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• 計畫中文名稱	維生素補充對內毒素引致敗血症小鼠熱休克蛋白質之影響及蛋白質體學研究(II)
• 計畫英文名稱	Effect of Vitamin Supplementation to the Heat Shock Protein Expression and Proteomic Study in Mice with Endotoxin-Derived Sepsis (II)
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• 中文關鍵字	敗血症; 敗血性休克; 維生素 B2; 熱休克蛋白質; 蛋白質體; 脂多醣體
• 英文關鍵字	Sepsis; Septic shock; VitaminB2, Heat shock protein, Proteome, Lipopolysaccharide (LPS)
• 中文摘要	敗血症（sepsis）主要是由於細菌感染所引起的症狀，釋放至血液中的毒素會引起全身性嚴重的發炎反應， 會導致體內細胞激素(cytokines)、腫瘤壞死因子(TNF-α)等的產生，一連串地激活了補體、白血球和血管內皮細胞等，最後常導致病人血液凝結、多重器官衰竭及休克死亡。在美國的統計分析中，敗血症每年有七十五萬個病案，只有 50%到 70%存活率，每天超過 600 病人因爲敗血症及其併發症死亡，是死亡原因的第十三位，在台灣，根據衛生署公佈的資料，敗血症是民國八十七年度的第十三大死因，隨著老化人口增加，至九十五年度統計報告中指出，敗血症已躍升國人主要死因的第十二位，通常是重症病房病人的死亡主要原因。在臨床上，除了使用抗發炎藥、抗生素、血管收縮藥物、大量點滴輸液等支持性治療外，目前並無有效的治療方式。敗血症在過去數十年間有數以萬計的文獻被發表，平均每一位敗血症患者的治療費用約 22,500 美元，過去 10 年間製藥業已經花費近 20 億美元在敗血症的治療研究，然而臨床應用試驗卻無明顯的療效。其原因爲大部份的研究只著重在動物、體外細胞或細胞株其關鍵單一分子或相關分子變化，然而分子間的交互作用與敗血症間的關聯性仍不清處。蛋白質體學(Proteomics)是近年來被廣泛應用於生命科學尋找新穎性蛋白質群的研究方法，敗血症患者從病源菌侵入體內後，造成發炎反應、敗血症、敗血性休克、多重器官衰竭，導致患者死亡的連續過程可以藉由蛋白質體學研究法加以闡明，以獲得敗血症的病理機轉及抗敗血症醫療研發。本研究室於 94 年度獲得國科會專題研究計畫補助，開始建立 E.coli 內毒素誘發小鼠敗血症模式動物及蛋白質體學技術平台。敗血症小鼠注射高濃度核黃素（Vitamin B2, VB2）後，小鼠存活率（60%）明顯高於低劑量組（20%）及控制組（10%），高劑量 VB2 投予可增加腸蠕動，以及維持 HSP25 及 HSF 表現達 72 小時以上，

	此外敗血症小鼠腹腔注射高低劑量 VB2 下結腸二維膠體電泳有差異蛋白質群的展現。
• 英文摘要	Sepsis is a condition that results from a harmful or damaging host response to infection. Excessive toxins in blood cause to serve inflammatory responses, including cytokines production and tumor necrosis factor-alpha (TNF-alpha) that lead to activation of innate immune system, complement system, coagulation system and adaptive immune system. Epidemiology report from Department of Health in Taiwan, sepsis has risen to the twelfth and is often the harbinger of multiple organ failure and constitutes the leading cause of mortality in intensive care unit. In clinical treatment, except for anti inflammation drug, antibiotics, vasoconstriction drugs and intravenous drip support, none effective methods in sepsis therapy. In the past ten year, numerous of papers were published in the immunopathogenesis of sepsis. The average cost to treat sepsis is estimated to be $22,500 per case in U.S.A. Pharmaceutical industry spent 20 hundred million in therapy of sepsis. Currently the therapeutic approaches used to treat sepsis with very limited success. Furthermore, most studies have focused on either a single molecule or a few related molecules in animal models or cell lines. A detailed understanding of how these components and pathways interaction to sepsis are still nebulous. Proteomics approach is widely used in life science to look for novel proteins. Septic stage from inflammation, sepsis, septic shock, multiple organ dysfunctions to death process will be monitored by proteomic approach. It is also useful to explore mechanism and drug discovery in antisepsis study. By NSC grand support from 2005 to date, we had succeeded set up septic animal model by lipopolysaccharide induction and proteomic platform in Taipei Medical University. The septic mice survival rates were 60% in high dose VB2 (HVB2) injection, 20% in low dose VB2 (LVB2) and 10% in saline group. The heat shock protein 25 (HSP25) and heat shock factor (HSC) expression level were maintained to 72 hr in HVB2. Besides, we found differential proteins expression between HVB2 and LVB2 by two dimensional electrophoresis in colon.