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• 英文關鍵字	Interleukin；Gingiva；Gene regulation；Peridontal tissue
• 中文摘要	介白質-1β 爲牙周病致病機轉中一個很重要的宿主側由來之致病因子。牙周炎患者之活性病灶部位的牙齦組織內及牙齦溝液內均可檢出高濃度之介白質-1β。介白質-1β 對細胞的生物活性是經由細胞膜上的介白質-1β 受體來傳遞訊息。介白質-1β 受體有兩型，名爲第一型及第二型介白質-1β 受體。兩型受體可同時表現於同一種細胞上，但第一型介白質-1β 受體主要表現於 T 淋巴細胞、纖維母細胞及內皮細胞上。第二型介白質-1β 受體主要表現於 B 淋巴細胞、多形性白血球及巨噬細胞上。目前許多研究均指出第一型介白質-1β 受體具有訊息傳遞的功能而第二型介白質-1β 受體雖能與介白質-1β 結合但不具訊息傳遞的功能，因此第二型介白質-1β 受體被認爲可能具有中和介白質-1β 生物活性的功能，因而被認爲具有潛力可供發展爲抗介白質-1β 活性的藥劑。相對於第一型介白質-1β 受體，第二型介白質-1β 受體非常容易受到趨化性介質及抗炎性介質之作用而大量表現於細胞上。在發炎的牙齦組織中，有高濃度之趨化性介質及抗炎性介質之存在。這些介質除了可能造成牙齦組織中的 B 淋巴細胞、多形性白血球及巨噬細胞大量表現第二型受體之外，也可能有調控纖維母細胞表現第二型介白質-1β 受體之作用。關於第一型及第二型介白質-1β 受體於牙齦組織中之表現、功能及其表現之調控機轉等之相關研究到目前爲止仍非常少。因此，本研究計畫的目的是利用免疫染色法探討在正常及牙周炎的牙齦組織中，第一型及第二型介白質-1β 受體的表現分布情形。另外並利用 ELISA 法探討正常的及牙周炎的牙齦組織中，第二型介白質-1β 受體蛋白質的表現量之變化。本研究的結果發現在正常的及牙周炎的牙齦中第一型及第二型介白質-1β 受體均大量表現於表皮層中。在結締組織中，第一型及第二型介白質-1β 受體主要表現於淋巴細胞、纖維母細胞及內皮細胞上。但在正常的及牙周炎的牙齦中第一型介白質-1β 受體之表現分布情形及表現量並無差異。第二型介白質-1β 受體之表現在牙周炎的牙齦之內皮細胞、纖維母細胞及巨噬細胞上均較正常的牙齦

之表現強。但是，利用 ELISA 法分析第二型介白質-1β 受體之表現，則發現在牙周炎及正常的牙齦中，無統計學上有意義之差異($p<0.05$)。儘管如此，值得注意的是 Histogram 中可看出牙周炎的樣本中有較多第二型介白質-1β 受體濃度高於 1000μg/ml 之樣本。因此本研究結果之原因可能是樣本數不夠多(牙周炎 n=22，正常的牙齦 n=18)而 Standard error 大，因而無法檢測出 Mean difference。因此，將於未來繼續收集樣本進行分析。

- 英文摘要

Interleukin-1β, a potent proinflammatory and inflammatory mediator, plays important roles in the pathogenesis of periodontal disease. IL-1β acts on target cells by binding to its cognate receptors, type I IL-1 receptor (IL-1RI), and type II IL-1 receptor (IL-1RII). IL-1 activity is mediated by IL-1RI, whereas IL-1RII is suggested to be a decoy target for IL-1. Therefore, IL-1RII has been suggested to be a unique pathway of negative regulation of the IL-1 system. In contrast to IL-1RI, IL-1RII expression is easily upregulated by chemoattractants and anti-inflammatory mediators. In the present study, the results of the immunocytochemical staining of IL-1RI and IL-1RII showed that both receptors were strongly expressed in the epithelial layers of inflamed and healthy gingiva with the most intensive staining in the basal layer. As the epithelial cells differentiated, the staining became less strong. In the connective tissue layers, IL-1RI was stained on lymphocytes, endothelial cells, and fibroblasts. However, there is no difference in the expression pattern and level of IL-1RI in healthy and inflamed gingiva. The expression of IL-1RII on endothelial, fibroblasts and macrophages were more strong in inflamed gingiva than those cells in healthy gingiva. Therefore, the levels of IL-1RII in inflamed and healthy gingival were further analyzed by ELISA. The results of ELISA revealed no significant difference of IL-1RII expression in healthy and inflamed gingiva with $p<0.05$ (Wilcoxon rank sum test). However, it is noteworthy that the histogram analysis showed an increased samples from the inflamed gingival population than those from healthy population were in the concentration above 1000 to 2500μg/ml. Based on this observation, it is possible that the sample size were not big enough to detect the mean difference due to large standard error resulted from small sample size. To further clarify the physiologic and pathologic role of IL-1RII in gingiva, we will continue to collect inflamed and healthy gingiva to analyzed the expression level of IL-1RII by ELISA and RNase protection assay.