Value Proposition

PBI SHREDDER SYSTEMS
(The PCT Shredder and *The* SHREDDER SG3)

1. INTRODUCTION TO THE PBI SHREDDER SYSTEMS

a. **Brochure**

b. **PBI Shredders**

PBI Shredder Systems are low shear mechanical devices for gentle, rapid, and safe disruption of tissues and organisms. Both *The PCT Shredder* and *The* SHREDDER SG3 can provide effective extraction of DNA, RNA, proteins, mitochondria, lipids and small molecules from tissues and organisms, when used with Shredder Tubes and various buffers.

Both systems use a variety of Shredder Tubes to directly and rapidly grind solid samples providing easy handling and reducing sample contamination. And, although not required for all extractions, additional extraction efficiency can be achieved when this process is combined with pressure cycling technology (PCT).

c. **Shredder Tubes**

Features & Benefits of the Shredder Tube:

- A Variety of Single-Use Processing Containers
- Standard Shredder Tubes for Ambient Pressure Processing
- Specialized PULSE Tubes for Ultra-High Pressure processing
- Metal Inserts for the Toughest of Samples
- Excellent for Collection, Storage, Transport & Processing
- Closed Containers to Help Ensure Safety Throughout the Entire Sample Preparation Process

2. DATA

a. DNA Extraction

i. Long DNA from Spinach
ii. DNA from Apple Seeds

b. RNA Extraction

i. RNA from Rat Lung

c. Protein Extraction

i. Protein from *C. elegans*
ii. Protein from Rice
iii. Protein from Rat Skeletal Muscle
iv. Protein from Porcine Cartilage

d. Special and Advanced Preparations

i. Protein from Tumor: PCT Shredding vs. Cryogenic Grinding
ii. Intact and Functional Mitochondria
iii. Tick-Borne Pathogens
iv. Detection of The Causative Agent of Lyme Disease
v. Tree Bark

3. ADVANTAGES OF THE PBI SHREDDER SYSTEMS

4. PUBLICATIONS

Pressure Enhanced Processing (PrEP) Using *The PCT Shredder* and Pressure Cycling Technology (PCT) Maximizes Protein Yields from the Nematode *Caenorhabditis elegans* Under Mild, Nondenaturing Conditions

W. Kelley Thomas1, Gary B. Smejkal1,2, Jobriah Anderson1, Myra H. Robinson2, Krystalynne Morris1, and Richard T. Schumacher21 Hubbard Center for Genome Studies, University of New Hampshire, Durham, NH and 2 Pressure BioSciences, South Easton, MA Plant and Animal Genome XVII Conference, San Diego, CA, January 10-14, 2008. Poster No. P753

Simple Protocols for Isolation of Intact Mitochondria Using *The* SHREDDER SG3 and *PBI Mitochondria Isolation Kits*

Pressure BioSciences, Inc.
14 Norfolk Ave. South Easton, MA 02375
ASCB 2010

5. APPLICATION NOTES AND PREPARATIONS (PrEP)

a. Isolation of Mitochondria from Rat Lung Using The PCT Shredder and Pressure Cycling Technology (PCT)

b. Isolation of Functional Mitochondria from Rat Skeletal Muscle Using The PCT Shredder with an Optional Pressure Cycling Technology (PCT) Processing Step

c. Proteolysis (Proteinase K)-PrEP: Efficient and Rapid Extraction of Genomic DNA from Skeletal Muscle using The PCT Shredder and Pressure-enhanced Proteolysis with Proteinase K

d. Increased Protein Yields from Coniferous Plants Using The PCT Shredder and Pressure Cycling Technology (PCT)

e. Improved Protein Recovery from Muscle Tissue Using The PCT Shredder™ and Pressure Cycling Technology (PCT): Efficient Single Tube Sample Disruption and Extraction

f. Improved DNA Recovery from Spinach Leaves Using The PCT Shredder and Pressure Cycling Technology (PCT)

6. USER MANUALS

The PCT Shredder

The SHREDDER SG3

7. SHREDDER AND SHREDDER TUBE SELL SHEETS

The PCT Shredder Kit

The SHREDDER SG3 and Shredder PULSE Tubes

8. SPECIALIZED EXTRACTION KITS FOR USE WITH PBI SHREDDER SYSTEMS

a. *ProteoSolve-TD1*
A Pressure-Enhanced Kit for the Extraction and Solubilization of Integral Membrane Proteins from Cell Cultures and Soft Tissues

b. *ProteoSolve-TD2*
A Pressure-Enhanced Kit for the Extraction and Solubilization of Integral Membrane Proteins from Recalcitrant Tissues and Solid Tumors

c. *ProteoSolve-CE Native*
A Kit for the Extraction of Native Protein from *C. elegans*

d. *ProteoSolve-CE Stringent*
A Pressure-Enhanced Kit for the Extraction of Denatured Protein from *C. elegans*

e. *PBI MITOCHONDRIA ISOLATION KIT: RAT MUSCLE*
A Kit for the Isolation of Intact/Functional Mitochondria

f. *PBI MITOCHONDRIA ISOLATION KIT: RAT LUNG*
A Kit for the Isolation of Intact Mitochondria for Proteomic Studies

9. VIDEO DEMONSTRATION: *THE* SHREDDER SG3