• 系統編號	RC8901-0314		
• 計畫中文名稱	過氧化物消除酵素(SOD)在高血壓形成過程所扮演角色之研究		
• 計畫英文名稱	Role of Superoxide Dismutase (SOD) in the Development of Hypertension in Rats		
• 主管機關	行政院國家科學委員會	• 計畫編號	NSC88-2314-B038-130
• 執行機構	台北醫學院醫學系		
• 本期期間	8708 ~ 8807		
• 報告頁數	0 頁	• 使用語言	英文
• 研究人員	陳保羅 Chan, Paul		
• 中文關鍵字	超氧歧化？；高血壓；自發性高血壓大鼠；正常血壓大鼠；基因表現；酵素活性		
• 英文關鍵字	Superoxide dismutase (SOD)；Hypertension；Spontaneously hypertensive rat (SHR)；Wistar-Kyoto rat；Gene expression；Enzyme activity		
• 中文摘要	細胞膜的異常是人類原發性高血壓的重要因素。近年來許多研究顯示,氧自由基的破壞是高血壓性血管病變的重要致病機轉。而超氧化物轉化？(Superoxide dismutase,SOD)可以清除氧自由基,是人類體內重要的天然抗氧化系統。 爲了了解高血壓狀態下,心臟中超氧化物轉化？的活性。本研究比較了自發性高血壓大白鼠(Spontaneously hypertensive rats,SHR)和正常血壓鼠Wistar-Kyoto rats(WKY)兩種老鼠體內主要 SOD 的活性及基因表現。 在 6 週,9 週及 12 週大的兩種大白鼠身上,分別以西方點墨方法分析 SOD 的活性,及北方點墨法分析訊息核糖核酸(mRNA)的程度。本研究發現在 SHR 的心臟中,有比 WKY 鼠更高的 Mn-SOD 含量及訊息核糖核酸的表現。在整體 SOD 的總量上,兩種實驗鼠種並無差異,表示 SHR 體內有較低的 CuZn-SOD 活性及訊息核糖核酸的表現。這些天然抗氧化系統 SOD 的改變,可能降低 SHR 心臟對抗氧自由基的傷害,亦可能是此種老鼠產生首發性高血壓的致病機轉。		
• 英文摘要	Membrane abnormalities in human essential hypertension are well-established. Recent study has suggested that oxygen free radicals (OFR) play a role in the pathogenesis of hypertensive vascular disease. Superoxide dismutase (SOD) is a naturally existed antioxidant in human which has an important role in scavenging OFR. In order to determine if changes in superoxide (SOD) in the heart occur in the hypertensive state. The present study compared the levels of the two main subtypes of this enzyme in spontaneously hypertensive rats (SHR) with age-matched normotensive Wistar-Kyoto (WKY) rats using enzyme activity estimation, Western blotting analysis for		

enzyme contents, and Northern blotting analysis of mRNA level at 6-week, 9-week and 12-week old rats. A higher level of both Mn-SOD activity and Mn-SOD mRNA expression was found in heart of SHR as compared with WKY rats. Also, the mRNA levels of CuZn-SOD in the heart of SHR differed from WKY rats in parallel to the enzyme activities. However, the amount of SOD enzyme subtypes, determined by Western blotting analysis, was not different between SHR and WKY rats. The results indicate a lower gene expression and less activity of CuZn-SOD in SHR heart. This alternation of SOD may be one of the important factors for the vulnerability of the heart from oxygen free radicals or may be related to the pathogenesis of hypertension in this species.