Researchers at the University of South Florida have developed a treatment to improve wound healing using the novel protein leukocyte-derived growth factor (LDGF).

Within minutes of an injury, wound healing cells (leukocytes, macrophages, fibroblasts and endothelial cells) migrate to the wound site and aid in clot formation. The directed migration of cells along a gradient toward the wound healing growth factor chemical is called chemotaxis and the growth factor chemical that stimulates chemotaxis is called a chemo-attractant. It is the sequential production of cell type-specific chemoattractants that is responsible for the ordered recruitment of cells to the wound site.

Leukocyte-derived growth factor (LDGF) is a newly discovered protein that functions during wound healing. The protein is secreted by cells of the immune system and functions as a chemoattractant and mitogenic factor, inducing cells like fibroblasts, smooth muscle cells and astroglial cells to proliferate. Decreased LDGF has been found in chronic skin ulcers, diabetic ulcers, patients with peripheral circulatory problems, and steroid-treated rheumatoid patients suggesting that it may be useful for treating these healing impaired conditions.

LDGF therapy would closely mimic the natural process of wound healing. Synthetic production of LDGF for medical purposes can be accomplished with recombinant DNA technologies. LDGF is also applicable in treating surgical wounds where the patient has undergone procedures that impair healing such as chemotherapy with anti-cancer drugs or steroids.

Additionally, LDGF is important where acceleration of connective tissue formation is desirable, such as bone grafts, bone fracture non-unions, artificial joint replacements, and tendon repairs. Furthermore, LDGF accelerates healing of surgical wounds where little bleeding occurs. LDGF is a promising alternative to platelet-derived growth factor (PDGF) which is currently used in surgical procedures.

**ADVANTAGES:**

- Substantially lower-cost than platelet derived growth factor
- Useful in the treatment of fibrotic disorders

**LEUKOCYTE-DERIVED GROWTH FACTOR GENE**

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