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

SCHEDULE 14A INFORMATION

Proxy Statement Pursuant to Section 14(a) of the
Securities Exchange Act of 1934
(Amendment No.)

Filed by the Registrant ☒

Filed by a party other than the Registrant ☐

Check the appropriate box:

- ☒ Preliminary Proxy Statement
- ☐ **Confidential, for Use of the Commission Only** (as permitted by Rule 14a-6(e)(2))
- ☐ Definitive Proxy Statement
- ☐ Definitive Additional Materials
- ☐ Soliciting Material under § 240.14a-12

ATYR PHARMA, INC.

(Name of Registrant as Specified In Its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check all boxes that apply):

- ☒ No fee required
- ☐ Fee paid previously with preliminary materials
- ☐ Fee computed on table in exhibit required by Item 25(b) per Exchange Act Rules 14a-6(i)(1) and 0-11

aTyr Pharma, Inc.
10240 Sorrento Valley Road, Suite #300
San Diego, CA 92121
NOTICE OF SPECIAL MEETING OF STOCKHOLDERS
To Be Held On October 16, 2026

Dear Stockholder:

You are cordially invited to attend a Special Meeting of Stockholders (including any adjournments, continuations or postponements thereof, the “Special Meeting”) of aTyr Pharma, Inc., a Delaware corporation (the “Company,” “we,” “our” or “us”). The Special Meeting will be held on October 16, 2026 at 9:00 a.m. Pacific Time at the Company’s corporate headquarters located at 10240 Sorrento Valley Road, San Diego, CA 92121.

We are holding the Special Meeting for the following purposes:

1. To approve a series of alternate amendments to our restated certificate of incorporation to effect, at the option of our Board of Directors, a reverse stock split of our common stock at a ratio between 1-for-10 and 1-for-50, inclusive, as determined by our Board of Directors in its sole discretion; and
2. To transact such other business as may properly come before the Special Meeting or any adjournment or postponement thereof.

Proposal 1 is more fully described in the proxy statement for the Special Meeting (the “Proxy Statement”) accompanying this Notice of Special Meeting of Stockholders. Our Board of Directors recommends that you vote “FOR” the proposal listed above.

The Board of Directors has fixed the close of business on _____, 2026 as the record date for the determination of stockholders entitled to notice of, and to vote at, the Special Meeting.

All stockholders are invited to attend the Special Meeting in person. Whether or not you expect to attend the Special Meeting in person, in order to ensure your representation at the Special Meeting, you are requested to vote over the internet, by telephone or by completing, signing, dating and returning the enclosed proxy card in the enclosed envelope. If you attend the Special Meeting and file with the Secretary of the Company an instrument revoking your proxy or a duly executed proxy bearing a later date, your proxy will not be used. Please note, however, that if your shares are held of record by a broker, bank or other nominee and you wish to vote at the meeting, you must obtain a proxy issued in your name from that record holder.

By Order of the Board of Directors

aTyr Pharma, Inc.



Sanjay S. Shukla, M.D., M.S.
President and Chief Executive Officer

San Diego, California
September _____, 2026

Your vote is important, whether or not you expect to attend the Special Meeting in person. You are urged to vote either via the internet or telephone, or by mail by completing, signing, dating and returning the enclosed proxy card promptly in the enclosed envelope. Voting promptly will help avoid the additional expense of further solicitation to assure a quorum at the meeting.

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ATYR PHARMA, INC.

**PROXY STATEMENT
FOR THE 2026 SPECIAL MEETING OF STOCKHOLDERS
To Be Held On October 16, 2026**

QUESTIONS AND ANSWERS ABOUT THESE PROXY MATERIALS AND VOTING

Why did I receive these proxy materials?

We have sent you this proxy statement and the enclosed proxy card because our board of directors (the “Board of Directors” or the “Board”) is soliciting your proxy to vote at the 2026 Special Meeting of Stockholders (the “Special Meeting”), including at any adjournments or postponements of the meeting. Pursuant to rules adopted by the Securities and Exchange Commission (the “SEC”), we are also providing access to our proxy materials over the internet, which can be accessed at <https://web.viewproxy.com/atyr/2026SM>.

We intend to mail these proxy materials on or about September , 2026 to all stockholders of record entitled to vote at the Special Meeting.

How do I attend the Special Meeting?

The meeting will be held on October 16, 2026 at 9:00 a.m. Pacific Time at the Company’s corporate headquarters located at 10240 Sorrento Valley Road, San Diego, California 92121. Information on how to vote in person at the Special Meeting is discussed below.

Who can vote at the Special Meeting?

Only stockholders of record at the close of business on September , 2026 will be entitled to vote at the Special Meeting. On the record date, there were shares of common stock outstanding and entitled to vote.

Stockholder of Record: Shares Registered in Your Name

If on September , 2026 your shares were registered directly in your name with the Company’s transfer agent, Equiniti Trust Company, LLC, then you are a stockholder of record. As a stockholder of record, you may vote in person at the meeting or vote by proxy. Whether or not you plan to attend the meeting, we urge you to vote by proxy over the telephone or on the internet, or to fill out and return the enclosed proxy card in the enclosed envelope to ensure your vote is counted.

Beneficial Owner: Shares Registered in the Name of a Broker or Bank

If on September , 2026 your shares were held, not in your name, but rather in an account at a brokerage firm, bank or other similar organization, then you are the beneficial owner of shares held in “street name” and these proxy materials should be forwarded to you by that organization. The organization holding your account is considered to be the stockholder of record for purposes of voting at the Special Meeting. As a beneficial owner, you have the right to direct your broker, bank or other agent regarding how to vote the shares in your account. You must follow the instructions provided by your brokerage firm, bank, or other similar organization for your bank, broker or other stockholder of record to vote your shares per your instructions. Alternatively, many brokers and banks provide the means to grant proxies or otherwise instruct them to vote your shares by telephone and via the internet, including by providing you with a control number via email or on your proxy card or your voting instruction form. If your shares are held in an account with a broker, bank or other stockholder of record providing such a service, you may instruct them to vote your shares by telephone (by calling the number provided in the proxy materials) or over the internet as instructed by your broker, bank or other stockholder of record. If you did not receive a control number via email or on your proxy card or voting instruction form, and you wish to vote prior to or at the Special Meeting, you must follow the instructions from your broker, bank or other stockholder of record, including any requirement to obtain a valid legal proxy. Many brokers, banks and other stockholders of record allow a beneficial owner to obtain a valid legal proxy either online or by mail, and we recommend that you contact your broker, bank or other stockholder of record to do so.

What am I voting on?

There is one matter scheduled for a vote:

1. To approve a series of alternate amendments to our restated certificate of incorporation to effect, at the option of our Board of Directors, a reverse stock split of our common stock at a ratio between 1-for-10 and 1-for-50, inclusive, as determined by our Board of Directors in its sole discretion (the “Reverse Stock Split Proposal” or “Proposal 1”).

Our Board of Directors unanimously recommends a vote “FOR” the Reverse Stock Split Proposal.

What if another matter is properly brought before the meeting?

Our Board of Directors does not know of any other matters that will be presented for consideration at the Special Meeting. If any other matters are properly brought before the Special Meeting, the proxy holders have discretionary authority to vote all proxies in accordance with their best judgment. Discretionary authority for them to do so is provided for in the proxy card.

How do I vote?

For the Reverse Stock Split Proposal, you may vote “FOR,” “AGAINST” or “ABSTAIN” from voting.

The procedures for voting are fairly simple:

Stockholder of Record: Shares Registered in Your Name

If you are a stockholder of record, you may vote at the Special Meeting, or you may vote by proxy over the telephone, through the internet or using the enclosed proxy card. Whether or not you plan to attend the Special Meeting, we urge you to vote by proxy to ensure your vote is counted. You may still attend the Special Meeting and vote at the Special Meeting even if you have already voted by proxy. This is only required if you want to change your original vote, since votes will not be double counted.

- (1) To vote in person, come to the Special Meeting and we will give you a ballot when you arrive.
- (2) To vote **prior** to the Special Meeting (until 11:59 p.m. Eastern Time on October 15, 2026) you may vote via the internet at <https://web.viewproxy.com/atyr/2026SM>; by telephone; or by completing and returning the enclosed proxy card, as described below.
 - i. To vote over the telephone, dial toll-free 1-866-402-3905 using a touch-tone phone and follow the recorded instructions. You will be asked to provide the Control Number from the proxy card. Your telephone vote must be received by 11:59 p.m. Eastern Time on October 15, 2026 to be counted.
 - ii. To vote through the internet prior to the meeting, go to <https://web.viewproxy.com/atyr/2026SM> and follow the instructions to submit your vote on an electronic proxy card. You will be asked to provide the Control Number from the proxy card. Your internet vote must be received by 11:59 p.m. Eastern Time on October 15, 2026 to be counted.
 - iii. To vote using the enclosed proxy card, simply complete, sign and date the enclosed proxy card and mail it promptly in the postage-paid envelope provided. If you return your signed proxy card to us before the Special Meeting, we will vote your shares as you direct.

Beneficial Owner: Shares Registered in the Name of Broker or Bank

If you are a beneficial owner of shares registered in the name of your broker, bank or other agent, you should have received a voting instruction form with these proxy materials containing voting instructions from that organization rather than from the Company. You must follow these instructions for your bank, broker or other stockholder of record to vote your shares per your instructions. Alternatively, many brokers and banks provide the means to grant proxies or otherwise instruct them to vote your shares by telephone and via the internet, including by providing you with a control number via email or on your proxy card or your voting instruction form. If your shares are held in an account with a broker, bank or other stockholder of record providing such a service, you may instruct them to vote your shares by telephone (by calling the number provided in the proxy materials) or over the internet as instructed by your broker, bank or other stockholder of record. If you did not receive a control number via email or on your proxy card or voting instruction form, and you wish to vote prior to or at the Special Meeting, you must follow the instructions from your broker, bank or other stockholder of record, including any requirement to obtain your control number. Many brokers, banks and other stockholders of record allow a beneficial owner to obtain their control number either online or by mail, and we recommend that you contact your broker, bank or other stockholder of record to do so.

Internet proxy voting will be provided to allow you to vote your shares online, with procedures designed to ensure the authenticity and correctness of your proxy vote instructions.

How many votes do I have?

On each matter to be voted upon, you have one vote for each share of common stock you own as of September , 2026.

If I am a stockholder of record and I do not vote, or if I return the proxy card or otherwise vote without giving specific voting instructions, what happens?

If you are a stockholder of record and do not vote by telephone, through the internet, by completing the enclosed proxy card or in person at the Special Meeting, your shares will not be voted.

If you return a signed and dated proxy card or otherwise vote without marking voting selections, your shares will be voted “FOR” the Reverse Stock Split Proposal. If any other matter is properly presented at the meeting, your proxyholder (one of the individuals named on your proxy card) will vote your shares using his or her best judgment.

If I am a beneficial owner of shares held in street name and I do not provide my broker or bank with voting instructions, what happens?

If you are a beneficial owner of shares held in street name and you do not instruct your broker, bank or other agent how to vote your shares, your broker, bank or other agent may still be able to vote your shares in its discretion. Under the rules of the New York Stock Exchange (“NYSE”), brokers, banks and other securities intermediaries that are subject to NYSE rules may use their discretion to vote your “uninstructed” shares with respect to matters considered to be “routine” under NYSE rules, but not with respect to “non-routine” matters. In this regard, the NYSE has advised us that the Reverse Stock Split Proposal is considered a “routine” matter under NYSE rules, meaning that if you do not return voting instructions to your broker, bank or other agent by its deadline, we expect that your shares may be voted by your broker, bank or other agent in its discretion on the Reverse Stock Split Proposal.

If you are a beneficial owner of shares held in street name, and you do not plan to attend the Special Meeting, in order to ensure your shares are voted in the way you would prefer, you must provide voting instructions to your broker, bank or other agent by the deadline provided in the materials you receive from your broker, bank or other agent.

What are “broker non-votes”?

As discussed above, when a beneficial owner of shares held in street name does not give voting instructions to his or her broker, bank or other securities intermediary holding his or her shares as to how to vote on matters deemed to be “non-routine,” the broker, bank or other such agent cannot vote the shares. When there is at least one “routine” matter that the broker, bank or other securities intermediary votes on, the shares that are un-voted on “non-routine” matters are counted as “broker non-votes.” The NYSE has advised us that the Reverse Stock Split Proposal is considered a “routine” matter and we therefore do not expect there to be any broker non-votes on this proposal.

As a reminder, if you are a beneficial owner of shares held in street name, in order to ensure your shares are voted in the way you would prefer, you must provide voting instructions to your broker, bank or other agent by the deadline provided in the materials you receive from your broker, bank or other agent.

Who is paying for this proxy solicitation?

We will pay for the entire cost of soliciting proxies. In addition to these proxy materials, our directors and employees and Alliance Advisors, LLC (“Alliance Advisors”) may also solicit proxies in person, by email, by telephone, or by other means of communication. Directors and employees will not be paid any additional compensation for soliciting proxies, but Alliance Advisors will be paid its customary fee, which is not expected to exceed \$17,000. In addition to solicitations by mail, Alliance Advisors may solicit proxies by telephone and email. **IF YOU NEED ASSISTANCE WITH THE VOTING OF YOUR SHARES, YOU MAY CONTACT ALLIANCE ADVISORS TOLL-FREE AT 1-866-206-8393.** We will also reimburse brokerage firms, banks and other agents for the cost of forwarding proxy materials to beneficial owners.

What does it mean if I receive more than one set of proxy materials?

If you receive more than one set of proxy materials, your shares may be registered in more than one name or in different accounts. Please follow the voting instructions on the proxy cards in the proxy materials to ensure that all of your shares are voted.

Can I change my vote after submitting my proxy?

Stockholder of Record: Shares Registered in Your Name

Yes. You can revoke your proxy at any time before the final vote at the Special Meeting. If you are the record holder of your shares, you may revoke your proxy in any one of the following ways:

- (1) You may grant a subsequent proxy by telephone or through the internet.
- (2) You may submit another properly completed proxy card with a later date.
- (3) You may send a timely written notice that you are revoking your proxy to the Company's Secretary at 10240 Sorrento Valley Road, Suite #300, San Diego, CA 92121. Such notice will be considered timely if it is received at the indicated address by the close of business on the business day one week preceding the date of the Special Meeting.
- (4) You may attend the Special Meeting and vote in person. Simply attending the Special Meeting will not, by itself, revoke your proxy.

Your most current telephone or internet proxy or proxy card is the one that is counted.

Beneficial Owner: Shares Registered in the Name of Broker or Bank

If your shares are held by your broker, bank or other agent, you should follow the instructions provided by your broker, bank or other agent.

How are votes counted?

The following table summarizes the minimum vote needed to approve the Reverse Stock Split Proposal and the effect of abstentions and broker non-votes. Votes will be counted by the inspector of elections appointed for the Special Meeting.

Proposal	Vote Required	Discretionary Voting Permitted?
1. Reverse Stock Split Proposal	Majority Cast	Yes ⁽¹⁾

- (1) The NYSE has advised us that this proposal is considered a "routine" matter under NYSE rules. Accordingly, if you hold your shares in street name and do not provide voting instructions to your broker, bank or other agent that holds your shares, your broker, bank or other agent has discretionary authority under NYSE rules to vote your shares on this proposal. Given such discretionary authority, we do not anticipate broker non-votes for this proposal.

"Discretionary Voting Permitted" means that brokers will have discretionary voting authority with respect to shares held in street name for their clients, even if the broker does not receive voting instructions from their client.

"Majority Cast" means approval of this proposal requires a majority of the votes properly cast to be casted "FOR" this matter. Abstentions will not be counted as votes cast with respect to such matter and will have no effect on the proposal.

What is the quorum requirement?

A quorum of stockholders is necessary to hold a valid meeting. A quorum will be present if stockholders holding at least a majority of the outstanding shares entitled to vote are present at the meeting in person or represented by proxy. On the record date, there were shares outstanding and entitled to vote. Thus, the holders of shares must be present in person or represented by proxy at the meeting to have a quorum.

Abstentions and broker non-votes, if any, will be counted towards the quorum requirement. If there is no quorum, either the holders of a majority of the voting power present at the Special Meeting or represented by proxy or the presiding officer may adjourn the Special Meeting to another date.

How can I find out the results of the voting at the Special Meeting?

Preliminary voting results will be announced at the Special Meeting. In addition, final voting results will be published in a current report on Form 8-K that we expect to file within four business days after the Special Meeting. If final voting results are not available to us in time to file a Form 8-K within four business days after the Special Meeting, we intend to file a Form 8-K to publish preliminary results and, within four business days after the final results are known to us, file an additional Form 8-K to publish the final results.

FORWARD-LOOKING STATEMENTS

This Proxy Statement contains certain “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995, relating to future events, including, without limitation, our beliefs regarding whether NYSE will determine the Reverse Stock Split Proposal to be “routine” or “non-routine” and the existence of “broker non-votes” as a result of such determinations, the expected or potential benefits and risks of implementing a Reverse Stock Split as described in the Reverse Stock Split Proposal and other forward-looking information in the Reverse Stock Split Proposal. Such statements are only predictions and involve risks and uncertainties, resulting in the possibility that the actual events or performance will differ materially from such predictions. For a nonexclusive list of major factors which could cause the actual results to differ materially from the predicted results in the forward-looking statements, please refer to the “Risk Factors” in Part I, Item 1A of our Annual Report on Form 10-K for the fiscal year ended December 31, 2025, filed with the SEC on March 5, 2026 and in our subsequently filed periodic and current reports on Form 10-Q and Form 8-K, including our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2026 and June 30, 2026, filed with the SEC on May 15, 2026 and August 7, 2026, respectively.

PROPOSAL 1

APPROVAL OF A SERIES OF ALTERNATE AMENDMENTS TO OUR RESTATED CERTIFICATE OF INCORPORATION TO AUTHORIZE THE BOARD OF DIRECTORS TO IMPLEMENT A REVERSE STOCK SPLIT OF OUR COMMON STOCK

Introduction

Our Board of Directors has unanimously approved a series of alternate amendments to our restated certificate of incorporation each of which would effect a reverse stock split (“Reverse Stock Split”) of all issued and outstanding shares of our common stock, at a ratio ranging from 1-for-10 to 1-for-50, inclusive.

Accordingly, effecting a Reverse Stock Split would reduce the number of outstanding shares of our common stock. The effectiveness of any one of these amendments and the abandonment of the other amendments, or the abandonment of all of these amendments, will be determined by our Board of Directors following the Special Meeting and prior to the one-year anniversary of the date the Reverse Stock Split is approved by our stockholders. Our Board of Directors has recommended that these proposed amendments be presented to our stockholders for approval.

Our stockholders are being asked to approve these proposed amendments pursuant to Proposal 1, and to grant authorization to our Board of Directors to determine, at its option, whether to implement a Reverse Stock Split, including its specific timing and ratio.

Should we receive the required stockholder approval for Proposal 1, our Board of Directors will have the sole authority to elect, at any time on or prior to the one-year anniversary of the date the Reverse Stock Split is approved by our stockholders, and without the need for any further action on the part of our stockholders, whether to effect a Reverse Stock Split.

Notwithstanding approval of Proposal 1 by our stockholders, our Board of Directors may, at its sole option, abandon the proposed amendments and determine prior to the effectiveness of any filing with the Secretary of State of the State of Delaware not to effect any Reverse Stock Split, as permitted under Section 242(c) of the General Corporation Law of the State of Delaware. If the Board of Directors does not implement a Reverse Stock Split on or prior to the one-year anniversary of the date the Reverse Stock Split is approved by our stockholders, stockholder approval would be required prior to implementing any Reverse Stock Split.

By approving Proposal 1, our stockholders will (a) approve a series of alternate amendments to our restated certificate of incorporation pursuant to which any whole number of outstanding shares of our common stock between and including 1-for-10 to 1-for-50 could be combined into one share of common stock; and (b) authorize our Board of Directors to file only one such amendment, as determined by the Board at its sole option, and to abandon each amendment not selected by the Board. Our Board of Directors may also elect not to undertake any Reverse Stock Split and therefore abandon all amendments.

The text of the proposed form of Certificate of Amendment to our restated certificate of incorporation, which we refer to as the “Certificate of Amendment,” is attached hereto as **Annex A**. However, the text of the proposed Certificate of Amendment is subject to revision to include such changes as may be required by the Secretary of State of the State of Delaware.

We are proposing that our Board of Directors have the discretion to select the Reverse Stock Split ratio from within a range between and including 1-for-10 to 1-for-50, rather than proposing that stockholders approve a specific ratio at this time, in order to give our Board of Directors the flexibility to implement a Reverse Stock Split at a ratio that reflects the Board’s then-current assessment of the factors described below under “Criteria to be Used for Determining Whether to Implement the Reverse Stock Split.” If the Board decides to implement a Reverse Stock Split, we will file the Certificate of Amendment with the Secretary of State of the State of Delaware and the chosen Reverse Stock Split will be effective on the business day following the filing of the Certificate of Amendment with the Secretary of State of the State of Delaware, or such other time as is chosen by the Board and set forth in the Certificate of Amendment. Except for adjustments that may result from the treatment of fractional shares as described below, each of our stockholders will hold the same percentage of our outstanding common stock immediately following the effective time of the Reverse Stock Split as such stockholder holds immediately prior to the effective time of the Reverse Stock Split.

Reasons for the Reverse Stock Split

- *Meet certain continued listing requirements of The Nasdaq Stock Market LLC.* To continue our listing on The Nasdaq Capital Market, we must comply with The Nasdaq Stock Market LLC (“Nasdaq”) listing rules, which requirements

include a minimum bid price of \$1.00 per share. On December 4, 2025, we received a deficiency notice (the “Notice”) from the listing qualifications staff (the “Staff”) of Nasdaq notifying us that, for the last 30 consecutive business days preceding the date of the Notice, the bid price of our common stock had closed below \$1.00 per share, the minimum closing bid price required by the continued listing requirements of Nasdaq Listing Rule 5550(a)(2) (the “Minimum Bid Price Requirement”). The Notice had no immediate effect on the listing of our common stock on The Nasdaq Capital Market. In accordance with Nasdaq Listing Rule 5810(c)(3)(A), the Company had 180 calendar days, or until June 2, 2026 (the “Initial Compliance Date”), to regain compliance with the Minimum Bid Price Requirement by having shares of our common stock maintain a minimum closing bid price of at least \$1.00 per share for a minimum of 10 consecutive business days before the Initial Compliance Date. On June 3, 2026, the Company received a letter from the Staff (the “Letter”) notifying the Company that the Company is eligible for an additional 180-day period, or until November 30, 2026 (the “Compliance Date”), to regain compliance, based on the Staff’s determination of the Company meeting the continued listing requirement for market value of publicly held shares and all other initial listing standards for The Nasdaq Capital Market, with the exception of the Minimum Bid Price Requirement, and the Company’s written notice to Nasdaq of its intention to cure the deficiency during the second compliance period, by effecting a reverse stock split, if necessary. The Letter had no immediate impact on the listing of our common stock on The Nasdaq Capital Market. If at any time during the second compliance period the closing bid price of our common stock is at least \$1.00 per share for a minimum of 10 consecutive business days (which may be extended to be a period of up to 20 consecutive business days in the discretion of the Staff), Nasdaq will provide the Company with written confirmation of compliance. However, if it appears to the Staff that we will not be able to cure the deficiency, and we do not regain compliance by the Compliance Date, the Staff will provide written notice to us that our common stock is subject to delisting. At that time, we may appeal the Staff’s delisting determination to a hearings panel pursuant to the procedures set forth in the applicable Nasdaq listing rules. However, there can be no assurance that, if we receive a delisting notice and appeal the delisting determination by Nasdaq to the panel, such appeal would be successful. Our Board of Directors has considered the potential harm to us and our stockholders should Nasdaq delist our common stock from The Nasdaq Capital Market. Delisting could adversely affect the liquidity of our common stock since alternatives, such as the OTC Bulletin Board and the pink sheets, are generally considered to be less efficient markets. An investor likely would find it less convenient to sell, or to obtain accurate quotations in seeking to buy, our common stock on an over-the-counter market. Many investors likely would not buy or sell our common stock due to difficulty in accessing over-the-counter markets, policies preventing them from trading in securities not listed on a national exchange or for other reasons.

The Board of Directors believes that a Reverse Stock Split is a potentially effective means for us to regain and maintain compliance with the \$1.00 Minimum Bid Price Requirement and to avoid, or at least mitigate, the likely adverse consequences of our common stock being delisted from The Nasdaq Capital Market by producing the immediate effect of increasing the bid price of our common stock.

- *To potentially improve the marketability and liquidity of our common stock.* Our Board of Directors believes that the increased market price of our common stock expected as a result of implementing a Reverse Stock Split could improve the marketability and liquidity of our common stock and encourage interest and trading in our common stock.
- *Stock Price Requirements:* We understand that many brokerage houses, institutional investors and funds have internal policies and practices that either prohibit them from investing in low-priced stocks or tend to discourage individual brokers from recommending low-priced stocks to their customers or by restricting or limiting the ability to purchase such stocks on margin. Additionally, a Reverse Stock Split could help increase analyst and broker interest in our common stock as their internal policies might discourage them from following or recommending companies with low stock prices.
- *Stock Price Volatility:* Because of the trading volatility often associated with low-priced stocks, many brokerage houses and institutional investors have internal policies and practices that either prohibit them from investing in low-priced stocks or tend to discourage individual brokers from recommending low-priced stocks to their customers. Some of those policies and practices may make the processing of trades in low-priced stocks economically unattractive to brokers.
- *Transaction Costs:* Investors may be dissuaded from purchasing stocks below certain prices because brokers’ commissions, as a percentage of the total transaction value, can be higher for low-priced stocks.
- *To effectively increase the number of authorized and available shares.* The implementation of a Reverse Stock Split will result in an effective increase in the authorized number of shares of our common stock because only the outstanding shares of common stock would be reduced by the Reverse Stock Split. Our Board of Directors may determine it to be advisable and in the best interests of our company to implement a Reverse Stock Split to provide the flexibility to use our common stock for business and/or financial purposes.

Criteria to be Used for Determining Whether to Implement the Reverse Stock Split

In determining whether to implement the Reverse Stock Split and which Reverse Stock Split ratio to implement, if any, following receipt of stockholder approval of Proposal 1, our Board of Directors may consider, among other things, various factors, such as:

- the historical trading price and trading volume of our common stock;
- the then-prevailing trading price and trading volume of our common stock and the expected impact of the Reverse Stock Split on the trading market for our common stock in the short- and long-term;
- our ability to regain and maintain the continued listing requirements for our common stock on The Nasdaq Capital Market;
- which Reverse Stock Split ratio would result in the least administrative cost to us;
- prevailing general market and economic conditions; and
- whether and when our Board of Directors desires to have the additional authorized but unissued shares of common stock that will result from the implementation of a Reverse Stock Split available to provide the flexibility to use our common stock for business and/or financial purposes, as well as to accommodate the shares of our common stock to be authorized and reserved for future equity awards.

Certain Risks and Potential Disadvantages Associated with a Reverse Stock Split

We cannot assure you that the proposed Reverse Stock Split will increase our stock price and have the desired effect of regaining and maintaining compliance with Nasdaq Marketplace Rules. We expect that the Reverse Stock Split will increase the market price of our common stock so that we may be able to regain and maintain compliance with the Nasdaq \$1.00 Minimum Bid Price Requirement. However, the effect of the Reverse Stock Split upon the market price of our common stock cannot be predicted with any certainty, and the history of similar reverse stock splits for companies in like circumstances is varied, particularly since some investors may view a reverse stock split negatively. It is possible that the per share price of our common stock after the Reverse Stock Split will not rise in proportion to the reduction in the number of shares of our common stock outstanding resulting from the Reverse Stock Split, and the market price per post-Reverse Stock Split share may not exceed or remain in excess of the \$1.00 minimum bid price for a sustained period of time, and the Reverse Stock Split may not result in a per share price that would attract brokers and investors who do not trade in lower priced stocks. In addition, although it is possible that the Reverse Stock Split may enhance the desirability of our common stock to certain potential investors, we cannot assure you that, if implemented, our common stock will be more attractive to institutional and other long-term investors. Even if we implement the Reverse Stock Split, the market price of our common stock may decrease due to factors unrelated to the Reverse Stock Split. In any case, the market price of our common stock may also be based on other factors which may be unrelated to the number of shares outstanding, including our future performance. If the Reverse Stock Split is consummated and the trading price of the common stock declines, the percentage decline as an absolute number and as a percentage of our overall market capitalization may be greater than would occur in the absence of the Reverse Stock Split. Even if the market price per post-Reverse Stock Split share of our common stock remains in excess of \$1.00 per share, we may be delisted due to a failure to meet other continued listing requirements, including Nasdaq requirements related to the minimum number of shares that must be in the public float, the minimum market value of the public float and the minimum number of “round lot” holders.

The proposed Reverse Stock Split may decrease the liquidity of our common stock and result in higher transaction costs. The liquidity of our common stock may be negatively impacted by a Reverse Stock Split, given the reduced number of shares that would be outstanding after any Reverse Stock Split, particularly if the stock price does not increase as a result of the Reverse Stock Split. In addition, if a Reverse Stock Split is implemented, it will increase the number of our stockholders who own “odd lots” of fewer than 100 shares of common stock. Brokerage commission and other costs of transactions in odd lots are generally higher than the costs of transactions of more than 100 shares of common stock. Accordingly, a Reverse Stock Split may not achieve the desired results described above, including increasing marketability and liquidity of our common stock.

The effective increase in the authorized number of shares of our common stock as a result of the Reverse Stock Split could have anti-takeover implications. The implementation of a Reverse Stock Split will result in an effective increase in the authorized number of shares of our common stock, which could, under certain circumstances, have anti-takeover implications. The additional shares of common stock that would become available for issuance if this Proposal 1 is approved and a Reverse Stock Split is implemented could be used by us to oppose a hostile takeover attempt or to delay or prevent changes in control or our management. For example, without further stockholder approval, the Board could adopt a “poison pill” which would, under certain circumstances

related to an acquisition of our securities that is not approved by the Board, give certain holders the right to acquire additional shares of our common stock at a low price. The Board also could strategically sell shares of common stock in a private transaction to purchasers who would oppose a takeover or favor the current Board. Although this Proposal 1 has been prompted by business and financial considerations and not by the threat of any hostile takeover attempt (nor is the Board currently aware of any such attempts directed at us), stockholders should be aware that approval of this Proposal 1 could facilitate future efforts by us to deter or prevent changes in control, including transactions in which the stockholders might otherwise receive a premium for their shares over then current market prices.

Principal Effects of a Reverse Stock Split

After the effective date of any Reverse Stock Split that our Board of Directors elects to implement, each stockholder will own a reduced number of shares of common stock. However, any Reverse Stock Split will affect all of our stockholders uniformly and will not affect any stockholder's percentage ownership interests in the Company, except to the extent that the Reverse Stock Split results in any of our stockholders owning a fractional share as described below. Voting rights and other rights and preferences of the holders of our common stock will not be affected by a Reverse Stock Split (other than as a result of the rounding up of any fractional share to a whole share). For example, a holder of 2% of the voting power of the outstanding shares of our common stock immediately prior to a Reverse Stock Split would continue to hold 2% (assuming there is no impact as a result of the rounding up of any fractional share to a whole share) of the voting power of the outstanding shares of our common stock immediately after such Reverse Stock Split. The number of stockholders of record will not be affected by a Reverse Stock Split.

The principal effects of a Reverse Stock Split will be that:

- each 10-to-50 shares of our common stock owned by a stockholder (depending on the Reverse Stock Split ratio selected by the Board) will be combined into one new share of our common stock;
- no fractional shares of common stock will be issued in connection with any Reverse Stock Split; instead, holders of common stock who would otherwise receive a fractional share of common stock pursuant to the Reverse Stock Split will be entitled to rounding up the fractional shares to a whole share as explained more fully below;
- a Reverse Stock Split will result in an effective increase in the authorized number of shares of our common stock;
- based upon the Reverse Stock Split ratio selected by the Board, proportionate adjustments will be made to the per share exercise price and/or the number of shares issuable upon the exercise or vesting of all then outstanding stock options, restricted stock units and warrants, which will result in a proportional decrease in the number of shares of our common stock reserved for issuance upon exercise or vesting of such stock options, restricted stock units and warrants, and, in the case of stock options and warrants, a proportional increase in the exercise price of all such stock options and warrants; and
- the number of shares then reserved for issuance under our equity compensation plans will be reduced proportionately based upon the Reverse Stock Split ratio selected by the Board.

The following table contains approximate information, based on share information as of _____, 2026, relating to our outstanding common stock based on the proposed Reverse Stock Split ratios (without giving effect to the treatment of fractional shares) and information regarding our authorized and available shares:

Status	Number of Shares of Common Stock Authorized	Number of Shares of Common Stock Issued and Outstanding	Number of Shares of Common Stock Reserved for Future Issuance	Number of Shares of Common Stock Authorized but Unissued and Unreserved
Pre-Reverse Stock Split	340,000,000			
Post-Reverse Stock Split 1:10	340,000,000			
Post-Reverse Stock Split 1:11	340,000,000			
Post-Reverse Stock Split 1:12	340,000,000			
Post-Reverse Stock Split 1:13	340,000,000			
Post-Reverse Stock Split 1:14	340,000,000			
Post-Reverse Stock Split 1:15	340,000,000			
Post-Reverse Stock Split 1:16	340,000,000			
Post-Reverse Stock Split 1:17	340,000,000			
Post-Reverse Stock Split 1:18	340,000,000			
Post-Reverse Stock Split 1:19	340,000,000			
Post-Reverse Stock Split 1:20	340,000,000			
Post-Reverse Stock Split 1:21	340,000,000			
Post-Reverse Stock Split 1:22	340,000,000			
Post-Reverse Stock Split 1:23	340,000,000			
Post-Reverse Stock Split 1:24	340,000,000			
Post-Reverse Stock Split 1:25	340,000,000			
Post-Reverse Stock Split 1:26	340,000,000			
Post-Reverse Stock Split 1:27	340,000,000			
Post-Reverse Stock Split 1:28	340,000,000			
Post-Reverse Stock Split 1:29	340,000,000			
Post-Reverse Stock Split 1:30	340,000,000			
Post-Reverse Stock Split 1:31	340,000,000			
Post-Reverse Stock Split 1:32	340,000,000			
Post-Reverse Stock Split 1:33	340,000,000			
Post-Reverse Stock Split 1:34	340,000,000			
Post-Reverse Stock Split 1:35	340,000,000			
Post-Reverse Stock Split 1:36	340,000,000			
Post-Reverse Stock Split 1:37	340,000,000			
Post-Reverse Stock Split 1:38	340,000,000			
Post-Reverse Stock Split 1:39	340,000,000			
Post-Reverse Stock Split 1:40	340,000,000			

Status	Number of Shares of Common Stock Authorized	Number of Shares of Common Stock Issued and Outstanding	Number of Shares of Common Stock Reserved for Future Issuance	Number of Shares of Common Stock Authorized but Unissued and Unreserved
Post-Reverse Stock Split 1:41	340,000,000			
Post-Reverse Stock Split 1:42	340,000,000			
Post-Reverse Stock Split 1:43	340,000,000			
Post-Reverse Stock Split 1:44	340,000,000			
Post-Reverse Stock Split 1:45	340,000,000			
Post-Reverse Stock Split 1:46	340,000,000			
Post-Reverse Stock Split 1:47	340,000,000			
Post-Reverse Stock Split 1:48	340,000,000			
Post-Reverse Stock Split 1:49	340,000,000			
Post-Reverse Stock Split 1:50	340,000,000			

After the effective date of any Reverse Stock Split that our Board of Directors elects to implement, our common stock would have a new committee on uniform securities identification procedures, or CUSIP number, a number used to identify our common stock.

Our common stock is currently registered under Section 12(b) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and we are subject to the periodic reporting and other requirements of the Exchange Act. The implementation of any proposed Reverse Stock Split will not affect the registration of our common stock under the Exchange Act. Our common stock would continue to be listed on The Nasdaq Capital Market under the symbol “ATYR” immediately following the Reverse Stock Split, although it is likely that Nasdaq would add the letter “D” to the end of the trading symbol for a period of twenty trading days after the effective date of the Reverse Stock Split to indicate that the Reverse Stock Split had occurred.

Effective Time

The proposed Reverse Stock Split would become effective at approximately 5:00 p.m., Eastern Time, on the business day following the filing of a Certificate of Amendment with the office of the Secretary of State of the State of Delaware, or such other date and time as is chosen by the Board and set forth in the Certificate of Amendment, which effective time we refer to in this Proposal 1 as the “Effective Time.” Effective as of the Effective Time, shares of common stock issued and outstanding immediately prior thereto will be combined, automatically and without any action on the part of us or our stockholders, into a lesser number of new shares of our common stock in accordance with the Reverse Stock Split ratio determined by our Board of Directors within the limits set forth in this Proposal 1.

If the stockholders approve the proposal and the Board of Directors determines to effect the Reverse Stock Split, we would communicate to the public, prior to the Effective Time, additional details regarding the Reverse Stock Split, including the specific ratio selected by the Board of Directors.

Fractional Shares

The Company will not issue fractional shares for post-Reverse Stock Split shares in connection with the Reverse Stock Split. In lieu of issuing fractional shares, stockholders of record who otherwise would be entitled to receive fractional shares will be entitled to rounding up of the fractional shares to a whole share. Due to the relatively small number of shares, the Company does not believe that the rounding up of fractional shares will have a material effect on the Company or its financial statements.

Record and Beneficial Stockholders

If this Proposal 1 is approved by our stockholders and our Board of Directors elects to implement a Reverse Stock Split, stockholders of record holding all of their shares of our common stock electronically in book-entry form under the direct registration system for securities will be automatically exchanged by the exchange agent and will receive a transaction statement at their address of record indicating the number of new post-Reverse Stock Split shares of our common stock they hold after the Reverse Stock Split. Non-registered stockholders holding common stock through a bank, broker or other nominee should note that such banks, brokers or other nominees may have different procedures for processing the Reverse Stock Split and rounding up for fractional shares than those that would be put in place by us for registered stockholders. If you hold your shares with such a bank, broker or other nominee and if you have questions in this regard, you are encouraged to contact your nominee.

If this Proposal 1 is approved by our stockholders and our Board of Directors elects to implement a Reverse Stock Split, stockholders of record holding some or all of their shares in certificate form will receive a letter of transmittal from us or our exchange agent as soon as practicable after the effective date of the Reverse Stock Split. Our transfer agent is expected to act as “exchange agent” for the purpose of implementing the exchange of stock certificates. Holders of pre-Reverse Stock Split shares will be asked to surrender to the exchange agent certificates representing pre-Reverse Stock Split shares in exchange for post-Reverse Stock Split shares and rounding up in lieu of fractional shares (if any) in accordance with the procedures to be set forth in the letter of transmittal. We intend for your post-Reverse Stock Split shares to be held electronically in book-entry form under the direct registration system for securities. This means that, instead of receiving a new stock certificate, you will receive a statement of holding that indicates the number of post-Reverse Stock Split shares you own in book-entry form. We will not issue physical stock certificates.

STOCKHOLDERS SHOULD NOT DESTROY ANY PRE-SPLIT STOCK CERTIFICATE AND SHOULD NOT SUBMIT ANY CERTIFICATES UNTIL THEY ARE REQUESTED TO DO SO.

Accounting Consequences

The par value per share of our common stock would remain unchanged at \$0.001 per share after any Reverse Stock Split. As a result, at the Effective Time, the stated capital on our balance sheet attributable to the common stock would be reduced proportionally, based on the actual Reverse Stock Split ratio, from its present amount, and the additional paid-in capital account would be credited with the amount by which the stated capital would be reduced. The net income or loss per share of common stock would be increased because there would be fewer shares of common stock outstanding. The Reverse Stock Split would be reflected retroactively in our consolidated financial statements. We do not anticipate that any other accounting consequences would arise as a result of any Reverse Stock Split.

No Appraisal Rights

Our stockholders are not entitled to dissenters’ or appraisal rights under the General Corporation Law of the State of Delaware with respect to the proposed alternate amendments to our restated certificate of incorporation to allow for a Reverse Stock Split and we will not independently provide the stockholders with any such right if any Reverse Stock Split is implemented.

Certain Material U.S. Federal Income Tax Consequences to U.S. Holders of the Reverse Stock Split

The following is a summary of certain material U.S. federal income tax consequences of the Reverse Stock Split that are generally expected to be applicable to U.S. Holders (as defined below) that hold their shares of common stock as capital assets within the meaning of Section 1221 of the U.S. Internal Revenue Code of 1986, as amended (the “Code”) (generally property held for investment). This summary is based upon the provisions of the Code, Treasury regulations promulgated thereunder, administrative rulings and practices of the Internal Revenue Service (“IRS”) and judicial decisions, all as in effect as of the date hereof, and all of which are subject to change and differing interpretations, possibly with retroactive effect. Changes in these authorities or their interpretation may result in the U.S. federal income tax consequences of the Reverse Stock Split differing substantially from the consequences summarized below. This summary is limited to stockholders who are U.S. Holders (as defined below).

This summary is for general information purposes only and does not address all aspects of U.S. federal income taxation that may be relevant to U.S. Holders in light of their particular circumstances or to U.S. Holders that may be subject to special tax rules, including, without limitation: (i) banks, insurance companies, or other financial institutions; (ii) governmental organizations or tax-exempt organizations; (iii) dealers in securities or commodities; (iv) regulated investment companies or real estate investment trusts; (v) partnerships (including entities or arrangements treated as partnerships for U.S. federal income tax purposes and their partners or members); (vi) traders in securities that elect to use the mark-to-market method of accounting; (vii) persons whose “functional currency” is not the U.S. dollar; (viii) persons holding our common stock in a hedging transaction, “straddle,” “conversion transaction” or other risk reduction transaction; (ix) persons who hold our common stock as “qualified small business stock” within the meaning

of Section 1202 of the Code or “Section 1244” stock for purposes of Section 1244 of the Code; (x) persons who acquired their stock in a transaction subject to the gain rollover provisions of Section 1045 of the Code; (xi) persons who acquired our common stock in connection with the exercise of employee stock options or otherwise as compensation for the performance of services; (xii) retirement plans; (xiii) persons who are not treated as U.S. Holders for U.S. federal income tax purposes; or (xiv) certain former citizens or long-term residents of the United States.

In addition, this summary does not address: (a) the tax consequences of transactions effectuated before, after or at the same time as the Reverse Stock Split, whether or not they are in connection with the Reverse Stock Split; (b) any U.S. federal non-income tax consequences of the Reverse Stock Split, including estate, gift or other tax consequences; (c) any state, local or non-U.S. tax consequences of the Reverse Stock Split; (d) the Medicare contribution tax on net investment income, any alternative minimum tax, or the special tax accounting rules under Section 451(b) of the Code; or (e) tax consequences to holders of options, warrants or similar rights to acquire our common stock. No ruling from the IRS or opinion of counsel has been or will be requested in connection with the Reverse Stock Split. Stockholders should be aware that the IRS could adopt a position which could be sustained by a court contrary to that set forth in this discussion. Accordingly, each stockholder should consult with such stockholder’s own tax advisor with respect to all of the potential tax consequences to such stockholder of the Reverse Stock Split.

For purposes of this discussion, a “U.S. Holder” means a beneficial owner of shares of our common stock that is any of the following:

- an individual who is a citizen or resident of the United States or someone treated as a U.S. citizen or resident for U.S. federal income tax purposes;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized in or under the laws of the United States, any state thereof, or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income taxation regardless of its source; or
- a trust if (i) a U.S. court can exercise primary supervision over the trust’s administration and one or more “United States persons” (within the meaning of Section 7701(a)(30) of the Code) are authorized or have the authority to control all substantial decisions of the trust or (ii) it has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a United States person for U.S. federal income tax purposes.

If a partnership (including any entity or arrangement treated as a partnership for U.S. federal income tax purposes) holds shares of our common stock, the tax treatment of a partner in the partnership generally will depend upon the status of the partner and the activities of the partnership. Partnerships holding our common stock and the partners therein should consult their tax advisors regarding the tax consequences to them of the Reverse Stock Split.

EACH STOCKHOLDER SHOULD CONSULT ITS TAX ADVISORS WITH RESPECT TO THE PARTICULAR TAX CONSEQUENCES OF THE REVERSE STOCK SPLIT TO SUCH STOCKHOLDER.

Taxation of U.S. Holders

The Reverse Stock Split should constitute a “recapitalization” for U.S. federal income tax purposes. Accordingly, except for adjustments that may result from the treatment of fractional shares of common stock as described below, a U.S. Holder should not recognize gain or loss as a result of the Reverse Stock Split. A U.S. Holder’s aggregate tax basis in the shares of the common stock received pursuant to the Reverse Stock Split should equal the U.S. Holder’s aggregate tax basis in the shares of the common stock surrendered pursuant to the Reverse Stock Split, and such U.S. Holder’s holding period in the shares of the common stock received should include the holding period of the shares of the common stock surrendered pursuant to the Reverse Stock Split. Treasury regulations promulgated under the Code provide detailed rules for allocating the tax basis and holding period of shares of common stock surrendered pursuant to the Reverse Stock Split to shares of common stock received pursuant to the Reverse Stock Split. U.S. Holders holding shares of common stock that were acquired on different dates or at different prices should consult their tax advisors regarding the allocation of the tax basis and holding period of such shares.

The treatment of fractional shares of common stock being rounded up to the next whole share is uncertain, and a U.S. Holder that receives a whole share of common stock in lieu of a fractional share of common stock may recognize income, which may be characterized as either capital gain or as a dividend, in an amount not to exceed the excess of the fair market value of such whole share over the fair market value of the fractional share to which the United States holder was otherwise entitled. The holding period for the portion of a share of common stock treated as a distribution or as to which a United States holder recognizes gain might not include the holding period of pre-Reverse Stock Split shares of common stock surrendered. We are not making any representations as to

whether the receipt of one whole share in lieu of a fractional share will result in income or gain to any shareholder, and shareholders are urged to consult their tax advisors regarding the U.S. federal income tax and other tax consequences of fractional shares being rounded to the next whole share.

The preceding discussion is intended only as a summary of certain material U.S. federal income tax consequences of the Reverse Stock Split. It is not a complete analysis or discussion of all potential tax effects that may be important to a particular holder. All holders of our common stock should consult their own tax advisors as to the specific tax consequences of the Reverse Stock Split to them, including record retention and tax-reporting requirements, and the applicability and effect of any federal, state, local and non-U.S. tax laws.

Recommendation of the Board of Directors

The Board of Directors unanimously recommends that the stockholder vote “FOR” the Reverse Stock Split Proposal.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The following table sets forth the beneficial ownership of the Company's common stock as of August 27, 2026 by: (i) each of the executive officers named in the table under the heading "Summary Compensation Table," (ii) each current director, (iii) all current directors and executive officers as a group, and (iv) all persons known to the Company to be the beneficial owners of more than 5% of the Company's common stock. The table is based upon information supplied by our executive officers, directors and principal stockholders and a review of filings by the beneficial owners with the SEC pursuant to Sections 13(d) and 13(g) of the Exchange Act. A total of 98,087,425 shares of the Company's common stock were issued and outstanding as of August 27, 2026.

Beneficial Owner ⁽¹⁾	Number of Shares of Common Stock Owned ⁽²⁾	Number of Shares of Common Stock Acquirable Within 60 Days ⁽³⁾	Total Number of Shares of Common Stock Beneficially Owned ⁽⁴⁾	Percentage of Shares Beneficially Owned
5% Stockholders:				
Federated Hermes, Inc. ⁽⁵⁾ 1001 Liberty Avenue Pittsburgh, PA 15222	8,509,678	—	8,509,678	8.68%
Named Executive Officers and Directors:				
Sanjay S. Shukla, M.D., M.S. ⁽⁶⁾	153,553	2,602,195	2,755,748	2.74%
Jill M. Broadfoot ⁽⁷⁾	39,796	899,584	939,380	*
Nancy E. Denyes ⁽⁸⁾	35,624	897,574	933,198	*
Timothy P. Coughlin ⁽⁹⁾	56,000	95,425	151,425	*
Eric Benevich ⁽¹⁰⁾	—	111,111	111,111	*
Jane A. Gross, Ph.D. ⁽¹¹⁾	9,750	91,141	100,891	*
Svetlana Lucas, Ph.D. ⁽¹²⁾	6,000	91,141	97,141	*
Sara A. Zaknoen, M.D. ⁽¹³⁾	6,000	88,285	94,285	*
All directors and executive officers as a group (8 persons) ⁽¹⁴⁾	306,723	4,876,456	5,183,179	5.03%

* Represents beneficial ownership of less than 1% of the shares of common stock.

- (1) Unless otherwise indicated, the address for each beneficial owner is c/o aTyr Pharma, Inc., 10240 Sorrento Valley Road, Suite #300, San Diego, CA 92121.
- (2) Represents shares of common stock owned, excluding shares of common stock that are listed under the heading "Number of Shares of Common Stock Acquirable Within 60 Days," by the named parties as of August 27, 2026.
- (3) Shares of common stock subject to stock options, restricted stock units or warrants acquirable within 60 days of August 27, 2026, regardless of exercise price, are deemed to be outstanding for computing the percentage ownership of the person holding such options and the percentage ownership of any group of which the holder is a member, but are not deemed outstanding for computing the percentage of any other person.
- (4) Beneficial ownership is determined in accordance with the rules of the SEC and generally includes voting or investment power with respect to securities. Except as indicated by footnote, and subject to community property laws where applicable, the Company believes that the persons named in the table have sole voting and investment power with respect to all shares of common stock shown as beneficially owned by them, subject to applicable community property laws.
- (5) Based on Schedule 13G/A filed with the SEC on July 8, 2026. Shares of common stock owned can vary since the date of such filing. Federated Hermes, Inc. (the "Parent") is the parent holding company of Federated Global Investment Management Corp. (the "Investment Adviser"), which acts as investment adviser to registered investment companies and separate accounts that own shares of common stock in us (the "Reported Securities"). The Investment Adviser is a wholly owned subsidiary of FII Holdings, Inc., which is a wholly owned subsidiary of Federated Hermes, Inc., the Parent. All of the Parent's outstanding voting stock is held in the Voting Shares Irrevocable Trust (the "Trust") for which Thomas R. Donahue, Ann C. Donahue and J. Christopher Donahue act as trustees (collectively, the "Trustees"). The Trustees have collective voting control that they exercise over the Parent. The Parent, the Trust, and each of the Trustees expressly disclaim beneficial ownership of the Reported Securities.
- (6) Includes (i) 153,553 shares of common stock held by Dr. Shukla; and (ii) 2,602,195 shares of common stock that Dr. Shukla has the right to acquire from us within 60 days of August 27, 2026 pursuant to the exercise of stock options.
- (7) Includes (i) 39,796 shares of common stock held by Ms. Broadfoot; and (ii) 899,584 shares of common stock that Ms. Broadfoot has the right to acquire from us within 60 days of August 27, 2026 pursuant to the exercise of stock options. This includes stock options with accelerated vesting pursuant to our Executive Severance and Change in Control Policy.
- (8) Includes (i) 35,624 shares of common stock held by Ms. Denyes; and (ii) 897,574 shares of common stock that Ms. Denyes has the right to acquire from us within 60 days of August 27, 2026 pursuant to the exercise of stock options. This includes stock options with accelerated vesting pursuant to our Executive Severance and Change in Control Policy.

- (9) Includes (i) 56,000 shares of common stock held by the Coughlin Family Trust u/a DTD 12/07/2006; and (ii) 95,425 shares of common stock that our chairman, Mr. Coughlin, has the right to acquire from us within 60 days of August 27, 2026 pursuant to the exercise of stock options. Mr. Coughlin is trustee of the Coughlin Family Trust u/a DTD 12/07/2006 and in such capacity has the power to vote and dispose of such shares.
- (10) Includes 111,111 shares of common stock that our director, Mr. Benevich, has the right to acquire from us within 60 days of August 27, 2026 pursuant to the exercise of stock options.
- (11) Includes (i) 9,750 shares of common stock held by our director, Dr. Gross; and (ii) 91,141 shares of common stock that Dr. Gross has the right to acquire from us within 60 days of August 27, 2026 pursuant to the exercise of stock options.
- (12) Includes (i) 6,000 shares of common stock held by our director, Dr. Lucas; and (ii) 91,141 shares of common stock that Dr. Lucas has the right to acquire from us within 60 days of August 27, 2026 pursuant to the exercise of stock options.
- (13) Includes (i) 6,000 shares of common stock held by our director, Dr. Zaknoen; and (ii) 88,285 shares of common stock that Dr. Zaknoen has the right to acquire from us within 60 days of August 27, 2026 pursuant to the exercise of stock options.
- (14) Includes the number of shares beneficially owned by our executive officers, including the Named Executive Officers listed above, and our directors as a group.

STOCKHOLDER PROPOSALS FOR THE 2027 ANNUAL MEETING OF STOCKHOLDERS

Stockholders of the Company may submit proposals that they believe should be voted upon at the Company's annual meeting of Stockholders or nominate persons for election to the Board.

Pursuant to Rule 14a-8 under the Exchange Act, stockholder proposals meeting certain requirements may be eligible for inclusion in the Company's proxy statement for the Company's 2027 Annual Meeting of Stockholders. To be eligible for inclusion in the Company's 2027 proxy statement, any such stockholder proposals must be submitted in writing to our Secretary and in accordance with the procedures in our Bylaws no later than November 26, 2026, in addition to complying with certain rules and regulations promulgated by the SEC. The submission of a stockholder proposal does not guarantee that it will be included in the Company's proxy statement.

Alternatively, in accordance with the "advance notice" provisions of our Bylaws, stockholders seeking to present a stockholder proposal or nomination at the Company's 2027 Annual Meeting of Stockholders, without having it included in the Company's proxy statement, must timely submit notice of such proposal or nomination and in accordance with the procedures in our Bylaws. To be timely, a stockholder's notice must be received by our Secretary at the principal executive offices of the Company not later than the close of business on the 90th day nor earlier than the close of business on the 120th day before the first anniversary of the 2026 Annual Meeting of Stockholders, unless the date of the 2027 Annual Meeting of Stockholders is advanced by more than 30 days or delayed by more than 60 days from the anniversary of the 2026 Annual Meeting of Stockholders. For the Company's 2027 Annual Meeting of Stockholders, this means that any such proposal or nomination must be submitted no earlier than January 11, 2027 and no later than February 10, 2027. If the date of the 2027 Annual Meeting of Stockholders is advanced by more than 30 days or delayed by more than 60 days from the anniversary of the 2026 Annual Meeting of Stockholders, the stockholder must submit any such proposal or nomination not later than the close of business on the later of the 90th day prior to the 2027 Annual Meeting of Stockholders, or the 10th day following the day on which public announcement of the date of the 2027 Annual Meeting of Stockholders is first made by the Company.

In addition to satisfying the deadlines in the "advance notice" provisions of our Bylaws, a stockholder who intends to solicit proxies in support of nominees submitted under these "advance notice" provisions, to comply with the universal proxy rules, stockholders who intend to solicit proxies in support of director nominees other than the Board's nominees must include in their notice the information required by Rule 14a-19 under the Exchange Act.

Notices of any proposals or nominations for the Company's 2027 Annual Meeting of Stockholders should be sent to our Secretary at 10240 Sorrento Valley Road, Suite #300, San Diego, CA 92121.

HOUSEHOLDING OF PROXY MATERIALS

We have made available a procedure approved by the SEC known as "householding." This procedure allows multiple stockholders residing at the same address the convenience of receiving a single copy of our proxy materials. This allows us to save money by reducing the number of documents we must print and mail, and helps protect the environment as well.

Householding is available to both registered stockholders (i.e., those stockholders with certificates registered in their name) and street name holders (i.e., those stockholders who hold their shares through a brokerage).

A single set of proxy materials will be delivered to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your brokerage firm that they will be “householding” communications to your address, “householding” will continue until you are notified otherwise or until you revoke your consent. If, at any time, you no longer wish to participate in “householding” and would prefer to receive a separate set of proxy materials, please notify your brokerage firm or the Shareholder Services Department of Equiniti Trust Company, LLC (“EQ”), at 1110 Centre Pointe Curve Suite 101, Mendota Heights, MN 55120 or by calling EQ’s toll-free number which is (800) 937-5449. Stockholders who currently receive multiple copies of proxy materials at their addresses and would like to request “householding” of their communications should contact their brokerage firm.

OTHER MATTERS

We are not aware of any matters that may come before the meeting other than those referred to in the Notice of Special Meeting of Stockholders and accompanying proxy statement. If any other matter shall properly come before the Special Meeting of Stockholders, however, the persons named in the accompanying proxy intend to vote all proxies in accordance with their best judgment. Discretionary authority for them to do so is provided for in the proxy card.

A copy of our Certificate of Amendment to the Restated Certificate of Incorporation of aTyr Pharma, Inc. is attached as **Annex A** to this Proxy Statement and is incorporated herein by reference.

By Order of the Board of Directors,

A handwritten signature in black ink, appearing to read 'SS Shukla', followed by a horizontal line.

Sanjay S. Shukla, M.D., M.S.
President, Chief Executive Officer and Director

September , 2026

ANNEX A

**CERTIFICATE OF AMENDMENT
TO THE
RESTATED CERTIFICATE OF INCORPORATION
OF
ATYR PHARMA, INC.**

aTyr Pharma, Inc. (the “**Corporation**”), a corporation organized and existing under the laws of the General Corporation Law of the State of Delaware (the “**DGCL**”), hereby certifies as follows:

FIRST: That the name of the Corporation is aTyr Pharma, Inc. The date of the filing of its original Certificate of Incorporation with the Secretary of State of Delaware was September 8, 2005.

SECOND: That the Board of Directors of the Corporation (the “**Board**”), acting in accordance with the provisions of Sections 141 and 242 of the DGCL, duly adopted resolutions approving the following amendment of the Corporation’s Restated Certificate of Incorporation, as amended (the “**Charter**”), declaring said amendment to be advisable and providing for such consideration of such amendment at the Corporation’s special meeting of the stockholders:

The first two paragraphs of Article IV of the Charter are hereby amended and restated to read in their entirety as follows:

The total number of shares of capital stock which the Corporation shall have authority to issue is Three Hundred Forty-Seven Million Two Hundred Eighty-Five Thousand Four Hundred Fifty-Six (347,285,456), of which (i) Three Hundred and Forty Million (340,000,000) shares shall be a class designated as common stock, par value \$0.001 per share (the “**Common Stock**”), and (ii) Seven Million Two Hundred Eighty-Five Thousand Four Hundred Fifty Six (7,285,456) shares shall be a class designated as preferred stock, par value \$0.001 per share (the “**Preferred Stock**”), of which 72,000 shares are designated Series B Convertible Preferred Stock (“**Series B Preferred Stock**”), 15,957 shares are designated Series C Convertible Preferred Stock (“**Series C Preferred Stock**”), 2,197,499 shares are designated Series D Convertible Preferred Stock (“**Series D Preferred Stock**”), and together with the Series B Preferred Stock and Series C Preferred Stock, the “**Designated Preferred Stock**”), and Five Million (5,000,000) shares shall be undesignated preferred stock (the “**Undesignated Preferred Stock**”).

Effective as of []:[] [a.m./p.m.], Eastern Time, on [] (the “**Effective Time**”), each [] ([])¹ shares of the Corporation’s Common Stock issued and outstanding immediately prior to the Effective Time shall, automatically and without further action on the part of the Corporation or any holder of such Common Stock, be combined and converted into one (1) share of Common Stock without increasing or decreasing the par value of each share of Common Stock (the “**Reverse Stock Split**”). No fractional shares shall be issued in connection with the Reverse Stock Split. Stockholders who would otherwise be entitled to receive fractional shares of Common Stock shall be entitled to the rounding up of the fractional shares to a full share. Each certificate or book-entry position that immediately prior to the Effective Time represented shares of Common Stock shall thereafter represent that number of shares of Common Stock into which the shares of Common Stock represented by such certificate or book-entry position shall have been combined, subject to the treatment of fractional shares as described above. The Reverse Stock Split shall be effected on a record holder-by-record holder basis, such that any fractional shares of post-Reverse Stock Split Common Stock resulting from the Reverse Stock Split and held by a single record holder shall be aggregated.

¹ These amendments approve the combination of any whole number of shares of the Corporation’s Common Stock between and including 10 and 50 into one (1) share of the Corporation’s Common Stock. By these amendments, the stockholders would approve each of the alternate amendments proposed by the Corporation’s Board of Directors. If the reverse stock split proposal is approved by the stockholders, the Certificate of Amendment filed with the Secretary of State of the State of Delaware will include only that reverse stock split ratio determined by the Corporation’s Board of Directors to be in the best interests of the Corporation and its stockholders. The other amendments will be abandoned pursuant to Section 242(c) of the General Corporation Law of the State of Delaware. The Corporation’s Board of Directors may also elect not to effect any reverse stock split, in which case all proposed alternate amendments will be abandoned.

THIRD: Thereafter, pursuant to a resolution of the Board, this Certificate of Amendment was submitted to the stockholders of the Company for their approval and was duly adopted and approved in accordance with the provisions of Section 242 of the DGCL.

IN WITNESS WHEREOF, this Certificate of Amendment to the Restated Certificate of Incorporation has been executed by a duly authorized officer of this Corporation on this day of , 2026.

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



NAME & ADDRESS HERE

As a stockholder of aTyr Pharma, Inc., you have the option of voting your shares electronically through the Internet or by telephone, eliminating the need to return the proxy card. Your electronic or telephonic vote authorizes the named proxies to vote your shares in the same manner as if you marked, signed, dated, and returned the proxy card. Votes submitted electronically over the Internet or by telephone must be received by 11:59 p.m. Eastern Time on October 15, 2026.

PROXY VOTING INSTRUCTIONS

Please have your 11-digit control number ready when voting by Internet or Telephone.



Vote Your Proxy on the Internet:

Go to <https://web.viewproxy.com/atyr/2026SM>
Have your proxy card available when you access the above website.
Follow the prompts to vote your shares.



Vote Your Proxy by Phone:

Call 1-866-402-3905
Use any touch-tone telephone to vote your proxy. Have your proxy card available when you call. Follow the voting instructions to vote your shares.



Vote Your Proxy by Mail:

Mark, sign, and date your proxy card, then detach it and return it in the postage-paid envelope provided.

CONTROL NUMBER

▼ PLEASE DETACH ALONG PERFORATED LINE AND MAIL IN THE ENVELOPE PROVIDED. ▼

ATYR PHARMA, INC.

SPECIAL MEETING OF STOCKHOLDERS
October 16, 2026 AT 9:00 a.m. PACIFIC TIME

THIS PROXY IS SOLICITED ON BEHALF OF
THE BOARD OF DIRECTORS OF ATYR PHARMA, INC.

The stockholder(s) hereby appoints Sanjay S. Shukla, M.D., M.S., and Brandon Yaras, or any of them, as proxies and attorneys-in-fact of the undersigned, each with the power to appoint his or her substitute, and hereby authorize(s) them to represent and to vote, as designated on the reverse side of this ballot, all of the shares of capital stock of aTyr Pharma, Inc., that the stockholder(s) is/are entitled to vote at the Special Meeting of Stockholders to be held at the offices of aTyr Pharma, Inc., 10240 Sorrento Valley Road, San Diego, CA 92121 at 9:00 a.m. Pacific Time on October 16, 2026, and any adjournment or postponement thereof, conferring upon such persons authority to vote in their discretion as to any and all such other matters as may properly come before the meeting.

Please check here if you plan to attend the Special Meeting in person. ☐

NAME & ADDRESS HERE

BARCODE HERE

CONTROL NUMBER

Address Change:
(If you noted any Address Changes above,
please mark box.) ☐

This proxy, when properly executed, will be voted in the manner directed herein. If no such direction is made, this proxy will be voted in accordance with the Board of Directors' recommendations located on the reverse side.

Signature _____

Date _____

Title _____

Signature (Joint Owners) _____

NOTE: Please sign exactly as name(s) appear(s) hereon. When signing as attorney, executor, administrator, or other fiduciary, please give full title as such. Joint owners should each sign personally. If a corporation, limited liability company, or partnership, please sign in full corporate, limited liability company, or partnership name by an authorized officer or person.

**Important Notice Regarding the Availability of Proxy Materials for the
Special Meeting of Stockholders to be held on October 16, 2026:**

The Notice and Proxy Statement are available at:
<https://web.viewproxy.com/atyr/2026SM>

-----▽PLEASE DETACH ALONG PERFORATED LINE AND MAIL IN THE ENVELOPE PROVIDED.▽-----

When properly executed, your proxy will be voted in the manner you direct. If you do not specify your choices, your shares will be voted in accordance with the recommendations of the Board of Directors, which recommendation is "FOR" Proposal 1, and this proxy may be voted in the discretion of the proxies with respect to such other business as may properly come before the meeting.

Please mark your votes like this ☒

1. To approve a series of alternate amendments to our restated certificate of incorporation to effect, at the option of our Board of Directors, a reverse stock split of our common stock at a ratio between 1-for-10 and 1-for-50, inclusive, as determined by our Board of Directors in its sole discretion.

FOR ☐

AGAINST ☐

ABSTAIN ☐

