

Differential human Th22-lymphocyte response triggered by *Aggregatibacter actinomycetemcomitans* serotypes

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Objective In *Aggregatibacter actinomycetemcomitans*, different serotypes have been described based on lipopolysaccharide (LPS) antigenicity. When T lymphocytes were stimulated with these serotypes, different patterns of T-helper (Th)1 and Th17-type of immune responses were reported.

Recently, two new Th phenotypes have been described and named Th9 and Th22 lymphocytes; however, their role in the pathogenesis of periodontitis remains unclear. This study aimed to

investigate the potential Th9 and/or Th22 lymphocyte responses when stimulated with autologous dendritic cells infected with different *A. actinomycetemcomitans* serotypes. **Methods**

Monocyte-derived dendritic cells and naïve CD4⁺ T lymphocytes were obtained from healthy donors and stimulated with different serotypes of *A. actinomycetemcomitans* at a multiplicity of infection

MOI = 10² or their purified LPS (10⁷50 ng/ml). The levels for the Th9 and Th22-associated cytokines, as well as the transcription factor master-switch genes implied in their differentiation

Spi-B and AhR, were quantified by qPCR and ELISA. **Results** When stimulated with the serotype b

of *A. actinomycetemcomitans*, higher levels of interleukin (IL)-6 and tumor necrosis factor (TNF)- α were detected in dendritic cells, as well as higher levels of IL-22 and AhR were detected in T

lymphocytes, when compared with stimulation with the other serotypes. **Conclusions** The serotype b

of *A. actinomycetemcomitans* has a higher capacity of trigger Th22-type of immune response in both

dendritic cells and T lymphocytes. These data allow us to suggest that, when the serotype b of *A. actinomycetemcomitans* is a significant part of the subgingival biofilm, the Th22 polarization might be triggered within the periodontal lesion. © 2017 Elsevier Ltd

Aggregatibacter actinomycetemcomitans

T-lymphocytes

Th22 cells

Th9 cells

cytokine

virulence factor

Aggregatibacter actinomycetemcomitans

biofilm

cell differentiation

helper cell

human

immunology

pathogenicity

phenotype

secretion (process)

serotype

Th17 cell

Aggregatibacter actinomycetemcomitans

Biofilms

Cell Differentiation

Cytokines

Humans

Phenotype

Serogroup

T-Lymphocytes, Helper-Inducer

Th17 Cells

Virulence Factors