

# Biological Effects of Pulp Capping Material Containing Fluocinolone Acetonide on Human Dental Pulp Cells

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## Abstract

**Objective:** The aim of this study was to test some biological properties of pulp capping material containing fluocinolone acetonide (PCFA).

**Materials and Methods:** The PCFA is a hard setting calcium hydroxide cement containing 50 mmol/L of fluocinolone acetonide (FA). Cytotoxicity and cell proliferation were evaluated by MTT assay. RT-PCR and Western blotting were used to study the effects of PCFA on RNA (dentin sialophosphoprotein: DSPP) and protein (dentin sialoprotein: DSP) synthesis. Anti-inflammatory effect of PCFA was determined by analysis of cyclooxygenase 2 (COX-2) expression. Dycal<sup>®</sup> was used as control.

**Results:** The diluted conditioned media from PCFA slightly increased cell proliferation, significantly increased DSPP expression and decreased COX-2 expression ( $p < 0.05$ ).

**Conclusions:** In term of biologic properties, the PCFA may promote cell proliferation, mineralization and decrease pre-existing inflammation in human dental pulp cells. It may be considered as an alternative pulp capping material in the treatment of inflamed dental pulp.

**Keywords:** dental pulp, fluocinolone acetonide, inflammation, *in vitro*