

# Effect of Jagged-1 and Delta-Like-1 on the Proliferation of Primary Deciduous Pulp Cells

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**Abstract**

**Objectives:** The objective of this study was to compare the effect of Notch ligands, Jagged-1 and Delta-like-1 (Dll-1), on the proliferation of primary deciduous pulp cells.

**Methods:** Jagged-1 and Dll-1 ligands were immobilized to the tissue culture surface using an indirect affinity immobilization technique. At day 1, 3 and 7, the morphology of primary deciduous pulp cells was observed under an inverted transmitted light microscope. Cell proliferation was determined by an MTT assay and the mRNA expression levels of apoptosis related-genes were determined using reverse transcriptase polymerase chain reaction.

**Results:** Cells exhibited elongated spindle (fibroblast-like) morphology. There was no difference in morphology among different conditions. Cell proliferation was decreased in the Notch ligand treated groups. The Jagged-1 group exhibited the attenuated appearance of cell proliferation greater than Dll-1 and the control group. However, no statistical significant difference was observed. The increase of the *CASPASE3* and the *BAD* mRNA expression was noted in Notch ligand treated groups. Though, the significant difference was observed only for the *CASPASE3* mRNA expression in the Jagged-1 group compared to the control group ( $p<0.05$ ). There was no marked difference in the *BCL-2* and the *BAX* mRNA expression.

**Conclusion:** Notch ligands, Jagged-1, may *attenuatethe* primary deciduous pulp cell proliferation via the activation of apoptosis pathway.

**Keywords:** Notch Signaling, Deciduous pulp cells, Proliferation, *CASPASE3*

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