December 22, 2021

Pressure BioSciences Shatters Preconceived Nanoemulsion Stability, Performance, and Production Limits: Produces CBD Oil Nanoemulsions with 18 Month Stability

UST Platform's Ultra-low Droplet Sizes and Test Verified Stability Portends Revolution in Major Markets

SOUTH EASTON, MA / ACCESSWIRE / December 22, 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 innovative services to the worldwide biotechnology, biotherapeutics, cosmetics, nutraceuticals, agrochemical, and food & beverage industries, today announced that hemp-derived cannabidiol ("CBD") processed with its patented Ultra Shear Technology™ ("UST™") platform produced high-quality water-soluble nanoemulsions of CBD oil in water that have now demonstrated rock-solid visual and analytical stability 18 months after production and baseline testing.

CBD is a widely popular therapeutic for relief of anxiety, depression, and PTSD, as well as chronic inflammatory and neuropathic pain. It is FDA-approved for use in the control of epileptic seizures in Lennox-Gastaut syndrome and Dravet syndrome. Early research suggests that CBD reduces spasticity in multiple sclerosis and may lessen the severity of neurological symptoms associated with Alzheimer's Disease, Parkinson's disease, and schizophrenia. CBD is under investigation as a palliative adjunctive therapy incancer.

However, CBD is insoluble in water and is poorly absorbed by the human body. TheWorld Health Organization (WHO) estimates that as little as 6% of CBD is absorbed via current oral delivery routes. Thus, most ingested CBD is wasted, passing through the body without being absorbed. Consequently, there is enormous interest in the development of truly water-soluble CBD to deliver efficient dosing, absorption, bioavailability, and benefit from CBD products (e.g., foods and beverages, therapeutics).

Dr. Alexander V. Lazarev, Chief Science Officer of PBI, explained: "Nanoemulsions, liposomes, and solid lipid nanoparticles present many exciting opportunities as pharmaceutical and nutraceutical delivery systems. The smaller the size of oil droplets or particles the better the stability and bioavailability of these preparations. Once the droplets/particles reach below about 100 nanometers, nanoemulsions appear optically clear and remain stable for months or even years, thus maintaining their aesthetic appeal, bioavailability, and importantly, their shelf life. Moreover, these preparations can be filter-sterilized to comply with FDA requirements for injectable drugs. Today we are pleased to announce that our enabling, affordable, and scalable UST process has been shown to create

nanoemulsions that maintain rock-solid stability, excellent water solubility, and pristine visual clarity at room temperature for at least 18 months. These results offer the potential to significantly increase shelf-life and effectiveness for CBD and a multitude of other oil-based products in use today."

Mr. Gary B. Smejkal, Senior Research Scientist at PBI, explained the Company's breakthrough: "The intense fluid shearing in UST progressively decreases oil droplet size with each cycle, making the method highly tunable while enabling the user to select and reliably reach a target droplet size. We have demonstrated that our platform consistently produces CBD nanoemulsions of uniform 30-40 nm droplet sizes that are stable at room temperature for at least 18 months. Measurements of droplet size by Dynamic Light Scattering (DLS) over time courses at various temperatures have shown that particle size remains unchanged over prolonged storage at room temperature or refrigeration, a major indication of nanoemulsion stability. Clarity, quantified by UV/Vis spectroscopy, also remains unchanged for equally long periods of time, making the CBD nanoemulsion visually undetectable when infused into bottled water or other beverages."

To view a short video of PBI's innovative UST platform for the preparation of CBD nanoemulsions, click here.

Mr. John B. Hollister, Director of Sales and Marketing at PBI, forecasted: "Nanoemulsions of CBD oil created by our patented UST processing platform offer the potential to revolutionize the rapidly growing cannabis market in food/beverages and therapeutics. But CBD is only a microcosm of the revolution we believe the UST platform promises to deliver for a vast array of products spanning multiple major markets, including therapeutics, nutraceuticals, agrochem, cosmetics, and food/beverages. From truly clear, water-soluble infusions in beverages with long-term stability (cold or room temp), to predictable dosing with much faster onset of action than other oral/topical forms, we believe the benefits, appeal, and adoption by consumers will be tremendous. This historic milestone in surpassing all 18-month stability goals positions PBI for rapid customer adoption of our UST nanoemulsion systems upon commercial release planned in the first half of 2022."

With a projected compounded annual growth rate (CAGR) of 21.2% from 2021 to 2028, the global CBD market is expected to grow from USD $2.8B in 2020 to USD $13B in 2028.

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 bio-molecular interactions safely and reproducibly (e.g., cell lysis, biomolecule extraction). Our primary focus is 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.

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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