

## NEWS AND VIEWS

### 1 | BIOLAB SCIENCES

BioLab Sciences, an emerging regenerative biotechnology company, has acquired the patents and intellectual property for MyOwn Skin™, a revolutionary regenerative therapy that is transforming the wound care industry, from Bogota, Colombia-based Keraderm. The acquisition enables BioLab Sciences to license MyOwn Skin™ internationally and bring advanced wound care options to patients globally.

MyOwn Skin™ eliminates the need to surgically remove, or harvest, large areas of healthy skin from other parts of a patient's body to produce skin grafts, which can often result in an additional wound more painful than the original. This novel biotechnology leverages a very small sample of a patient's own skin through a non-surgical procedure to reproduce three 4-inch x 4-inch skin grafts within a week, and in some cases accelerate the healing of chronic wounds, diabetic foot ulcers and other difficult-to-heal wounds. Because of its favorable outcomes, MyOwn Skin™ is on track to disrupt the wound care market. In fact, the biotechnology was recently awarded MedTech Outlook Magazine's Top 10 Wound Care Solution Provider in 2019.

"We've been looking for the right partner with experience in the regenerative therapy industry and one that truly prioritizes the health and wellbeing of patients over profits," said Jorge Soto, CFO of Keraderm. "We found that partner in BioLab Sciences. Plus, they have the network and the right team to bring this important wound care solution to the global market."

MyOwn Skin™ was developed in 2012 by Jennifer Gaona, scientific director of Keraderm and specialist in plastic and reconstructive surgery, and plastic surgeon Juan Carlos Zambrano. In 2018, BioLab Sciences secured the license to produce it in the US, where it has since been used to treat patients with severe burns, chronic wounds, diabetic foot ulcers, and other difficult-to-heal wounds.

"This solution has major advantages for all patients because it does not require surgery and it doesn't create pain or additional scarring," Gaona said. "Additionally, it can be conducted anywhere by nurses and physicians of any specialty, which really opens up the possibilities for getting wound care to diverse

populations. We're looking forward to where BioLab Sciences takes it."

### 2 | ABOUT BIOLAB SCIENCES

BioLab Sciences is a regenerative medicine company focused on creating new ways to heal the body. Headquartered in Scottsdale, Arizona, BioLab Sciences is uncovering better ways to address orthopedic injuries, wound care, pain management, aesthetic medicine, respiratory ailments, cardiovascular indications, ophthalmic issues, and more. BioLab Sciences is transforming wound care through MyOwn Skin™, a remarkable biotechnology that leverages a small sample of a patient's own skin from a non-surgical procedure to produce up to three 4-inch x 4-inch skin grafts in a week. Learn more at [www.biolabsciences.net](http://www.biolabsciences.net).

### 3 | MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

In a time of COVID-19 restrictions and minimal travel, many people are turning to virtual doctor appointments and consultations as a safer alternative to in-person doctor visits. Researchers at Missouri S&T are working to make this new wave of telemedicine more successful by creating an oxygen-sensing patch printed on a flexible, disposable bandage that can interact with a smartphone. This smart bandage could enable remote monitoring for the early detection of illnesses such as pressure ulcers, allowing for immediate treatment or intervention.

"Our current work focuses on designing and optimizing a tissue oxygen sensor by using inexpensive inkjet printing techniques," says Dr. Chang-Soo Kim, professor of electrical and computer engineering at Missouri S&T. "Concurrently, we are developing a smartphone app that can interpret sensor images. This prototype will be evaluated using phantom tissue that mimics a pressure ulcer site."

Kim is working with Dr. William Stoecker, a dermatologist at The Dermatology Center in Rolla and an adjunct assistant professor at S&T, and Dr. Paul Nam, an associate professor of chemistry at S&T. Together, they hope to create an affordable, user-friendly diagnostic

bandage that would provide early intervention for chronic sores. For further information see the IDTechEx report on Advanced Wound Care Technologies 2020-2030.

Chronic wound diagnoses such as ulcers are increasing due to the increased prevalence of diabetes, obesity, strokes and other vascular diseases found in aging populations, says Stoecker. Prolonged immobility from hospital stays or assisted-living care can also lead to such sores. To potentially minimize the length of a hospital stay and save millions of dollars in wound care costs annually, the researchers are combining biomedical engineering and current best practices in medicine to develop the first smart sensor bandage capable of detecting ulcer formation and potentially prevent skin decomposition.

The hurdles that the team are working to overcome include producing a low-cost smart bandage consisting of materials totaling less than a dollar and optimizing a printable ink composition for the bandage. The composition has been developed by Mousumi Bose, one of Nam's Ph.D. students, with an inkjet printer designed by undergraduate student Jason Boes. Jason Hagerty, a computer engineering Ph.D. student at S&T, is creating a colorimetric image processing app using the resources already included in a typical smartphone.

Generally, ulcer injuries must be assessed manually and evaluated by medical personnel. But a smart dressing could sense the impaired blood circulation and poor oxygenation around the at-risk skin region.

"Our optical sensor bandage functions by detecting a low skin oxygen level caused by compromised circulation," says Kim. "This low oxygen produces a color change called luminescence intensity. The smartphone can then take a photograph of the dressing and transmit it to enable remote monitoring or encourage timely intervention before major skin decomposition occurs."

By intervening at the site of an injury like a foot ulcer before it is even visible to the eye, the smart bandages will be able provide feedback to the patient's care provider and complete a diagnosis, all from the comfort of the patient's own home.

## 4 | NANOMEDIC

Israel-based Nanomedic is a bio-medical therapeutics high-tech company specialising in development, manufacturing, and sale of medical devices based on electrospinning technology. It is focused on the development of Electrospun Healing Fibers (EFH™) with the goal of delivering the next generation of advanced wound care solutions, including embedded cells for tissue

regeneration, filling the void of personalised medicine by healing patients rather than just ameliorating symptoms.

"Many are calling us the Spiderman of wound care due to the extraordinary and futuristic nature of our system and we certainly provide a long-time overdue alternative to legacy wound care products," says Dr Chen Barak, CEO of Nanomedic Technologies.

The EHF™ matrix is intended for the treatment of skin breaches such as wounds, ulcers, partial thickness wounds, donor sites, surgical incisions, superficial partial thickness burns, skin tears, and dermatological lesions.

Founded in 2018, Nanomedic has already begun distributing its wound therapy platform to global healthcare institutions – a potential \$18bn (€14.91bn) market. It is currently available in Israel and 11 European countries and will also begin rolling out to India at the start of 2021, and the United States in mid-2021.

The global pandemic has certainly slowed the global reach, but not the enthusiasm of market desires. Leading hospitals in Switzerland now consider the Spincare as the "standard of care" for facial burns, with others are using it on both burns and chronic wounds. Rambam Hospital in Haifa, Israel, has become the first global centre to use the Spincare as routine protocol for treating burns and chronic wounds in both adults and children.

The Spincare patented platform technology, together with its disposable Spincare Kit, has wide market applications both within and outside the hospital environment. It is CE marked with FDA clearance expected in mid-2021. Nanomedic is committed to advancing the standard of care and helping improve wound healing across the healthcare continuum.

### 4.1 | Printing a 'Medical Healing Matrix' – a global first

Leveraging electrospinning technology, Nanomedic has developed the world's first portable device that enables healthcare professionals to print in real-time a nanofibrous healing matrix directly onto a patient's wound.

The Spincare Wound Therapy System is a total paradigm shift in the treatment of wounds from superficial to hard-to-heal, chronic, and complex wounds. Enabling a customised one-time application for full coverage of hard-to-dress areas and challenging contours, the Spincare system allows patients to quickly return to active life, with improved mobility and excellent healing and scarring.

Moreover, the Spincare System replaces the traditional wound therapy approach, utilising a skin-like nanofibrous matrix to cover wounds, ushering in a new

era for personalised and improved healing. The Spincare System introduces an innovative treatment option into the advanced wound care arena with inherent characteristics and advantages that outperform traditional wound care methodologies. The system is applicable to a vast spectrum of wounds and allowing patients to “live life while they heal!”

## 4.2 | The future of wound care

As Nanomedic’s technology continues to advance and medical acceptance grows, the company is expanding its reach outside the medical scope itself.

“Interest in non-medical areas, including aesthetics, cosmetics, and veterinary, are also of great interest to us, with a number of global companies contacting us for co-development projects,” says Dr Gary J. Sagiv, Vice President of Marketing and Sales. “That is not to say we are leaving the medical world – not at all. The EHF™ matrix with its embedded therapeutic additives, from antibacterial and collagen, to skin regeneration embedded cell therapy, is an excellent drug delivery and slow-

release system for a wide range of products, clinical needs, and multiple applications. Thus, there are many more areas for us to discover.”

Wounds of every kind will be with us for generations to come, with numbers rising disproportionately in developing countries. Easy to use and cost-effective modern technology is there to assist, and the Spincare will be viewed as a critical tool in many of these countries.

Nanomedic is pushing the envelope when it comes to health challenges and, with its innovative and experienced team, is bringing to market futuristic medical technology. Nanomedic provides physicians with the most advanced wound care options for safe and decisive patient care when bodily health is at stake. The company’s validated technology is key for understanding the future direction of wound care, thus enabling informed intervention for better clinical results and patient care.

**How to cite this article:** *Int Wound J.* 2021;18:131–133. <https://doi.org/10.1111/iwj.13580>