OsteoBiol® by Tecnoss

# OsteoBiol® effect on dental pulp derived stem cells

LABORATORY TESTS

143


## ABSTRACT

The aim of this investigation was to evaluate the potential effect of OsteoBiol® *Apatos* (Tecnoss®, Giaveno, Italy) to induce osteoblast differentiation and proliferation in mesenchymal stem cells. OsteoBiol® is a cortical collagenated porcine bone showing good biocompatibility and osteoconductive properties. Thanks to its characteristics, it is largely employed as bone grafting and its osteoinductive and osteodifferentiative potentiality on adipose derived stem cells was demonstrated *in vitro*. To study how OsteoBiol® induces differentiation and proliferation in dental pulp stem cells (DPSCs), the expression levels of bone related genes were analysed using real time RT-PCR. The analysis confirmed the activation of osteoblast related genes FOSL1, RUNX2 and SPP1. Also the disappearance of ENG, a mesenchymal stem cells marker, was evident and this suggests the differentiation effect of the biomaterial on dental pulp stem cells.

## CONCLUSIONS

This study demonstrated that OsteoBiol® induces osteoblast differentiation in DPSCs, as indicated by the activation of osteoblast related genes FOSLI, RUNX2 e SPPI and the disappearance of the mesenchymal stem cells marker ENG. Base on the results, the Authors affirmed that *"these features make it an ideal scaffold for bone regeneration in the restoring of skeletal defects"*.



G Brunelli[1]
F Carinci[2]
A Girardi[3]
A Palmieri[2]
GL Caccianiga[1]
V Sollazzo[4]

1 | Department of Dentistry and Maxillofacial Surgery, Don Orione Institute, Bergamo, Italy
2 | Department of D.M.C.C.C., Section of Maxillofacial and Plastic Surgery, University of Ferrara, Ferrara, Italy
3 | Department of Histology, Embryology and Applied Biology, University of Bologna, Bologna, Italy
4 | Orthopedic Clinic, University of Ferrara, Ferrara, Italy



**ORIGINAL ARTICLE**
European Journal of Inflammation
2012, Vol. 10, no. 1 (S), 27-30


**Grafted with**

BONE SUBSTITUTE
**OsteoBiol® *Apatos***

LAB