

3rd Euro Congress and Expo on

Dental & Oral Health

June 16-18, 2015 Alicante, Spain

Antimicrobial peptides hBD-3 has synergistic effect with LL-37 to reduce secretion of interleukin-6 (IL-6) and interleukin-8 (IL-8) in co-culture

Spolidorio DP¹, Bedran TL¹, Mayer MA² and Grenier D³

¹São Paulo State University, Brazil

²University of São Paulo

³Université Laval, Canada

With the spread of antibiotic resistance in bacterial pathogens, antimicrobial peptides (AMPs) that have antibacterial activity and that can also modulate the immune response may be a novel approach for effectively controlling periodontal infections. In the present study, we used a co-culture model of gingival epithelial cells and fibroblasts stimulated with *Aggregatibacter actinomycetemcomitans* lipopolysaccharide (LPS) to investigate the anti-inflammatory properties of the AMPs human beta-defensin-3 (hBD-3) and cathelicidin (LL-37) and to determine whether the AMPs can act in synergy. The co-culture had a synergistic effect with respect to the secretion of interleukin-6 (IL-6) and interleukin-8 (IL-8) in response to LPS (1 µg/ml) stimulation compared to cells alone. The co-culture was stimulated with non-cytotoxic concentrations of hBD-3 (10 and 20 µM) and LL-37 (0.1 and 0.2 µM) individually and in combination in the presence of LPS. The present study showed that the AMPs hBD-3 and LL-37 both reduce the secretion of inflammatory cytokines and thus display anti-inflammatory activity. Moreover, this combination of antimicrobial peptides thus shows promising potential as an adjunctive therapy for treating inflammatory periodontitis.

Keywords: beta-defensin, cathelicidin, periodontal disease

Biography

Denise obtained the title of Master (1992) and PhD (1996) in Oral Biology and Pathology from UNICAMP, Brazil and Post-Doc from the University of Calgary, Canada (2007). She is Associate Professor of the Department of Physiology and Pathology, Dental School- São Paulo State University, UNESP, Brazil. Her central research focus is on microbiology, with emphasis on the following themes: *Streptococcus mutans*, *Candida* spp, cariogenic microorganisms, periodontal disease, antimicrobial peptides and herbal agents in the control of oral infections.

dmpls13@hotmail.com

Notes: