This glycation model can be used in conjunction with new therapeutics to develop new ways of treating the chronic wounds associated with diabetes.

Background:
The chronic wounds associated with Diabetes mellitus do not heal in a normal fashion due to the physiological insults to body’s normal wound healing, and inflammatory response mechanisms. Inhibition of the natural wound healing function in Diabetic patients can lead to ulcer formation, and even amputation of the extremities. Recently, academic researchers and industry have set out to identify and develop novel tissue engineering technologies in order to treat these wounds and improve Diabetic patient care.

Technology Description:
Dr. Weiliam Chen, a professor in the Biomedical Engineering department of Stony Brook University has developed a glycation model prepared by cross linking collagen with glyoxylic acid. This novel collagen matrix can be used as an adequate in vitro model to study the inherent properties of glycated tissues and wound healing. This technology emulates general clinical manifestations of diabetic wound healing and can be used to study the interactive behaviors of cells. Thus, Dr. Chen’s invention can be used in aiding the process of investigating treatments of Diabetic chronic wounds.

The figure above reveals the wound healing responses 7 days after implanting collagen matrices (glycated and non-glycated).

Patents and Publications

• Yuan Z., et al., Tissue Eng Part C Methods. 2010 Apr;16(2):237-47

Advantages
• Mimics glycated tissue
• Emulates the general clinical manifestations of diabetic wound healing
• Can be used to identify therapeutic treatments for Diabetes mellitus

Applications
• Research and development tool
• Diabetes mellitus
• Wound repair

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