Interferon-?, interleukins-6 and -4, and factor XIII-A as indirect markers of the classical and alternative macrophage activation pathways in chronic periodontitis

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Macrophages account for 5% to 30% of the inflammatory infiltrate in periodontitis and are activated by the classic and alternative pathways. These pathways are identified by indirect markers, among which interferon (IFN)-? and interleukin-6 (IL)-6 of the classic pathway and IL-4 of the alternative pathway have been studied widely. Recently, factor XIII-A (FXIII-A) was reported to be a good marker of alternative pathway activation. The aim of this study is to determine the macrophage activation pathways involved in chronic periodontitis (CP) by the detection of the indirect markers IFN-?, IL-6, FXIII-A, and IL-4. Methods: Biopsies were taken from patients with CP (n = 10) and healthy individuals (n = 10) for analysis of IFN-?, IL-6, IL-4, and FXIII-A by Western blot (WB), immunohistochemistry (IHC), and enzyme-linked immunosorbent assay (ELISA). The same biopsies of healthy and diseased gingival tissue were used, and the expressions of these markers were compared between healthy individ