aTyr Pharma Announces Publication in the Journal Cellular and Molecular Immunology

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Paper highlights the essential role that histidyl tRNA synthetase (HARS) plays in immune responses in a broad range of inflammatory disease states

Lead therapeutic candidate, ATYR1923, being evaluated in a Phase 1b/2a trial in patients with pulmonary sarcoidosis

SAN DIEGO, Feb. 27, 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 publication highlighting the essential role that histidyl tRNA synthetase (HARS) plays in the modulation of immune cell engagement in a broad range of disease states, including interstitial lung diseases. The paper, titled "Serum-circulating His-tRNA synthetase inhibits organ-targeted immune responses," was published in the journal *Cellular and Molecular Immunology*.

In mouse and rodent models of acute inflammatory disease, researchers found that HARS administration was shown to downregulate immune response. In contrast, HARS neutralization through targeting antibodies was associated with the activation of the immune system and the perpetuation of chronic and acute autoimmune diseases, including interstitial lung diseases (ILDs). aTyr's lead therapeutic candidate, ATYR1923, is currently being evaluated in a Phase 1b/2a clinical trial as a potential treatment for patients with pulmonary sarcoidosis, an ILD characterized by the formation of granulomas, clumps of inflammatory cells in the lungs. The prognosis for patients with pulmonary sarcoidosis ranges from benign and self-limiting to chronic, debilitating disease with mortality.

"These published findings strongly validate our hypothesis that the extracellular functionality of tRNA synthetases, a newly discovered area of biology, may hold the key to slowing or halting the progression of interstitial lung diseases, thereby preserving lung function and improving patient outcomes," said Sanjay S. Shukla, MD, MS, President and Chief Executive Officer of aTyr. "We look forward to data from our ongoing clinical trial of ATYR1923 in pulmonary sarcoidosis anticipated later this year. In addition, we are working to expand our pipeline of tRNA synthetase based drug candidates targeting autoimmune disorders where novel treatment options are needed."

aTyr will provide a corporate update during its upcoming fourth quarter financial and operating results conference call.

About ATYR1923

aTyr is developing ATYR1923 as a potential therapeutic for patients with interstitial lung diseases. ATYR1923, a fusion protein comprised of the immuno-modulatory domain of histidyl tRNA synthetase fused to the FC region of a human antibody, is a selective modulator of neuropilin-2 that downregulates the innate and adaptive immune response in inflammatory disease states. aTyr is currently enrolling a proof-of-concept Phase 1b/2a trial evaluating ATYR1923 in patients with pulmonary sarcoidosis. This Phase 1b/2a study is a multi-ascending dose, placebo-controlled, first-in-patient study of ATYR1923 that has been designed to evaluate the safety, tolerability, steroid sparing effect, immunogenicity and pharmacokinetics profile of multiple doses of ATYR1923.

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 interstitial 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 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, include statements regarding 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), 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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