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

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**FORM 8-K**

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

May 10, 2018  
Date of Report (Date of earliest event reported)

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

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Delaware  
(State or other jurisdiction  
of incorporation)

001-37378  
(Commission  
File Number)

20-3435077  
(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)

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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))
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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.

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**Item 1.02 Termination of a Material Definitive Agreement.**

On May 10, 2018, aTyr Pharma, Inc. (the “Company”) approved the implementation of a corporate restructuring and program prioritization plan (the “Restructuring Plan”) to streamline the Company’s operations and concentrate development efforts on the advancement of its therapeutic candidate, ATYR1923. As part of the Restructuring Plan, the Company provided The Scripps Research Institute (“TSRI”) with written notice of termination of that certain Amendment and Restated Research Funding and Option Agreement dated January 19, 2015, as amended, entered between the Company and TSRI (the “TSRI Agreement”). The termination will be effective as of November 10, 2018.

The description of the TSRI Agreement contained in this Report does not purport to be complete, and is qualified in its entirety by reference to the description of the material terms of the TSRI Agreement contained in our Annual Report on Form 10-K for the year ended December 31, 2017, and to the copy of the TSRI Agreement, which was filed as Exhibit 10.7 to the Company’s Registration Statement on Form S-1, filed on April 6, 2015.

**Item 2.02 Results of Operations and Financial Condition.**

On May 14, 2018, the Company announced financial results for the quarter ended March 31, 2018 and the Restructuring Plan in the press 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 or the Exchange Act, except as expressly set forth by specific reference in such filing.

**Item 2.05 Costs Associated with Exit or Disposal Activities.**

As part of the Restructuring Plan, on May 11, 2018, the Company implemented a reduction in the Company’s workforce by approximately 30% to 42 full-time employees. The Restructuring Plan was approved by management (with authority delegated by the Board of Directors) on May 10, 2018. Affected employees were informed on May 11, 2018. The Company estimates that it will record charges of approximately \$900,000 for employee severance and other related termination benefits and approximately \$400,000 in one-time, non-cash stock-based compensation charges due to the acceleration of time-based vesting provisions of outstanding equity awards in accordance with the Company’s Executive Severance and Change in Control Policy. Severance benefits are expected to be paid in full by the end of July 2018.

This Item 2.05 contains forward-looking statements, including, but not limited to, statements related to the expected costs associated with severance and termination benefits relating to the Restructuring Plan. These forward-looking statements are based on the Company’s current expectations and inherently involve significant risks and uncertainties. The Company’s actual results and the timing of events could differ materially from those anticipated in such forward looking statements as a result of these risks and uncertainties, which include, without limitation, risks related to the Restructuring Plan and the reduction in workforce. In addition, the Company’s costs may be greater than anticipated and the Restructuring Plan may have an adverse impact on the Company’s development activities. A further description of the risks and uncertainties relating to the business of the Company is contained in the Company’s Annual Report on Form 10-K for the year ended December 31, 2017, filed with the Securities and Exchange Commission (the “SEC”) on March 20, 2018, and the Company’s subsequent current and periodic reports filed with the SEC. The Company undertakes no duty or obligation to update any forward-looking statements contained in this Item 2.05 as a result of new information, future events or changes in its expectations.

**Item 9.01 Financial Statements and Exhibits.**

(d) Exhibits.

99.1 [Earnings Press Release of aTyr Pharma, Inc. dated May 14, 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: May 14, 2018

**IMMEDIATE RELEASE****Contact:****Mark Johnson**

Sr. Director, Investor Relations

[mjohnson@atyrpharma.com](mailto:mjohnson@atyrpharma.com)

858-223-1163

**aTyr Pharma Announces First Quarter 2018 Operating Results,  
Program Prioritization and Corporate Restructuring***- Conference Call Today at 8:00 am E.T./5:00 a.m. P.T. -*

SAN DIEGO – May 14, 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 first quarter ended March 31, 2018. The Company also announced a corporate restructuring plan to streamline its operations as it focuses its development efforts on the further clinical advancement of ATYR1923.

**Program Prioritization and Corporate Restructuring**

aTyr has decided not to proceed with IND-enabling activities, including GMP manufacturing, for the panel of antibodies identified in its ORCA program, as pre-clinical data generated over the last month did not show sufficient efficacy to justify further development at this time. In light of this, the Company has implemented a corporate restructuring based on the resources necessary to continue to develop ATYR1923 and pursue additional research efforts for the ORCA program. The corporate restructuring includes an immediate workforce reduction of approximately 30% as well as additional cost saving measures.

"This has been a very difficult process and we regret the impact this business decision has on our departing employees and their families. We are grateful for the many contributions of our impacted employees and I want to sincerely thank them for all their hard work and commitment to aTyr," commented Sanjay Shukla, M.D., M.S., President and CEO of aTyr, "Going forward, we are primarily focused on ATYR1923 and designing a future patient trial which will be influenced by data from our ongoing Phase I trial, translational activities and research related to the role of the receptor for ATYR1923."

**Key Research Finding: Identification of Receptor for ATYR1923**

The Company has identified Neuropilin-2 (NRP-2) as a binding partner for ATYR1923 from a screen of greater than 4,500 human membrane proteins. NRP-2 is a pleiotropic receptor that can bind to a number of different ligands. It has a well-established role in the development of the neural and lymphatic systems and an emerging role in the adult immune system. aTyr is currently evaluating the role of NRP-2 interactions in the control of immune responses, and designing optimal therapeutic approaches to modulate this newly-discovered receptor in the Resokine pathway. The Company believes the discovery of this receptor will aid in the clinical development of the ATYR1923 program.

## **First Quarter 2018 Financial Results and Cash Position**

Research and development expenses were \$6.2 million and \$9.2 million for the quarters ended March 31, 2018 and 2017, respectively. The decrease of \$3.1 million was due primarily to a \$1.9 million decrease related to the completion of ATYR1940 clinical studies and a decrease of \$1.1 million related to lower product manufacturing costs.

General and administrative expenses were \$4.1 million and \$4.0 million for each of the quarters ended March 31, 2018 and 2017, respectively.

As of March 31, 2018, the Company had \$74.1 million in cash, cash equivalents and investments and 41.2 million shares of common stock outstanding on an if-converted basis (includes 29.8 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 8:00 a.m. Eastern Time / 5:00 a.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 8255679. 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 aTyr Pharma**

aTyr is a clinical-stage biotechnology company engaged in the discovery and clinical development of innovative medicines using its knowledge of tRNA synthetase biology. The company 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 is an agonist of the Resokine pathway 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**

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 of our product candidates, our ability to successfully advance our pipeline or product candidates, undertake certain development activities (such as clinical trial enrollment and the conduct of clinical trials) and accomplish certain development goals, and the timing of such events, the anticipated benefits and cost-savings relating to the corporate restructuring, and the scope and strength of our intellectual property

portfolio 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 those 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 the 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 and 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), as well as those 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**  
(in thousands, except share and per share data)

	Three Months Ended	
	March 31,	
	2018	2017
Operating expenses:		
Research and development	\$ 6,150	\$ 9,204
General and administrative	4,070	4,007
Total operating expenses	10,220	13,211
Loss from operations	(10,220)	(13,211)
Total other expense, net	(447)	(194)
Net loss	\$ (10,667)	\$ (13,405)
Net loss per share attributable to common stock holders, basic and diluted	\$ (0.36)	\$ (0.56)
Weighted average common stock shares outstanding, basic and diluted	29,795,466	23,739,057

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

	March 31, 2018	December 31, 2017
Cash, cash equivalents and available-for-sale investments	\$ 74,100	\$ 85,119
Other assets	1,996	1,956
Property and equipment, net	2,374	2,280
Total assets	\$ 78,470	\$ 89,355
Accounts payable, accrued expenses and other liabilities	\$ 3,995	\$ 5,379
Current portion of long-term loans, net of debt issuance costs and discount	7,027	5,012
Term loans, net of current portion and debt issuance costs and discount	12,950	14,719
Stockholders' equity	54,498	64,245
Total liabilities and stockholders' equity	\$ 78,470	\$ 89,355