Reviewer’s report

Title: Co-expression of 1α-hydroxylase and vitamin D receptor in human articular chondrocytes.

Version: 0 Date: 29 May 2017

Reviewer: Y Hirota

Reviewer's report:

Comments to the Author

In the paper "Co-expression of 1α-hydroxylase and vitamin D receptor in human articular chondrocytes." Ann Kristin Hansen et al. report that 1α-hydroxylase and vitamin D receptor are expressed in chondrocytes using clinical samples. Also, they are reporting the relevance to OA from this result.

The paper enough to be worth publishing in BMC Musculoskeletal Disorders. In this paper, you use cartilage and chondrocytes taken from a total replacement patient of the knee. Although it is evaluated under four kinds of experimental conditions (native cartilage, suspension cells, chondrocytes in monolayers and in spheroids), it is difficult to understand other than experts, so it is necessary to add a detailed explanation in the introduction. In addition, I can not understand the explanation of figures and statistical analysis, I think that it is necessary to correct it.

Below are some of the improvements could be made concerning this paper:

Comment 1

Although it is evaluated under four kinds of experimental conditions (native cartilage, suspension cells, chondrocytes in monolayers and in spheroids), it is difficult to understand other than experts. You have to add a detailed explanation in the introduction. For example, in the discussion (p. 13, line 30), You wrote "Of note is that in cartilage the cells have a differentiated chondrocytic phenotype, whereas cells expanded in monolayers are considered dedifferentiated, and when cultured in a 3D environment, they regain the chondrocytic phenotype [27]." You should describe it in an easy-to-understand manner.

Comment 2

You mentioned that differentiated and dedifferentiated cells were used in this experiment, but have you confirmed using other protein markers?
Comment 3
Is the cell used this time isolated from OA patients?
The reader is hard to understand unless you write the experiment conditions in detail.

Comment 4
The monolayer-cultured cells are nonenzymatically exfoliated to prepare spheroids, but why does spheroids become phenotypes similar to cartilage tissue? I think that biochemical data should be added.

Comment 5
You are using clinical data, but it is hardly written, such as the method of significant difference test. You should state what kind of test method you are using (ex: Tukey-Kramer HSD test).

Comment 6
The figure of immunohistochemical staining is very incomprehensible. Please show a slightly enlarged view, or make a correction, such as highlighting the staining part.

Comment 7
In Tables 2 and 3, data are overlapped with Figs. 1 and 2. Table is not necessary or should be included in Fig. Also, the explanatory text of the result and the order of the diagram are uneven and very difficult to read.

Comment 8
I understand that vitamin D is synthesized locally in cartilage and can be used via VDR, but does not it need to consider the action without via VDR?

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No
Does the work include the necessary controls?  
Yes

Are the conclusions drawn adequately supported by the data shown?  
Unable to assess

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?  
I recommend additional statistical review

Quality of written English  
Needs some language corrections before being published

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