

HUMAN-BASED BIONGINEERED SKIN SUBSTITUTES

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Tissue engineering is an exciting interdisciplinary field that combines the principles of the life sciences and engineering to develop biological substitutes for damaged tissues and organs.

Transcyte and Dermagraft are two human-based tissue-engineered products address unmet therapeutic needs. Transcytes, a human-based skin substitute for treating burns and Dermagraft, a human-based dermal replacement for treating diabetic foot ulcers.

TransCyte consists of human dermal tissue (the lower layer of skin) combined with a synthetic epidermal layer (the upper layer of skin). It is designed as an alternative to cadaver skin for patients with third-degree burns, and to silver sulfadiazine for patients with second-degree burns. After application to burn wound, TranCyte provides a temporary covering to help protect the wound from fluid loss and reduce the skin risk of infection. TransCyte stays in place until a sufficient amount of the patient's own skin is available for grafting, in the case of third-degree burns, or until the patient's own skin heal, in second-degree burns. TransCyte

demonstrated significantly faster healing and less inflammation.

Dermagraft is a human dermal replacement developed for the treatment of conditions where skin has been injured or destroyed (skin ulcer). It is produced by seeding dermal fibroblasts onto a three-dimensional scaffold consisting of a bioabsorbable material. The cells grow and divide, producing collagens, intracellular matrix proteins and growth factors found in normal healthy human dermis. Dermagraft has been designed to promote complete wound closure and accelerate healing by addressing these deficiencies. Dermagraft is easy to apply. It's traced around the foot ulcer, cut out and implanted into the wound.

In the future, the cartilage program is to develop human-based, tissue-engineered cartilage for orthopedic applications such as the repair of articular cartilage and of the meniscus in knee joints. Through those produces tissue engineering technology to work to improve the quality of life for many people.