

• 計畫中文名稱	建立保健食品改善血液黏度之評估方法		
• 計畫英文名稱	Develop a Method of Functional Food to Improve Blood Viscosity		
• 系統編號	PG9402-0126	• 研究性質	應用研究
• 計畫編號	DOH94-TD-F-113-028	• 研究方式	委託研究
• 主管機關	行政院衛生署	• 研究期間	9401 ~ 9412
• 執行機構	台北醫學大學生物醫學材料研究所		
• 年度	94 年	• 研究經費	830 千元
• 研究領域	醫學工程		
• 研究人員	劉得任		
• 中文關鍵字	兒茶素；血液黏度；保健食品；；；；		
• 英文關鍵字	EGCG；Blood viscosity；functional foods；；；；		
• 中文摘要	<p>計畫目的：爲了因應未來保健食品功效於改善血液黏度，積極建立量測血液流變參數之標準化以及量測之技術平臺之建立。實施方法：計畫之主體首先將建立一保健食品應用於改善血液黏度功效之平臺建立，實驗之主體爲動物模式建立。主要進行之工作爲建立量測血液流變參數之技術平臺，我們將選取成年大鼠 20 隻，建立其一正常基本之血液流變參數，包括：不同剪切率流場下全血之表現黏度、血漿黏度、紅血球變形度、紅血球聚集度、以及全血液之生化參數及 CBC 參數...等等。在流場之建立，我們將採用 Cone/Plate 模式建立一高(剪切率 1500)、中(剪切率 500)、低(剪切率 10)之連續剪切率流場；血漿黏度之量測，由於血漿爲牛頓尼安流體，血漿黏度之量測將直接用毛細管量測。在紅血球變形度以及紅血球聚集度方面，我們將採用雷射光法測量。接著，我們將選用茶多酚內之主成分兒茶素(Catechin)- Epigallocatechin gallate (簡稱 EGCG)利用此技術平臺評估 EGCG 對於成年大鼠之血液流變參數之保健評估，實驗之模式將採 Student-t 模式，也就是量測成年大鼠有在服用 EGCG 與未服用 EGCG，其兩組老鼠血液流變參數之比較。關鍵詞：血液黏度、紅血球變形度、紅血聚集度、兒茶素、保健食品</p>		
• 英文摘要	<p>Objective : In response to effects of functional foods on improving blood viscosity, standardized measurements and technical platforms for the measurements in haemorrhheological parameters are necessary to establish. Methods: The main part of the project is to develop a technical platform for evaluating functional foods which give improving effects on blood viscosity. The establishment of technical platform is based on measuring haemorrhheological parameters through the accomplishment of animal model. The normal and basic haemorrhheological parameters will be obtained from 20 adult mice including: apparent viscosity of blood in the flow fields at different shear rates, plasma viscosity, erythrocyte deformability, erythrocyte aggregation, and relevant biochemical parameters.</p>		

In the case of flow fields, cone and plate will be used to give continuous flow fields at high (1500 1/sec), middle 500 1/sec, and low (10 1/sec) shear rates, respectively. Capillary viscometer will be applied for measuring the viscosity of blood plasma which is considered as a Newtonian fluid. Erythrocyte deformability and erythrocyte aggregation will be measured using the laser method. In addition, epigallocatechin gallate (EGCG, or catechin), the essential component of tea polyphenols will be chosen to evaluate its effects on the haemorrheological parameters of adult mice. The Student t-test will be performed as the experimental model to compare the haemorrheological parameters between two adult mice groups taking EGCG and not taking. Keywords: blood viscosity, erythrocyte deformability, erythrocyte aggregation, catechin, functional foods.