



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-4631

Mail Stop 4631

February 11, 2016

Via E-Mail

Dr. Philip L. Rose
Chief Executive Officer
XG Sciences, Inc.
3101 Grand Oak Drive
Lansing, MI 48911

**Re: XG Sciences, Inc.
Registration Statement on Form S-1
Filed January 27, 2016
File No. 333-209131**

Dear Dr. Rose:

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

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe that our comments apply to your facts and circumstances or do not believe that an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information that you provide in response to these comments, we may have additional comments.

General

1. Disclosure in the fee table and throughout the registration statement indicates that the selling securityholders will sell their shares of common stock at a fixed price of \$8.00 per share until your common stock is quoted on the OTC Bulletin Board or OTC Markets. Note that issuers of securities on the OTC Bulletin Board may rely upon certain staff accommodations for issuers where a public or existing market is necessary. For example, selling securityholders of an issuer of securities on the OTC Bulletin Board may sell at prices set by that market once the issuer's securities are quoted on the OTC Bulletin Board. This position, however, does not extend to certain other OTC Markets' marketplaces such as

OTCPink. Please revise, therefore, your reference to other OTC Markets on the prospectus' outside front cover page and throughout the registration statement to clarify that you are referring to the OTC Bulletin Board.

2. Throughout the registration statement, it remains unclear how you determined the number of shares you are registering for resale where those shares relate to outstanding shares of Series A or B Preferred Stock or units. It appears that both the Series A and Series B Preferred convert either at the election of the stockholder or automatically upon your becoming listed on a market other than OTCBB. You disclose the number of shares of common stock that each Series will convert into automatically; however, we understand that the quotation of your common stock on OTCBB will not trigger the automatic conversion feature. Therefore, it appears that you are registering shares for resale that the selling stockholders would obtain by converting their Series A or B Preferred at their own election under the terms of and according to the conversion rates applicable to those elections under the respective certificates of designation. Wherever you discuss the shares of common stock issuable in connection with the Series A and B Preferred, and wherever you discuss the amounts of shares of common stock offered for resale in this prospectus, please also discuss, with equal prominence, the conversions or exchanges that you anticipate taking place to produce the shares of common stock you are registering for resale, and clarify how you arrived at the amount of shares of common stock underlying the Series A and B Preferred.
3. With respect to the Series B Preferred and unit exchange, you state that "holders of Series B Preferred Stock have the right to exchange each Series B Unit" for two shares of common stock. Please clarify whether all Series B Preferred holders own their shares as part of a Series B Unit, and also clarify what other securities make up a Series B Unit in the context of your discussion of the number of shares you are registering. If the Series B Units include warrants or other securities that are exchangeable or exercisable for shares of common stock, please clarify whether it is your intention to register those shares as well. Please also disclose whether holders of Series B Preferred Stock who do not participate in the exchange will have the right to convert the Series B Preferred Stock according to Section 4(a) of the certificate of designation for the Series B Preferred, and if so, whether you are registering the resale of shares of common stock that are issued upon such a conversion, or only shares that may be issued in the unit exchange.

Our Shareholder Agreement contains certain negative covenants and restrictions on transfer, page 17

4. It appears that you intend to require purchasers in the primary offering, but not the resale offering, to enter into the Shareholder Agreement. The terms of the Shareholder Agreement, including non-competition covenants that extend even

after an investor disposes of the shares purchased in the offering, as well as restrictions on transfer and other provisions, seem inconsistent with the idea that all of the shares are of a single class, and that your shares of common stock will be owned by public shareholders and quoted for trading on OTCBB. Please describe the purpose of binding investors in the public primary offering to this agreement, and also discuss clearly whether investors purchasing from selling shareholders would also be bound.

5. It is not clear how investors, the OTCBB, or other market participants would distinguish the shares of common stock that are subject to the Shareholders Agreement from those that are not. We also note that you intend for the agreement to bind investors who purchase from the company but, presumably, not those who purchase from other investors, yet Dr. Rose is expected to offer shares on behalf of the company and is also a selling stockholder with respect to the shares he personally owns. Please clarify how an investor would determine whether it is necessary to adopt the Shareholders Agreement if purchasing shares from Dr. Rose.
6. If you intend to bind new holders of the common stock to the Shareholder Agreement, please clearly explain this in the summary and describe all material terms of the shareholder agreement, including terms giving larger shareholders special voting and nomination rights, and the non-competition covenants in the "Description of Securities" section. Please also address the impact of preemptive rights under the Shareholder Agreement on holders of common stock who are parties to the agreement versus holders of common stock who are not parties to the agreement. We may have further comment upon review of your response.

Going Concern, page 30

7. Refer to your response to comment 2 in our December 4, 2015. We are unable to locate the disclosures: "we believe we will need approximately \$4.2 million to sustain us for the next twelve months," and "although we do not have firm commitments, we believe we will raise an anticipated \$15,000,000 from certain investors that have expressed an interest in investing and which are currently conducting due diligence." Please revise.

Shareholder Agreement, page 78

8. We note the paragraph in this section that describes preemptive rights that are granted to shareholders who are parties to the Shareholder Agreement. Please disclose whether these parties have waived their rights with respect to this offering, or whether you intend to offer the shares registered in the primary offering to these parties. If you intend to offer registered shares, please provide your analysis as to why this is appropriate since the parties entered into this

agreement privately. Note that an agreement or offer to sell shares that is made privately must generally be completed privately.

9. Please clarify whether investors who purchase shares in the resale offering will be required to execute an adoption agreement to the Shareholder Agreement. Please also clarify whether the shares offered for resale are subject to any right of first refusal under the Shareholder Agreement, and if so, please disclose whether there has been a waiver of this right by the company and other shareholders who are parties to this agreement.

Security Ownership of Certain Beneficial Owners and Management page 80

10. Please tell us why you have excluded shares of common stock issuable upon conversion of the Series A Preferred Stock at a ratio of 1.875 to 1 and the shares of common stock issuable upon exchange of the Series B Units. If the holders of the Series A Preferred Stock and Series B Units can exercise their rights to receive common stock within 60 days, please explain why they would be deemed to beneficially own those shares.

Selling Securityholders, page 83

11. Please clarify that the percentages of shares owned by the selling stockholders after the offering takes into account the sale of the 2 million shares by the company in the primary offering. If necessary, please revise the percentages in the table accordingly.

Plan of Distribution for Primary Offering, page 99

12. We note the risk factor disclosure on page 18 that your chief executive officer, Dr. Philip L. Rose, will conduct the primary offering on your behalf if you determine not to engage a sales agent. Expand the disclosure in the plan of distribution section to indicate how Dr. Rose would be able to rely on the safe harbor from broker-dealer registration. See Rule 3a-41 under the Exchange Act. Additionally, please elaborate on the manner in which Dr. Rose would offer the shares of common stock on your behalf and how investors would learn about the offering. For example, would Dr. Rose solicit investors through direct mailings and/or personal contacts? How would Dr. Rose identify those who might have an interest in purchasing shares of common stock? How will Dr. Rose determine whether to sell on behalf of the company or to sell the shares he owns and is registering for resale in this offering? Please provide us copies of any materials that Dr. Rose would intend to use in conducting the primary offering on your behalf.

Plan of Distribution for Secondary Offering, page 101

13. Please clarify your reference to the NASDAQ Capital Market. We understand that you are not listed or quoted on any market currently, and that you intend to seek quotation on the OTCBB.

Signatures, page II-8

14. Refer to comment 7 in our December 4, 2015 letter. The registration statement must be signed also by your controller or principal accounting officer. Further, any person who occupies more than one of the specified positions, for example, principal financial officer and controller or principal accounting officer, must indicate each capacity in which he signs the registration statement. See Instructions 1 and 2 to “Signatures” on Form S-1, and revise.

Exhibit 5.1

15. Remove the word “DRAFT” from each page of the exhibit. Additionally, specify the registration statement’s file number in the first paragraph.
16. Please revise to clarify that the “Selling Shareholder Series A Shares” and “Selling Shareholders Series B Shares” that counsel is opining on are in fact shares of common stock. Additionally, the reference to “conversion of the underlying” shares of Series A and B Preferred stock in enumerated paragraphs (4) and (5) on page 4 of the opinion is confusing. It appears that you mean to refer to shares of common stock that underlie the Series A and B Preferred.

Exhibits 10.5, 10.7, 10.9, 10.15, 10.19 and 10.21

17. It appears that not all attachments or not all attachments in their entirety to these exhibits were filed. Unlike Item 601(b)(2) of Regulation S-K, there is no provision in Item 601(b)(10) of Regulation S-K for omitting attachments to exhibits. Please refile the exhibits, including all attachments, in their entirety.

Exhibit 10.31

18. We note that the exhibit list refers to Exhibit 10.31 as the “Sales Agency Agreement,” while the agreement you have filed here is a “Distribution Agreement.” Please reconcile.

Exhibit 21

19. Include the state or other jurisdiction of incorporation or organization of the subsidiary. See Item 601(b)(21) of Regulation S-K.

Closing

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, if you request acceleration of the effective date of the pending registration statement, please provide a written statement from the company acknowledging that:

- Should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- The action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- The company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act and the Securities Exchange Act as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Tracie Towner Mariner, Staff Accountant, at (202) 551-3744 or Terence S. O'Brien, Accounting Branch Chief, at (202) 551-3355 if you have questions

Dr. Philip L. Rose
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about comments on the financial statements and related matters. You may contact Edward M. Kelly, Special Counsel, at (202) 551-3728 or me at (202) 551-3765 if you have any other questions.

Very truly yours,

/s/ Pamela A. Long

Pamela A. Long
Assistant Director
Office of Manufacturing and Construction

Via E-mail

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