

Pledge Times

- World
- Business
- Gaming
- Tech ▾
- Entertainment ▾
- Science
- Lifestyle ▾
- Health
- Sports

ONLINE

Generate new ideas to solve the world's most critical challenge

1-WEEK ONLINE PROGRAM • APPLY NOW ▶

Home > Tech

Frog skin used to heal chronic wounds

by admin_l6ma5gus — July 27, 2022 in Tech

0



0 SHARES 4 VIEWS

Share on Facebook

Share on Twitter

G+ ↻

A new clinical grade collagen made from frog skin is about to become the new therapy that will cure chronic wounds. Collagen was obtained by scientists from the **Nanyang Technological University, Singapore (NTU Singapore)** in collaboration with Singapore-based medical technology company Cuprina Wound Care Solutions (Cuprina), which specializes in developing products for the treatment of **chronic wounds, such as those suffered by diabetic patients.**

Dr. Wang Jun Kit (left) and Cuprina CEO David Quek (right) review the collagen extraction process carried out by Cuprina developmental biotechnologist Felicia Lim at the GMP certified laboratory set up by Cuprina. Credit: Nanyang University of Technology, Singapore

Clinical-grade collagen made from frog skin – here’s how it works

Through NTU’s innovation and enterprise company, **NTUitive** the patented technology to convert bullfrog skin into chronic skin wound care compounds has been exclusively licensed to **Cuprina** for commercial and large-scale production.

- World
- Business
- Gaming
- Tech ▾
- Entertainment ▾
- Science
- Lifestyle ▾
- Health
- Sports

Bullfrog.

If the clinical grade collagen obtained from frog skin should have some success, the new compound will complement the flagship product of Cuprina MEDIFLY, a biological dressing based on **live worms of Cuprina Lucilia** medical grade, which is used in Maggot debridement therapy.

It is clinically proven that **MEDIFLY** eliminates chronic wound infections and reduces wound amputation rates, especially in cases associated with diabetic foot ulcers, and is used by specialized hospitals and clinics throughout Singapore. Chronic wounds affect 1 in 20 patients in Singapore. Along with diabetes affecting 1 in 10 patients and a rapidly aging population, the risk of developing a chronic wound is high and the demand for affordable chronic wound care is expected to increase.

As part of the scale-up, Cuprina has set up a satellite laboratory compliant with good manufacturing practices (GMP) at the **Singapore Life Science Incubator** to replicate the collagen extraction from frog skin and the development of NTU's dressing product.

See also [The domino and what remains of the 'third pole'](#)

The founder and Chief Technology Officer of Cuprina Holdings, **Carl Baptista**, said: "Our goal is always to promote and encourage natural wound healing, intervening only to help the body do what it does organically. With NTU's patented technology, we can develop a line of natural collagen products extracted from frog skin that are highly compatible with the human body. It is this compatibility that leads to better healing results than those currently available".

Baptista added that existing research documents the complementary effects that worm therapy and collagen have on wound healing cases. These studies focus on bovine collagen, but what intrigued Cuprina about the collagen extracted from frog skin was its potentially greater biocompatibility with humans than traditional sources of collagen, and therefore its ability to improve the quality of wound healing.

To date, 20 million tons of fishery by-products, such as fins, scales and skins, are discarded each year, and the combined annual consumption of frog meat and fish is estimated to be around 100 million kilograms. Using this waste, including frog skin, to create valuable collagen is a sustainable way to recycle and reduce waste for Singapore, as the country is driving towards its master plan on zero waste and encouraging a circular bioeconomy.

This research and commercialization goal will help Singapore achieve its goal of becoming a sustainable, resource efficient and climate resilient nation, explained the **Professor Dalton Tay of the NTU School of Materials Science and Engineering** expert in valorisation of animal and plant biomass, who developed the innovation.

See also [Liga MX Femenil: FC Juárez announces Jasmine Casarez, its first foreign player](#)

"As part of NTU's Strategic Plan 2025 and its Sustainability Manifesto, we are developing innovative ways to transform waste into useful materials to address some of humanity's greatest challenges. NTU's experience in transforming waste biomass into valuable raw materials is now highly sought after by industry looking for sustainable sources. In our partnership with Cuprina, we are delighted to be able to meet both the circular bioeconomy objectives and the healthcare needs of Singapore with a single innovation," noted Professor Tay.

By using collagen-rich frog skin as a raw material, the team of experts hopes to reduce waste and cost of pure collagen product on a large scale, so as to bring an affordable yet effective wound care solution to the public. In early 2022, Cuprina and NTU's joint proposal to develop and accelerate the commercialization of this unique collagen product was announced as one of the winning entries of the **Sustainability Open Innovation Challenge** organized by **Enterprise Singapore**.

Wounds typically go through three stages of healing: inflammatory, proliferative and maturation, the process is highly complex and requires specific interventions at each stage. Cuprina designs and packages products for each stage to optimize healing.

During the inflammatory phase, the body produces enzymes that prevent infections from entering the bloodstream. However, the enzymes also prevent unwanted matter from being expelled from the body, thus making wound healing difficult. MEDIFLY works with these enzymes to clean and disinfect the wound and prepare the site for the next step. This activity is critical to ensure that the effects of the new collagen patch can be maximized to produce optimal healing results.

See also [Noelia announces in networks her return to the erotic content platform OnlyFans](#)

For the second stage, the collagen patch aims to provide a scaffold for the clotting of white blood cells and healing agents and form a protective layer for the initiation of healing. It will also encourage faster recovery by keeping the healing wound moist. In the third stage, the collagen patch will continue to encourage faster recovery by keeping the healing wound moist and providing collagen as the “brick” material for skin aging.

David Quek, CEO of Cuprina Holdings, said the partnership with NTU is the perfect example of how it is possible to develop cutting-edge medical products while simultaneously removing waste from the environment: “The purpose that drives our business is to harness the power of nature. to fuel sustainable development. Sustainability and development are not mutually exclusive, for us they are highly compatible. Our partnership with Professor Dalton Tay and his team at NTU offers a unique opportunity to combine sustainable practices in the form of waste enhancement with the production of novel wound care compounds. Like Cuprina, pushing the boundaries of science is in NTU's DNA – we couldn't ask for a better partner,” added Quek.