

## PBI Releases Two PCT-Dependent Kits for the Extraction of Proteins from *C. elegans*

### Pressure BioSciences, Inc. Releases Two Novel, PCT-Dependent Sample Preparation Kits for the Proteomic Research Market

SOUTH EASTON, Mass., Sept. 25, 2009 (GLOBE NEWSWIRE) -- Pressure BioSciences, Inc. (Nasdaq:[PPIO](#) - [News](#)) ("PBI" or the "Company") today announced the commercial release of [ProteoSolve-CE NATIVE](#) and [ProteoSolve-CE STRINGENT](#), two novel, pressure cycling technology ("PCT")-dependent kits for the extraction of proteins from the nematode ("worm") *Caenorhabditis elegans* ("C. elegans"). The two kits contain proprietary reagents, consumable processing containers ("PULSE Tubes"), and instructions for use, and are intended to be used with the Company's patented PCT Sample Preparation System. Together, these new kits offer the researcher the ability to extract an abundance of either native or denatured proteins from nearly all parts of the C. elegans organism.

C. elegans is one of the most widely used model organisms in laboratory research today. It is an ideal study animal because it is small, not complex, easy to grow and maintain in the lab, and has a short and very predictable life cycle. Importantly, biological information learned from studying this worm has been shown to be directly applicable to more complex organisms, such as humans. The 2002, 2006, and 2008 Nobel Prizes were awarded to six different researchers for discoveries made involving this organism.

Both kits were developed in conjunction with Dr. John Collins, Associate Professor of Biochemistry at the University of New Hampshire (UNH), and an expert in the study of C. elegans. Dr. Collins said: "The tough outer coat ("cuticle") of C. elegans makes it extremely resilient to lysis. This causes great difficulty to researchers who need to study its genes and proteins. The new kits from PBI significantly improve the ability to break apart this very important model organism, which in turn enables the researcher to more easily extract important biomolecules for scientific studies. Because of these and other clear advantages, I believe that these kits should be well received by the very large and growing C. elegans research community."

Dr. Collins continued: "In addition, we are of course delighted that my graduate student, Ms. Gabrielle E. Giese, was selected by the Human Proteome Organization (HUPO) 2009 8th World Congress to receive a Young Investigators Travel Award for her work on C. elegans and PCT. She will be presenting her work at the HUPO Meeting next week in Toronto."

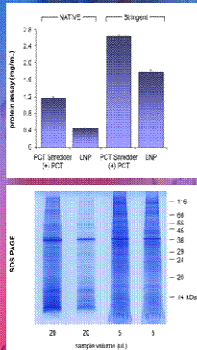
In addition to working with UNH, PBI also engaged the capabilities and resources of the Laboratory for Innovative Translational Technologies (HC-LITT) of Harvard Catalyst | The Harvard Clinical and Translational Science Center to help in the development of these new products. Dr. Winston Kuo, Director of HC-LITT, stated: "Our collaboration with PBI in the development of these important kits for C. elegans research fits our vision to create a 'win-win' environment between Harvard researchers and industry."

[Ms. Gabrielle Geise Received a Young Investigator Travel Award from the Human Proteome Organization \(HUPO\) 2009 8th World Congress for Her Work with PBI's New Kits for the Extraction of Proteins from \*C. elegans\*](#)

[Phosphopeptide isolation from \*Caenorhabditis elegans\* using the CE PrEP, PCT, and PhoshoScan Technologies](#)

[Click Here for Full Poster](#)

### Improve the Extraction of Native or Denatured Protein from *C. elegans* with Two New Kits Based on Pressure Cycling Technology (PCT)



Condition	PCT Shredder	LNP
NATIVE	~1.8	~0.5
Stringent	~2.5	~1.5

- **ProteoSolve-CE NATIVE:** A "Gentle" Kit for the Extraction of Native Proteins
- **ProteoSolve-CE STRINGENT:** A "Powerful" Kit for the Extraction of Higher Yields of Denatured Proteins
- Increase the Number of Unique Proteins on a 2D Gel
- Use the Synergy of Pressure, Chemistry and Mechanical Force to Optimize Yield
- Standardize Extraction of Proteins from *C. elegans* by Pressure Cycling Technology

Extraction of Protein from *C. elegans* Using PCT in Combination with *The PCT Shredder* and Chemistry for Extraction of Either Native or Denatured Proteins Compared to Protein Extraction with Mortar and Pestle with Liquid Nitrogen (LNP).

### CALENDAR OF EVENTS

[20TH INTERNATIONAL SYMPOSIUM ON HUMAN IDENTIFICATION](#)

Las Vegas, NV

Oct. 12<sup>th</sup> -15, 2009

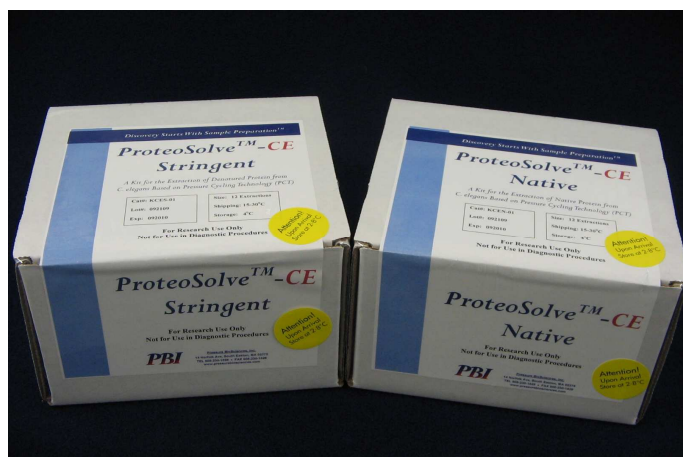
**Pressure BioSciences, Inc. Releases Two Novel, PCT-Dependent Sample Preparation Kits for the Proteomic Research Market Continued:**

Under this very innovative program, companies such as PBI have access to the expertise and technologies contained within HC-LITT. In return, we receive early access to cutting-edge technologies such as PCT, and the new PCT-based *C. elegans* kits."

Dr. Nate Lawrence, Vice President of Pressure BioSciences, commented: "Although developed specifically for *C. elegans*, we believe these new kits can also play a key role in studies of other nematodes. This is important, since human, animal, and plant parasitic nematodes currently cause significant public health and agriculture issues. For example, the cost of crop damage caused by plant parasitic nematodes alone is estimated to be well in excess of \$1 billion per year. Since a thorough understanding of nematode DNA, RNA, and proteins is crucial to achieve better control of nematode related diseases, improved methods for the extraction of nucleic acids and proteins from nematodes is imperative. To that end, we believe these new kits offer a safer, faster, and more accurate way to extract nematode biomolecules than current methods, and we look forward to making these kits available to the nearly 1,000 scientists in our current data base who are specifically working in nematode research."

**Forward-Looking Statements**

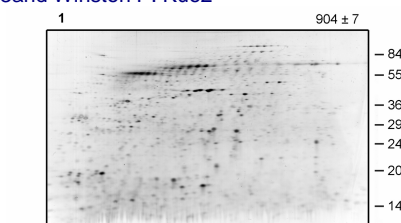
Statements contained in this press release regarding the Company's intentions, hopes, beliefs, expectations, or predictions of the future are "forward-looking" statements within the meaning of the Private Securities Litigation Reform Act of 1995. Such forward-looking statements include statements regarding the use and capabilities of the Company's Pressure Cycling Technology Sample Preparation System (PCT SPS) and the ProteoSolve-CE Native and Stringent kits for the extraction of proteins from *C. elegans*; that the new kits offer the ability to more easily break apart and extract proteins from *C. elegans* and other nematodes; the potential markets for the Company's PCT-based products; the effect of parasitic nematodes to public health and agriculture; and the suggested safety, speed, and accuracy of the new kits. Forward-looking statements also include statements regarding the potential of the Company's pressure cycling technology. 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 and its PCT-dependent products; changes in customer's needs and technological innovations; and 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, including in the *C. elegans* and other nematode research area. Further, the Company expects that it will need additional capital to fund its continuing operations beyond the second quarter of 2010. 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, 2008, 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.



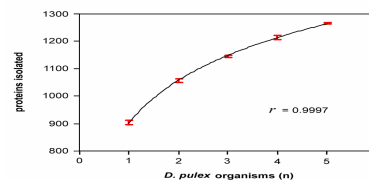
**Other PCT Related Posters Presented at the Human Proteome Organization (HUPO) 2009 8th World Congress**

**Detection of differential protein expression between individual *Daphnia* by Pressure Cycling Technology (PCT) and two-dimensional gel electrophoresis**

Darren J. Bauer<sup>1</sup>, Gary B. Smejkal<sup>1,2,3</sup>, W. Kelley Thomas<sup>1</sup>, Myra Robinson<sup>3</sup> and Winston P. Kuo<sup>2</sup>



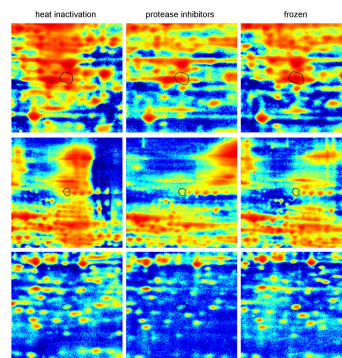
Representative gel of single *Daphnia pulex*. Silver staining of revealed 904 ± 7 spots.



Graph indicating the number of spots revealed after silver staining of 1, 2, 3, 4 & 5 *Daphnia pulex*. The low standard deviation indicates that PCT and 2DEGE is an effective and reliable method of protein isolation and detection

**Thermal inactivation prior to 2DGE stabilizes brain proteome**

Gary B. Smejkal<sup>1</sup>, Chiara Rivas-Morello<sup>1</sup>, Jae-Hyung Robert Chang<sup>1</sup>, Alexander J. Trachtenberg<sup>1</sup>, John Lindsay<sup>2</sup>, Mats Borén<sup>2</sup>, Alexander Lazarev<sup>3</sup> and Winston P. Kuo<sup>1</sup>



**Figure 3.** Image analysis of enlarged regions of 2D gels showing shifts in protein molecular weights in samples preserved by heat activation (left), chemical inactivation with protease inhibitors (center), or flash freezing in liquid nitrogen (right). Proposed shifts in molecular weight are due to incomplete inhibition of proteases.