

Tumor necrosis factor- α -stimulated membrane type 1-matrix metalloproteinase production is modulated by epidermal growth factor receptor signaling in human gingival fibroblasts

Smith, P. C.

Guerrero, J.

Tobar, N.

Cáceres, M.

González, M. J.

Martínez, J.

Background and Objectives: Membrane type 1-matrix metalloproteinase (MT1-MMP) is a collagenolytic enzyme involved in connective tissue remodeling. In periodontal tissues, either cytokines or growth factors regulate the production of proteolytic enzymes. Mice deficient in epidermal growth factor receptor (EGFR) show a reduced expression of MT1-MMP, suggesting that this receptor may play an important role in MT1-MMP production. The present study evaluated the role of the inflammatory cytokine tumor necrosis factor- α (TNF- α) and EGFR in the production of MT1-MMP in gingival fibroblasts. **Material and Methods:** Primary cultures of human gingival fibroblasts were cultured over plastic or a type I collagen matrix and stimulated with TNF- α and EGF. A selective EGFR inhibitor (AG1478) was used to interfere with this signaling pathway. Production of MT1-MMP and activation of proMMP-2 were studied using Western blot and gelatin zymography, respectively. Activation of EGFR signaling was assessed th