Author's response to reviews

Title: Transplantation of fresh isolated adipose-derived stromal vascular fraction cells onto collagen elastin matrices: a possible clinical tissue engineering approach for soft tissue reconstruction

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To the Editor and Editorial Board of
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Dear Ladies and Gentlemen,

Enclosed you find our manuscript entitled: “Transplantation of fresh isolated adipose-derived stromal vascular fraction cells onto collagen elastin matrices: a possible clinical tissue engineering approach for soft tissue reconstruction”.

As the title says, we investigated the clinical and intra-operative feasibility of using biomaterials for adipose-derived stromal cells (ASCs) transplantation. We therefore concentrated on the time span in which isolated adipose-derived cells adhere on scaffolds as well as isolation procedures and seeding conditions. Thus, we have developed in vitro methods for testing isolated cells adherence behaviour on biomaterials to demonstrate the practicability of an intra-operative cell transplantation using biomaterials as carrier.

In this ex vivo approach, we found that fresh isolated cells, as a content of the adipose stromal vascular fraction (SVF), after liposuction procedure, can be transplanted safely onto Matriderm (collagen elastin scaffolds) in short time without time demanding cell culture steps in the laboratory. However, it was of great importance to investigate the viability rate and number of isolated cells. The relative number of adhered isolated cells on collagen elastin matrices was almost two-fold higher after 3 h incubation time than after 1 hour incubation time on the scaffolds. Such results have been approved by fluorescence signals using alamarBlueTM assay. Furthermore, Histological analysis and morphological assessment were performed under two-photon microscopy which was supported by second harmonic generation.
These results are new and indicate that, in a time interval of 3 hour surgical procedure, i.e. during treatment of burn patients and different types of wounds, dermal substitutes such as Matriderm can be enriched successfully with potentially regenerative ASCs in the clinical setting without the need of further expansion procedure in the laboratory.

The data in this manuscript is original and the manuscript is not under consideration elsewhere. All authors have read and approved all versions of the manuscript, its content, and its submission to BMC Surgery. We hope that this manuscript meets the high standards of the BMC Surgery, so a publication of this article can be possible.

Yours sincerely

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