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Discovery speeds up healing process

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Researchers at the Centre for Cancer Biology (CCB) have discovered a technique to accelerate the healing of wounds.

The discovery at the centre in Adelaide, South Australia, has been published in the peer-reviewed international scientific journal *Developmental Cell*.

Senior author Dr Michael Samuel said chronic wounds – injuries to the skin that failed to properly heal within three months – affected hundreds of millions of people around the world and cost the Australian economy $2.6 billion a year.

"When skin is wounded, the first priority of healing is to close the wound quickly to reduce the risk of infection," Dr Samuel said.

"However, before this can be done, a scaffold needs to be set up to support the new skin, quite like when building a house. But making this scaffold is a slow process."

Dr Samuel and his team have discovered a way to speed up the process of building this scaffold, by inhibiting a protein called 14-3-3ζ.

"Interestingly, 14-3-3ζ is present at very high levels in chronic non-healing wounds like, for example diabetic wounds, suggesting that this may be the reason chronic wounds heal so slowly," he said.

"The next step of our research is to find out whether inhibiting 14-3-3ζ

can be used to help people with chronic non-healing wounds to heal their wounds quickly."

The research was led by Dr Samuel and his team including Dr Jasreen Kular and Kaitlin Scheer in the Tumour Microenvironment Laboratory at the CCB, a Medical Research Institute created by an alliance between UniSA and SA Pathology.

The work also involved colleagues from UniSA's Future Industries Institute and the Kinghorn Cancer Centre & Garvan Institute of Medical Research.

UniSA Vice Chancellor Professor David Lloyd said the research was a great example of how the CCB's specialist knowledge in basic cell biology had applications across a broad range of medical settings.

"Chronic wounds seriously impact on a sufferer's quality of life, affecting their productivity and mobility," Prof Lloyd said.

More information: Jasreen Kular et al. A Negative Regulatory Mechanism Involving 14-3-3ζ Limits Signaling Downstream of ROCK to Regulate Tissue Stiffness in Epidermal Homeostasis, *Developmental Cell* (2015). DOI: 10.1016/j.devcel.2015.11.026

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