NUS National University of Singapore | Department of Biological Sciences, Faculty of Science

SEMINARS

Mon, 8 Jan 2024 | 1:30 pm | DBS Conference Room 1

Hosted by Assoc. Prof Low Boon Chuan

Rethinking Penicillin: Next generation antibiotics targeting bacterial cell walls

By **David Roper**

School of Life Sciences, University of Warwick, Coventry, United Kingdom

Inhibition of bacterial cell wall peptidoglycan crosslinking by penicillin-based compounds has been the mainstay of antimicrobial chemotherapy for decades but is threatened by acquisition of beta-lactamase enzymes and mutational resistance. Our research focusses on new approaches to drug discovery on this old target based on recent understanding that underpins bacterial shape determination.

About the Speaker

David Roper is a biochemist and structural biologist and has been at Warwick since 2001, where he is now Professor and Director of Research within the School of Life Sciences. Research in the Roper group is focused on the way in which pathogenic bacteria make their cell walls to grow, how that is related to the ways in which they divide and reproduce and also the relationship of these processes to the discovery and resistance to antibiotics.

Shape in Biology: from single cells to organs

By **Timothy Saunders**

Warwick Medical School, University of Warwick, Coventry, United Kingdom

Our organs are made from numerous confluent cells. How are cell-cell interactions coordinated to generate complex organ shape? Prof. Saunders will introduce his lab's work on how the initial heart vessel and vertebrate skeletal muscle form during development. His lab focuses on developing quantitative in vivo approaches – including biophysical perturbation – to test models of how a series of local cellular interactions generate complex morphologies at the organ scale.

About the Speaker

Prof Saunders was trained in theoretical physics, switching to biology in 2007. He worked on positioning in development and cell division. He began his own lab at the Mechanobiology Institute, NUS in 2013. There, he built an interdisciplinary group focused on understanding how mechanical interactions drive organ shaping. He has a particular interest in robustness – how do biological systems work reliably given the considerable number of potential stressors.