Reviewer's report

Title: Gene expression analysis in human osteoblasts exposed to dexamethasone identifies altered developmental pathways as drivers of osteoporosis

Version: Date: 12 November 2006

Reviewer: HongWen Deng

Reviewer's report:

General
This study used microarray technology to analyze the differentially expressed genes in osteoblasts treated by dexamethasone, aiming to address the potential mechanism of steroid associated bone density loss. And 106 development associated genes are found to be differentially regulated and pathway reconstruction revealed coordinate alteration of members of the WNT. However, it need be improved in some aspects.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. In microarray data analysis, authors take the log ratio 0.6 of signal and control as a criterion to identify the differentially expressed (DE) genes. This criterion may be arbitrary for determination of DE genes. Authors maybe can explain it in detail or list the corresponding references.
2. In this study, authors use the real time RT-PCR to confirm some DE genes. It is better to show and explain the results in the results section.
3. In results section, authors found a lot of apoptosis associated genes were relative to this study. However according to Panel A in Figure 3, more Oxidative stress associated genes are identified. The functions of these genes may be also important and authors can discuss them in this paper.
4. In Table 1, according to the criterion (0.6), some genes seems not to be DE genes, for example, CYR61, HLX1, SLIT3, EPAS1, BST2. Authors may elucidate the reason to select these genes.
5. In discussion section, authors should discuss more details about the relationship between steroid and osteoporosis. How dexamethasone pulse treatment can stimulate osteoblast activation?

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

The authors should pay more attention to the grammatical errors, and some sentences are hard to read, such as:
Page 3, line 3
After aging and sex steroid deficiency, the therapeutic use of glucocorticoids is the most common cause.
Page 3, line 4
Osteoporotic fractures are an important cause of morbidity and mortality
Page 11 line 6
However increased, long term use of steroid is in no small way contributing to increased burden of osteoporosis globally.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: No

Declaration of competing interests:
I declare that I have no competing interests