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***P. gingivalis* lipopolysaccharides upregulate protease-activated receptor expression in gingival epithelium**

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Objectives: Protease-activated receptors (PAR) are seven-transmembrane domain, G-protein-coupled receptors that mediate cellular response to extracellular proteinases. It has been shown that *P. gingivalis* protease could activate PAR on human oral epithelial cells, no information is available on the effect of *P. gingivalis* LPS on PAR expression. This preliminary study was to investigate the possible effects of *P. gingivalis* and *E. coli* LPS on PAR expression in human gingival epithelia. **Methods:** Gingival biopsies were collected from three periodontally healthy subjects and 19 periodontitis patients. In the *in vitro* study, RHGE were treated with *P. gingivalis* or *E. coli* LPS with various doses. The mRNA expression of PAR-1, 2, 3 and 4 in human gingival tissues and RHGE was examined by RT-PCR. PAR-2 expression was examined by immunohistochemistry. **Results:** PAR-1, 2, 3, and 4 mRNAs and PAR-2 protein were expressed in all gingival epithelial tissues obtained from all healthy subjects and periodontitis patients. Basal expression of PAR-1 and 2 mRNAs was detected in RHGE and the expression was significantly upregulated by both *P. gingivalis* and *E. coli* LPS. Whereas, PAR-3 and 4 mRNAs were not detected in unstimulated or LPS-treated RHGE. **Conclusions:** This study suggests that PAR-1 and 2 expression could be upregulated by bacterial LPS in human gingival epithelia, implying that these receptors might be involved in cellular responses to bacterial LPS. Supported by the Hong Kong Research Grants Council (CERG 7518/05M to LJ).

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