



OFFICE OF TECHNOLOGY TRANSFER



McGill

TECHNOLOGY OPPORTUNITY

Chimeric Protein as Wound Healing Agent

McGill University is seeking a company interested in commercializing topical agents for the treatment of acute and chronic wounds. The incidence of burn injury causing wounds is 1.2 million annually in the USA only. Chronic wounds are typically defined as pressure ulcers, venous leg ulcers or diabetic foot ulcers. Although these types of wounds are found occurring in patients of all ages, the rate of occurrence and recurrence of these wounds predominantly increase with age. Acute and chronic wounds cause immense suffering, healthcare expenditure, and disability, for millions of patients. It is estimated that the management of all types of wounds may account for 2 to 4 percent of the total health expenditures of any country, over and above the other costs to society. The global advanced wound care market was \$1.5 B in 2004 forecast to reach 3.06B by 2011 with a growth rate of 11%.

Applications

Topical agents indicated for management of acute and chronic wounds.

Advantages

- Effective new medical treatment for as many as 12 million patients estimated to be afflicted with the common forms of chronic wounds in the major industrialized therapeutic markets.
- Superior wound healing properties in human skin fibroblasts and keratinocytes provides a significant market advantage over existing therapies.
- Promotes wound repair after short term treatment, precluding problems of immunogenicity.
- Simple synthetic or purification process in large amounts required for topical application on skin wounds reduces product manufacturing costs.

Technology

There is increasing evidence that the new generation of novel agents for wound healing will be based on topical growth factor and antiprotease therapy. Insulin-like growth factors (IGFs) play multiple functions in the hematopoietic system, affecting cell proliferation, differentiation, migration and survival. They often act in synergism with cytokines. Our researcher has discovered recombinant IGF-cytokine chimeras that can be easily produced using insect cell culture technology. The recombinant fusion proteins have a definitive advantage in their biological activities as compared with the single components of the chimera. These compounds exhibit efficacy in experimental cellular models of wound healing and repair. Data obtained to date in an experimental preclinical model using C57BL/KsJ-db/db diabetic mice indicate that the compounds may have clinical utility as topical agents in a chronic wound setting.

The Inventor



Dr. Luis .F. Congote is an Associate Professor in the Department of Medicine at McGill University. He received his Diploma in Natural Sciences from the Swiss Federal Institute of Technology in 1967 and his Ph.D. degree in Natural Sciences from the Institute of Physiological Chemistry, University of Marburg, Germany in 1970. Dr. Congote studies the mechanism of action and potential therapeutic use of recombinant fusion proteins, in particular the fusion proteins of IGFs with erythropoietin, interleukin 3, stromal cell derived factor 1 and serpin A1 (antitrypsin).

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