aTyr Pharma Announces Research Collaboration with Medical University of South Carolina

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Collaboration with leading expert Dr. Robert Gemmill will support the company's neuropilin-2 (NRP2) antibody program in oncology.

SAN DIEGO, Oct. 29, 2020 (GLOBE NEWSWIRE) -- aTyr Pharma, Inc. (Nasdaq: LIFE), a biotherapeutics company engaged in the discovery and development of innovative medicines based on novel biological pathways, today announced that it has entered into a research collaboration with the Medical University of South Carolina (MUSC). Dr. Robert M. Gemmill, Ph.D., the former Melvyn Berlinksy Chair of Cancer Research and Professor of Medicine Emeritus in the Division of Hematology/Oncology at MUSC, will serve as the principal investigator for the collaboration. Dr. Gemmill's research focuses on the genetic alteration of genes during lung and kidney cancer development, including the role of Neuropilin-2 (NRP2). The collaboration aims to accelerate the development of therapeutic antibodies that selectively target specific NRP2 isoforms and validate their potential use in the treatment of lung cancer.

Lung cancer is the most common cancer and the leading cause of cancer death among men and women worldwide. Despite currently available treatments, many tumors become metastatic or develop resistance to targeted therapies. The development of new therapeutic strategies, which can enhance the existing therapeutic approaches and reduce or overcome drug resistance, are greatly needed. Research shows that aggressive forms of lung cancer are associated with higher expression of NRP2, a cell surface co-receptor involved in tumor progression and drug resistance, and specifically the splice variant NRP2b. Higher expression of NRP2 is linked to worsened patient outcomes in many cancers.

"We are pleased to strengthen our academic partnerships and evolve our understanding of the role of NRP2 in lung cancer by entering into this research collaboration with Dr. Gemmill, a noted expert in the field of NRP2 biology and its role in cancer," said Sanjay S. Shukla, M.D., M.S., President and Chief Executive Officer of aTyr. "Dr. Gemmill's long-standing work in lung cancer is particularly aligned with aTyr's belief that our antibodies have the potential to be engineered to inhibit the high expression of NRP2 often seen in aggressive tumors, including lung cancers. Despite currently available treatments, these aggressive tumors remain an area of high unmet medical need. We look forward to collaborating on future findings in this area."

"We know that NRP2 plays a role in both metastatic spread and acquired drug resistance leading to worsened patient survival," noted Dr. Gemmill. "We look forward to the day when these life-threatening processes may be able to be blocked using NRP2 antibodies."

Dr. Gemmill graduated magna cum laude with a B.A. in Biology and a minor in Chemistry from the University of Connecticut. He received a Ph.D. in Biochemistry from Cornell University. He completed post-doctoral training in Molecular Biology for one year at Cornell and in Molecular Genetics for a second year at Arizona State University. He previously served as the Director of Molecular Genetics at The Genetics Center of the Southwest Biomedical Research Institute in Scottsdale, AZ, and Director of the Colorado Cancer Center Cytogenetics Laboratory. He was an Institute Fellow at the Eleanor Roosevelt Institute for Cancer Research in Denver, CO, and served as Professor in the Department of Medicine at the University of Colorado Health Sciences Center before moving to the Medical University of South Carolina, where he is Professor of Medicine, Emeritus.

About NRP2

Neuropilin-2 (NRP2) is a cell surface receptor that plays a key role in lymphatic development and in regulating inflammatory responses. In many forms of cancer, high NRP2 expression is associated with worse outcomes. NRP2 can interact with multiple ligands and co-receptors through distinct domains to influence their functional roles, making it a potential drug target with multiple distinct therapeutic applications. NRP2 interacts with type 3 semaphorins and plexins to impact inflammation and with forms of vascular endothelial growth factor (VEGF) and their receptors, to impact lymphangiogenesis. In addition, NRP2 modulates interactions between CCL21 and CCR7 potentially impacting homing of dendritic cells to lymphoid organs. aTyr is currently investigating NRP2 receptor biology, both internally and in collaboration with key academic thought leaders, as a novel target for new product candidates for a variety of diseases, including cancer and inflammation.

About aTyr

aTyr is a biotherapeutics company engaged in the discovery and development of innovative medicines based on novel biological pathways. aTyr's research and development efforts are concentrated on a newly discovered area of biology, the extracellular functionality and signaling pathways of tRNA synthetases. aTyr has built a global intellectual property estate directed to a potential pipeline of protein compositions derived from 20 tRNA synthetase genes and their extracellular targets. aTyr's primary focus is ATYR1923, a clinical-stage product candidate which binds to the neuropilin-2 receptor and is designed to down-regulate immune engagement in inflammatory lung diseases. For more information, please visit http://www.atyrpharma.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 usually identified by the use of words such as "anticipates," "believes," "estimates," "expects," "intends," "may," "plans," "projects," "seeks," "should," "will," and variations of such words or similar expressions. We intend these forward-looking statements to be covered by such safe harbor provisions for forward-looking statements and are making this statement for purposes of complying with those safe harbor provisions. These forward-looking statements include statements regarding the potential therapeutic benefits and applications of NRP2 antibodies; timelines and plans with respect to certain development activities, potential benefits of collaborations and certain development goals. These forward-looking statements also reflect our current views about our plans, intentions, expectations, strategies and prospects, which are based on the information currently available to us and on assumptions we have made. Although we believe that our plans, intentions, expectations, strategies and prospects, as reflected in or suggested by these forward-looking statements, are reasonable, we can give no assurance that the plans, intentions, expectations or strategies will be attained or achieved. All forward-looking statements are based on estimates and assumptions by our management that, although we believe to

be reasonable, are inherently uncertain. Furthermore, actual results may differ materially from those described in these forward-looking statements and will be affected by a variety of risks and factors that are beyond our control including, without limitation, uncertainty regarding the COVID-19 pandemic, risks associated with the discovery, development and regulation of our product candidates, the risk that we or our partners may cease or delay preclinical or clinical development activities for any of our existing or future product candidates for a variety of reasons (including difficulties or delays in patient enrollment in planned clinical trials), the possibility that existing collaborations could be terminated early, and the risk that we may not be able to raise the additional funding required for our business and product development plans, as well as those risks set forth in our most recent Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and in our other SEC filings. Except as required by law, we assume no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

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