aTyr Pharma Presents Preclinical Research Showing NRP2 Antibody Effects in Triple-Negative Breast Cancer at the 2020 AACR Virtual Annual Meeting II

June 22, 2020

Poster details data from aTyr's preclinical, domain specific Neuropilin-2 (NRP2) antibody program showing antibodies may increase sensitivity to chemotherapy in triple-negative breast cancer.

SAN DIEGO, June 22, 2020 (GLOBE NEWSWIRE) -- aTyr Pharma, Inc. (Nasdaq: LIFE), a biotherapeutics company engaged in the discovery and development of innovative medicines based on novel immunological pathways, today announced a poster and audio presentation at the 2020 American Association for Cancer Research (AACR) Virtual Annual Meeting II, which is being held June 22 – 24, 2020. The poster is available for browsing on the AACR website from June 22 – 24, 2020.

The poster presents findings from a preclinical study, conducted in collaboration with Dr. Arthur M. Mercurio and his lab at the University of Massachusetts Medical School, demonstrating that aTyr has generated a panel of anti-human NRP2 monoclonal antibodies that have the potential to be developed for the clinical management of solid tumors. Importantly, these antibodies showed differential binding to specific domains of NRP2, selectively inhibiting binding of either VEGF or Sema3F. In combination with chemotherapy, an antibody blocking the VEGF binding site of NRP2 was effective in preventing mammosphere formation in organoids derived from triple-negative breast cancer (TNBC) patients. Expression of NRP2 has been shown to be high in TNBC tumors and has been linked to worsened outcomes for patients. These results suggest that antibodies targeting NRP2 could potentially be effective in certain types of solid tumors, including breast cancer.

Presentation Details:

Title: Domain-Specific Antibodies to Neuropilin 2 Implicate VEGF-C and not Semaphorin 3F in Breast Cancer Stem Cell Function
Authors: Leslie A. Nangle, Luke Burman, Hira L. Goel, Zhiwen Xu, Kristina Hamel, Nathaniel Bloom, Arthur M. Mercurio. aTyr Pharma, San Diego, CA, UMass Medical School, Boston, MA.
Abstract Number: 7308
Session: Identification of Molecular Targets 1
Poster Number: 1785
Date and Time: June 22, 2020 (9:00AM – 6:00PM EDT)

Following the virtual presentation, the poster will be available on the aTyr website.

"I have been interested in understanding the role of Neuropilins in cancer for over 20 years and exploiting them as a therapeutic target for more aggressive cancers, such as triple-negative breast cancer. I am particularly excited about the work described in this AACR poster because the NRP2 antibodies that aTyr has developed are highly specific and effective at blocking the function of NRP2 in this breast cancer model," said Dr. Arthur M. Mercurio, Ph.D., 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 poster. "What I find most significant about this work is that these antibodies increased the sensitivity of triple-negative breast cancer to chemotherapy, a finding that could impact the ability to manage this type of breast cancer, as well as other aggressive cancers."

"NRP2 has long been associated with the progression of many cancers in addition to diseases of inflammation, allowing us to leverage our groundbreaking work in NRP2 signaling for the potential future development of oncology therapeutics," stated Dr. Sanjay Shukla, M.D., M.S., President and Chief Executive Officer of aTyr. "Our development of high-quality NRP2 antibodies that can target different domains of NRP2 and show differential activity is noteworthy in that they appear to allow for the precise targeting of VEGF-C, which is highly expressed in certain breast cancers and is responsible for the mediation of tumor progression. We look forward to building upon this research as we continue to advance our understanding of the underlying role of NRP2 in cancer progression."

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 immunological 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 our NRP2 antibodies; timelines and plans with respect to certain development activities (including the further development of NRP2 antibodies) 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, the fact that NRP2 biology is not fully understood, uncertainty regarding the COVID-19 pandemic, risks associated with the discovery, development and regulation of our product candidates, including the risk that results from clinical trials or other studies may not support further development, the risk that we may cease or delay preclinical or clinical development activities for any of our existing or future product candidates for a variety of reasons, the possibility of unexpected expenses or other demands on our cash resources, 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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