Reviewer's report

Title: Sesamin stimulates osteoblast differentiation through p38 and ERK1/2 MAPK signaling pathways

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Reviewer: Je Tae Woo

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Major Compulsory Revisions

Wanachewin et al. investigated the effect of sesamin on the osteoblast differentiation. The authors demonstrated that sesamin stimulates osteoblast differentiation through p38 and ERK1/2 MAPK signaling pathways. This is an interesting study that has originality deserving publication. However, the following specific comments and minor points must be addressed prior to publication.

1. The authors described that “sesamin is able to up-regulate OPG and down-regulate RANKL gene expression”, “thus sesamin could control osteoclast differentiation and function” For this the authors should add the data that sesamin inhibit osteoclast differentiation and function in co-cultures of osteoblastic cells and osteoclast progenitor cells. The effect of sesamin on OPG and RANKL is only on gene expression level. The data are not sufficient to the conclusion.

2. The authors concluded that sesamin do not affect cell viability. However, in figure 1 the treatment of sesamin (0.3-20 microg/ml) for 96 hr increased cell viability by 140%. This is significant and the conclusion is not correct. I recommend that they the explanation about this should be described in discussion.

3. There were not data of reference gene and protein in figure 8 and 9, respectively. The data have to be added in the figures.

4. For mineralization experiment the authors have used ADSCs, not hFOB1.19. Why have they used ADSCs? Are the osteoblastic makers in ADSC also induced by sesamin?

Minor Essential Revisions

1. I recommend figure rearrangement, for example, figure 1 and 2 could be put together in figure 1; figure 3-6 in figure 2 A-D; figure 8 and 9 in figure 4 A and B.

2. In figure 5 RANKL and OPG indications were wrong. Please confirm them.

Discretionary Revisions

The effect of sesamin on the BMP-4 and -7 gene and OC protein level had better to be adde, and Photograph with ALP staining of figure 6 experiment also shown in the figure.

Level of interest: An article whose findings are important to those with closely
related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.