

aTyr Pharma Announces \$20 Million Common Stock Purchase Agreement with Aspire Capital Fund, LLC

September 14, 2020

Aspire Capital commits to purchase up to \$20 Million of Common Stock over a period of up to 30 months.

SAN DIEGO, Sept. 14, 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 that it has entered into a Common Stock Purchase Agreement (the "Agreement") providing for the sale of up to \$20 million of common stock to Aspire Capital Fund, LLC, (Aspire Capital), a Chicago-based institutional investor and shareholder of aTyr.

Under the terms of the Agreement, Aspire Capital has committed to purchase up to \$20 million of aTyr's common stock over a period of up to 30 months at prices based on the market price at the time of each sale, subject to certain terms and conditions. aTyr will control the timing and amount of any shares of common stock sold to Aspire Capital. There are no warrants, options, financing swaps, derivatives or other securities associated with this Agreement. aTyr retains the right to terminate the Agreement at any time, at its discretion, without any additional cost or penalty.

"We are excited to enter into this agreement with Aspire Capital, a valued shareholder and strong supporter of our scientific platform," said Sanjay S. Shukla, M.D., M.S., President and Chief Executive Officer of aTyr. "This transaction provides an opportunity for aTyr to access capital in an efficient and flexible manner, allowing us to further support the advancement of our clinical program for ATYR1923, including our trials in pulmonary sarcoidosis and COVID-19 severe respiratory complications, and our preclinical programs in Neuropilin-2 (NRP2) antibody development and tRNA synthetase biology."

"We are very pleased to expand our investment in aTyr, a company dedicated to developing new therapies for patients who have diseases with a high unmet medical need," said Steven G. Martin, Managing Member of Aspire Capital. "This equity vehicle enhances aTyr's ability to leverage its broad portfolio of intellectual property and provides Aspire Capital the opportunity to invest in an emerging life science company. We look forward to developing a long-term relationship with aTyr and providing ongoing support as they work towards achieving several notable milestones in the remainder of 2020 and throughout the next two and a half years."

"We are impressed with aTyr's thoughtful approach to drug discovery and development, including its NRP2 antibody program and the high-quality engineering of the antibodies," said Michael Burrows, Ph.D., Vice President of Life Sciences at Aspire Capital. "The preclinical data generated in oncology that was presented at the American Association for Cancer Research Annual Meeting in June is a nice first step in demonstrating initial efficacy at blocking NRP2 and showing tumor inhibitory effects. We look forward to subsequent data from this program."

There are no limitations on the use of proceeds, financial or business covenants, or restrictions on future financings.

Additional details regarding the Agreement are set forth in aTyr's Current Report on Form 8-K, filed today with the U.S. Securities and Exchange Commission.

This press release shall not constitute an offer to sell or a solicitation of an offer to buy these securities, nor shall there be any sales of these securities in any state or other jurisdiction in which such offer, solicitation or sale would be unlawful prior to the registration or qualification under the securities laws of any such state or other jurisdiction.

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.

About Aspire Capital Fund, LLC

Aspire Capital Fund, LLC is a Chicago-based, long-only investment fund focused on making open market and direct equity investments in publicly traded companies. Aspire Capital Fund, LLC is managed by Aspire Capital Partners, LLC. Aspire Capital invests in a broad range of industries with emphasis in healthcare and technology.

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 regarding the potential therapeutic benefits and applications of ATYR1923 and our NRP2 antibody program; timelines and plans with respect to certain development activities (including the further development of ATYR9123 and our NRP2 antibody program); potential sales of common stock and proceeds under the Agreement; 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, including the risk of delays in enrollment in our clinical trials, 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 fact that our collaboration agreements are subject to early termination, whether we are able to satisfy conditions required to sell shares of our common stock to Aspire Capital under the Agreement, 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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