Human periodontal ligament fibroblasts synthesize C-reactive protein and Th-related cytokines in response to interleukin (IL)-6 trans-signalling

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Aim: To characterize the potential of human periodontal ligament fibroblasts (HPLF) to synthesize CRP and Th-related cytokines in response to IL-6 in periodontal health and apical inflammation. Methodology: Primary HPLF stimulated with IL-6, soluble(s) IL-6 receptor (R) and controls were assayed for CRP, Th1, Th2, Th17 and Treg-related cytokines by quantitative real-time PCR and ELISA, respectively. IL-6R mRNA expression and its soluble protein levels were screened in HPLF cultures, and ex vivo samples of healthy periodontal ligaments (n = 5) and apical lesions (n = 13). Data were analysed with ANOVA or unpaired t-test. Results: 0.5 ng mL⁻¹ IL-6 plus 1 ng mL⁻¹ of its soluble receptor (sIL-6R) for 24 h was effective in inducing CRP production. IL-6 alone had a mild dose-dependent effect; co-stimulation with sIL-6R significantly enhanced this effect, whereas it was completely abolished by the addition of IL-6R blo