Reviewer's report

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

Version: 1 Date: 14 July 2011

Reviewer: Roberto Gambari

Reviewer's report:

The issue addressed by Orawan Wanachewin et al. is interesting and novel in the field. The manuscript is well organized and the experimental approach sound. However, in my opinion the following point should be taken in consideration:

Major Compulsory Revisions:

1) Statistical analysis. The authors should state the p values for which a difference is considered significant (*) or highly significant (**). Please re-organize the method section accordingly.

2) Figure 3 and Figure 4. The sesamin-mediated increase of COL1, ALP and BMP-2, normalized to GAPDH is convincing. The increase of Runx2 and OC is not. I suggest to include more data on SD to differentiate COL1, ALP and BMP-2 expression from Runx2 and OC. The indication p<0.05 is in my opinion not acceptable (please note that * and p<0.05 are values for both BMP-2 and Runx, which behave very differently).

3) In all the Figures, please state how many independent experiments (treatment of cells with the indicated concentrations of sesamin) were performed.

4) For legends to Figure 8 and 9 the quantification of the western blottings is required.

5) In the methods the authors state that used antibodies against p38, ERK, JNK, phosphorylated p38, phosphorylated ERK, and phosphorylated JNK: what antibodies they used for JNK in Figure 8 and 9?

6) Figure 5 indicates, at least apparently, that sesamin induces and increase of RANKL, but a decrease of OPG. Surprisingly, the authors state (results section, page 9) that after 24 hours of treatment, sesamin (at 2.5 and 5.0 µg/ml) up-regulated OPG gene expression, while the expression of RANKL was significantly decreased. (Fig.5). Which is right, the Figure or the text?

Minor Essential Revisions.

1) Figures 3-5. Why the authors decided to take 24 hour treatment to study the effects of sesamin. What is the effects of sesamin after 24 or 72 hours treatment? This issue is of interest, especially considering that sesamin has no
effect on cell growth.

2) Legends to Figures 8 and 9 are unclear and should be changed. Please describe in the legend the experiments and the results, not the interpretation. This should be discussed in the text, or by including the conclusion in the Title of the legend.

3) The legend to Figure 5 does not describe what it is shown in the panel. No ratio RANKL/OPG is shown.

4) At page 9 the authors state that results on JNK are not shown. Please include these data.

Discretionary Revisions.

1) Comment the possible effects of sesamin on osteoclast differentiation and/or apoptosis and possible future experiments for reaching relevant milestones in this research area. As the author know, the balance osteoclats/osteoblats is very important in the therapy of bone-related disease.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.