



DIVISION OF
CORPORATION FINANCE

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

May 5, 2015

Via E-mail
David Hall
Chief Executive Officer
Replicel Life Sciences, Inc.
Suite 2020 – 401 West Georgia Street
Vancouver, British Columbia, Canada
V6B5A1

**Re: Replicel Life Sciences, Inc.
Form 20-F for the Year Ended December 31, 2013
Filed March 18, 2014
Response Dated April 16, 2015
File No. 000-50112**

Dear Mr. Hall:

We have reviewed your April 16, 2015 responses to our comment letter 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 these comments within ten business days by providing the requested information or advise us as soon as possible when you will respond. If you do not believe our comments apply to your facts and circumstances, please tell us why in your response.

After reviewing your response to these comments, we may have additional comments. Unless we note otherwise, our reference to prior comments are to comments in our March 26, 2015 letter.

Form 20-F for the Year Ended December 31, 2013
Notes to the Consolidated Financial Statements, page 8
9. Licensing Revenue, page 26

1. In your response to comment 1, you state, in part, that you view all of the obligations under Article 2 after the Technology Transfer as immaterial, inconsequential and perfunctory. You also state that you have no obligation to conduct any future development or provide any future services other than attending meetings (two per year) of the Joint Steering Committee (“JSC”), which the Company considers an insignificant and immaterial obligation under the Agreement; and that the JSC is merely a forum that allows the parties to come to future agreements. Please further explain the basis for your conclusion that you have no other obligations under Section 2.2 (Collaboration) and 2.3 (JSC), and that the JSC is merely a forum that allows the parties to come to future agreements. In this regard, it appears that the

sub-sections under Section 2.2 and 2.3 include certain requirements of the Company and any failure by the Company to perform under these subsections may result in a material breach under Section 7.2. In addition, the JSC's oversight requirement would appear to be a significant factor in the future success of the Joint Development of the Collaboration Product.

2. You state in response to comment 1 that after the Technology Transfer, Shiseido did not need to make any further developments to the technology, and the only remaining step in order to commercialize the technology was to obtain regulatory approval in the Shiseido Territory. We also note in your response to comment 3 that all improvements to the Transfer Technology since the completion of the Technology Transfer have been produced by Shiseido and shared with the Company. You further state that those subsequent improvements included (1) the classification of the components used in RCH-01 (which is a major issue with cell based therapies as they use living cells) and (2) the manufacturing process which includes the use of newly available commercial media inputs. Please clarify your statement that Shiseido did not need to make any further developments after the Technology Transfer given Shiseido's actual improvements after the transfer that you describe in your response.
3. We note in your response to comment 3 that all improvements to the Transfer Technology since the completion of the Technology Transfer have been produced by Shiseido and shared with the Company. We further note the disclosure in your December 31, 2014 Form 20-F that states the fiscal 2014 increase in research and development expenses was partly attributable to improvements in the cell replication process for RCH-01 in preparation for your submission to regulatory authorities (page 21). Please reconcile your response to your Form 20-F disclosures. Please also describe to us in sufficient detail and in plain English the RCH-01 improvements made by the Company in 2014, and quantify the amount of related research and development expenditures incurred.
4. We note in your response to comment 2 that the definition of Transfer Technology does not require the Company to continue to transfer improvements made by the Company after the Technology Transfer has occurred. We further note the disclosure in your December 31, 2014 Form 20-F that states you anticipate the collaborative technology transfer will continue between the companies as any new improvements to the RCH-01 technology are developed by either party (page 18). Please reconcile your response to your Form 20-F disclosure. Also tell us whether the Company's fiscal 2014 improvements in the cell replication process for RCH-01 were transferred to Shiseido pursuant to the agreement and, if so, tell us the negotiated details and terms of such assignment as you describe in response to comment 2.

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5. We note in Section 2.2.1 of the Agreement that “[f]or the purpose of this Section 2.2, collaboration shall include, amongst other things, disclosure and discussion of future clinical trials information and related documentation in relation to Collaboration Products.” We also note from your response to comment 1 that “[t]he provisions regarding collaboration (including Section 2.2.1) do provide that the parties will collaborate with each other but it does not provide any specifics regarding the collaboration.” Please tell us why you believe that disclosure and discussion of future clinical trials information and related documentation in relation to Collaboration Products are not specifics. Also tell us why you believe that the agreement must include specifics regarding the collaboration in order to create a significant obligation to the Company. In addition, also tell us whether the failure to disclose and discuss future clinical trials information and related documentation in relations to Collaboration Products with Shiseido would result in a material breach under Section 7.2.

You may contact Steve Lo at 202-551-3394 or John Archfield at 202-551-3315 if you have questions regarding these comments.

Sincerely,

/s/Tia L. Jenkins

Tia L. Jenkins
Senior Assistant Chief Accountant
Office of Beverages, Apparel, and
Mining