Reviewer’s report

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

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Reviewer: Shaomian Yao

Reviewer's report:

This manuscript reports osteomodulin (OMD) effect on odontogenic differentiation of human DPSCs. The results are of interest for the field. Some new experiments are necessary and the manuscript needs revision for publication. Specific comments are as follows:

Materials and methods:

1. Page 3 Lines 35-54L: How many molars were used for obtaining the dental pulp? Were the dental pulp samples pooled together for isolation of dental pulp stem cells? If not, was the dental pulp samples from each individual patient used to establish one hDPSC culture. Please clarify in the text.

2. Page 4 Lines 23-42: Please provide the compositions for OM and AM media.

3. Page 5 lines 13-34: Specify the amount of protein used for western blot analysis.

4. Page 5 lines 38 54: Specify the amount RNA used for RT reaction and amount of cDNA used for PCR reaction. Also number of cycles used for RT-PCR.

Results:

5. Page 6 lines 31-40: It would be interest to show the OMD expression during the 3 weeks of odontogenic differentiation, such as at weeks 1, 2 and 3 (i.e., not just after 3 weeks of induction). This would strengthen the manuscript and the conclusion.

6. Page 6 lines 44-56: In addition to check the OMD knockdown in hDPSC growth medium, it is more important to check the OMD knockdown in OM medium during the differentiation, especially, that hDPSCS expression very low OMD in GM medium shown in Fig 2.

7. Page 14 Figure 2 legend: qPCR should be changed to RT-qPCR
8. Page 16 Figure 4 legend: qPCR should be changed to RT-qPCR

9. Page 15 Figure 3: (a) Where and how were the histograms derived from? (b) Almost no OMD mRNA can been seen in RT-PCR (Figure 3 A), but the western blot showed substantial OMD protein. Explain this. See comments 3 and 4 above to clarify PCR cycle, mRNA and protein amount used for the analyses.

**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?**
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.

Yes

**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:

Needs some language corrections before being published

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