



DIVISION OF  
CORPORATION FINANCE

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

Mail Stop 3030

December 14, 2016

Via E-mail

Francois Michelon  
Chief Executive Officer  
ENDRA Life Sciences Inc.  
3600 Green Court, Suite 350  
Ann Arbor, MI 48105

**Re: ENDRA Life Sciences Inc.  
Amendment No. 1 to Registration Statement on Form S-1  
Filed December 6, 2016  
File No. 333-214724**

Dear Mr. Michelon:

We have reviewed your amended 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 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. Unless we note otherwise, our references to prior comments are to comments in our December 5, 2016 letter.

Exhibit 5.1

1. We note counsel's statement that it has acted as counsel on the registration statement as amended on November 21, 2016. Please file a revised opinion of counsel that refers to the most recently filed amendment, since the opinion is given as to the securities registered thereon.
2. Counsel must examine all matters necessary to render its opinion pursuant to Section 601(b)(5) of Regulation S-K. As such, please file an opinion that does not include the third sentence of the second paragraph and makes clear that counsel has reviewed all matters and made such inquiries as are necessary to render its opinion.

3. If counsel seeks to limit its opinion, each permitted assumption and limitation must be specifically identified. Please file an opinion of counsel that does not refer to “assumptions that are customary in opinion letters of this kind.”
4. Refer to assumption (e) in the first paragraph on page 2. Counsel should not imply that its opinion is limited by whether an agreement is binding on the registrant. Please file a revised opinion that does not include the phrase “to the extent expressly set forth below.”
5. Assumptions (a) in the first paragraph on page 2 and paragraphs (c) and (e) on page 4 of counsel’s opinion appear to assume matters that are legal matters essential to the opinion given. Please file a revised opinion without these assumptions.
6. It is unclear why the filing of the charter mentioned in assumption (f) is necessary for rendering the opinion. In light of the existing charter, this assumption does not appear appropriate. Please remove this assumption or advise.
7. Since a Form of Warrant has been filed with the registration statement, it is unclear why counsel has included the phrase “assuming that the terms of any Warrants offered pursuant to the Registration Statement and the Prospectus have been duly established in accordance with an applicable Warrant Agreement” in paragraphs 2 and 4 of its opinion. Please file a revised opinion of counsel that does not include this assumption.

You may contact Michael Fay at (202) 551-3812 or Brian Cascio, Accounting Branch Chief, at (202) 551-3676 if you have questions regarding comments on the financial statements and related matters. Please contact Laurie Abbott at (202) 551-8071 or me at (202) 551-3528 with any other questions.

Sincerely,

/s/ Amanda Ravitz

Amanda Ravitz  
Assistant Director  
Office of Electronics and Machinery

cc: Mark R. Busch  
K&L Gates LLP