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ProPhase Labs' Linebacker-1 Cancer Therapeutic shows promising mechanisms of action as both a mono-therapy and co-therapy in preclinical studies attacking a range of hard-to-treat cancers, including lung and gastric cancers

Garden City, NY, May 03, 2023 (GLOBE NEWSWIRE) -- ProPhase Labs, Inc. (NASDAQ: PRPH) ("ProPhase"), a next-generation biotech, genomics and diagnostics company, today provided an update regarding its progress and development strategy for Linebacker-1 (LB-1). Linebacker is a small molecule, multi-kinase inhibitor that is being developed by the Company's wholly owned subsidiary, ProPhase BioPharma, Inc. ("PBIO"), as a potential mono-therapy and co-therapy option for hard-to-treat cancers. Originally viewed as a co-therapy, the pre-clinical data generated has given PBIO reason to believe that LB-1 will also be very effective as a mono-therapy.

In Q1 of 2023, ProPhase collaborated with Eurofins, a globally recognized leading drug discovery company, to execute an in-depth analysis (*KINOMEscan™ Profiling Service*) of Linebacker-1 to determine how many cancer-relevant kinases were affected by Linebacker-1 out of a possible 468 enzymes. ProPhase was excited to learn that *numerous* critically important kinase targets were inhibited more than 99%. Some of the most inhibited pathways are those well known to promote tumorigenesis, such as the phosphoinositide 3-kinase family (*e.g.,* PIKfyive, PIP5k1 and 2) and the mitogen-activated protein kinase family (*e.g.*, MEK3, 4, and 5).

Importantly, the Eurofins analysis revealed several unique targets affected by Linebacker-1 that cancer research organizations highlight as critically important, for which no other pharmaceutical company has developed drugs to treat. We believe the unique interplay of Linebacker with multiple cancer-dependent pathways will be a true differentiator within current treatment paradigms.

Kinase families have been explored since the very beginning of targeted cancer therapies, as they are often upregulated and/or dysregulated in a number of cancer situations. There are 538 kinases encoded into the human genome and many of them have already been targeted as key areas for intervention in this multi-billion-dollar space. The largest targeted drugs starting with Novartis's Gleevec and extending to Nexavar, Xalkori, Tasigna, and many others have led the way toward treating many types of cancers as chronic conditions. Billions of development dollars have gone into this area, but there are still many untargeted areas in the kinase space, providing a unique opportunity for Linebacker-1 to become a

breakthrough drug in the fight against cancer.

In line with these impressive results, Linebacker-1 has demonstrated strong preclinical potential in a number of difficult diseases, including tough-to-treat lung and gastric cancers. As development continues, we intend to position Linebacker-1 as a potential new option for cancer patients suffering from a current lack of quality treatment options.

At ProPhase we believe in following biological foundations. Often times, scientific data is under appreciated in the pharmacological space. The decision to further mine existing results for valuable and directed data is therefore a priority for us. Analyzing the current Linebacker results against over 200 cancer models and 500 protein-protein interactions, ProPhase will now embark into a cutting-edge, machine learning stage in which all Linebacker-driven interactions and outcomes will be cross-referenced in a manner that further elucidates specific pathways particularly impacted by this one-of-a-kind molecule. This will allow for a more accurate and more likely-to-succeed path towards the clinic, ultimately saving time, money, and most importantly, patients' lives.

We intend to focus a majority of 2023 on developing a more in-depth understanding of the unique pathways we believe Linebacker may impact, as well as taking the necessary steps to meet the requirements for an IND submission to the FDA including:

- Cross-over analysis and machine learning to elucidate most affected signaling pathways
- Maximum Tolerated Dose (MTD) studies and safety confirmations
- Opportunities for synergies with existing, but underwhelming, commercial medicines
- Optimization of treatable neoplastic conditions within unsaturated areas

"The two-year bear market for microcap companies has led to some phenomenal opportunities in the biotech and life sciences space and specifically for our company," said Ted Karkus, CEO of ProPhase Labs. "The financial success of our diagnostic business over the past two years enabled us to acquire some fantastic under-valued assets, while strengthening our company's core infrastructure. We are confident that we will be able to leverage this infrastructure and platform to develop our new, exciting initiatives with multi-billion-dollar potential, including our development of the Linebacker portfolio. These continuing positive preliminary results from the Linebacker-1 pre-clinical studies continue to bolster our confidence and support the new directions that we are taking with our company with the goal of continuing to significantly grow the underlying value. We look forward to providing updates in the coming weeks on additional Linebacker pre-clinical studies that are being conducted in parallel. We also look forward to providing updates on other strategic initiatives that have so much potential."

About Linebacker
Linebacker is a modified polyphenol. Polyphenols are substances found in many nuts, vegetables and berries. Linebacker compounds are modified Myricetin, which is a common plant-derived flavonoid. Myricetin exhibits a wide range of activities that include strong antioxidant, anti-cancer, antidiabetic and anti-inflammatory activities. It displays activities that are related to the central nervous system.

LB-1 is Mono-chlorinated Myricetin with a Chlorine atom substituted for the Hydroxy group at 5' (position 5 on the B-ring). LB-2 is Di-chlorinated Myricetin with Chlorine atoms substituted

for the Hydroxy groups at 5' and 7 (position 5 on the B-ring and position 7 on the A-ring).

About Eurofins

Eurofins Discovery has supported Drug Discovery research for over 40 years. They are recognized as the industry leader for providing drug discovery researchers with the largest and most diverse portfolio of standard and custom in vitro safety & pharmacology assays and panels for drug screening and profiling. In addition to their in vitro safety pharmacology strengths, they also offer a broad portfolio of over 3500 drug discovery services and 1800 products. These include medicinal and synthetic chemistry, in vitro pharmacology, safety pharmacology & efficacy, ADME-Tox, cell-based phenotypic assays, and custom proteins and assay development capabilities. Eurofins supports a variety of drug discovery targets such as GPCRs, Kinases, Ion Channels, Nuclear Hormone Receptors and other proteins & enzymes. Their broad global service capabilities and decades of experience in providing drug discovery services result in the delivery of high quality, reproducible study performance with few repeats and high client satisfaction. Eurofins Discovery's capabilities, expertise, knowledge and skill sets enable them to provide their clients with the benefit of being able to work with a single outsourcing provider (CRO) for their drug discovery programs.

About ProPhase Labs

ProPhase Labs, Inc. (Nasdaq: PRPH) ("ProPhase") is a next-generation biotech, genomics and diagnostics company. Our goal is to create a healthier world with bold action and the power of insight. We're revolutionizing healthcare with industry-leading Whole Genome Sequencing solutions, while developing potential game changer diagnostics and therapeutics in the fight against cancer. This includes a potentially life-saving cancer test focused on early detection of esophageal cancer and potential breakthrough cancer therapeutics with novel mechanisms of action. Our world-class CLIA labs and cutting-edge diagnostic technology provide wellness solutions for healthcare providers and consumers. We develop, manufacture, and commercialize health and wellness solutions to enable people to live their best lives. We are committed to executional excellence, smart diversification, and a synergistic, omni-channel approach. ProPhase Labs' valuable subsidiaries, their synergies, and significant growth underscores our multi-billion dollar potential.

Forward Looking Statements

Except for the historical information contained herein, this document contains forward looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, including statements regarding our strategy, plans, objectives and initiatives and our beliefs regarding the potential of Linebacker-1 to treat various hard-to-treat cancers. Management believes that these forward-looking statements are reasonable as and when made. However, such forward-looking statements involve known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those projected in the forward-looking statements. These risks and uncertainties include but are not limited to our ability to obtain and maintain necessary regulatory approvals, general economic conditions, consumer demand for our products and services, challenges relating to entering into and growing new business lines, the competitive environment, and the risk factors listed from time to time in our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and any other SEC filings. The Company undertakes no obligation to update forward-looking statements except as required by applicable securities laws. Readers are

cautioned that forward-looking statements are not guarantees of future performance and are cautioned not to place undue reliance on any forward-looking statements.

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