



Australasian Wound & Tissue Repair Society

Researcher Profile: Professor Stuart Pitson

Stuart Pitson is an NHMRC Senior Research Fellow and Neurosurgical Research Foundation Chair of Brain Tumour Research at the Centre for Cancer Biology, University of South Australia and SA Pathology, Adelaide. He has diverse research interests that are largely centred around understanding the role of sphingolipids in cancer, fibrosis and wound healing, and exploiting this knowledge for therapeutic benefit. Specifically, his research is focused on delineating the mechanisms mediating dysregulation of sphingolipid metabolism in



disease, understanding the molecular mechanisms whereby this manifests in pathophysiology, and developing new therapeutic approaches to correct this.

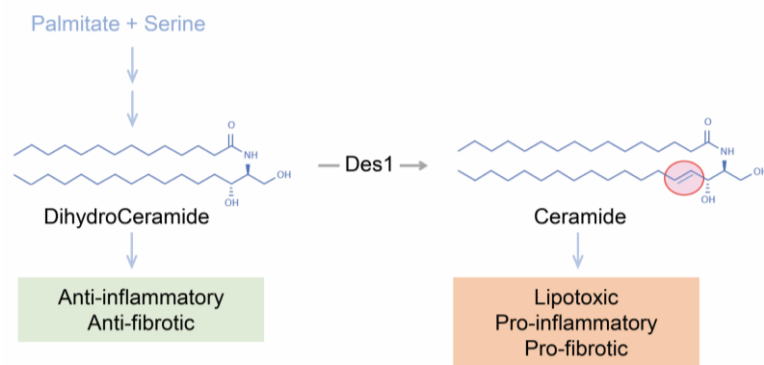
While his laboratory has numerous ongoing cancer-related studies, current projects in the broad area of wound healing and tissue repair include:

- Investigating the therapeutic modulation of cellular signalling at the wound site to improve diabetic wound healing
- Developing dihydroceramide desaturase 1 inhibitors as potential therapeutics for inflammatory and fibrotic conditions, such as non-alcoholic steatohepatitis

Stuart's research career path has been varied, but always firmly focused on the molecular regulation of enzyme activity and function. He graduated with a BAppSci in biochemistry from La Trobe University Bendigo, and then went on to obtain a PhD from La Trobe University with studies examining the isolation and characterisation of novel polysaccharide degrading enzymes from fungi. He subsequently undertook a postdoctoral position at Wageningen University, The Netherlands, characterising novel polysaccharide degrading enzymes of commercial utility. He then returned to Australia to take up a postdoctoral position at the University of New South Wales examining the metabolic pathways and enzyme regulation in the gastric pathogen *Helicobacter pylori*. He was subsequently recruited to the Hanson Centre for Cancer Research at the Institute of Medical and Veterinary Science, Adelaide, where he began his interests in sphingolipids, which continues to this day, now at the Centre for Cancer Biology, Adelaide.

Stuart was awarded an NHMRC RD Wright Career Development Fellowship in 2003, has been in receipt of NHMRC fellowships since that time, and has also been awarded more than \$17 million in research grant funding during the same period. The research ethos of his laboratory has always been

to understand the molecular mechanisms underpinning biology, develop approaches for therapeutically modulating critical targets, and testing these therapeutics in the most advanced animal models of disease. His sphingolipid research has covered various aspects of wound healing and tissue repair, including a key collaboration with the laboratory of Professor Allison Cowin at the Future Industries Institute of the University of South Australia, which has yielded exciting findings showing new, yet to be published approaches to modulation cellular signalling locally at the wound site that significantly improves cutaneous wound healing in diabetic (db/db) mice. Perhaps most notably, however, a fruitful collaboration with Associate Professor Bernard Flynn, a medicinal chemist/chemical biologist at the Monash Institute of Pharmaceutical Sciences, has developed potent dihydroceramide desaturase 1 (Des1) inhibitors that have strong therapeutic potential in inflammatory and fibrotic conditions. These findings led Bernard and Stuart to co-found Cincera Therapeutics Pty Ltd (cinceratx.com) in 2018, supported by a \$7 million venture capital commitment from the Medical Research Commercialisation Fund (MRCF). The initial focus of Cincera's drug development program is to create new medications, based on Des1 inhibition, that treat the diseases associated with lipotoxicity, with a focus on non-alcoholic steatohepatitis (NASH). However, the potential utility in a wide range of fibrotic and inflammatory diseases such as idiopathic pulmonary fibrosis, chronic kidney disease, and systemic sclerosis are also being investigated.



Stuart has just completed a term (2018-2020) as a National Committee Member of the Australasian Wound & Tissue Repair Society, and also currently serves the scientific community on the Executive of the National Association of Research Fellows (NARF), and as a regular member of NHMRC Grant Review Panels.

Stuart has had a long-standing commitment to mentorship and student training. He has supervised ten PhD students to completion, with three having won Dean's commendations, as well as two Masters students, and 16 Honours students. Most of his PhD students have gained postdoctoral research positions at international or prominent national institutions, with the success of these former students being a source of considerable pride for Stuart.