

Nanoscale Organisation and Dynamics Group

University of Western Sydney



Antimicrobial Peptides: Using Tethered Lipid Bilayer Membranes (tBLMs) to Determine How They Function

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Abstract

Cationic antimicrobial peptides have become prime candidates for next-generation antibacterial drug therapies. Though it is believed that these positively charged antimicrobials target the membranes of negatively charged bacteria, the mechanisms of their antibacterial function at the molecular level often remain unclear. A key obstacle to their development is the inability to rapidly screen their impact on bacterial and mammalian membranes. Here, new analysis and screening methods to investigate antimicrobial peptides using *tethered bilayer lipid membranes* (tBLMs) in conjunction with electrical impedance spectroscopy are presented. tBLMs consist of a metal electrode, typically gold, to which a lipid bilayer is anchored via covalently linked sulfur lipid “tethers” to the gold surface.

Profile

Dr Charles Cranfield is a Senior Research Fellow with the Victor Chang Cardiac Research Institute in Sydney, Australia. He has a Science from Monash University, and a PhD in Biophysics from Swinburne University of Technology. His current research interests are in using the tethered lipid bilayer membranes (tBLMs) to investigate the insertion and function of antimicrobial peptides. His other research interests have been in the fields of advanced fluorescence imaging techniques, fluorescent ion nanosensors, magnetic nanoparticle transfection, and electrophysiological measurements of mechanosensitive ion channels. He has had postdoctoral positions at Keele University, UK, and at the Center for Micro-Photonics at Swinburne University of Technology, Melbourne, before he was twice a Marie Curie Transfer of Knowledge Fellow at major research institutes in Ireland and Germany.

Staff and students at all levels are welcome to attend.

Venue and Time:

This talk will be held on Thursday July 25 at 2 pm at the Campbelltown Campus in Building 21, Lecture Theatre 6 (CA 21.G.18).

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