

New cell growth media for keratinocytes

A cholera-toxin and xenogeneic feeder cell-free media which maximises keratinocyte proliferation.

Background

Green's medium was developed to grow keratinocytes, the cells that make up the top layer of human skin, in the 1970's. Green's medium has been hugely successful for growing keratinocytes but has significant limitations for therapeutic applications. Green's medium requires the use of cholera toxin and xenogeneic feeder cells. Both of these components provide significant barriers in obtaining approval for therapeutic use. A number of serum-free media have been developed but none have been able to match the speed of keratinocyte growth produced by Green's medium (Figure 1).

Solution

Through our in vitro skin engineering research, we have developed the Kelch's medium formulation, which does not contain cholera toxin or xenogeneic feeder cells but is able to maximise keratinocyte proliferation equivalent to Green's medium (Figure 2).

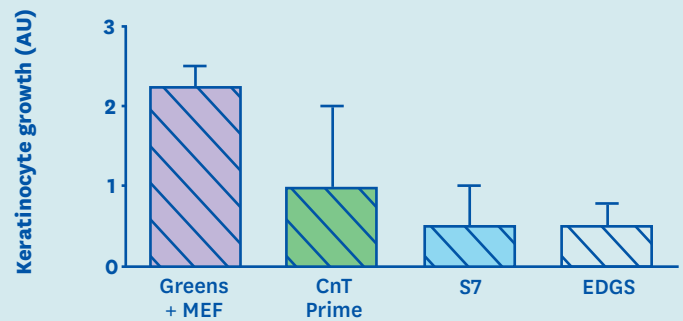


Figure 1 Green's medium v serum-free media formulations.

Keratinocyte Proliferation

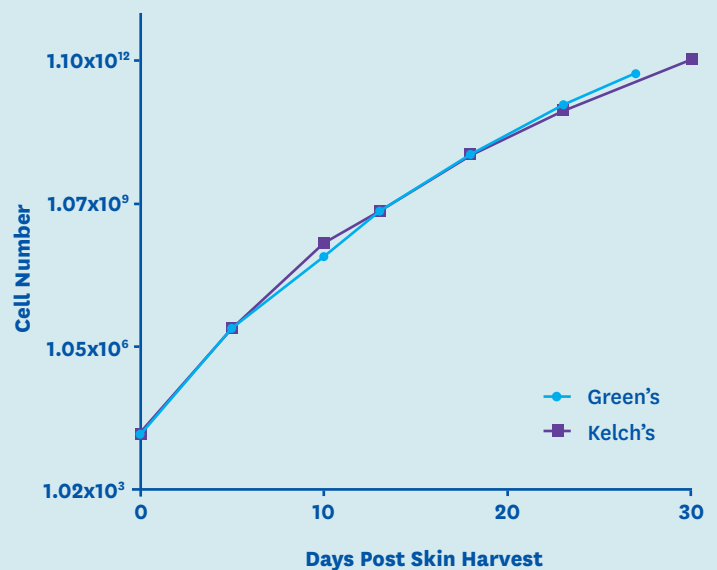


Figure 2 Kelch's medium v Green's medium.

Major advantages

- No need for cholera toxin.
- No need for xenogeneic feeder cells.
- Maximise keratinocyte survival and proliferation.
- Minimal formulation with only one factor required to be added to a standard basal media formulation containing antibiotics and an anti-mycotic.

Applications

- Commercial culture of skin cells and tissue for treatment of burn wounds.
- Commercial culture of skin cells and tissue for in vitro skin testing.
- Research applications.

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

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