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• 計畫中文名稱	豬原膠原蛋白膜所引起之延遲型免疫反應中 PDGF、TGF-B 之定位研究
• 計畫英文名稱	Immunolocalization of PDGF, TGF-B in the Relevant Immunol Cascade of Delay Tpye Hypersensitivity Induced by PDCM
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• 英文關鍵字	Hypersensitivity；Porcine dermal collagen membrane；Immunolocalization；Transforming growth factor-β
• 中文摘要	最近幾年，我們曾就可吸收之豬皮膠原蛋白膜(PDCM)，進行有關 Biocompatibility,Biodegradation ，及對 Osteopromotion 之效果．結果顯示 PDCM 用戊二醛(GA)交鏈化以後，仍可保持其 Biocompatibility ，Biodegradation ，與非細胞毒性的特質。同時由相關之體液性及細胞性之免疫研究顯示，GA 交鏈化可降低 PDCM 之免疫生成性，而且於短期內(10-14 天)可引發延遲型過敏反應(Delayed type hypersensitivity, DTH)．因此我們也逐漸描繪出 PDCM 引起細胞性免疫反應之模式圖。由於在此 DTH 中，Macrophages 所扮演之功能，目前於相關文獻中尚未完全明瞭．因此本研究專題仍以 12 隻 S.D.rats 爲實驗對象，分 7.10.14 天之標本獲取，以 ABC 染色法針對 PDGF-(Platelet-derived growth factor-a/b)及 TGF-b(Transforming growth factor-b)於兩組植入膜片知組織進行定位並設計 Semi-quantitation 之方法，以觀察於 PDCM 與 e-PTFE(Positive control)及控制組表皮與結締組織周圍 (A,B,C zone)所引起之細胞性免疫反應中 PDGF-a/b 與 TGF-b 之分佈強度，並以 Wilcoxon Rank Sum test 進行統計分析。結果顯示於 PDGF-a/b 方面，無論是或控制組之 A,B,及 C 區域之比較，於 7 天，10 天，或 14 天皆無統計上之差異(P>0.05)，但 PDCM 與 e-PTFE 比較於控制組，無論 PDGF-a 或 PDGF-b 都非常接近 P<0.05 之邊緣。而於 TGF-b 方面，則於第 7 天之結締組織與膜片之界面處，PDCM 與 e-PTFE 兩組皆會引起較強之免疫染色反應，而於第 10 天與第 14 天，則 e-PTFE 組之 A 區域(表皮層)與膜片界面之 TGF-b 免疫染色強度，與控制組產生統計上之差異性(P<0.05)。本實驗之結果顯示 PDCM 與 e-PTFE 對表皮或結締組織皆會刺激引發 PDGF 與 TGF-b 之產生，於 GTR technique 中可能間接引起 Osteoblast activity 與 Fibroblast activity ，尤以 e-PTFE 更會引起鈣化之機轉，最後可導致牙周組織再生之結果。根據所知，雖然可吸收性膠原蛋白膜已應用於牙周臨床多時，但至今並沒有一個明確之機轉來解釋膠原白膜與牙周組織的關係，因此藉

由此研究計劃，希望能提供學界一個合理確實的答案．

- 英文摘要

We have conducted several studies that are associated with the properties of PDCM. It was concluded that cross-linked PDCM is a biocompatible, bioresorbable, and non-cytotoxic material. In the study of humoral immunity and cellular immunity induced by PDCM, it was suggested that the cross-linking effect of GA might reduce the humoral immunogenicity of PDCM. The early wound healing (10-14 days) of cellular activity adjacent to PDCM belongs to delay type hypersensitivity (DTH). We propose an inferential model for explanation of cellular immunity induced by PDCM, however, the role of macrophages in the sequential cascade of this model is still ambiguous. The subsequent study is to implant PDCM into the intra-muscular space of hind legs of 12 rats (Spraque Dawley) to elicit DTH activity. With ABC method, the immunolocalization of PDGF-a and PDGF-b, and TGF-b in the implanted wound were semi-quantitively measured in order to ensure the hypothetical model of the cellular immunity elicited by PDCM. The results indicate that, as compared to control group, the secretion of PDGF-a and PDGF-b around PDCM or e-PTFE do not show any significant difference (P>0.05) during 7,10,14 days specimens when the data were analysis with Wilcoxon Rank Sum test, but the P value is marginal. On the day 7, the intensity of TGF-b immunohistochemical stain of both PDCM and e-PTFE group showed significant difference to controlled group in the connective tissue zone (zone B). On the day 10 and day 14, e-PTFE group presented a stronger TGF-b intensity than that of control group. It appears that both PDFE and e-PTFE may stimulate surrounding cells to secret PDGF-a/b and TGF-b in the epithelium and connective tissue of early healing wound. They may indirectly cause osteoblast activity and fibroblast activity and achieve new tissue regeneration in the long run..