aTyr Pharma Announces Research Collaboration with Boston Children's Hospital

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Collaboration to examine the therapeutic efficacy of anti-neuropilin-2 (NRP2) antibodies in potential new roles and indications

SAN DIEGO, Oct. 22, 2019 (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 that the company has entered into a research collaboration with Boston Children's Hospital. Dr. Diane Bielenberg, Assistant Professor in the Department of Surgery at Harvard Medical School and a Research Associate in the Vascular Biology Program at Boston Children's, will serve as the principal investigator for the collaboration. Dr. Bielenberg is an expert in the field of neuropilin-2 (NRP2) biology and conducts research related to growth factor receptors involved in vascular and smooth muscle biology. The collaboration will investigate the therapeutic efficacy of anti-NRP2 antibodies in a potentially new therapeutic role, the regulation of visceral smooth muscle contractility. Specifically, the ability of anti-NRP2 antibodies to prevent, inhibit or reverse smooth muscle decompensation in mouse models.

"This collaboration with Dr. Bielenberg is very consistent with our strategy of partnering with academia in the further exploration of NRP2 and its underlying role in human disease," said Dr. Sanjay Shukla, President and Chief Executive Officer of aTyr. "This potential new indication in visceral smooth muscle identified by Drs. Diane Bielenberg and Rosalyn Adam at Boston Children's aligns with our view that NRP2 inhibition can have broad utility across many disease indications. We look forward to a mutually beneficial partnership."

Hollow organs, such as the bladder or gastrointestinal (GI) tract, function to expel waste products via the action of smooth muscle contraction. Aberrant pressure, especially in the bladder, can initiate hypertrophy of the bladder wall and lead to inflammation and fibrosis with eventual decompensation in smooth muscle, increased pressure transmitted to the kidneys, and pathological renal damage.

"The ability of NRP2 to promote smooth muscle relaxation, along with its robust expression in hollow organs, implies that this axis could be exploited for therapeutic benefit in conditions characterized by inappropriate smooth muscle contractility," noted Dr. Bielenberg. "These include bladder conditions, such as urinary incontinence, as well as GI tract motility disorders, such as intestinal pseudo-obstruction and paralytic ileus. Current treatments for such diseases can have significant side effects and limited efficacy, therefore we are eager to explore new therapeutic options with the aTyr Pharma team."

Biography: Dr. Bielenberg received a full scholarship to attend the University of Northern Iowa and graduated with a B.S. in Chemistry and a B.A. in Biology. She was awarded an NCI Cancer Immunobiology Training Grant and earned her Ph.D. in Cancer Biology from the University of Texas Health Science Center and M.D. Anderson Cancer Center. Dr. Bielenberg was awarded an American Cancer Society Fellowship and performed her postdoctoral research studies at Harvard Medical School and Boston Children's Hospital. As an independent Principal Investigator, Dr. Bielenberg has been funded by the NCI, NIDDK, NEI, and NHLBI with 89 publications to date.

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 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. aTyr is focused on the therapeutic translation of the Resokine pathway, comprised of extracellular proteins derived from the histidyl tRNA synthetase gene family. ATYR1923 is a clinical-stage product candidate which binds to the neuropilin-2 receptor and is designed to down-regulate immune engagement in interstitial lung diseases and other immune-mediated 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 Litigation Reform Act. 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, including statements regarding our projected cash expenditures, the potential therapeutic benefits and applications of our product candidates; our ability to successfully advance our product candidates, undertake certain development activities (such as the initiation of clinical trials, clinical trial enrollment, the conduct of clinical trials and the announcement of top-line results) and accomplish certain development goals, and the timing of such events; and the scope and strength of our intellectual property portfolio. 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, risks associated with the discovery, development and regulation of our product candidates, 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 (including difficulties or delays in patient enrollment in planned clinical trials), 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:
Joyce Allaire
Managing Director, LifeSci Advisors, LLC
jallaire@lifesciadvisors.com

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