Infectious Diseases Labs
ID LABS

BACTERIAL ULTRA GROUP

A/Prof Michael McDonald

Monash University

Thursday, 1st August 2024
10:00am to 11:00am (SGT)

Registration required. Please click here or scan QR code to register.

Horizontal gene transfer: recombination, reverse evolution and resistance

Horizontal Gene Transfer (HGT) is a defining characteristic of microbial evolution in natural microbial communities. While HGTs importance in evolution of AMR has been clearly demonstrated by comparative genomics, there are still only a handful of studies that have incorporated HGT into evolution experiments. We have carried out a series of experiments capturing the dynamics and fitness effects of horizontally transferred genetic variants in experimental populations in the naturally competent bacteria *H. pylori* and *A. baylyi*. I will present evolution experiments, genome sequence and large-scale sequencing fitness assay data that shows how HGT can drive the spread of AMR, even without selection from antibiotics and how HGT can even reverse the evolution of antibiotic resistance. I will also discuss evolutionary strategies that can slow the spread of antibiotic resistance.

A/Prof Michael is an Associate Professor in the School of Biological Sciences at Monash University, and part of the Monash University Centre to Impact AMR, and ARC Centre of Excellence for Mathematics in Biological Systems. Originally from New Zealand, Mike carried out his PhD at Massey and Auckland Universities and then did postdocs at Academia Sinica in Taiwan, and Harvard University. He is interested in microbial evolution and ecology, and aims to use evolutionary strategies to mitigate microbial adaptation to climate change and antibiotics.

Hosted by : Dr Stefan Oehlers

NUS National University of Singapore

NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

SCELSE Singapore Centre for Environmental Life Sciences Engineering

Singapore's Bacterial Pathogenesis Community #SGBUG

Questions? Contact us at **seminars@idlabs.a-star.edu.sg**

Brought to you by A*STAR ID Labs

@ASTARSG @ASTARSG @ASTARTV @ASTARSG @ASTARHQ