Reviewer's report

Title: Bone Regeneration: Current Concepts and Future Directions.

Version: 2 Date: 24 February 2011

Reviewer: Hajime Ohgushi

Reviewer's report:

The paper does not contain really new findings; however it is a review paper and documents the almost whole areas of bone regeneration. Therefore, it may be acceptable after minor revision.

Please find my comments.

Major Compulsory Revisions

Figure

1) They make one figure. It seems they did not well explain this figure and hard to understand this complicated figure. This should be removed. Instead, the actual figures/data from some references may help the readers to understand the strategy of bone regeneration.

Discretionary Revisions

Introduction

2) Page 4, line 11.

I suppose that the Masquelet technique is not popular and thus the term of “promising method” is over statement.

MSCs

3) Page 10. Line 6 from the bottom.

Reference [44] concerns about culture expanded chondorocytes and not MSCs. Next recent clinical paper is suitable as reference, furthermore this paper discussed about safety issue of the long term implanted MSCs in the 41 patients. They did not find any tumor formation which was discussed in your paper (page 13, line 6 from the bottom).


Tissusue Engineering

4) Page 13, line 11; So far, seven human studies have been conducted-----

Next paper dealing with bone fracture may be refereed.

Kim SJ et. al., “A multi-center, randomized, clinical study to compare the effect
and safety of autologous cultured osteoblast(Ossron) injection to treat fractures”

5) Most bone tissue engineering in clinical application have used the composites
of MSCs or osteogenic cells and scaffolds. Next paper used in vitro fabricated
bone tissue (cultured bone) on the scaffolds. This strategy may be interesting to
note in this review paper.

Ohgushi H et. al. “Tissue engineered ceramic artificial joint--ex vivo osteogenic
differentiation of patient mesenchymal cells on total ankle joints for treatment of

Quality of written English: Acceptable

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