

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

SCHEDULE 13D
(RULE 13d-101)**INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT TO RULE 13d-1(a)
AND AMENDMENTS THERETO FILED PURSUANT TO RULE 13d-2(a)**

(Amendment No. ____)*

aTyr Pharma, Inc.
(Name of Issuer)Common Stock, \$0.001 par value
(Title of Class of Securities)002120103
(CUSIP Number)Nathalie Auber
Sofinnova Ventures, Inc.
3000 Sand Hill Road, Bldg 4, Suite 250
Menlo Park, CA 94025
(650) 681-8420
(Name, Address and Telephone Number of Person
Authorized to Receive Notices and Communications)**COPY TO:**Linda Daley, Esq.
c/o Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP
1200 Seaport Blvd., Redwood City, CA 94063
(650) 463-5243May 6, 2015
(Date of Event Which Requires Filing of This Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§ 240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See Rule 240.13d-7 for other parties to whom copies are to be sent.

*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

This information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

1	NAME OF REPORTING PERSON I.R.S. IDENTIFICATION NO. OF ABOVE PERSONS (ENTITIES ONLY) Sofinnova Venture Partners IX, L.P. ("SVP IX")	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS WC	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER 1,866,126 shares, except that Sofinnova Management IX, L.L.C. ("SM IX"), the general partner of SVP IX, may be deemed to have sole voting power, and Dr. Michael F. Powell ("Powell"), Dr. James I. Healy ("Healy"), Dr. Anand Mehra ("Mehra") and Dr. Srinivas Akkaraju ("Akkaraju"), the managing members of SM IX, may be deemed to have shared power to vote these shares.
	8	SHARED VOTING POWER See response to row 7.
	9	SOLE DISPOSITIVE POWER 1,866,126 shares, except that SM IX, the general partner of SVP IX, may be deemed to have sole dispositive power and Powell, Healy, Mehra and Akkaraju, the managing members of SM IX, may be deemed to have shared power to dispose of these shares.
	10	SHARED DISPOSITIVE POWER See response to row 9.
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,866,126	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW 11 EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 11 8.3%	
14	TYPE OF REPORTING PERSON PN	

1	NAME OF REPORTING PERSON I.R.S. IDENTIFICATION NO. OF ABOVE PERSONS (ENTITIES ONLY) Sofinnova Management IX, L.L.C. ("SM IX")	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS AF	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER 1,866,126 shares, all of which are owned directly by SVP IX. SM IX, the general partner of SVP IX, may be deemed to have sole voting power, and Powell, Healy, Mehra and Akkaraju, the managing members of SM IX, may be deemed to have shared power to vote these shares.
	8	SHARED VOTING POWER See response to row 7.
	9	SOLE DISPOSITIVE POWER 1,866,126 shares, all of which are owned directly by SVP IX. SM IX, the general partner of SVP IX, may be deemed to have sole dispositive power, and Powell, Healy, Mehra and Akkaraju, the managing members of SM IX, may be deemed to have shared dispositive power over these shares.
	10	SHARED DISPOSITIVE POWER See response to row 9.
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,866,126	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW 11 EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 11 8.3%	
14	TYPE OF REPORTING PERSON OO	

1	NAME OF REPORTING PERSON I.R.S. IDENTIFICATION NO. OF ABOVE PERSONS (ENTITIES ONLY) Dr. Srinivas Akkaraju ("Akkaraju")	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS AF	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION U.S. Citizen	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER 1,047 shares, all of which are issuable to Akkaraju pursuant to outstanding options exercisable within 60 days.
	8	SHARED VOTING POWER 1,866,126 shares, all of which are owned directly by SVP IX. SM IX, the general partner of SVP IX, may be deemed to have sole voting power, and Akkaraju, a managing member of SM IX and a director of the Issuer, may be deemed to have shared voting power to vote these shares.
	9	SOLE DISPOSITIVE POWER 1,047 shares, all of which are issuable to Akkaraju pursuant to outstanding options exercisable within 60 days.
	10	SHARED DISPOSITIVE POWER 1,866,126 shares, all of which are owned directly by SVP IX. SM IX, the general partner of SVP IX, may be deemed to have sole dispositive power, and Akkaraju, a managing member of SM IX and a director of the Issuer, may be deemed to have shared power to dispose of these shares.
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,867,173	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW 11 EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 11 8.3%	
14	TYPE OF REPORTING PERSON IN	

1	NAME OF REPORTING PERSON I.R.S. IDENTIFICATION NO. OF ABOVE PERSONS (ENTITIES ONLY) Dr. Michael F. Powell ("Powell")	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS AF	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION U.S. Citizen	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER -0-
	8	SHARED VOTING POWER 1,866,126 shares, all of which are owned directly by SVP IX. SM IX, the general partner of SVP IX, may be deemed to have sole voting power, and Powell, a managing member of SM IX, may be deemed to have shared voting power to vote these shares.
	9	SOLE DISPOSITIVE POWER -0-
	10	SHARED DISPOSITIVE POWER 1,866,126 shares, all of which are owned directly by SVP IX. SM IX, the general partner of SVP IX, may be deemed to have sole dispositive power, and Powell, a managing member of SM IX, may be deemed to have shared power to dispose of these shares.
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,866,126	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW 11 EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 11 8.3%	
14	TYPE OF REPORTING PERSON IN	

1	NAME OF REPORTING PERSON I.R.S. IDENTIFICATION NO. OF ABOVE PERSONS (ENTITIES ONLY) Dr. James I. Healy ("Healy")	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS AF	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION U.S. Citizen	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER -0-
	8	SHARED VOTING POWER 1,866,126 shares, all of which are owned directly by SVP IX. SM IX, the general partner of SVP IX, may be deemed to have sole voting power, and Healy, a managing member of SM IX, may be deemed to have shared voting power to vote these shares.
	9	SOLE DISPOSITIVE POWER -0-
	10	SHARED DISPOSITIVE POWER 1,866,126 shares, all of which are owned directly by SVP IX. SM IX, the general partner of SVP IX, may be deemed to have sole dispositive power, and Healy, a managing member of SM IX, may be deemed to have shared power to dispose of these shares.
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,866,126	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW 11 EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 11 8.3%	
14	TYPE OF REPORTING PERSON IN	

1	NAME OF REPORTING PERSON I.R.S. IDENTIFICATION NO. OF ABOVE PERSONS (ENTITIES ONLY) Dr. Anand Mehra ("Mehra")	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS AF	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION U.S. Citizen	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER -0-
	8	SHARED VOTING POWER 1,866,126 shares, all of which are owned directly by SVP IX. SM IX, the general partner of SVP IX, may be deemed to have sole voting power, and Mehra, a managing member of SM IX, may be deemed to have shared voting power to vote these shares.
	9	SOLE DISPOSITIVE POWER -0-
	10	SHARED DISPOSITIVE POWER 1,866,126 shares, all of which are owned directly by SVP IX. SM IX, the general partner of SVP IX, may be deemed to have sole dispositive power, and Mehra, a managing member of SM IX, may be deemed to have shared power to dispose of these shares.
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,866,126	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW 11 EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 11 8.3%	
14	TYPE OF REPORTING PERSON IN	

Statement on Schedule 13D

This Statement on Schedule 13D relates to the beneficial ownership of Common Stock, \$0.001 par value per share ("Common Stock"), of aTyr Pharma, Inc., a Delaware corporation ("Issuer"). This Schedule 13D is being filed by Sofinnova Venture Partners IX, L.P., a Delaware limited partnership ("SVP IX"), Sofinnova Management IX, L.L.C., a Delaware limited liability company ("SM IX"), Dr. Srinivas Akkaraju ("Akkaraju"), Dr. Michael F. Powell ("Powell"), Dr. James I. Healy ("Healy"), and Dr. Anand Mehra ("Mehra" and collectively with SVP IX, SM IX, Akkaraju, Powell, and Healy, the "Reporting Persons").

ITEM 1. SECURITY AND ISSUER.

- (a) The class of equity securities to which this statement relates is the Common Stock of the Issuer.
- (b) The Issuer's principal executive offices are located at 3545 John Hopkins Court, Suite #250, San Diego, CA 92121.

ITEM 2. IDENTITY AND BACKGROUND.

(a) The persons and entities filing this Schedule 13D are SVP IX, SM IX, Akkaraju, Powell, Healy, and Mehra. SM IX, the general partner of SVP IX, may be deemed to have sole power to vote and sole power to dispose of shares of the Issuer directly owned by SVP IX. Akkaraju may be deemed to have sole power to vote and sole power to dispose of shares of the Issuer directly owned by Akkaraju.

(b) The address of the principal place of business for each of the Reporting Persons is c/o Sofinnova Ventures, 3000 Sand Hill Road, Bldg 4, Suite 250, Menlo Park, California 94025.

(c) The principal occupation of each of the Reporting Persons is the venture capital investment business. The principal business of SVP IX is to make investments in private and public companies, and the principal business of SM IX is to serve as the general partner of SVP IX. Akkaraju, Powell, Healy and Mehra are the managing members of SM IX. Akkaraju is a director of the Issuer.

(d) During the last five years, none of the Reporting Persons has been convicted in any criminal proceeding (excluding traffic violations or similar misdemeanors).

(e) During the last five years, none of the Reporting Persons has been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

- (f) SVP IX is a Delaware limited partnership. SM IX is a Delaware limited liability company. Akkaraju, Powell, Healy, and Mehra are U.S. citizens.

ITEM 3. SOURCE AND AMOUNT OF FUNDS OR OTHER CONSIDERATION.

In March 2015, SVP IX entered into a Series E stock purchase agreement pursuant to which SVP IX acquired from the Issuer an aggregate 14,968,722 shares of Series E redeemable convertible preferred stock for a purchase price of \$1.119 per share, or \$16,749,999.92 in the aggregate.

On April 2, 2015, Akkaraju was granted a stock option from the Issuer to purchase 12,572 shares of Common Stock at an exercise price of \$9.15 per share (which reflects a one-for-7.95413 reverse split of Common Stock effected by the Issuer on May 5, 2015). Such option will vest over thirty-six equal monthly installments beginning on March 31, 2015. Such option will expire on April 2, 2025.

In connection with the closing of the Issuer's initial public offering of Common Stock (the "Offering"), the Series E redeemable convertible preferred stock automatically converted on a 1-for-9.6814 basis into 1,546,126 shares of Common Stock.

In connection with the Offering, SVP IX purchased 320,000 shares of Common Stock at \$14.00 per share, or \$4,480,000 in the aggregate. Such purchase occurred pursuant to and on the terms set forth in the Issuer's Prospectus filed pursuant to Rule 424(b)(4) on May 7, 2015 with the Securities and Exchange Commission (the "Prospectus").

The source of the funds for all purchases and acquisitions by the Reporting Persons was from working capital.

No part of the purchase price was borrowed by any Reporting Person for the purpose of acquiring any securities discussed in this Item 3.

ITEM 4. PURPOSE OF TRANSACTION.

The Reporting Persons hold their securities of the Issuer for investment purposes. Depending on the factors discussed herein, the Reporting Persons may, from time to time, acquire additional Common Stock and/or retain and/or sell all or a portion of the Common Stock held by the Reporting Persons in the open market or in privately negotiated transactions, and/or may distribute the Common Stock held by the Reporting Persons to their respective members or limited partners. Any actions the Reporting Persons might undertake will be dependent upon the Reporting Persons' review of numerous factors, including, among other things, the price levels of the Common Stock, general market and economic conditions, ongoing evaluation of the Issuer's business, financial condition, operations and prospects; the relative attractiveness of alternative business and investment opportunities, and other future developments. Except as set forth above, the Reporting Persons have no present plans or intentions which would result in or relate to any of the transactions described in subparagraphs (a) through (j) of Item 4 of Schedule 13D.

ITEM 5. INTEREST IN SECURITIES OF THE ISSUER.

(a,b) Regarding aggregate beneficial ownership, see Row 11 of the cover page of each Reporting Person. Regarding percentage beneficial ownership, see Row 13 of the cover page of each Reporting Person. Regarding sole power to vote shares, see Row 7 of the cover page of each Reporting Person. Regarding shared power to vote shares, see Row 8 of the cover page of each Reporting Person. Regarding sole power to dispose of shares, see Row 9 of the cover page of each Reporting Person. Regarding shared power to dispose of shares, see Row 10 of the cover page of each Reporting Person. The percentage listed in Row 13 for each Reporting Person was calculated based upon 22,549,739 Common Stock outstanding immediately after the Offering.

(c) Except as set forth in Item 3 above, the Reporting Persons have not effected any transaction in the securities of the Issuer during the past 60 days.

(d) Under certain circumstances set forth in the limited partnership agreement of SVP IX, the general partner and limited partners of SVP IX may be deemed to have the right to receive dividends from, or the proceeds from, the sale of shares of the Issuer owned by such entity of which they are a partner.

(e) Not applicable.

ITEM 6. CONTRACTS, ARRANGEMENTS, UNDERSTANDINGS OR RELATIONSHIPS WITH RESPECT TO SECURITIES OF THE ISSUER.

Pursuant to a Lock-Up Agreement (the "Lock-Up Agreement") entered into with J.P. Morgan Securities LLC and Citigroup Global Markets Inc. in connection with the Offering, the Reporting Persons are subject to a Restricted Period (as defined in the Lock-Up Agreement) commencing on the date of the Prospectus and ending 180 days after the date of the Prospectus, during which the Reporting Persons have agreed, subject to limited exceptions, not to offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock or enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of Common Stock. The Lock-Up Agreement is more fully described in the Prospectus, and the form of Lock-Up Agreement is incorporated herein by reference to Exhibit D to the Underwriting Agreement filed on May 1, 2015 as Exhibit 1.1 to Amendment No. 2 to the Issuer's Registration Statement on Form S-1 (File No. 333-203272).

The Reporting Persons are party to a Registration and Voting Rights Agreement among the Issuer, the Reporting Persons and other shareholders. Subject to the terms of such Registration and Voting Rights Agreement, holders of Common Stock having registration rights can demand that the Issuer file a registration statement or request that their shares be covered by a registration statement that the Issuer is otherwise filing. Such Registration and Voting Rights Agreement dated as of March 31, 2015 described in Item 6, was filed on April 27, 2015 as Exhibit 10.11 to Amendment No. 1 to the Issuer's Registration Statement on Form S-1 (File No. 333-203272), and is incorporated herein by reference.

On April 2, 2015, Akkaraju was granted a stock option from the Issuer to purchase 12,572 shares of Common Stock at an exercise price of \$9.15 per share (which reflects a one-for-7.95413 reverse split of Common Stock effected by the Issuer on May 5, 2015). Such option will vest over thirty-six equal monthly installments beginning on March 31, 2015. Such option will expire on April 2, 2025.

Akkaraju, in his capacity as a director of the Issuer, along with the other directors of the Issuer, entered into an Indemnification Agreement with the Issuer, as more fully described in the Prospectus and incorporated herein by reference to Exhibit 10.12 to Amendment No. 1 to the Issuer's Registration Statement on Form S-1 (File No. 333-203272).

ITEM 7. MATERIAL TO BE FILED AS EXHIBITS.

EXHIBIT A	Agreement of Joint Filing.
EXHIBIT B	Power of Attorney
EXHIBIT C	Form of Lock-Up Agreement entered into by and among the Issuer, the underwriters and certain others, and is incorporated herein by reference to Exhibit D to the Underwriting Agreement filed on May 1, 2015 as Exhibit 1.1 to Amendment No. 2 to the Issuer's Registration Statement on Form S-1 (File No. 333-203272).
EXHIBIT D	Form of Registration and Voting Rights Agreement described in Item 6, filed on April 27, 2015 as Exhibit 10.11 to Amendment No. 1 to the Issuer's Registration Statement on Form S-1 (File No. 333-203272), and incorporated herein by reference.
EXHIBIT E	Form of Indemnification Agreement for board members and senior management, filed on April 27, 2015 as Exhibit 10.12 to Amendment No. 1 to the Issuer's Registration Statement on Form S-1 (File No. 333-203272), and incorporated herein by reference.

SIGNATURES

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: May 14, 2015

SOFINNOVA VENTURE PARTNERS IX, L.P.,
a Delaware Limited Partnership

By: SOFINNOVA MANAGEMENT IX, L.L.C.,
a Delaware Limited Liability Company
Its: General Partner

By: /s/ Nathalie Auber
Nathalie Auber
Attorney-in-Fact

SOFINNOVA MANAGEMENT IX, L.L.C.,
a Delaware Limited Liability Company

By: /s/ Nathalie Auber
Nathalie Auber
Attorney-in-Fact

DR. SRINIVAS AKKARAJU
DR. JAMES I. HEALY
DR. MICHAEL F. POWELL
DR. ANAND MEHRA

By: /s/ Nathalie Auber
Nathalie Auber
Attorney-in-Fact

EXHIBIT INDEX

<u>Exhibit</u>	<u>Description</u>
A	Agreement of Joint Filing.
B	Power of Attorney
C	Form of Lock-Up Agreement entered into by and among the Issuer, the underwriters and certain others, and is incorporated herein by reference to Exhibit D to the Underwriting Agreement filed on May 1, 2015 as Exhibit 1.1 to Amendment No. 2 to the Issuer's Registration Statement on Form S-1 (File No. 333-203272).
D	Form of Registration and Voting Rights Agreement described in Item 6, filed on April 27, 2015 as Exhibit 10.11 to Amendment No. 1 to the Issuer's Registration Statement on Form S-1 (File No. 333-203272), and incorporated herein by reference.
E	Form of Indemnification Agreement for board members and senior management, filed on April 27, 2015 as Exhibit 10.12 to Amendment No. 1 to the Issuer's Registration Statement on Form S-1 (File No. 333-203272), and incorporated herein by reference.

EXHIBIT A

Agreement of Joint Filing

The undersigned hereby agree that a single Schedule 13D (or any amendment thereto) relating to the Common Stock of aTyr Pharma, Inc. shall be filed on behalf of each of the undersigned and that this Agreement shall be filed as an exhibit to such Schedule 13D.

Date: May 14, 2015

SOFINNOVA VENTURE PARTNERS IX, L.P.,
a Delaware Limited Partnership

By: SOFINNOVA MANAGEMENT IX, L.L.C.,
a Delaware Limited Liability Company
Its: General Partner

By: /s/ Nathalie Auber
Nathalie Auber
Attorney-in-Fact

SOFINNOVA MANAGEMENT IX,
a Delaware Limited Liability Company

By: /s/ Nathalie Auber
Nathalie Auber
Attorney-in-Fact

DR. SRINIVAS AKKARAJU
DR. JAMES I. HEALY
DR. MICHAEL F. POWELL
DR. ANAND MEHRA

By: /s/ Nathalie Auber
Nathalie Auber
Attorney-in-Fact

EXHIBIT B

Power of Attorney

Nathalie Auber has signed this Schedule 13D as Attorney-In-Fact. Note that copies of the applicable Power of Attorney are already on file with the appropriate agencies.
