aTyr Pharma Presents Preclinical Research Showing Effects of ATYR2810 in Lung and Breast Cancer at the 2021 AACR Virtual Annual Meeting

April 9, 2021

Findings demonstrate tumor inhibitory effects of ATYR2810 when used as a monotherapy or in combination with chemotherapy in models of non-small cell lung cancer.

ATYR2810 used in combination with chemotherapy or bevacizumab increased anti-tumor effects in triple-negative breast cancer model.

SAN DIEGO, April 09, 2021 (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 two poster presentations at the 2021 American Association for Cancer Research (AACR) Annual Meeting, which is being held virtually April 10 – 15 and May 17 – 21, 2021. The full text of the corresponding abstracts is available on the AACR website. The posters will be available for browsing on the AACR website starting Saturday April 10 at 8:30 a.m. ET through Monday June 21. The posters will also be available on the aTyr website.

The posters present findings from preclinical studies, conducted in collaboration with Dr. Arthur M. Mercurio and his lab at the University of Massachusetts Medical School, demonstrating effects of ATYR2810, aTyr's anti-human Neuropilin-2 (NRP2) / VEGF blocking monoclonal antibody, in solid tumors. In animal models of non-small cell lung cancer, ATYR2810 administered therapeutically as a single agent significantly inhibited tumor growth. When administered in combination with chemotherapy, including either 5-FU or cisplatin, ATYR2810 inhibited tumor growth to a greater extent compared to either chemotherapeutic agent alone. In models of triple-negative breast cancer (TNBC), ATYR2810 administered in combination with widely used anti-cancer therapeutics, including the chemotherapeutic agent cisplatin or the targeted VEGF therapy bevacizumab, increased the anti-tumor effects of each agent. ATYR2810 also down-regulated epithelial-mesenchymal transition genes, which may be a mechanism that mediates its anti-tumor effects.

"The data presented in these posters affirm the therapeutic potential of ATYR2810 for aggressive cancer and provide a compelling rationale for evaluating the efficacy of ATYR2810 in patients," said Dr. Arthur M. Mercurio, Professor and Vice Chair of the Department of Molecular, Cell and Cancer Biology at the University of Massachusetts Medical School and co-author of the posters. "Notably, the ability of this antibody to promote the differentiation of TNBC cells and render them more susceptible to chemotherapy has the potential to be a significant advancement because therapy resistance, which is associated with tumor recurrence and metastasis, is a major challenge for patients with TNBC and other aggressive cancers."

"These findings build upon our preclinical work related to ATYR2810 and strengthen our understanding of blocking VEGF-mediated NRP2 signaling as a potential approach to inhibiting tumor growth," said Sanjay S. Shukla, M.D., M.S., President and Chief Executive Officer of aTyr. "Whether as a monotherapy or in combination with other widely used anti-cancer treatments, including chemotherapy or a targeted therapy such as bevacizumab, these findings suggest that ATYR2810 has potential as a therapeutic agent in certain tumors where NRP2 is implicated. We look forward to continuing IND-enabling activities for ATYR2810 to support advancement to clinical trials in cancer in the future."

Details of posters and corresponding abstracts are as follows:

Title: The Neuropilin-2 targeting antibody ATYR2810 inhibits non-small cell lung cancer tumor growth in monotherapy and combination therapy
Authors: Alison G. Barber, Zhiwen Xu, Justin Rahman, Hira Lal Goel, Arthur M. Mercurio, Christoph Burkart, Leslie A. Nangle. aTyr Pharma, San Diego, CA, UMass Medical School, Boston, MA.
Abstract Number: 5247
Session Category: Tumor Biology
Session Title: Human-in-Mouse Models of Human Cancer
Poster Number: LB234
Permanent Abstract Number: LB234
Date and Time: April 10 at 8:30 a.m. ET

Title: A domain-specific antibody to NRP2 down-regulated epithelial-mesenchymal transition genes and enhanced efficacy of standard-of-care therapeutics for aggressive breast cancer
Authors: Zhiwen Xu, Christoph Burkart, Hira Lal Goel, Justin Rahman, Clara Polizzi, Matt Seikkula, Luke Burman, Arthur M. Mercurio, Leslie A. Nangle. aTyr Pharma, San Diego, CA, UMass Medical School, Boston, MA.
Abstract Number: 5316
Session Category: Experimental and Molecular Therapeutics
Session Title: Biological Therapeutic Agents
Poster Number: LB095
Permanent Abstract Number: LB095
Date and Time: April 10 at 8:30 a.m. ET

About ATYR2810

aTyr is developing ATYR2810 as a potential therapeutic for certain aggressive tumors where Neuropilin-2 (NRP2) is implicated. ATYR2810 is a fully humanized monoclonal antibody that is designed to specifically and functionally block the interaction between NRP2 and one of its primary ligands, VEGF. ATYR2810 is the first Investigational New Drug (IND) candidate to arise from aTyr's in-house research program designing monoclonal antibodies to selectively target the NRP2 receptor and its associated signaling pathways. NRP2 is a cell surface receptor that is highly expressed in certain tumors, in the lymphatic system and on key immune cells implicated in cancer progression. Increased NRP2 expression is associated with

worse outcomes in many cancers. Preclinical data suggest that ATYR2810 could be effective against certain types of solid tumors. ATYR2810 is currently undergoing IND-enabling studies.

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, including ATYR2810; timelines and plans with respect to certain development activities; 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.

Contact:
Ashlee Dunston
Director, Investor Relations and Corporate Communications
adunston@atyrpharma.com

Source: aTyr Pharma, Inc.