ENGINEERED SKIN REPLACEMENTS

The management of wound healing and subsequent scarring is a significant problem in burn patients. Slow and no healing wounds such as diabetic and venous ulcers, pressure sores and undesirable scars, such as keloids and hypertrophic scars, severely burden the U.S. health care system. Abnormal scars are the main factor limiting long term functional recovery from a serious burn injury. While skin substitutes currently used in clinics provide an adequate solution and improve survival after a burn, they do not address the subsequent problems, such as scarring and lack of appendages in the regenerated skin.

At Shriners Hospital for Children — Boston, we are leading the field of skin engineering by developing cutting edge technologies to address the needs of patients and surgeons. This tradition began more than 30 years ago with the development of the first artificial skin at our hospital. We specialize in creating innovative solutions with the ultimate goal of improving the lives of burn patients. Our efforts currently focus on engineering a new generation of skin substitutes that harness nanoparticle technology for simultaneous delivery of factors to modulate the regeneration of healthy skin. We also established pulsed electric fields as a modality in burn wound treatment with applications in wound disinfection, stimulation of scarless regeneration and treatment of hypertrophic scars.

Recent Publications


