cycling technology (“PCT”) platform.”

Mr. Goldberg said: “I first invested in PBI in 2007, based on my confidence in the Company's management team, their novel and patented PCT technology, and their ambitious but realistic business plan. Since then, they have released multiple new products; added many highly-respected and influential academic, government, biotech, and pharma laboratories to their enviable list of customers; strategically expanded their IP estate; and significantly increased revenue while they decreased operating expenses.”

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Application Note: Proteomics (AN-00018) Total Protein Extraction from Small Tissue Samples Using PCT MicroTubes and the ProteoSolve-SB Kit

Extraction of total proteins from tissue has generally been limited by the poor solubility of many proteins in traditional extraction buffers. This has been especially true for lipid-rich samples such as adipose tissue, but also for many other types of samples. Traditional detergent-based sample preparation methods may not adequately dissociate all proteins, especially hydrophobic proteins, which may be tightly associated with membrane lipids. Isolation of these proteins is often very inefficient, because the bulk of membrane proteins are often discarded in the insoluble fraction after extraction. As a result, proteomic analysis of tissues is often biased toward the more soluble proteins. We have previously described a method for efficient extraction of proteins from samples of a variety of mammalian tissues, using pressure cycling technology (PCT) and the novel chemistry of Pressure BioSciences' ProteoSolve-SB kit. Here we show that by using the new PCT MicroTubes, the ProteoSolve-SB protocol may be scaled down for use with tissue samples in the 10-20 mg size range. This scaled-down method is compatible with biopsy-size tissue samples.



Figure 1. PCT MicroTubes. MicroTubes are shown with 150 µL MicroCaps and cartridge that holds up to 8 samples. Up to 6 cartridges (48 samples) fit into the NEP3229 at one time. MicroTubes are also available with 100 µL and 50 µL caps for smaller sample volumes.

PCT Sample Preparation System (PCT SPS)

The Pressure Cycling Technology Sample Preparation System (PCT SPS) uses rapid cycles of hydrostatic pressure between ambient and ultra high levels to control biomolecular interactions. The PCT SPS can be used to disrupt tissues, cells, and cellular structures to extract proteins and nucleic acids as well as lipids and small molecules.

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CALENDAR OF PBI EVENTS

AMERICAN PHYTOPATHOLOGICAL SOCIETY (APS)	High Pressure Bioscience and Biotechnology (HPBB2010)
AUGUST 7 – 11, 2010	AUG. 28-SEPT. 1, 2010
NASHVILLE, TN	MUNICH, GERMANY

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Mr. Goldberg continued: "At the recent high pressure symposium at Harvard Medical School, I heard over a dozen independent, internationally-recognized scientists discuss how they and their colleagues had developed and were beginning to apply various applications of PCT to their cutting-edge research. These talks, and my discussions with some of the speakers, re-confirmed my belief that the Company's PCT-based products are now ready to fill existing needs in multiple, large and growing research markets."

The Company believes the research market for biological sample preparation is comprised of approximately 450,000 researchers working in about 80,000 labs worldwide, almost all of whom perform some level of sample preparation. The Company will be working very hard to attain at least a 2.5% market share with its existing products over the next 3-5 years. Based upon expected pricing and margins for these products, it is possible that if the Company is successful in achieving such market penetration, this could result in a highly profitable company with revenue of approximately \$32 million in 2015.

Because of this and other reasons, Mr. Goldberg concluded, "I have added significantly to my investment over the past 18 months, and have recently urged colleagues, friends, and family to look carefully at this exciting opportunity."

Mr. Goldberg has a degree in Finance from Northwestern University, and has spent his entire professional career in the worldwide commodities and finance communities. He has been a broker, regional manager, and officer of a national brokerage firm; a long-term member of the Chicago Board of Trade; and chairman of a large investment fund. He has served on private and public company boards, and is active in several educational and community charities.

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High hydrostatic pressure acts preferentially on the more compressible constituents of the sample, and this selective energy distribution results in destabilization of molecular interactions but not in the disruption of covalent bonds. In addition, the PCT SPS can be used to accelerate enzymatic reactions such as trypsin and proteinase K digestion.

The PCT SPS uses a microprocessor-controlled bench-top instrument (Barocycler NEP2320 or the NEP3229) in combination with single-use sample processing containers. For relatively large amounts of tissue (up to 500 mg), the PCT SPS uses FT500 PULSE Tubes to process 1-3 samples at a time. For smaller amounts of tissue (50-150 µL per sample), the PCT SPS uses PCT MicroTubes (Figure 1), to process 12-48 samples at a time. MicroTubes are made from highly inert plastic, ideal for the extraction of proteins.

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*PCT MicroTubes and MicroCaps
Are Now Available in Convenient,
Easy-to-Use 96 Well Racks
and Other Formats*



- 96 MicroTubes or MicroCaps in Bulk
- 96 MicroTubes or MicroCaps in Packets of 8 Each (Original)
- 96 MicroTubes in a Rack (No Caps)
- 96 MicroCaps of 50, 100, or 150 µL in a Rack (No Tubes)
- 96 MicroTubes with 50 µL MicroCaps in a Rack (Pre-capped)
- 96 MicroTubes with 100 µL MicroCaps in a Rack (Pre-capped)
- 96 MicroTubes with 150 µL MicroCaps in a Rack (Pre-capped)

Press Button for More Information

<http://www.pressurebiosciences.com/download>

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ProteoSolve-SB and PCT

The ProteoSolve-SB kit utilizes a detergent-free extraction reagent to extract proteins from a variety of tissues, including lipid rich samples such as adipose tissue and protease-rich tissues such as pancreas. This protocol exploits the synergistic combination of sample disruption by PCT and the unique ProteoSolve-SB reagent system that partitions extracted proteins and lipids into separate fractions (Figure 2).

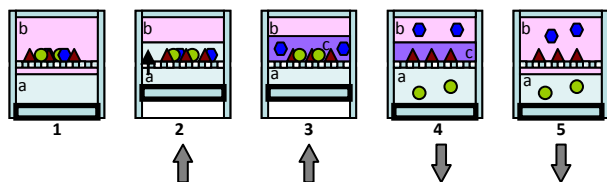


Figure 2. Diagram of sample disruption, extraction and fractionation by PCT in the ProteoSolve-SB kit. Panel 1: Starting condition at atmospheric pressure. Two solvents “a” and “b” are immiscible at atmospheric pressure. Panels 2 and 3: When high pressure is applied (up arrows), the solid sample is disrupted and the two solvents mix, forming a transient solvent “c”. Panels 4 and 5: When pressure is released (down arrows), the sample components fractionate by solubility and solvents “a” and “b” separate.

Methods

For small-scale PCT extraction using ProteoSolve-SB kit: 10 mg of rat liver, 20 mg of rat adipose or 20 mg of mouse brain was placed into individual PCT MicroTubes. 100µL of ProteoSolve-SB Reagent A and 35 µL of Reagent B were added to bring the volume ~150 µL. Tubes were capped with 150 µL PCT MicroCaps. Control samples were scaled up 10-fold to keep the mass-to-volume ratio constant in all samples. 100 mg of rat liver, 200 mg of rat adipose or 200 mg of mouse brain was placed into an FT-500 PULSE Tube. 1.0 mL of ProteoSolve-SB Reagent A and 350-400 µL of Reagent B were added to bring the total volume to 1.4 mL per PULSE Tube.

All samples were thoroughly vortexed for 10-20 seconds before and after PCT. Pressure cycling was carried out in a Barocycler NEP3229 or NEP2320 for 20 cycles at ambient temperature. Each cycle consisted of 20 seconds at 35,000 psi followed by 10 seconds at atmospheric pressure. Following PCT, the large-scale samples were transferred from the PULSE Tubes to 2 mL tubes. The small-scale samples were left in the MicroTubes, which were placed into 2 mL tubes for centrifugation: e.g. the entire MicroTube was placed into a 2 mL tube in order to fit into the centrifuge rotor.

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All samples were centrifuged for 15 minutes at 12,000Xg to separate the upper lipid phase from the protein-containing lower phase. The solubilized protein fractions were transferred to clean tubes and two 10 µL aliquots from each sample were dried by evaporation in a fume hood. One replicate aliquot was used for protein quantification by Bradford assay. The other was dissolved in 1X Laemmli buffer for SDS-PAGE.

Results and Discussion

Previous methods for protein extraction from tissues for proteomic analysis have relied upon mechanical disruption such as dounce or other homogenizers, or mortar and pestle grinding. These methods are extremely inefficient when used with small samples, principally due to the large amount of loss during sample disruption and transfer. In addition, most of these methods rely upon detergents such as SDS, Triton X-100 or CHAPS to solubilize membranes and extract proteins. Since many downstream analysis methods are incompatible with detergents, extensive sample clean-up is often required, potentially leading to significant protein loss.

Pressure-mediated extraction in combination with the ProteoSolve-SB kit has been shown to be an efficient method for protein extraction from lipid-rich adipose tissue [1] as well a variety of other tissues [2]. ProteoSolve-SB is detergent-free and can be efficiently removed from the extracted sample by evaporation or precipitation (precipitation reagent is provided in the kit).

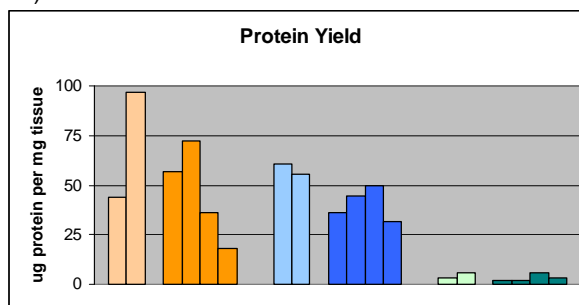


Figure 3. Protein Yields. Protein recovery is expressed as micrograms extracted protein per milligram tissue. Samples: Liver: PULSE Tube control (light orange), n=2; Liver: MicroTube samples (dark orange), n=4; Brain PULSE Tube control (light blue), n=2; Brain MicroTube samples (dark blue), n=4; Adipose PULSE Tube control (light green), n=2; Adipose MicroTube samples (dark green), n=4.

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Data show that tissue disruption by pressure cycling in PCT MicroTubes, coupled with protein extraction using the detergent-free ProteoSolve-SB kit, results in adequate yield of proteins for analysis from a variety of small tissue samples. The protein recovery (μg of extracted protein per mg of starting material) of this protocol is within the range of control samples processed using the standard large-scale extraction methods (Figures 3 and 4).

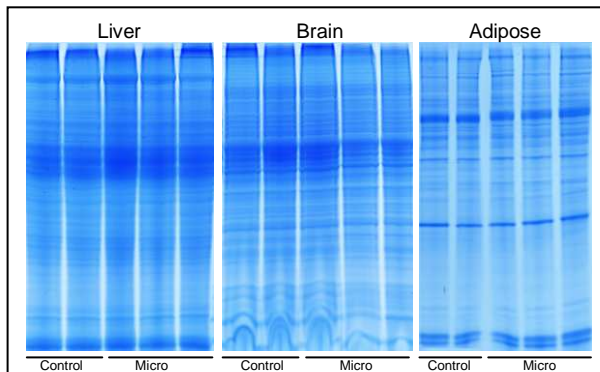


Figure 4. SDS-PAGE Analysis. After extraction, aliquots of the protein-containing fraction were run on 8-16% Tris-glycine polyacrylamide gradient gels. Control samples were extracted in 1.4 mL PULSE Tubes, Micro samples were extracted in PCT MicroTubes.

These data confirm that the combination of the PCT SPS, ProteoSolve-SB and MicroTubes provides for large-scale (up to 48 samples) screening of the proteome of a wide variety of tissues, including adipose tissue.

References

- [1] Lazarev, AV., *et al.*, 2007. *J. Am. Soc. Mass Spect.* p. 93S.
- [2] Gross, V., *et al.*, 2008. *J. Biomol. Tech.* 19:189-99.

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About Pressure BioSciences, Inc.

Pressure BioSciences, Inc. (PBI) is a publicly traded company focused on the development of a novel, enabling technology called Pressure Cycling Technology (PCT). PCT uses cycles of hydrostatic pressure between ambient and ultra-high levels (up to 35,000 psi and greater) to control bio-molecular interactions. PBI currently holds 14 US and 10 foreign patents covering multiple applications of PCT in the life sciences field, including genomic and proteomic sample preparation, pathogen inactivation, the control of chemical and enzymatic reactions, immunodiagnostics, and protein purification. PBI currently focuses its efforts in the development and sale of PCT-enhanced enzymatic digestion products designed specifically for the mass spectrometry marketplace, as well as sample preparation products for biomarker discovery, soil and plant biology, forensics, histology, and counter-bioterror applications.

Forward Looking Statements

Statements contained in this press release regarding the Company'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. Forward looking statements include statements regarding the potential applications of the Company's pressure cycling technology (PCT), the achievement of the Company's goals and objectives, as well as its belief regarding the size of the research market for biological sample preparation products; the potential of the Company's pressure cycling technology (PCT)-based products to capture approximately 2.5% of this market, and the estimate that such market share would result in a highly profitable company with revenue of approximately \$32 million in 2015. 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: possible difficulties or delays in the implementation of the Company's strategies that may adversely affect the Company's continued commercialization of PCT; changes in customer's needs and technological innovations; the Company's sales force may not be successful in selling the Company's PCT product line because scientists may not perceive the advantages of PCT over other sample preparation methods; and due to possible competition, the Company's expected pricing for its products may be too high to achieve approximately 2.5% market penetration, and due to unexpected increases in the costs of doing business, the Company's operating costs may be higher than expected, each resulting in the Company's inability to achieve its revenue and profitability goals. Further, the Company expects that it will need additional capital to fund its continuing operations beyond the first quarter of 2011. Additional risks and uncertainties that could cause actual results to differ materially from those indicated by these forward-looking statements are discussed under the heading "Risk Factors" in the Company's Annual Report on Form 10-K for the year ended December 31, 2009, 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.