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## Oestrogen receptor (ER) expression and activity during osteogenic differentiation of dental pulp cells

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Oestradiol (E2) maintains skeletal tissue integrity and significantly enhances osteogenic potency of mesenchymal stem cells. The activity of E2 is regulated both acutely and chronically through the interaction with high affinity oestrogen receptors (ERs). There is very little literature on the expression and activity of ER isoforms in dental pulp tissue and their regulation during osteogenesis of dental pulp cells. The aim of this study is to explore the expression and regulation of ER subtypes, ER $\alpha$  and ER $\beta$  in human dental pulp cells during their osteogenic differentiation. Human dental pulp cells derived from healthy female donors aged 20-24 yrs. were cultured. Cells were differentiated down an osteogenic lineage or cultured under basal conditions to provide controls. The cells were harvested on days 7, 14 and 21 for ER profiling by RT-PCR and Western blot. The results showed that both ER $\alpha$  and ER $\beta$  mRNAs were expressed in human dental pulp cells. However, only ER- $\beta$  was up regulated during osteogenic induction. ER $\beta$  protein was also detected by Western blot with ER $\alpha$  showing only faint reactivity. We suggest that ER $\beta$  may be the principal isoform expressed in human dental pulp cells and may actively participate in the osteogenic differentiation process of these cells.

### Biography

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