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• 計畫中文名稱	樣澱粉 β 引發腦血管內皮細胞基質屬蛋白酵素表現之探討
• 計畫英文名稱	Amyloid Beta-Induced Matrix Metalloproteinases Expression in Cerebral Endothelial Cells
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• 研究人員	許重義; 林建煌 Hsu, C. Y.; Lin, Chien-Huang
• 中文關鍵字	阿茲海默式症; 樣澱粉 beta 胜太; 腦血管樣澱粉病變; 腦內皮細胞; 基質金屬蛋白酵素-9
• 英文關鍵字	Alzheimer's disease (AD); Amyloid betapeptide (Abeta); Cerebral amyloid angiopathy (CAA); Cerebral endothelial cells (CECs); Matrix metalloproteinase-9 (MMP-9)
• 中文摘要	樣澱粉 β 胜太的沈積是造成阿茲海默症與腦血管樣澱粉病變的主要成因。目前樣澱粉 β 對腦神經傷害之研究已累積許多，但其對腦血管內皮細胞之作用機制仍有待研究。基質金屬蛋白酵素-一群調控細胞外基質組成的酵素-與關節炎、粥狀冠狀動脈硬化、腫瘤之轉移與擴散之病理機制有關，其中基質金屬蛋白酵素-9 又被證實與中風性出血有關，故本計畫旨在探討樣澱粉 β 對小鼠腦內皮細胞之基質金屬蛋白酵素-9 表現與活性影響爲何。本計畫結果證實經樣澱粉 β 處理後，腦內皮細胞之基質金屬蛋白酵素-9 表現量與活性皆顯著增加、 此增加爲樣澱粉 β 刺激轉錄因子 AP-1 與 SP-1 的活化結果、基質金屬蛋白酵素-9 可分解樣澱粉 β 沉積所形成的 fibrils 與 plaques 以加速細胞外樣澱粉 β 的清除率。
• 英文摘要	The amyloid betapeptide (Abeta) has been linked to both neuronal and vascular degeneration in Alzheimer's disease (AD). Amyloid deposition in cerebral vessels (cerebral amyloid angiopathy, CAA) is also a major cause of hemorrhagic and ischemic stroke in the elderly with or without AD. Matrix metalloproteinases (MMPs), a group of enzymes that regulate cell-matrix composition, has been implicated in various diseases including arthritis, atherosclerosis and tumor progression and metastasis. MMP-9 (gelatinase B) has received considerable attention recently because of its role in the pathogenesis of hemorrhagic transformation after cerebral ischemia. Recently, we examined the potential role of the MMP-9 in the pathogenesis of cerebral amyloid angiopathy (CAA), and the results suggested that the Abeta-induced incretion of vascular MMP-9 expression may play a role in the pathogenesis of spontaneous

intracerabral hemorrhage in patients with CAA. We also demonstrated that MMP-9 can degrade Abetafibrils (fAbeta) and may contribute to extracellular brain Abetaclearance by promoting Abetacatabolism.