Reviewer #1:

Scientific Quality: Grade B (Very good)

Language Quality: Grade A (Priority publishing)

Conclusion: Minor revision

Specific Comments to Authors: The review on dental stem cells by the authors is comprehensive and covers all aspects of dental stem cells. Differentiation of the cells into different cell types is well discussed. The authors did not discuss application of the cells to the regeneration of bone, cartilage and tendon and ligament which are the pertinent tissues that the cells would have greater application. Differentiation into neurons and insulin producing cells could probably be due to the invitro culture conditions or does this really represent true differentiation of these cell lineages to the these cell lineages. Authors could discuss this in the review whether this could be a possibility.

Response to reviewer:

We thank the reviewer for the interest in our work and the constructive suggestions to improve our manuscript. For the first question "The authors did not discuss application of the cells to the regeneration of bone, cartilage and tendon and ligament which are the pertinent tissues that the cells would have greater application". Your suggestion is very helpful to us, and the research of DMSCs in these differentiation cell-types is more extensive and important. In the first part of the article, we presented relevant researches on these differentiation directions under the diverse differentiation of each kind of cells, which further improves the diversity and application of DMSCs. In the second part, we present the factors that affect the osteogenic and odontogenic differentiation of DMSCs in detail.

For the second question" Differentiation into neurons and insulin producing cells could probably be due to the invitro culture conditions or does this really represent true differentiation of these cell lineages to the these cell lineages. Authors could discuss this in the review whether this could be a possibility." This is a question worth thinking about. At present, the differentiation of DMSCs into neuron-like and insulin-producing cells in vitro requires the addition of some supplementary factors, like some growth factors and peptides. The inducing process usually can be divided into several steps with different conditioned-culture medium. The cells induced by the conditioned-culture medium express the specific molecules of related tissue-like cells. Researchers detect the specific expression molecules to determine whether the cells differentiate into specific tissue-like cells. Such in vitro differentiation is often limited and may not represent the true differentiation of the cell itself. Improving and excavating the various induction methods may be helpful to the study of the differentiation of DMSCs into other tissue types of cells. We presented our point of view on this question in the conclusion part.

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