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AUBURN UNIVERSITY

An Insect-Derived Protein to Improve Wound Healing

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Reference: Wound Healing

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Overview

This invention is centered around a protein (SVEP), originally isolated from the salivary glands of a blood-feeding black fly, that promotes increased blood flow in a site-specific manner. This technology has potential applications in the following economic sectors:

- Human therapeutics and surgery
- Animal therapeutics and surgery

Advantages

- SVEP can be used in the prevention and treatment of pathologic conditions associated with low blood flow, such as cardiovascular disease, diabetes, frost bite, burns and radiation injuries.
- Aids in the delivery of oxygen, antibiotics, and other therapeutic agents to wounded tissues.
- Aids in treatment and repair of diseased or traumatized open wounds and tissues.
- Treatment can include therapy for chronic wounds such as diabetic foot ulcers and bed sores.
- A recombinant form of the protein (rSVEP) can be produced in the lab at high levels and readily purified for therapeutic trials.



Description

Impairment of normal blood flow is a major component in the development of several major human illnesses, including cardiovascular disease, diabetes, and chronic wounds. Decreased blood flow deprives both healthy and diseased tissue of nutrients needed for metabolic energy, tissue synthesis and repair, and prevents transfer of regulatory hormone signals and removal of wastes. It is critical to maintain adequate blood flow if disease is to be avoided and injuries repaired.

In the last several years, novel and highly potent factors have been identified in the saliva of blood-feeding insects that affect vertebrate blood flow. In addition to factors that prevent clotting, others increase blood flow and thus enhance the ability of insects to feed. Because of their specificity and potency, these molecules are strong candidates for therapeutic use in animal and human medicine.

SVEP is a model protein for the promotion of blood flow. It is shaped by nature to have high stability, strong potency, and rapid action. Its fields of use are expected to be extensive both for human and animal therapies.

Status

- Three issued U.S. Patents (6,749,855; 6,500,420; 6,162,785) and one published US patent application (20030109447)
- This technology has been tested in surgically created open and closed wounds in animals: *Wounds* 2004; 16(3):85-90

Licensing Opportunities

- This technology is available for exclusive or non-exclusive licensing
- Development opportunities include funded research, joint venture or clinical trials