

# Breakthrough Cell Regeneration Device Speeds Healing Time

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By: HDIAC Staff

A new device, which allows surgeons to harvest healthy skin cells and regenerate them for transplant to damaged areas of the patient's skin, could transform the healing process. Avita Medical Ltd. of Woburn, Massachusetts announced a new research partnership with Huddersfield University in Great Britain to further explore the function and potential of their ReCell device.

The ReCell device harvests, regenerates and introduces cells into damaged areas to form new, healthy skin cells. The ReCell method will allow surgeons to forego time consuming skin grafts in favor of a replacement skin that is sprayed on, resulting in faster healing and better cosmetic results. [1] This technology promises beneficial impacts for the Department of Defense by speeding recovery time for soldiers wounded on the battlefield or injured in training; allowing soldiers to avoid the debilitating and painful side effects associated with current skin graft procedures; and offering a less expensive alternative to traditional procedures. In 2009, the United States Armed Forces Institute of Regenerative Medicine realized the benefit of this technology and provided Avita Medical with a \$1.45 million grant to hasten the approval of ReCell kit with the Food and Drug Administration. [2]

Avita Medical is a multinational clinical and commercial medical research firm, which specializes in the development and marketing of respiratory and bi-regenerative products. [1] The goal of the research initiative is to gain a better understanding the biomechanical process through which Regenerative Epithelial Suspension (RES) – a component of the devices skin regeneration process – is able to efficiently treat burns, hard to heal wounds and severe skin trauma. RES is

an autologous suspension comprised of the harvested cells and proprietary wound healing factors necessary to regenerate healthy skin and is considered the most pharmaceutically vital component of the ReCell method. After the healthy skin cells have been added to the solution and processed in the ReCell device, the resulting liquid is sprayed on the affected area by the physician. [3] The product has been approved for use in China and Australia and is in Pivotal/PIII trials in the U.S. for burns as a first indication and a Pilot/PII study stage for scar removal.

Researchers hope to gain greater knowledge of the cellular interactions present in the processed RES liquid and the roles they play in regenerating natural healthy skin. Researchers at Huddersfield, led by Senior Lecturer in Biological Sciences Dr. Nikolaos Georgopoulos, Dr. Karen Ousey and

Professor of Pharmaceutics Barbara Conway from University of Huddersfield's Institute of Skin Integrity and Infection Prevention, will assess the ReCell device using donated human skin. The research team will observe the reaction of the skin cells in RES using advanced analysis techniques to monitor cellular interactions. The knowledge gained through these experiments will provide insight to the bio-mechanics of the RES solution and allow for the advancement of clinical practice, education and future product development. [4]

“Our goal with this study is to further unlock understanding of the mechanism within the active suspension so that we will be able to further discern the intricacies behind why ReCell is so effective for wound treatment,” said Alan Kelliher, Chief Executive Officer of Avita Medical. [5]



Avita's ReCell device harvests, regenerates and introduces new cells into damaged areas to form new, healthy skin cells. (Image courtesy of Avita Medical, Ltd.)

The announcement of this research partnership follows the recent conclusion of a successful European clinical trial in which the ReCell procedure was found to have obtained a 78 percent success rate as compared to zero percent in a control group who received no cellular regrowth therapy treatment. This study which took place at the Netherlands Institute for Pigment Disorders in the Academic Medical Center at the University of Amsterdam demonstrated that the median repigmentation in 10 patients (median age 34, 6 males, 4 females) was 78 percent for sites treated with ReCell six months post treatment, compared to zero percent for two control groups for the same timeframe. Patients treated

with, ReCell did not experience long term side effects or infections. Results of the study have been published online and in the July 2015 print issue of *The Journal of the American Academy of Dermatology*, the official publication of the American Academy of Dermatology.

#### References:

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- [2] Greenblat, E. (2009, May 27). Avita boosted by US affirmation. *The Age*, p. 7
- [3] Avita Medical. (2011, February 18). [ReCell.](#)
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- [5] Medicalxpress.com. (2015, August 18). [Device will deliver skin cell regeneration to treat burns, hard-to-heal wounds and skin trauma.](#)
- [6] Andrew, Q. (2015, July 8). [Avita Medical ReCell technology safe, effective for patients suffering with depigmented skin lesions.](#) News-Medical.net

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