

豬隻胎盤萃取液對傷口癒合之功效

學生：李盈慧

指導教授：張正博士

國立交通大學 生物科技研究所 碩士班

摘 要

胎盤萃取液(胎盤：中國草藥，俗稱紫河車)已應用於臨床醫學治療如：類風濕性關節炎、放射性皮膚炎、禿頭、牛皮癬等。胎盤之生化作用目前已研究詳盡，但胎盤素對於傷口癒合之機制及功效尚未完整。最近研究指出，豬隻胎盤素對於治療燒燙傷老鼠具有良好功效。本實驗目的是期望找出最有效萃取胎盤素之方法。由於細胞增生及移行是傷口癒合的主要特徵，我們利用測試纖維母細胞、角質細胞及內皮細胞增生、移行及血管新生來評估豬隻胎盤素對於傷口癒合之療效。另外，也進行人類胎盤萃取液對於傷口癒合之功能性測試。利用 MTT assay 及 scratch assay 分析不同胎盤萃取液對細胞增生及移行之作用，結果顯示胎盤萃取液確實能促進細胞增生及移行。而且，在 adhesion assay 我們觀察到細胞隨胎盤萃取液濃度越高貼附能力越高。同時，利用 western blot 及 ELISA 分析胎盤萃取液中具有與傷口癒合相關之生長因子。這說明了胎盤萃取液調控在傷口癒合過程中細胞增生及移行之作用或許是藉由生長因子，或者是藉由萃取液中貼附性蛋白質或與細胞之間的交互作用，或者藉由其他未知物質之作用。整體言之，胎盤萃取液對應用於促進傷口癒合具有相當潛力。

The Effects of Porcine Placental Extracts on Wound Healing

Student : Ying-Hui Lee

Advisor : Dr. C.Allen Chang

Department of Biological and Technology
National Chiao Tung University

Abstract

Placental extract, a Chinese folk medicine, has been applied on rheumatoid arthritis, acute first or second degree radiodermatitis, alopecia, psoriasis in clinical trails. Recent progress in the understanding of the biochemistry of human placenta has induced, but the mechanism of placental extract on wound healing isn't yet well-known. We are interested in making use of discarded materials on wound healing. Previous *in vivo* studies have demonstrated that wound healing effects of porcine placental extracts on rats with thermal injury. So, we have attempted to find the best extraction method for wound healing. The purpose of this investigation is to determine if porcine placental extract stimulates cell migration and proliferation in fibroblasts, keratinocytes, and endothelial cells *in vitro*. These parameters play an important role in wound healing. And, we also explored wound healing effects of human placental extracts. Initially, cell cultures were incubated with a series of extract with different extract solutions, and then cell proliferation and migration were determined by MTT assay and scratch assay. Results showed that placental extracts would promote cell proliferation and migration. Also, we observed that placental extracts interacted with cells in a dose-dependent manner in cell adhesion assay. Furthermore, we detected growth factors involved in wound healing in placental extracts by western blot and ELISA. Those results suggest that placental extracts may regulate cell functions by growth factors or by adhesive proteins interacted with integrins on cells, or by other un-known substances during wound healing process. Taken together, porcine placental extracts could be potential to accelerate wound healing.