Osteoclastogenic and inflammatory activation of lipoteichoic acid of *Filifactor alocis* as a chronic periodontitis related pathogen

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*Filifactor alocis* was recently detected in chronic periodontitis patients and is the only Gram-positive bacterium in the gingival pocket. Lipoteichoic Acid (LTA) is known to be a immune stimulater. The purpose of this study was investigated the effects of LTA of *Filifactor alocis* on chronic periodotitis realted factors. *Filifactor alocis* ATCC 35896 was used in this study and cultivated columbia broth including arginine and cysteine. LTA from *Filifactor alocis* was extracted by butanol extraction followed by HPLC. The extracted LTA was validated with CHO/CD14/TLR2 and CHO/CD14/TLR4 cell. Human gingival fibroblast were treated with the LTA or Lipopolysaccharide (LPS) from *Porphyromonas gingivalis, Tannerella forsythia*, and osteoprotegerin (OPG, a osteoclastogenesis inhibitory factor), RANKL (osteoclastogenesis activation factor) and inflammatory cytokines were analyzed by real-time RT-PCR and ELISA after purifying RNA and collecting conditioned media. The LTA stimulated CHO/CD14/TLR2 cells but did not CHO/CD14/TLR4. The LTA induced higher levels of TNF-α, IL-1β, and IL-6 than LPS from Porphyromonas gingivalis and Tannerella forsythia. Furthermore, OPG/RANKL ratio were decreased more by LTA from *Filifactor alocis* than by the LPS. In the conclusion, LTA of *Filifactor alocis* may be more related with chronic periontitis than the virulence factor of other periodontopathogens.

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