



国际口腔医学杂志 » 2010, Vol. 37 » Issue (01) :17-17~20 DOI: 10.3969/j.issn.1673-5749.2010.

论著

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2-羟丙基三甲基氯化铵脱乙酰壳多糖和碱性成纤维细胞生长因子对白细胞介素-1 β 和肿瘤坏死因子- α 的影响

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Effect of 2-hydroxy-propyl trimethyl ammonium chloride chitosan and basic fibroblast growth factor on interleukin-1 β and tumor necrosis factor- α

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摘要

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摘要 目的 观察在脂多糖(LPS)刺激下, 2-羟丙基三甲基氯化铵脱乙酰壳多糖 (HTCC) 和碱性成纤维细胞生长因子 (bFGF) 对人牙周膜成纤维细胞 (hPDLF) 分泌白细胞介素 (IL) -1 β 和肿瘤坏死因子 (TNF) - α 的影响。方法 在50 mg·L⁻¹的LPS刺激下, 采用酶联免疫吸附测定观察质量浓度为1 g·L⁻¹的HTCC和100 μ g·L⁻¹的bFGF对50 mg·L⁻¹的LPS刺激hPDLF分别于24、48和72 h分泌IL-1 β 和TNF- α 的质量浓度变化。结果 1 g·L⁻¹的HTCC具有促进LPS刺激hPDLF分泌IL-1 β 和TNF- α 的作用, 分泌量48 h达高峰。在100 μ g·L⁻¹的bFGF的作用下, LPS介导的hPDLF分泌IL-1 β 和TNF- α 的质量浓度明显下降。HTCC与bFGF联合较单独应用时, IL-1 β 和TNF- α 的质量浓度下降显著 (P \leq 0.001)。结论 HTCC对LPS介导hPDLF分泌IL-1 β 和TNF- α 具有促进作用, HTCC与bFGF联合应用能有效地抑制IL-1 β 和TNF- α 的分泌。

关键词: 2-羟丙基三甲基氯化铵脱乙酰壳多糖 人牙周膜成纤维细胞 脂多糖 白细胞介素-1 β 肿瘤坏死因子- α

Abstract: Objective The aim of this study was to observe the effect of 2-hydroxy-propyl trimethyl ammonium chloride chitosan (HTCC) and basic fibroblast growth factor (bFGF) on production of interleukin (IL) -1 β and tumor necrosis factor (TNF) - α in human periodontal ligament fibroblast (hPDLF) stimulated by lipopolysaccharide (LPS). Methods The levels of IL-1 β and TNF- α in hPDLF stimulated by 50 mg·L⁻¹ LPS was observed and the effects of 1 g·L⁻¹ HTCC and 100 μ g·L⁻¹ bFGF on the IL-1 β and TNF- α were determined by enzyme-linked immunosorbent assay. Results 1 g·L⁻¹ HTCC can stimulate the level of IL-1 β and TNF- α in hPDLF stimulated by LPS and the level of cytokines were highest at 48 h. 100 μ g·L⁻¹ bFGF can decrease the IL-1 β and TNF- α . The level of IL-1 β and TNF- α in hPDLF stimulated by LPS was statistically decreased by association of HTCC and bFGF (P \leq 0.001). Conclusion HTCC can increase the production of IL-1 β and TNF- α in hPDLF stimulated by LPS. And HTCC associated with bFGF can effectively inhibit the level of IL-1 β and TNF- α of hPDLF.

Keywords:

Received 2009-04-16;

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引用本文:

吉秋霞, 袁昌青, 徐全臣, 于新波

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Ji Qiu-xia, Yuan Chang-qing, Xu Quan-chen, Yu Xin-bo. Effect of 2-hydroxy-propyl trimethyl ammonium chloride chitosan and basic fibroblast growth factor on interleukin-1 β and tumor necrosis factor- α [J], 2010, V37(01): 17-17~20

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