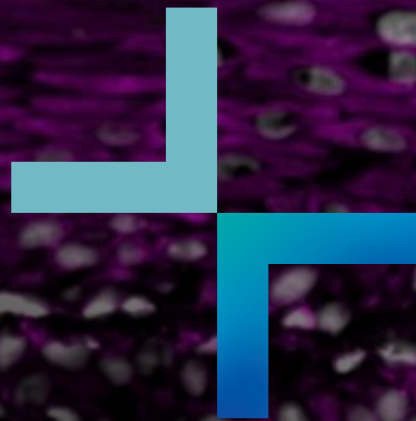


Skin Engineering

System for rapid growth of full-thickness autologous skin.



Background

Burns are a major global public health problem, resulting in an estimated 180,000 deaths per year. Non-fatal burns are a leading cause of morbidity and are associated with prolonged hospitalisation, disfigurement, disability and pain.

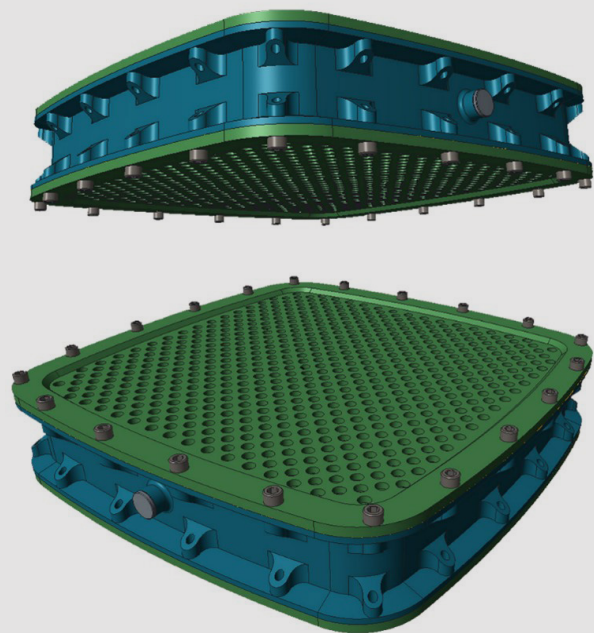
The current gold standard treatment for burns is split thickness skin grafts (STSG). Skin used in this procedure consists of epidermis and part of the dermis. However, contractures can occur during healing and poor appearance can result from colour changes.

If the burn area is large and there is insufficient healthy skin to produce grafts to cover the entire burn, repeated grafts must be used. This means skin is re-harvested from the uninjured sites every 10-20 days resulting in prolonged hospital stays and increased patient discomfort.

Technology

We have developed a new cell culturing method that allows the generation of large areas of graftable full-thickness skin using a patient's own cells ("autologous").

Our patented proprietary system combines: (1) a novel cell culture medium, (2) a novel biomaterial to provide a robust substrate for skin cells to grow on, and (3) a novel cell culture device that generates full-thickness autologous skin of up to 20cm x 20cm with minimal manipulation.



Major advantages

- Ability to use patient's own cells – autologous skin so no graft rejection risk.
- Both dermal and epidermal layers – permanent wound coverage even for full-thickness wounds.
- Faster production based on proprietary medium.
- Reduced cell manipulation and contamination risk for improved safety.
- Potential to heal major wounds and treat life-threatening skin diseases.

Applications

- Burns – as an autologous skin substitute for full-thickness burns.
- Chronic wounds – as an autologous skin cover to assist in healing.
- Genetic skin diseases – as skin repair products generated with gene-corrected autologous cells.
- Skin toxicity testing – the same system is being miniaturised to enable high-throughput testing of chemicals, cosmetics and bioactive ingredients for toxicity and other effects on human skin, to enable more efficient replacement of animal testing with human skin-based assays.

UniServices by the numbers

Total external research funding:

\$261.3M

(35% increase over 2020)

45

companies started in the past five years

\$1.25BN

Total market capitalisation of companies formed

\$73.5M

Net asset value of the University of Auckland Inventors' Fund

17,335 Covid-19 vaccinators trained by the Immunisation Advisory Centre in 2021

1,700

New Zealand teachers reskilled and upskilled through Tui Tuia | Learning Circle professional learning and development in 2021

3,000

clinical staff at 22 DHBs trained through teamwork-based acute care simulations designed by NetworkZ in the past five years

14,391 times that child and youth mental health workers attended Whāraurau e-modules, trainings and workshops in 2021

UniServices

UniServices is a not-for-profit company of the University of Auckland that champions research and ideas with the power to change the world. From seeking out and bringing together partners in academic institutions, industry and government to build new knowledge and solutions through research; to whakatupu (nurturing) and commercialising the ideas and intellectual property that arise from the University of Auckland's great minds, we act as the kaihono (those who join and link people to people, and people to projects) firmly entrenched in the ecosystem that bridges the world of academia with business, government and our communities.

University of Auckland

Waipapa Taumata Rau | The University of Auckland is New Zealand's largest and leading university. The name Waipapa Taumata Rau, gifted to the University by Ngāti Whātua Ōrākei, refers to the 'place of many peaks' – places to strive for, ascend to and succeed. We also rank in the top 10 globally for sustainable development impact. The University supports economic growth locally and nationally through innovation and entrepreneurship, creating quality jobs and high-value businesses, and producing graduates that contribute to our economy and society for the benefit of all.

Contact



Kimberlee Jordan
Snr Commercialisation Manager
+64 9 923 9520
kimberlee.jordan@auckland.ac.nz



Evelyn Body
Director of Commercialisation- BioTech
+64 21 405 267 or +64 9 923 2643
e.body@auckland.ac.nz

UniServices

Level 10, 49 Symonds Street,
Private Bag 92019,
Victoria Street West,
Auckland 1142, New Zealand
+64 9 373 7522 uniservices.co.nz

uniservices+
IDEAS TO LIFE RANGAHAUA KIA WHAI HUA

