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• 計畫英文名稱	The Development of Injectable Collagen Composite		
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• 中文關鍵字	注射用膠原蛋白複合體；無細胞皮膚基質；黏彈性		
• 英文關鍵字	Injectable collagen composite； Acellular dermal matrix (ADM)；Viscoelastic property		
• 中文摘要	利用動態機械分析儀來測試這些可供注射用的無細胞皮膚基質的流變特性。測試的項目包括，潛變曲線，應力應變曲線和儲存模數，我們藉由這些測試的結果來討堅持度的問題。除了測試不同濃度的可供注射用的無細胞皮膚基質的流變特性，還測試 α-hydroxy acids 和其他不同添加物對於流變特性的影響。實驗之後發現，以添加 2%的甘醇酸其延滯時間最長，所以會呈現最強的剛性和最好的堅持度。因爲物質的 τ 值越高，會呈現越固結的特性，相反的，τ 值越低，會呈現越偏流體的特性。而堅持度是影響臨床效果的一個重要指標。另一方面，溫度也會影響流變學的實驗結果。生體相等性試驗藉由與纖維母細胞(3T3)共同培養的體外細胞毒性測試來確定，由觀察細胞的生長狀況和速度來當作細胞毒性的定性判斷。結果發現在實驗期間並沒有發現細胞型態的改變，因此無細胞皮膚基質具有良好的生體相容性，可當作軟組織填充物的發展材料。		
• 英文摘要	Viscoelastic characteristics of acellular dermal matrix (ADM) preparations with various additives were analyzed with creep curves, stress-strain relationships, and the storage modulus with reference to those of ADM preparations crosslinked with glutaraldehyde. Creep curves for all ADM preparations were determined to comply with the Kelvin-Voigt model. The stress-strain plots of all ADM preparations compared were described as linear. The storage modulus of all ADM preparations was maintained at a nearly constant level throughout the range of oscillating frequencies applied. ADM preparations crosslinked with glutaraldehyde showed that both Young's modulus (E) for the spring part and retardation time (.tau.) in the Kelvin-Voigt model, and hence viscosity (.eta.) for the liquid part, increased with an increasing concentration of glutaraldehyde. Higher Young's modulus and viscosity and a greater extent of the		

'solid' response of ADM preparations crosslinked with glutaraldehyde might have been responsible for the longer persistence that was demonstrated after implantation. The increase in ADM concentration and the addition of various additives to ADM preparations, including .alpha.-hydroxy acid (citric acid, lactic acid, and glycolic acid) and hyaluronic acid, resulted in similar effects on the viscoelastic characteristics of the ADM preparations, but they were less efficacious compared to those crosslinked with glutaraldehyde. Among them, increasing ADM concentration to higher than 200 mg/mL and addition of glycolic acid at a concentration of greater than 2% improved the viscoelastic characteristics of the resulting ADM preparations such that their level of persistence was closer to that of material crosslinked with glutaraldehyde. On the contrary, the influence on viscoelastic characteristics of adding PVP greatly differed from that of hyaluronic acid and was only apparent when adding concentrations of PVP of greater than 10%. Similarly, viscoelastic characteristics of the ADM preparations examined were also so sensitive to temperature that the persistence of ADM preparations after implantation at body temperature would deteriorate.