



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

DIVISION OF
CORPORATION FINANCE

January 7, 2014

Via E-mail

Pierre Legault
Chief Executive Officer
NephroGenex, Inc.
79 T.W. Alexander Drive
4401 Research Commons Building
Suite 290
P.O. Box 14188
Research Triangle Park, NC 27709

**Re: NephroGenex, Inc.
Registration Statement on Form S-1
Filed December 23, 2013
File No. 333-193023**

Dear Mr. Legault:

We have reviewed your registration statement and correspondence dated December 23, 2013 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 amending your registration statement and providing the requested information. 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 any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Manufacturing, page 89

1. We note your reference to a manufacturing agreement with Patheon Pharmaceuticals and your proprietary method for synthesis of your API. We also note your intention to file this agreement as an exhibit in a subsequent amendment. In your next amendment, please describe all material terms of the agreement with Patheon in this section, including duration provisions, termination provisions, minimum purchase requirements, if applicable, and any other material provisions.

Executive and Director Compensation, page 107

2. Please update this section to include the executive compensation data for fiscal year 2013 as well as 2012. Please provide updated compensation tables, narrative disclosure, and any other information required by Item 402 of Regulation S-K.

Financial Statements for the nine months ended September 30, 2013, unaudited

Notes to Financial Statements

Note E – Stockholder’s Deficiency

Warrant 1 and 2, page F-31

3. Refer to your response to prior comment 45 regarding the error in valuing Warrant 2.
 - Please provide us information in order to help understand why the error occurred and was undetected for so many years including how and when the error was identified, by whom and more specifically about its nature and cause.
 - On pages F-14 and F-34, you indicate that you used a Black Scholes model that assumed a fair value range of \$1.11 to 1.39 per share of the Series A preferred stock while, in your response, you indicate that you obtained a new valuation of the Series A preferred stock of \$.44 per share to value Warrant 2 at September 30, 2013. Please reconcile these disclosures for us and provide us an analysis that supports the Series A preferred stock fair values you used at each balance sheet to value Warrant 2.

Note F – Stock Option Plan, page F-35

4. Please disclose herein or in MD&A under critical accounting policies and estimates the information provided to us in response to prior comment 46.

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 of 1933 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, in the event 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;

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- 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 of 1933 and the Securities Exchange Act of 1934 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 Ibolya Ignat at (202) 551-3656 or Jim Rosenberg at (202) 551-3679 if you have questions regarding comments on the financial statements and related matters. Please contact Austin Stephenson at (202) 551-3192, Dan Greenspan at (202) 551-3623, or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Jeffrey P. Riedler

Jeffrey P. Riedler
Assistant Director

cc: Via E-mail
Joel Papernik, Esq.
Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.