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# Pressure BioSciences Developing Potential Breakthrough Processing Method for High Quality, Shelf Stable Milk and Other Dairy Products

***Primary Goal is Delivery of Higher Quality, Longer Lasting Liquid Foods and Beverages not Requiring Refrigeration or Chemical Additives***

**SOUTH EASTON, MA / ACCESSWIRE / July 19, 2018** /Pressure BioSciences, Inc. (OTCQB: PBIO) ("PBI" or the "Company"), a leader in the development and sale of broadly enabling, pressure-based technology and products to the worldwide life sciences industry, today announced a major collaboration with the College of Food, Agricultural, and Environmental Sciences of The Ohio State University ("Ohio State"). The primary goal of the program is to develop and make available for commercialization a continuous-flow manufacturing technology that will prepare liquid foods and beverages with preservation of superior sensory and nutritional qualities, while delivering long, room temperature shelf stability without requiring refrigeration or chemical additives throughout the chain of distribution and retail sale. PBI believes achievement of this long sought-after consumer demand can now be accomplished through scale-up of the Company's innovative and patented Ultra Shear Technology ("UST").

The collaborative project is supported by a four-year, \$891,000 grant awarded to scientists at Ohio State's College of Food, Agricultural, and Environmental Sciences ("CFAES") by the U.S. Department of Agriculture's National Institute of Food and Agriculture ("NIFA"). Ohio State has granted PBI a \$318,000 sub-contract to build a working benchtop instrument and a pilot plant floor model UST machine. PBI has already begun to work on this project.

Today's health conscious consumers demand food that is nutritious, minimally processed, pathogen safe, and that also tastes good, looks appealing, and is free of chemical emulsifiers and preservatives. Food processors have been seeking new minimal or non-heat exposure technologies that can provide extended shelf-life, while meeting "clean label" (no artificial ingredients or chemicals) requirements and that satisfy consumer expectations. The current clean label food market is estimated at \$62 billion in the USA and \$165 billion worldwide (Nunes, 2016). Many clean label foods are currently processed using costly, non-efficient, batch-oriented high-pressure processing ("HPP"), including juices (e.g., Starbuck's Evolution line), seafood, meats, baby food, guacamole, and fruits/vegetables. In 2015, the worldwide market for HPP food was estimated at \$10 billion (Toops: 2016).

Dr. Edmund Y. Ting, Sr. VP of Engineering at PBI, and a pioneer in the development of

HPP, said: "HPP has proven to be very effective in reducing food-borne pathogens and extending shelf-life in pre-packaged foods (e.g., juices and ready-to-eat meats), thus eliminating the need for chemical additives. However, HPP remains a batch process not capable of continuous flow, and because it is only a pasteurization process, and does not render food "commercially sterile", HPP-processed food must be shipped, stored, and maintained under refrigeration throughout the entire chain of distribution and retail sale. We believe that Ultra Shear Technology will provide economical solutions to these problems, and will offer an additional, clean label processing choice to both consumers and the food industry around the world."

Ultra Shear Technology combines high pressure and high shear forces, while minimizing exposure to damaging high temperatures. PBI believes this innovative processing method will allow liquid food and beverage companies to manufacture healthier and better tasting products by reducing thermal damage and the need for chemical preservatives. This can be achieved by using extreme pressures to deliver nearly instantaneous shear and temperature exposures for effective anti-microbial effects and long-term preservation without the necessity for chemical additives. It is also anticipated that the fine emulsions produced with Ultra Shear will have enhanced sensory and nutritional benefits.

"We believe UST can be used by food manufacturers for the processing of healthier and improved beverages, sauces, condiments and other foods," said Dr. V.M. "Bala" Balasubramaniam, a CFAES professor of food engineering who is leading the collaborative project. His laboratory, with a multidisciplinary team of microbiologists, chemists and nutritionists, investigates innovative food technologies and then works with industry to implement them commercially.

Known internationally for his research on high-pressure and other types of nonthermal processing, or safely processing food using significantly less heat, Dr. Balasubramaniam holds joint appointments in the CFAES departments of [Food Science and Technology](#), and in [Food, Agricultural and Biological Engineering](#). Other distinguished members of the CFAES research team include Ahmed Yousef, professor of Food Microbiology; Rafael Jimenez-Flores, the J.T. "Stubby" Parker Endowed Chair in Dairy Foods; and Christopher Simons, assistant professor of Sensory Science.

Richard T. Schumacher, President and CEO of PBI, stated: "The ultimate goal of this collaborative project is for consumers to benefit from the increased availability of wholesome, healthy, better-tasting, shelf-stable, clean label liquid food and beverage options. Imagine liquid foods like milk shipped and stored at room temperature for extended periods of time post-processing, while retaining superior nutritional and taste qualities. The advantages and cost-savings to the consumer and dairy industry could be game-changing. The advantages and cost savings to schools, the military, disaster relief agencies, and other such groups could be equally significant. This technology development is very exciting, and potentially very rewarding, for all stakeholders in PBI."

Mr. Schumacher continued: "It is important to note that PBI's core business of providing innovative, pressure-based instruments and consumables to life sciences companies worldwide continues to be strong. As reported during our Q1 2018 financial call, we have achieved nine consecutive quarters of increased product and services revenue on a year-

over-year basis. We also reported that we recently initiated the first project utilizing our recently acquired IP from the BaroFold acquisition, and that we believe this new CRO service could generate significant revenue in the near future."

Mr. Schumacher concluded: "With our core business showing consistent revenue growth, our BaroFold acquisition generating revenue much sooner than planned, and our Ultra Shear Technology platform getting off to an impressive start, we believe PBI has now positioned itself well for rapid, explosive growth in the months and years ahead."

A short, informational interview between Mr. Schumacher and Mr. Daniel Wong of Investor Town Hall - discussing Ultra Shear Technology and its potential as a breakthrough processing method for milk and other dairy products - can be found by clicking the following link: [Schumacher Interview With Investor Town Hall](#).

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

Pressure BioSciences, Inc. (OTCQB: PBI) is a leader in the development and sale of innovative, broadly enabling, pressure-based solutions for the worldwide life sciences industry. 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 PreEMT technology from BaroFold, Inc. to allow entry into the biologics contract research 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, 2017, 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.

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**SOURCE:** Pressure BioSciences, Inc.