

Role of Interleukin 6 on Cell Differentiations in Stem Cells Isolated from Human Exfoliated Deciduous Teeth

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Abstract : Interleukin 6 (IL-6) is a multifunctional cytokine, regulating various biological responses in several tissues. A Recent study shows that IL-6 plays a role in stemness maintenance in stem cells isolated from human exfoliated deciduous teeth (SHEDs). However, the role of IL-6 on cell differentiation in SHEDs remains unknown. The present study investigated the effect of IL-6 on SHEDs differentiation. Cells were isolated from dental pulp tissues of human deciduous teeth. Flow cytometry was used to determine mesenchymal stem cell marker expression, and the multipotential differentiation (osteogenic, adipogenic and neurogenic lineage) was also determined. The mRNA was determined using real-time quantitative polymerase chain reaction, and the phenotypes were confirmed by chemical and immunofluorescence staining. Results demonstrated that SHEDs expressed CD44, CD73, CD90, CD105 but not CD45. Further, the up-regulation of osteogenic, adipogenic and neurogenic marker genes was observed upon maintaining cells in osteogenic, adipogenic and neurogenic induction medium, respectively. The addition of IL-6 induced osteogenic by up-regulated osteogenic marker gene also increased in vitro mineralization. Under neurogenic medium supplement with IL-6, up-regulated neurogenic marker. Whereas, an addition of IL-6 attenuated adipogenic differentiation by SHEDs. In conclusion, this evidence implies that IL-6 may participate in cells differentiation ability of SHEDs.

Keywords : SHEDs, IL-6, cell differentiations, dental pulp

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