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Pressure BioSciences Awarded Second U.S. Patent for Its Revolutionary Ultra Shear Technology Platform, for Its Innovative NanoGap Valve

Dynamically-Adaptive Compact Valve is Key Component in the Company's Highly Anticipated and Proprietary UST Platform; UST Expected to Help Deliver Strong Sales Growth and Profitability in 2022

SOUTH EASTON, MA / ACCESSWIRE / November 11, 2021 /Pressure BioSciences, Inc. (OTCQB:PBIO) ("PBI" or the "Company"), a leader in the development and sale of broadly enabling, pressure-based instruments, consumables, and specialized services to the worldwide life sciences, agriculture, cosmetics, food & beverage, and other industries, today announced the award of its second U.S. patent for its revolutionary Ultra Shear Technology™ (UST™) platform. Entitled "Ultrahigh Pressure Compact Valve with Throttling Capability", this new patent (US 11,156,295) brings the Company's intellectual property ("IP") estate to a total of seven UST patents (two in the U.S.) and 30 pressure-based patents worldwide.

The Company's UST platform was created to revolutionize the processing of immiscible liquids (typically oils and water) - usually processed into macro/micro emulsions - into high quality, highly valuable, long-term stable nanoemulsions. Emulsions are mixtures of two or more liquids that are normally not soluble in each other without the addition of chemicals called emulsifiers (e.g., surfactants). Emulsions are used in thousands of products in everyday use, such as in dairy products, lotions and creams, drugs and vaccines, and nutraceuticals. Scientific data indicate that higher bioavailability and improved absorption in humans, animals and plants, plus greater stability, lower surfactant levels, and other advantages (such as more reliable dosing control) are vastly improved by high quality nanoemulsions versus micro or macroemulsions.

Dr. Edmund Y. Ting, Sr. Vice President of Engineering and an inventor on this patent, said: "The conversion of a coarser emulsion into a high-quality nanoemulsion with ultra-low droplet size is made possible by intense fluid shear forces created from pressure driven fluid velocity. By using pressures up to 60,000 psi to drive fluid flow, we believe that UST achieves a disruptive shear capability greater than any homogenizer on the market today. UST also achieves higher flow rates and lower processing costs than current high-pressure homogenizers by leveraging the use of field proven pumps, patented pressure transfer isolators, and our now patented, self-throttling Nanogap™ valve. The unique design of this compact, self-throttling valve is dynamically-adaptive, delivering clog and erosion resistance, with extraordinary precision and control in producing fine nanoemulsion dispersion size."

Dr. Alexander V. Lazarev, Chief Science Officer, commented: "We are proud to see our work

recognized with yet another strong patent. Amongst the exciting applications of our UST platform are enormous opportunities in the efficient and affordable production of stable nanoemulsions. Nanoemulsions are promising revolutionary advances in food/beverage, nutraceutical, personal care, pharmaceutical, agriculture, as well as many other industries. The UST process features exquisite control of high shear energy, resulting in a very reproducible product with a narrow distribution of droplet sizes as small as 40 to 100 nanometers. Such tiny, nano-sized oil droplets lead to greater stability and higher bioavailability of the active ingredients contained in the oil phase, resulting in more nutritional and better tasting liquid foods and beverages, as well as significantly higher quality drugs and vaccines in dosing and delivery."

Mr. John B. Hollister , Director of Marketing and Sales, stated, "The daily market interest we are receiving in UST-produced nanoemulsions prior to significant active promotion activities is very exciting. The potential benefits of nanoemulsified products are now recognized by important market leaders globally. The 2021 worldwide market size for a number of industries that could benefit from UST are each in the tens and even hundreds of billions of dollars. Over the past year, we have been working with major players in several of these markets to create unique formulations, the results of which have been embraced by these prospective partners. These companies are exerting tremendous pressure on us to release the commercial-scale, UST systems as quickly as possible. We believe the amount of nanoemulsified product required to meet these customers' needs will clearly help us achieve our goals of strong sales growth and profitability in 2022."

For more information on PBI's innovative UST, BaroFold, and PCT Platforms, and on the Company's new PBI Agrochem Division, please use the link to follow Mr. Schumacher's interview on Benzinga's ALL ACCESS Investor Event on Thursday, November 4, 2021. [Schumacher Interview ALL ACCESS 11.4.21](#)

About Pressure BioSciences, Inc.

Pressure BioSciences, Inc. (OTCQB: PBIO) is a leader in the development and sale of innovative, broadly enabling, pressure based solutions for the worldwide life sciences and other industries. 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 control biomolecular interactions safely and reproducibly (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, patented technology from BaroFold, Inc. (the "BaroFold" technology) to allow entry into the bio-pharma contract 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, 2020, 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.

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For more information about PBI and this press release, please click on the following website link:

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