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Expression analysis of Notch signaling pathway molecules in SHED cultured in keratinocyte growth medium (Article)

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Abstract

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Aim: To detect the expression of molecules associated with Notch signaling pathway in stem cells from human exfoliated deciduous teeth (SHED) cultured in specific differentiation medium, namely, keratinocyte growth medium (KGM). Methods: RNA was extracted from SHED harvested on day 1, 3 and 7. RNA was reverse-transcribed to obtain the cDNA and then proceeded with PCR using specific primers for the Notch signaling pathway molecules (Notch1, Jagged-1, Jagged-2 and, Hes1) as well as stem cell marker (Nanog). PCR products were electrophoresed on a 2% agarose gel and stained with SYBR green. Results: Notch-1 was highly expressed in SHED cultured in KGM and showed increase in density as the days progressed, while Jagged-1 showed a decrease. Jagged-2 on the other hand, showed a slight increase on day 3 followed by a decrease on day 7. However, Hes-1 was not expressed in SHED cultured in KGM. Nanog showed expression only on day 3 and gradually increased in expression on day 7. Conclusions: Notch signaling pathway associated molecules; Notch-1, Jagged-1, Jagged-2, and stem cell marker Nanog are expressed in SHED cultured in KGM which may be involved in the differentiation into epithelial-like cells in human dental pulp tissues.

Author keywords

Culture media Deciduous Gene expression Notch Receptors Stem cells Tooth

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