

Manufactured Skin

A BioFabUSA Project / Department of Defense Manufacturing Innovation Institutes



Technology: Manufactured Skin

Project Participants: Mallinckrodt, DEKA Integrated Solutions Corp.

Institutes' Role: ARMI is transitioning the existing manual process for expansion of the cells, scaffold seeding, and media exchange to a scalable, modular, automated and closed production system.

Technology Description: Cultured skin tissue that has been shown in preclinical studies to augment one of the skin's native antimicrobial defense mechanisms. It is being further evaluated for its potential to promote the healing of chronic wounds, including diabetic foot ulcers (DFU) and venous leg ulcers (VLUs). This product provide sustained expression of human vascular endothelial growth factors (VEGF) that helps to promote new blood vessel formation and tissue regeneration in poorly-vascularized, hypoxic wound environments while providing a barrier function. The technology is also in development for use as a skin graft after partial-thickness burns.

Impact: The development of a closed and automated solution will reduce contamination risk and enable cost and resource efficient scale up. Automated production on scalable manufacturing equipment will provide an initial fivefold increase in batch size to meet clinical demand, especially for the production of sufficient numbers of grafts for extensive partial thickness burns. The production line is being developed to ensure further scalability to meet commercial demand.

