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[\[PDF \(1040K\)\]](#) [\[References\]](#)**Low concentration fluoride stimulates cell motility of epithelial cells *in vitro***

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**ABSTRACT**

Oral mucosal tissue can serve as a long-term fluoride reservoir following topical application and retain a small amount of fluoride in oral environment for prevention of dental caries. The aim of this study was to determine the effect of low level sodium fluoride (NaF) on the proliferation and migration of epithelial cells *in vitro*. Human primary gingival epithelial cells and human epidermal HaCaT keratinocytes were used. Cultured epithelial cells, treated with various concentrations of NaF ranging from 5  $\mu$ M to 500  $\mu$ M, were investigated by 3-(4,5-dimethylthiazol-2-yl)-5-(3-carboxymethoxyphenyl)-2-(4-sulfophenyl)-2H-tetrazolium, inner salt (MTS) assay, wound healing assay, invasion assay and quantitative real-time PCR. MTS assay revealed that fluoride added to human gingival epithelial cells elevated cell proliferation at a concentration of 5  $\mu$ M or more. The wound healing assay and invasion assay confirmed this observation. Quantitative real-time PCR revealed that low concentration of NaF up-regulated fibronectin mRNA expression in fluoride-treated cells compared with controls. These results suggest that a low concentration of NaF is able to induce cell proliferation, migration, and matrix production in epithelial cells. Our results provide new information on epithelial cell adhesion and may thus aid in the understanding of periodontal physiology.

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