



Cuprina is turning to mother nature for a solution to chronic wounds | Photo source Unsplash

[Innovation](#) > [Health & Wellbeing](#) > [Treating wounds with frog skin and maggots](#)

TREATING WOUNDS WITH FROG SKIN AND MAGGOTS



HEALTH & WELLBEING

A Singapore startup is treating chronic wounds with maggots and collagen patches made from bullfrog skins

Spotted: Chronic wounds are a major medical issue affecting 1 in 20 patients in Singapore. One of the leading causes for chronic wounds is diabetes, a disease that affects 1 in 10 patients in the city-state. With an ageing population set to exacerbate the problem, innovators are thinking laterally to find novel solutions. One company is turning to frogs and maggots for a natural approach to wound healing.

Cuprina is a medical technology firm based in Singapore that is focused on the challenge of chronic wound care. Its core product is MEDIFLY, a bio-dressing made from live clinical-grade maggots. In the first phase of wound healing, the human body releases enzymes that prevent infection. These enzymes stop harmful pathogens from entering the bloodstream but also prevent harmful material from being pushed out of the body. In some cases, this stops the wound from fully healing. The MEDIFLY maggots complement the work of the enzymes by cleaning the wound of unwanted matter.

Once the maggots have done their work, Cuprina's newest product can play an important role in the second phase of healing. The company has a licence to scale up and commercialise new collagen patches developed by researchers at Nanyang Technological University (NTU). The clinical-grade collagen used for the patches is made from discarded bullfrog skins. By providing a scaffold for the body's white blood cells and healing agents to coagulate and form a protective layer, the patches play an important role in the healing process. They also help to keep the wound moist.

In the third and final phase of wound healing, the collagen patches provide collagen as

a 'building block' material to repair the skin. Together, the MEDIFLY dressing and

collagen patches encourage a faster recovery for patients struggling with wounds such as diabetic foot ulcers.

“Our focus is always on promoting and encouraging natural wound healing, intervening only to help the body do what it does organically,” explains Founder and Chief Technology Officer of Cuprina Holdings, Mr Carl Baptista. “With NTU’s patented technology, we can develop a line of natural, amphibian-derived collagen products that are highly compatible with the human body. It is this compatibility that leads to improved healing outcomes over what is currently available.”

Other recent healthcare innovations spotted by Springwise include [hologram patients that help to train medics](#), [an app that provides 'digital viagra' therapy](#), and [diagnostic tools that scan eye images to diagnose kidney disease](#).

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Takeaway:

Collagen is a family of proteins that help to make up the main structures of our body – skin, bone, cartilage, and muscle. The human body naturally produces collagen but medical treatments often use non-human collagen, much of which comes from cows or poultry. One of the benefits of using collagen from amphibians is that it is more compatible with the human body than traditional collagen sources, leading to better outcomes for patients. Researchers are also searching for more sustainable sources of collagen more broadly, and the fishing industry holds promise on this front. Each year 20 million tonnes of fishery by-products, such as fins, scales, and skins, are discarded. This seafood waste could instead be upcycled to create valuable collagen.