**Wharton’s Jelly Stem Cells as a Source for Artificial Bone Tissue for Maxillofacial Tissue Engineering**

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**Introduction:**
Several types of stem cells have been isolated from the human umbilical cord. Among them, Wharton’s jelly stem cells (WJCs) have been extensively studied due to their high proliferative and differentiation capabilities. Generation of an efficient substitute of skeletal tissues using autologous stem cells may be an useful tool for in vitro studies and for the generation of artificial skeletal tissues in the laboratory. In this work we have successfully differentiated WJCs into bone-like cells for use in tissue engineering protocols.

**Materials and methods**
Primary cultures of WJCs were generated by using small explants of the umbilical cord and cells were seeded in chamber slide culture systems. After this, WJCs were induced for 24 hours, 7, 14 and 21 days using osteogenic medium. Osteoblast-like cells were analyzed after all induction periods using histochemical and immunofluorescence protocols with alizarin red S stain and alkaline phosphatase antibodies, respectively.

**Results**
Induced WJCs showed calcium deposits at the extracellular matrix which were verified by histochemistry with alizarin red S stain (Fig. 1). Immunofluorescence for alkaline phosphatase showed that WJCs had a high reactivity after 21 days of induction, although after 7 and 14 days of osteo-induction fluorochrome signal was moderate (Fig. 2).

**Discussion and Conclusions**
These results suggest that WJCs adult stem cells could be potentially useful in maxillofacial surgery and regenerative medicine for the generation of bone bioengineered tissues.

**References**

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**Disclosures**
Authors have nothing to disclose.