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

November 13, 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 2.02 Results of Operations and Financial Condition.

On November 13, 2018, aTyr Pharma, Inc. (the "Company") announced financial results for the quarter ended September 30, 2018 in the earnings release attached hereto as Exhibit 99.1.

The information under this Item 2.02, including Exhibit 99.1 hereto 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 (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 (the "Securities Act") or the Exchange Act, except as expressly set forth by specific reference in such filing.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

99.1 Earnings Press Release of aTyr Pharma, Inc. dated November 13, 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: November 13, 2018

Exhibit 99.1

IMMEDIATE RELEASE

Contact:
Jason Spark
Managing Director, Canale Communications Inc
jason@canalecomm.com
619-849-6005

aTyr Pharma Announces Third Quarter 2018 Operating Results and Provides Corporate Update

- Initiation of Proof-of-Concept Study in Patients with Pulmonary Sarcoidosis Planned for Fourth Quarter of 2018 -

- Conference Call Today at 5:00 p.m. ET / 2:00 p.m. PT –

SAN DIEGO – November 13, 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 operating results for the third quarter ended September 30, 2018.

“We continue to advance the development of our lead product candidate, ATYR1923, and have selected pulmonary sarcoidosis as the indication for our upcoming proof-of-concept clinical study,” said Sanjay Shukla, M.D., M.S., President and CEO of aTyr. “As previously stated, we are utilizing our ATYR1923 Phase I data, along with recent translational research results as well as input from key opinion leaders, to guide our development plan and we believe we are on track to initiate our Phase 1b/2a study of ATYR1923 during the fourth quarter of 2018.”

Clinical Highlights & Upcoming Milestones

In October 2018, aTyr held an educational webinar announcing the selection of pulmonary sarcoidosis as the disease indication for its upcoming ATYR1923 clinical study. The webinar was led by Dr. Daniel Culver, D.O., Director of the Interstitial Lung Disease Program at the Cleveland Clinic, President-elect of the World Association of Sarcoidosis and Other Granulomatous Disorders and the Chair of the Scientific Advisory Board for the Foundation for Sarcoidosis Research.

- Pulmonary sarcoidosis is a major form of interstitial lung disease (ILD) a group of immune-mediated disorders which cause progressive fibrosis of lung tissue.
- In the fourth quarter of 2018, aTyr plans to initiate a proof-of-concept Phase 1b/2a multiple-ascending dose, placebo-controlled, first-in-patient study with ATYR1923 for the treatment of patients with pulmonary sarcoidosis.
    - The study has been designed to evaluate the safety, tolerability, steroid-sparing effect, immunogenicity and pharmokinetic (PK) profile of multiple doses of ATYR1923.
    - In addition, aTyr intends to evaluate well-established clinical endpoints and certain biomarkers to assess preliminary efficacy of ATYR1923.

“We are excited to begin our Phase 1b/2a clinical trial for ATYR1923,” said Dr. Shukla. “As previously announced, we have evidence of efficacy of ATYR1923 in animal models which supports the clinical development in pulmonary sarcoidosis and potentially other interstitial lung disease indications.”

Research Highlights

- In October 2018, aTyr presented at the American Society of Human Genetics 2018 Meeting in San Diego, California. The presentation was entitled "*Bi-allelic mutations in Phe-tRNA synthetase identified from four families are associated with a multi-system disease and support ex-translational function".*
    - The presentation highlighted a new class of mutations in Phe-tRNA synthetase (FARS) which do not affect protein synthesis, but are associated with multi-system disease, particularly in the lung and brain, with common features of hypotonia and interstitial lung disease with cholesterol pneumonitis.

Third Quarter 2018 Financial Results and Cash Position

Research and development expenses were $4.2 million and $7.1 million for the three months ended September 30, 2018 and 2017, respectively. The decrease of $2.9 million was primarily due to a $1.4 million decrease in personnel associated costs because of lower headcount, which was mainly a result of the restructuring plan announced in May 2018 (the "Restructuring Plan"), a $0.7 million decrease in product manufacturing costs, a $0.6 million decrease due to the completion of ATYR1923 Phase 1 activities, and a $0.2 million decrease in overall general research and development expenses.

General and administrative expenses were $2.5 million and $3.7 million for the three months ended September 30, 2018 and 2017, respectively. The decrease of $1.2 million was primarily due to a $0.7 million decrease in personnel associated costs because of lower headcount, which was mainly a result of the Restructuring Plan, a $0.4 million decrease related to consulting and professional fees, and a $0.1 million decrease related to overall general and administrative expenses.

Year-to-Date 2018 Financial Results

Research and development expenses were $16.8 million and $24.8 million for the nine months ended September 30, 2018 and 2017, respectively. The decrease of $7.9 million was primarily due to a $3.1 million decrease related to the completion of clinical studies related to ATYR1923 and ATYR1940, a $3.0 million decrease in product manufacturing costs, a $1.3 million decrease in personnel associated costs due to lower headcount, which was mainly a result of the Restructuring Plan and a $0.5 million decrease in overall general research and development expenses.

General and administrative expenses were $10.0 million and $11.2 million for the nine months ended September 30, 2018 and 2017, respectively. The decrease of $1.2 million was primarily due to a $0.7 million decrease related to non-cash stock compensation expense, and a $0.5 million decrease related to our consulting and professional fees.

As of September 30, 2018, aTyr had $56.0 million in cash, cash equivalents and investments and 41.3 million shares of common stock outstanding on an if-converted basis (includes 29.9 million shares of common stock and 11.4 million shares of common stock if converted from Class X Preferred stock).

Conference Call and Webcast Details

aTyr Pharma will host a conference call and webcast today at 5:00 p.m. Eastern Time / 2:00 p.m. Pacific Time to discuss the results and the recent announcements. Interested parties may access the call by dialing toll-free (844) 358-9116 from the US, or (209) 905-5951 internationally and using conference ID 4389274. Links to a live audio webcast and replay may be accessed on the aTyr website events page at: http://investors.atyrpharma.com/events-and-webcasts. An audio replay will be available for at least 90 days following the event.

About ATYR1923

aTyr scientists successfully engineered ATYR1923, a fusion protein comprised of the immuno-modulatory domain of histidyl tRNA synthetase (HARS) fused to the FC region of a human antibody. aTyr is developing ATYR1923 as a potential therapeutic for patients with interstitial lung diseases. aTyr announced data from a first-in-human Phase 1 clinical trial of ATYR1923 in June 2018. This randomized, double-blind, placebo-controlled study investigated the safety, tolerability, immunogenicity, and pharmacokinetics (PK) of intravenous ATYR1923 in 36 healthy volunteers. The results indicate that the drug was generally well-tolerated at all dose levels tested with no significant adverse events, and the observed PK profile supports the potential for a once-monthly dosing regimen.

About Pulmonary Sarcoidosis

Sarcoidosis is an inflammatory disease characterized by the formation of granulomas, clumps of inflammatory cells, in one or more organs in the body. Sarcoidosis affects people of all ages, but typically presents before the age of 50 years, with the incidence peaking at 20 to 39 years. The disorder usually begins in the lungs, skin or lymph nodes, but can affect almost any organ. Sarcoidosis in the lungs is called pulmonary sarcoidosis and 90% or more of patients with sarcoidosis have lung involvement. Pulmonary sarcoidosis is a major form of interstitial lung disease (ILD) a group of immune-mediated disorders which cause progressive fibrosis of lung tissue. Estimates of prevalence vary; however, aTyr believes that approximately 200,000 Americans live with pulmonary sarcoidosis. The prognosis for patients with pulmonary sarcoidosis ranges from benign and self-limiting to chronic, debilitating disease with mortality.

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 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. 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.

ATYR PHARMA INC.
Condensed Consolidated Statements of Operations
(unaudited, in thousands, except share and per share data)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Operating expenses:				
Research and development	$ 4,202	$ 7,133	$ 16,836	$ 24,757
General and administrative	2,475	3,694	10,021	11,188
Total operating expenses	6,677	10,827	26,857	35,945
Loss from operations	(6,677)	(10,827)	(26,857)	(35,945)
Total other expense, net	(437)	(363)	(1,336)	(788)
Net loss	$ (7,114)	$ (11,190)	$ (28,193)	$ (36,733)
Net loss per share attributable to common stock holders, basic and diluted	$ (0.24)	$ (0.43)	$ (0.95)	$ (1.50)
Weighted average common stock shares outstanding, basic and diluted	29,858,393	25,818,008	29,832,424	24,462,835

ATYR PHARMA INC.
Condensed Consolidated Balance Sheets
(in thousands)

	September 30, 2018	December 31, 2017
	(unaudited)	
Cash, cash equivalents and available-for-sale investments	$ 55,961	$ 85,119
Other assets	1,774	1,956
Property and equipment, net	2,039	2,280
Total assets	$ 59,774	$ 89,355
Accounts payable and accrued expenses	$ 2,981	$ 5,379
Current portion of long-term loans, net of debt issuance costs and discount	7,742	5,012
Term loans, net of current portion and debt issuance costs and discount	10,065	14,719
Stockholders' equity	38,986	64,245
Total liabilities and stockholders' equity	$ 59,774	$ 89,355