Reviewer's report

Title: Development of a Salmon-derived Crosslinked Atelocollagen Sponge Disc Containing Osteogenic Protein-1 for Articular Cartilage Regeneration: In Vivo Evaluations with Rabbits

Version: 1 Date: 27 March 2013

Reviewer: Arnd Hoburg

Reviewer's report:

- Major Compulsory Revisions

Abstract:

1. Rephrase Abstract. In the materials and methods section group size and total quantity are confusing. Results are hard to understand, as it remains unclear which parameters are assessed and what “greater” means in this context.

Materials and methods:

2. Line 133: Please state why a Trochlea defect was preferred over a Condyle defect, as it is known, that defects treated by microfracture (which corresponds with the untreated group) in the patellofemoral joint have worse outcome compared to other cartilage regeneration procedures as OATS or ACT.

3. Has the sponge been fixed in the defect by sutures or fibrin glue?

4. Line 144: Please explain why 12 weeks are considered to be the best period for comparison of cartilage regeneration

5. Line 204-205: Please indicate the subscores of Wayne’s score. Please provide data as mean values and standard deviation for the different evaluated aspects.

Results:

6. Results of histological evaluations are rather vague. Have you tried to quantify the different tissues or cells among the different groups?

7. Please provide full data for Wayne’s score for the different groups including subgroups as mean value and standard deviation. Is there a significant difference in the subscores?

8. Did you find any histological signs of inflammation in the regeneration tissue, were the cells viable? Please provide further pictures in higher magnifications to illustrate differences in cell formation and collagen 2 expression.

9. Have you encountered any surgical problems as infection, delayed wound healing etc? Have the animals being observed for motion or load of the joints
after treatment. If so, at what time point normal loading has been achieved?

10. Have you performed a Power analysis prior to the study, as 2 specimens of PCR seem insufficient to infer something from?

Discussion:

11. Line 267-279: Please point out, why the reasons for increased cartilage regeneration in collagen sponges compared to untreated controls are due to biological function, rather than biomechanical reasons. Especially in the patellofemoral joint immediate motion and loading results in high shear forces, preventing the formation of an blood clot and might also be the reason for poor regeneration.

12. Line 284-286: This sentence seems not to be appropriate for the present study, as neither biomechanical evaluation nor different kinds of cross-linking have been evaluated in this study.

- Minor Essential Revisions

13. Line 61-63: Please provide reference

14. Line 63-65: Please provide reference

15. Line 127: correct name of Institution missing

16. Line 252: please rephrase “induce spontaneous hyaline cartilage regeneration”, to something as “hyaline-like cartilage regeneration” as there still remain differences to the surrounding cartilage. Please scan also the entire document and rephrase.

17. Lines 280-283: Please provide references for these statements.

18. Line 489: change while bar to white bar. Also a black bar would be better visible.

Level of interest: An article of importance in its field

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

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

Declaration of competing interests:

I have no competing interests