Reviewer's report

Title: The Role of Osteomodulin on Osteo/odontogenic Differentiation in Human Dental Pulp Stem Cells

Version: 0 Date: 28 Mar 2018

Reviewer: Waruna Dissanayaka

Reviewer's report:

The study aimed to examine correlation of Osteomodulin (OMD) expression and odontoblastic differentiation of dental pulp stem cells. Overall, the manuscript is well written and presents significant new findings. However, the reviewer believes that the following concerns need to be addressed prior to publication.

1. The aim and objectives of the study need to be clearly mentioned at the end of the introduction/background.

2. The term "odontoblastic differentiation" has been used throughout the manuscript. Did authors use an induction medium specific for odontoblastic differentiation? Or is it the "Mesenchymal Stem Cell Osteogenic Differentiation Medium" of Cyagen Biosciences?

If it's the osteogenic medium, authors need to mention it clearly. Then, the correct term would be osteo/odontogenic differentiation or osteo/odontoblastic differentiation.

Please clarify.

3. Authors have hypothesized that OMD expression is positively correlated with odontoblastic differentiation of DPSCs. However, only the mRNA expression at 3 weeks of induction was showed in the results.

Reviewer believes it is necessary to show the OMD expression at different time points of induction i.e. 1, 2, 3 weeks. Further, it would be confirmatory, if the protein levels of OMD were measured by western blot.

4. What is the control group in figure 3 and figure 4? Is it wild type DPSCs or vector-transfected group? It needs to be mentioned under methods.

5. What is the time point of mRNA/protein extraction of Figure 3 results?

6. Only the images of Alizarin Red were given. It is important to provide the quantified results for AR staining.
7. Under the discussion, findings of the study need to be discussed in relation to the available literature. For example, DMP1 and DSPP are considered as late markers of odontogenic differentiation. However, the presented results show a drop in those marker expression after day 7. Discussion is not meant to be a simple summary of what you did.

8. Under the background, authors have mentioned "irreversible caries". Do you mean irreversible pulpitis?

9. Under the discussion, authors mentioned "To the best of my knowledge…..". It would be more appropriate to mention it as "To the best of our knowledge….." as it's a multiple author manuscript.

10. Authors need to submit high resolution images, especially for RT-PCR and western blot results.

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

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable
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