



Wound healing products with collagen bullfrog skin to be co-created by NTU team



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Wed, 27 July 2022 at 8:11 pm · 2-min read



Using this collagen-rich marine by-product as a raw material can reduce wastage and the product cost of pure collagen at scale. (PHOTO: Nanyang Technological University)

SINGAPORE — Skin wound healing products made from discarded bullfrog skin may soon be available at clinics in Singapore.

The products, including a collagen patch, are developed by materials scientists from Nanyang Technological University

(NTU) in collaboration with Singapore medical technology firm Cuprina Wound Care Solutions.

The patented technology has been licensed to Cuprina for commercial production via NTU's innovation and enterprise company NTUitive, Cuprina and NTU said in a joint statement on Wednesday (27 July).

As part of the two-year partnership, Cuprina has set up a satellite lab at the Life Science Incubator in Singapore to

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the products.



Cuprina specialises in developing products that treat chronic wounds such as those suffered by diabetes patients.



If successful, the collagen patch will complement Cuprina's flagship product MEDIFLY, a dressing made of live maggots used to eliminate chronic wound infections and reduce amputation rates caused by wounds.

Extraction of collagen

Last year, an NTU research team [announced](#) the development of a new [biomaterial made from discarded bullfrog skin and fish scales](#).

People in Singapore consume about 100 million kilograms of frog meat and fish annually, with significant amounts of bullfrog skin and fish scales discarded. Using collagen-rich by-products can cut wastage and product cost, the team had said.

To make the porous biomaterial, all impurities from the skin of American bullfrogs are first removed. The skin is then blended to form a thick collagenous paste that is diluted with water, where collagen is extracted from this mix.

Collagen, a protein most abundant in the human body, plays a key role in the structure and function of skin, cartilage, bones, and connective tissue.

Hydroxyapatite is separately harvested from the scales of snakehead fish, commonly known as the Toman fish, and then air-dried.

The team then combined the materials and cast into a mould to make a three-dimensional "scaffold".

When placed on a wound, the "scaffold" helps white blood cells and healing agents to form a protective layer for the healing to begin. It also keeps the healing wound moist and provides collagen as a "building block" material for the skin to mature.

Such a scaffold could be used to help with the regeneration of bone tissue lost to disease or injury, such as jaw defects from trauma or cancer surgery.

