Phio Announces Positive New Data Validating the INTASYL™ Immunotherapy Platform's Ability to Develop Novel Compounds Capable of Inhibiting Cancer Tumor Growth

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Animal studies show a complete and statistically significant (p <0.0001) inhibition of tumor growth

MARLBOROUGH, Mass., March 31, 2020 /PRNewswire/ -- Phio Pharmaceuticals Corp. (Nasdaq: PHIO), a biotechnology company developing the next generation of immuno-oncology therapeutics based on its proprietary self-delivering RNAi (INTASYL™) therapeutic platform, today announced data from various animal studies validating the potential of Phio's INTASYL technology as a cancer immunotherapy platform for developing novel compounds. The preclinical findings, which will be presented in further detail at upcoming scientific conferences, demonstrate that the INTASYL-enabled compounds can effectively be used to reduce immunosuppression in the tumor microenvironment (TME), which is one of the key challenges for many other immunotherapy platforms to achieve an adequate therapeutic effect in solid tumors.

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Phio scientists conducted several animal studies with a mouse version of PH-762 (mPH-762) and with PH-894 in a validated mouse model of cancer (murine hepatocellular carcinoma model with Hepa1-6 cells). These studies show that a local administration of mPH-762 or PH-894 through intra-tumoral injection resulted in potent anti-tumoral effects. The treated animals showed a complete and statistically significant (p <0.0001) inhibition of tumor growth, whereas placebo treated animals displayed exponential tumor growth.

"These results demonstrate that local administration of INTASYL-enabled compounds successfully infiltrate solid tumors, and significantly impact the tumor microenvironment, resulting in reduced tumor growth by activating the immune response in animal models of solid tumors," said Dr. Simon Fricker, Vice President of Research of Phio Pharmaceuticals. "Our findings show that with INTASYL we can efficiently and selectively target intracellular proteins such as BRD4, which is a well described therapeutic target that is challenging to attack with other available therapeutic platforms."

PH-762 is designed to elicit checkpoint blockade by inhibiting PD-1 receptor expression in T cells and has shown to silence the expression of checkpoint molecule PD-1 in target human T cells in a potent and durable manner. This is compared to the currently available treatment options for PD-1 inhibition, which include systemic administration of monoclonal antibody therapy.

"Only a minority of patients achieve a durable objective response with these monoclonal antibody therapies and there is a high risk of systemic immune-related toxicities, which is a major limiting factor to their clinical use. Intra-tumoral therapeutics, such as PH-762, could result in an optimized benefit/risk ratio, with good antitumor response as well as reduced systemic immune-related toxicities, that would be highly interesting, especially in early stages of the diseases," said Professor Caroline Robert, MD, PhD, head of the Dermatology Unit at the Gustave Roussy Institute which focuses on skin cancer research.

PH-894 is an INTASYL-enabled compound silencing the expression of BRD4, a regulator of gene expression impacting cell differentiation. PH-894 has shown in previous studies to improve T cell function and persistence by differentiating T cells into an effector memory phenotype.

Professor Rolf Kiessling, MD, PhD, Professor of Experimental Oncology at the Karolinska Institutet and member of Phio's Scientific Advisory Board, stated: "BRD4 is increasingly recognized as an important target for cancer therapy, but selective inhibition of this protein thus far has been challenging. In contrast to small molecule drugs, PH-894 can selectively inhibit BRD4 without impacting closely related proteins, due to the precise and selective silencing of protein expression possible with the INTASYL platform."

"These exciting new preclinical results build upon our animal data with PH-804, an INTASYL compound designed to silence the expression of the immune exhaustion target TIGIT in various immune cells resulting in them becoming weaponized, and support the continued development of our pipeline of therapeutic compounds," said Dr. Gerrit Dispersyn, President and CEO of Phio Pharmaceuticals. "These results, along with our development efforts with INTASYL in the field of adoptive cellular therapy, show the promise of our INTASYL platform in various treatment approaches of hard-to-treat cancers, such as solid tumors. We believe our technology has a bright future as a means to improve adoptive cellular therapy, but also as a direct therapeutic platform."

About Phio Pharmaceuticals Corp.

Phio Pharmaceuticals Corp. (Nasdaq: PHIO) is a biotechnology company developing the next generation of immuno-oncology therapeutics based on its self-delivering RNAi (INTASYL ™) therapeutic platform. The Company's efforts are focused on silencing tumor-induced suppression of the immune system through its proprietary INTASYL platform with utility in immune cells and/or the tumor micro-environment. Our goal is to develop powerful INTASYL therapeutic compounds that can weaponize immune effector cells to overcome tumor immune escape, thereby providing patients a powerful new treatment option that goes beyond current treatment modalities. For additional information, visit the Company's website, www.phiopharma.com.

Forward Looking Statements

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are neither historical facts nor assurances of future performance. These statements are based only on our current beliefs, expectations and assumptions regarding the results of our preclinical studies, future of our business, future plans and strategies, projections, anticipated events and trends, the economy and other future conditions. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict and many of which are outside of our control. Our actual results may differ materially from those indicated in the forward-looking statements as a result of a number of important factors, including, but not limited to, those identified in our Annual Report on Form 10-K and subsequent Quarterly Reports on Form 10-Q under the caption "Risk Factors" and in other filings the Company

periodically makes with the SEC. Readers are urged to review these risk factors and to not act in reliance on any forward-looking statements, as actual results may differ from those contemplated by our forward-looking statements. Phio does not undertake to update forward-looking statements to reflect a change in its views, events or circumstances that occur after the date of this release.

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