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

DIVISION OF
CORPORATION FINANCE

Mail Stop 4720

October 6, 2015

Via E-mail
Johan M. (Thijs) Spoor
President
AzurRx BioPharma, Inc.
760 Parkside Avenue
Downstate Biotechnology Incubator, Suite 217
Brooklyn, New York 11226

Re: AzurRx BioPharma, Inc.
Draft Registration Statement on Form S-1
Submitted September 8, 2015
CIK No. 0001604191

Dear Mr. Spoor:

We have reviewed your draft registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

Prospectus Summary
Our Company, page 1

1. Please describe the meaning and significance of the following terms the first time you use them in this section:

   - Autologous;
   - Recombinant lipase; and
   - Recombinant lactamase.

Risk Factors, page 5

2. Under an appropriately titled risk factor, please discuss the risk associated with Mr. Spoor also being the president and chief executive officer of FluoroPharma Medical, Inc. The discussion should include the amount of time that Mr. Spoor will be able to allocate to his role as an executive officer.

We may be required to suspend, repeat or terminate our clinical trials if they…, page 8

3. Please revise your disclosure to provide a brief description of cGCPs and cGMPs when you first reference them in this risk factor. In addition, please clarify that cGMP stands for current good manufacturing practices.

We may form or seek strategic alliances or enter into additional licensing…, page 9

4. Please move the last two paragraphs of this risk factor to their own appropriately titled risk factor which discusses your reliance on third party manufacturers and suppliers. In this regard, we note that the information in the last two paragraphs is not related to future strategic alliances and licensing arrangements.

Our success will depend upon intellectual property, proprietary technologies…, page 10

5. Please expand your risk factor disclosure to describe whether you or Mayoly is responsible for enforcing the patents related to MS1819.

Use of Proceeds, page 22

6. Please revise your disclosure for each of the listed purposes to provide the amount of proceeds intended to be used for each such purpose. Please see Item 504 of Regulation S-K for guidance. Please also make conforming changes throughout your prospectus as applicable.

7. Please expand your disclosure regarding the proceeds to be used for development of MS1819 and AZX1101 to describe how far in the development process you estimate the allocated proceeds from this offering will enable you to reach for each product candidate.

Description of the Business
Product Programs
MS1819, page 34

8. Under the appropriate subsection for MS1819, please disclose when an investigational new drug application ("IND") was filed for the commencement of clinical trials for the product candidate, the name of the trial sponsor and the subject of the IND. If an IND has yet to be filed with the FDA, please explain whether you plan to file one for your upcoming Phase 2b clinical trial.

Background, page 34

9. Please describe the meaning and significance of the following terms when you first use them in this section:

    - Amylase;
    - Proteases;
    - Glycosidase;
    - Gastric pepsin; and
    - Intestinal peptidases.

Pre-clinical Program, page 35

10. Please provide the meaning of the acronym CFA when you first use it in the first paragraph of this section.

11. In the second paragraph of this section, we note your disclosure, "At doses ranging from 10.5 to 211 mg, MS1819 increases the CFA by +25 to +29% in comparison to baseline ($p<0.05$ at all doses), whereas the 2.5 dose had milder activity." Please expand your disclosure to provide the meaning and significance of "p-values" and to clarify that the increases in CFA was statistically significant. In addition, please explain the relationship between "statistical significance" and "p-values" and the significance of p-values to the FDA's evidentiary standards of efficacy.

Clinical Program, page 35

12. We note that the primary endpoint of the phase I/IIa clinical trial of MS1819 was defined as the relative change in steatorrhea in comparison to baseline. Please expand your disclosure to quantify the baseline measure, to describe how the change in steatorrhea was measured and to describe the results of the trial which yielded a non-statistically significant difference of the primary endpoint. In describing the results of the trial, please explain the meaning of and difference between intention-to-treat and per-protocol analysis.

Agreements and Collaborations
Mayola Agreement, page 36

13. Please expand your disclosure to provide the duration of the amended and restated joint research and development agreement with Mayola. To the extent that the duration of the agreement is conditioned on the expiration of intellectual property rights, please also provide this expiration date.

INRA Agreement, page 37

14. Please revise your description of the INRA agreement to disclose the duration and termination provisions.

Intellectual Property, page 38

15. Please revise your disclosure for your patent portfolio for MS1819 and AZX1101 to describe whether the patents and patent applications are owned or licensed, identify the licensing parties, and disclose the expiration date of issued patents and the expected expiration date of your MS1819 patent application discussed in the third bullet point and the patent application for AZX1101 if they are approved.

Directors and Executive Officers, page 45

16. Please revise the table in this section and Mr. Spoor's background information to list Mr. Spoor's current positions with the company. In this regard we note that Mr. Edward J. Borkowski was named Chairman of the Board on September 2, 2015, yet Mr. Spoors background information states that he has served as the Chairman since 2014. In addition, Mr. Spoor has signed the registration statement as PEO, PFO and PAO; however, none of these positions are mentioned in this section.

Executive Compensation
Summary Compensation Table, page 48

17. Please revise your summary compensation table to provide Mr. Spoor's and Mr. Dupret's positions for the time period covered by the table.

Employment Agreement, page 49

18. Once the employment agreement with Mr. Spoor has been finalized, please expand your disclosure to describe the material terms of the agreement.

Certain Relationships and Related-Party Transactions, page 52

19. Please file the agreement with JIST Consulting as an exhibit.

Consolidated Statements of Operations and Comprehensive Loss, page F-5

20. Please address the following and make conforming changes to the statement of cashflows as necessary:

    - Since AzurRx was incorporated on January 30, 2014, revise the starting date of its pre-acquisition period presented to the inception date.

- Provide the prior year comparative interim financial statements from inception (January 30, 2014) to June 30, 2014.
- Tell us why you have provided pre-acquisition amounts for AzurRx for the period from 01/01/14 through 05/31/14 and post-acquisition amounts for the period from 06/01/14 through 12/31/14 and from 06/01/14 through 06/30/14.

Notes to Consolidated Financial Statements, AzurRx BioPharma, Inc., June 30, 2015, December 31, 2014 and Predecessor for December 31, 2013
Note 1 – The Company and Basis of Presentation Significant Accounting Policies
Bases of Presentation and Principles of Consolidation, page F-8

21. Please note that there cannot be a lapse in the audited financial statement periods. Provide audited financial statements of the predecessor for the period prior to its acquisition (January 1, 2014 through June 12, 2014). To the extent you choose to use June 1, 2014 as the acquisition date for the financial statement purposes, please state that there was no material transaction between June 1, 2014 and June 13, 2014.

Note 2 - Significant Accounting Policies
Fair Value Measurement, page F-9

22. Please tell us why you have not included the contingent consideration liability in your fair value disclosures.

Note 6 – Acquisition, page F-13

23. Please tell us and disclose how the $4.9 million fair value of the preferred stock was derived.

24. Please separately describe and quantify the projects acquired. To the extent it is not clear from the description of the IPR&D acquired, please also explain why it is already being amortized.

Note 15 – Agreements, page F-20

25. Please disclose how much was paid under the Mayoly agreement. In addition, quantify and describe the event that will trigger the milestone payment obligation.

Exhibits

26. Please refile exhibit 10.2 with the exhibits to the agreement.

Other Comments

27. We note that there are a number of additional exhibits that still need to be filed. Please provide these exhibits as promptly as possible. Please note that we may have comments on these materials once they are provided.

28. Please confirm that the graphics included in your registration statement are the only graphics you will use in your prospectus. If those are not the only graphics, please provide any additional graphics prior to their use for our review.

29. Please supplementally provide us with copies of all written communications, as defined in Rule 405 under the Securities Act, that you, or anyone authorized to do so on your behalf, present to potential investors in reliance on Section 5(d) of the Securities Act, whether or not they retain copies of the communications.

If you intend to respond to these comments with an amended draft registration statement, please submit it and any associated correspondence in accordance with the guidance we provide in the Division's October 11, 2012 announcement on the SEC website at http://www.sec.gov/divisions/corpfin/cfannouncements/drsfilingprocedures101512.htm.

Please keep in mind that we may publicly post filing review correspondence in accordance with our December 1, 2011 policy (http://www.sec.gov/divisions/corpfin/cfannouncements/edgarcorrespondence.htm). If you intend to use Rule 83 (17 CFR 200.83) to request confidential treatment of information in the correspondence you submit on EDGAR, please properly mark that information in each of your confidential submissions to us so we do not repeat or refer to that information in our comment letters to you.

You may contact Keira Nakada at (202) 551-3659 or Joel Parker at (202) 551-3651 if you have questions regarding comments on the financial statements and related matters. Please contact Johnny Gharib at (202) 551-3170 or me at (202) 551-3675 with any other questions.

Sincerely,

/s/ Suzanne Hayes

Suzanne Hayes
Assistant Director
Office of Healthcare and Insurance

cc: Via E-mail
David J. Levine, Esq.
Loeb & Loeb LLP