# UNITED STATES
# SECURITIES AND EXCHANGE COMMISSION
**Washington, D.C. 20549**

# FORM 8-K

**CURRENT REPORT**
**Pursuant to Section 13 or 15(d)**
**of the Securities Exchange Act of 1934**

**June 26, 2018**
**Date of Report (Date of earliest event reported)**

# ATYR PHARMA, INC.
**(Exact name of registrant as specified in its charter)**

| **Delaware** | **001-37378** | **20-3435077** |
|---|---|---|
| **(State or other jurisdiction of incorporation)** | **(Commission File Number)** | **(IRS Employer Identification No.)** |

**3545 John Hopkins Court, Suite #250**
**San Diego, California 92121**
**(Address of principal executive offices, including zip code)**

**(858) 731-8389**
**(Registrant's telephone number, including area code)**

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligations of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 or Rule 12b-2 of the Securities Exchange Act of 1934.

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☒

**Item 7.01 Regulation FD Disclosure.**

On June 26, 2018, aTyr Pharma, Inc. (the "Company") announced clinical trial data in a press release, a copy of which is furnished herewith as Exhibit 99.1.

The information under this Item 7.01, including Exhibit 99.1, is being furnished and shall not be deemed "filed" for the purposes of Section 18 of the Securities and Exchange Act of 1934, as amended, or the Exchange Act, or otherwise subject to the liabilities of that section, nor shall such information be deemed incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Exchange Act, except as expressly set forth by specific reference in such filing.

**Item 8.01 Other Events.**

The Company announced data from its Phase 1 clinical trial of ATYR1923, an immuno-modulatory therapeutic candidate with potentially broad therapeutic application in the treatment of interstitial lung diseases.

This first-in-human, randomized, double-blind, placebo-controlled study was designed to investigate the safety, tolerability, immunogenicity and pharmacokinetics of intravenous ATYR1923 in healthy volunteers. The Phase 1 study enrolled 36 healthy volunteers who were randomized to one of six cohorts and received a single infusion of intravenous ATYR1923 or placebo. Doses of ATYR1923 ranged from 0.03 mg/kg up to 5.0 mg/kg. The results indicate that the drug was generally well-tolerated at all dose levels tested, with no significant adverse events or induction of anti-drug antibodies observed following ATYR1923 dosing or throughout the one-month follow-up period.

The pharmacokinetics (PK) of ATYR1923 following single-dose administration were linear across the evaluated dose range. Higher ATYR1923 doses yielded sustained serum concentrations through the end of the one-month follow-up period that were above the predicted therapeutic threshold, supporting the potential for a once-monthly dosing regimen.

**Forward-Looking Statements**

This Current Report on Form 8-K 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 the potential therapeutic benefits and applications of our product candidates; our ability to successfully advance our pipeline or 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. 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.

**Item 9.01 Exhibits.**

(d) Exhibits

| Exhibit No. | Description |
| --- | --- |
| 99.1 | Press Release of aTyr Pharma, Inc. dated June 26, 2018. |

**SIGNATURE**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

**ATYR PHARMA, INC.**

By: /s/ Sanjay S. Shukla
Sanjay S. Shukla, M.D., M.S.
President and Chief Executive Officer

Date: June 26, 2018

**Exhibit 99.1**

**IMMEDIATE RELEASE**
**Contact:**
**Mark Johnson**
Sr. Director, Investor Relations
mjohnson@atyrpharma.com
858-223-1163

**aTyr Pharma Announces Positive Phase 1 Data for ATYR1923 Therapeutic Candidate**

*– ATYR1923 Well-Tolerated at all Doses Tested, with No Significant Adverse Events –*

*– Pharmacokinetic Profile Supports Potential Once-Monthly Dosing –*

SAN DIEGO – June 26, 2018 – aTyr Pharma, Inc. (Nasdaq: LIFE), a biotherapeutics company engaged in the discovery and development of innovative medicines based on novel immunological pathways, today announced positive data from its Phase 1 clinical trial of ATYR1923, an immuno-modulatory therapeutic candidate with potentially broad therapeutic application in the treatment of interstitial lung diseases.

This first-in-human, randomized, double-blind, placebo-controlled study was designed to investigate the safety, tolerability, immunogenicity and pharmacokinetics of intravenous ATYR1923 in healthy volunteers. The Phase 1 study enrolled 36 healthy volunteers who were randomized to one of six cohorts and received a single infusion of intravenous ATYR1923 or placebo. Doses of ATYR1923 ranged from 0.03 mg/kg up to 5.0 mg/kg. The results indicate that the drug was generally well-tolerated at all dose levels tested, with no significant adverse events or induction of anti-drug antibodies observed following ATYR1923 dosing or throughout the one-month follow-up period.

The pharmacokinetics (PK) of ATYR1923 following single-dose administration were linear across the evaluated dose range. Higher ATYR1923 doses yielded sustained serum concentrations through the end of the one-month follow-up period that were above the predicted therapeutic threshold, supporting the potential for a once-monthly dosing regimen.

“We are encouraged by our Phase 1 safety and tolerability data, which support the continued clinical development of ATYR1923 for patients with inflammatory interstitial lung disease,” said Sanjay Shukla, M.D., M.S., President and CEO of aTyr. “The PK profile of ATYR1923 supports once monthly dosing, which we believe would be attractive to our potential patient population. This is an important first step in our clinical program for ATYR1923 and we will be using this data alongside our ATYR1923 translational research activities as we develop and initiate a patient trial in the fourth quarter of this year.”

**About aTyr**

aTyr is a clinical-stage biotechnology company engaged in the discovery and clinical development of innovative medicines using its knowledge of tRNA synthetase biology. aTyr is focused on the therapeutic translation of the Resokine pathway, comprised of extracellular proteins derived from the histidyl tRNA synthetase (HARS) gene family. aTyr's clinical stage ATYR1923 candidate augments the Resokine pathway and is designed to temper immune engagement in interstitial lung diseases. aTyr's immuno-oncology research program targets the Resokine pathway using antibodies to enhance the immune response in tumor settings. aTyr has built an intellectual property estate, to protect its pipeline, comprising over 250 issued patents or allowed patent applications that are owned or exclusively licensed, including over 300 potential protein compositions derived from tRNA synthetase genes. For more information, please visit http://www.atyrpharma.com.

**Forward-Looking Statements**

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