

## **The usage of biotransplants (the autologous rat's mesenchimal stem cells on the ceramic granules) for reconstruction of bone defects**

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The usage of the biotransplants postnatal mesenchimal stem cells (MSC) on 2-D, 3-D scaffolds in cell based therapy is actual. Earlier were shown that porous hydroxyapatite (HAP) ceramic is nontoxic for cells, has developmental surface, adhesive properties, high biocompatibility, stimulates osteodifferentiation of stem cells and therefore may be used as a matrix for MSC (Reports of Russian Academy of Sciences, 2005, v. 401, No p. 1-3)

The aim: the examination of rat's MSC immobilised on the surface of HAP in reconstruction of bone defect (osteotomy of tibia). Pre tested MSC of VII passage (morphology, proliferation, the clonogenic and differentiation into osteo, adipogenic cell lines abilities) were used.

Results: It was shown that transplantation of HAP's granules with MSC culture of into zone of bone defect leads to rapid (during two weeks) formation of new cortical layer of tibia. The same tendency to form new bone in control group had observed only on 5-6 weeks. These results indicate that biotransplants HAP-MSC are perspective for bone tissue engineering.