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0636 Baicalin Inhibits the Expression of PGE_2 and MMP-3 in Human Periodontal Ligament Cells

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Baicalin is an extract from the dry roots of Scutellaria baicalensis (Huangqin, a traditionally used Chinese medicinal herb). Objective: To evaluate the biologic effect of baicalin on the expression of PGE_2 and MMP-3 by cultured periodontal ligament cells (PDL cells) stimulated with IL-1β. Methods: Human PDL cells were obtained from the periodontal membrane of first premolars extracted for orthodontic purpose and they were cultured with DMEM following routine protocol. PGE_2 level in cell culture fluid was measured by ELISA. MMP-3 expression was measured using immunohistochemistry and quantitative image analysis system. Monensin was used as a positive control for inhibition of MMP-3 release by the PDL cells. Results: PGE_2 level in culture fluid significantly increased from 15.00±0.82 pg/ml at baseline to 84.50±2.38 pg/ml ($p<0.01$) when the PDL cells were stimulated with 1.0 ng/ml of IL-1β for 24 h. When the cells were stimulated with IL-1β (1.0 ng/ml) and treated with baicalin (0.1 µg/ml) for 24 h, PGE_2 level decreased significantly from 84.50±2.38 to 32.40±4.38 pg/ml ($p<0.01$). At baseline, no expression of MMP-3 was observed in PDL cells, while positive expression was found when the cells were stimulated with IL-1β in a dose-dependent manner. When the cells were stimulated with IL-1β (1.0 ng/ml) for 12 h and subsequently treated with baicalin (0.1 µg/ml) or monensin 5.0 µM for 12 h, consistent expression of MMP-3 was observed at 12 h and 24 h. In contrast, MMP-3 expression was detected in those cells stimulated with IL-1β (1.0 ng/ml) for 12 h, while no expression was observed when these cells were stimulated for an additional 12 h. Conclusion: Baicalin may have an inhibitory effect on the expression of PGE_2 and release of MMP-3 from human periodontal ligament cells. Supported by Science & Technology Grants, Hubei, China.

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