



SKIN RESEARCH INSTITUTE
OF SINGAPORE



JOINT NEWS RELEASE

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NTU Singapore, SRIS, and Celligenics collaborate on new therapy for chronic wounds

Scientists from **Nanyang Technological University, Singapore (NTU Singapore)**, the **Skin Research Institute of Singapore (SRIS)**, and local biotech start-up **Celligenics** are working together to develop accessible and affordable therapies to accelerate healing in chronic wounds such as diabetic ulcers and bed sores.

The collaborative research effort, led by Professor David Becker, an expert on tissue repair and regeneration at NTU Singapore's **Lee Kong Chian School of Medicine (LKCMedicine) and at SRIS**, will see the team of scientists formulating proof-of-concept wound healing patches, gels, or sprays using a regenerative extract developed by Celligenics, a spin-off from the **Agency for Science, Technology and Research (A*STAR)**.

This regenerative extract is derived from stem cells obtained through Celligenics' proprietary stem cell technology, which are able to stimulate cell repair. Preliminary data suggest a one-third acceleration in wound closure upon treating wounds with this extract, highlighting the extract's potential in addressing the needs of chronic wounds.

The prototypes developed by the NTU-SRIS-Celligenics team are being tested on a first-of-its-kind wound healing platform developed by **SRIS, a tripartite partnership between A*STAR, the National Healthcare Group, and NTU**. This platform, which was funded as a project under the Wound Care Innovation for the Tropics (WCIT) programme, captures many of the features of human chronic wounds, unlike existing platform technologies.

Professor of Tissue Repair and Regeneration David Becker at NTU LKCMedicine and at SRIS said: "Chronic wounds such as diabetic foot ulcers and venous leg ulcers typically afflict the elderly, who often have poor circulation in their lower limbs. If left untreated, such wounds can lead to amputations, or even death if bacteria from the wound

enters the bloodstream. In Singapore, there are at least four diabetes-related lower leg amputations daily¹. Economically, chronic wounds cost at least US\$216 million worth of healthcare burden in Singapore². Currently, dressings for chronic wounds are physical barriers; none offer biological actives that stimulate the body's healing process. Through tapping the expertise of NTU LKCMedicine, SRIS, and Celligenics, we hope to come up with a new therapy that will help stimulate the healing process."

Mr Kurt Wee, Chief Executive Officer at Celligenics, said: "Many chronic wound care clinicians in the US and China noted that if they can accelerate healing time by 10 per cent, they would be able to save many patients and reduce healthcare costs and burden significantly. Our technology enables significantly accelerated wound-healing, which means we can reduce the complications of chronic wounds, saving lives and cutting costs for healthcare systems and nations. This collaboration is integral to our plan towards wider clinical developments in Singapore and China."

Dr Ng Yi Zhen, Programme co-lead at Wound Care Innovation for the Tropics Programme, SRIS, and Theme Lead for Wounds, A*STAR Skin Research Labs said: "Wound research is an important focus area in SRIS and we have developed in-house wound model testing capabilities, including a first-of-its-kind perturbed wound model for chronic wounds where wound closure is delayed significantly. We hope this collaboration with the NTU Lee Kong Chian School of Medicine and Celligenics will lead to better patient health outcomes and anchor Singapore's spot as a global innovation hub."

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¹ Ang Y, Yap CW, Saxena N, Lin LK, Heng BH. Diabetes-related lower extremity amputations in Singapore. Proc Singapore Healthcare. 2017;26(2):76-80.

² Lo, ZJ, Lim, X, Eng, D, et al. Clinical and economic burden of wound care in the tropics: a 5-year institutional population health review. Int Wound J. 2020; 17: 790– 803.

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About Nanyang Technological University, Singapore

A research-intensive public university, Nanyang Technological University, Singapore (NTU Singapore) has 33,000 undergraduate and postgraduate students in the Engineering, Business, Science, Humanities, Arts, & Social Sciences, and Graduate colleges. It also has a medical school, the Lee Kong Chian School of Medicine, established jointly with Imperial College London.

NTU is also home to world-class autonomous institutes – the National Institute of Education, S Rajaratnam School of International Studies, Earth Observatory of Singapore, and Singapore Centre for Environmental Life Sciences Engineering – and various leading

research centres such as the Nanyang Environment & Water Research Institute (NEWRI) and Energy Research Institute @ NTU (ERI@N).

Ranked amongst the world's top universities by QS, NTU has also been named the world's top young university for the past seven years. The University's main campus is frequently listed among the Top 15 most beautiful university campuses in the world and has 57 Green Mark-certified (equivalent to LEED-certified) buildings, of which 95% are certified Green Mark Platinum. Apart from its main campus, NTU also has a campus in Novena, Singapore's healthcare district.

Under the NTU Smart Campus vision, the University harnesses the power of digital technology and tech-enabled solutions to support better learning and living experiences, the discovery of new knowledge, and the sustainability of resources.

For more information, visit www.ntu.edu.sg.

About Skin Research Institute of Singapore

The Skin Research Institute of Singapore (SRIS) was established in 2013 as a 3-way partnership between A*STAR, Nanyang Technological University and National Skin Centre, part of the National Healthcare Group. We link scientists, clinicians and engineers to improve skin health using innovative science and technology. We foster multi-disciplinary collaborations and translational skin research projects between different institutions in Singapore. We focus on skin conditions prevalent in Asia, as well as how skin phenotypes differ in different Asian populations and the tropical environment.

The Wound Care Innovation for the Tropics (WCIT) programme is a first-of-its-kind research programme in the world to focus on wound care in tropical climates. We aim to transform the care of hard-to-heal chronic wounds and reduce the economic and social burden created by this silent epidemic. The programme focuses on accelerating the development of novel wound care therapies and practices, to transform how chronic wounds are detected, managed and monitored to accelerate the healing process. For more information, visit <https://www.a-star.edu.sg/sris> and follow us on [LinkedIn](#).

About the Agency for Science, Technology and Research (A*STAR)

The Agency for Science, Technology and Research (A*STAR) is Singapore's lead public sector R&D agency. Through open innovation, we collaborate with our partners in both the public and private sectors to benefit the economy and society. As a Science and Technology Organisation, A*STAR bridges the gap between academia and industry. Our research creates economic growth and jobs for Singapore, and enhances lives by

improving societal outcomes in healthcare, urban living, and sustainability. A*STAR plays a key role in nurturing scientific talent and leaders for the wider research community and industry. A*STAR's R&D activities span biomedical sciences to physical sciences and engineering, with research entities primarily located in Biopolis and Fusionopolis. For ongoing news, visit www.a-star.edu.sg.

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About Celligenics

Celligenics is a Singapore biotech company specialising in stem cell-derived therapies to address the growing lifestyle and clinical needs of a global market. We are a spin-off of the Agency for Science, Technology & Research (A*STAR) and we work on stem cell technologies and capabilities in collaboration with the local research and clinical community³. Our proprietary technologies enable us to isolate and expand a unique subpopulation of stem cells with superior self-renewing, wound-healing, anti-inflammatory and regenerative properties. Cell-free extracts are currently being developed into allogeneic solutions to address unmet clinical needs in chronic wound care, degenerative and ageing-related disorders.

Join us in our breakthrough at www.celligenics.com.

³ includes A*STAR, National University of Singapore, NTU Singapore, local hospitals and their Academic Medical Centres (AMCs)