SEMINAR

ALL ARE WELCOME

TEMASEK LIFESCIENCES LABORATORY

*Scan for address

30 Nov 2023 (Thur), 11am

The Auditorium (Level 1)

Coming of Phages – Harnessing the Power of Microbiology's Dark Matter

Dr Wilfried MOREIRA
Singapore Centre for Environmental Life Sciences Engineering (SCELSE) & Life Science Institute (LSI), Singapore



Dr. Moreira is a molecular microbiologist with 10+ years of experience in antimicrobial resistance. He holds an appointment at the Singapore Centre for Environmental Life Sciences Engineering (SCELSE). His research focuses on bacteriophages and their applications, as well as novel resistance pathways in pathogenic bacteria. Formerly, he served as Director for Research in the Antimicrobial Resistance Program at the Singapore-MIT Alliance for Research and Technology (SMART).

Bacteriophages, commonly known as phages, are often referred to as the dark matter of the microbial realm. Interest in phages has recently rekindled owing to the failure of antibiotics in treating life-threatening infections due by antimicrobial resistance. Phages hold promises in saving the lives of AMR patients, propelling the development of phage therapy initiatives globally. The potential of phages extends far beyond their potential as anti-infectives. They naturally regulate bacterial populations in the environment and are amenable to in vitro selection and genetic engineering. Consequently, phages emerge as ideal tools for manipulating intricate ecosystems like microbiomes. During this presentation, I will delve into the phage platform that I have developed and outline the avenues of research that capture my interest. I will discuss ongoing projects and explore potential applications of phage-derived technologies. These applications span from utilizing phages as microbiome modulators to engineering them to disrupt the life cycles of pathogens and combat biofilms. Furthermore, I will discuss our efforts to comprehend how bacteria can develop resistance to bacteriophages, providing a broad view of the multifaceted landscape of our phage research.

3 Recent Publications:

1. inPhocus: Current state and challenges of phage reserch in Singapore. (2022) (*co-corresponding author) - Verma NK, Tan SJ, Chen J, Chen H, Ismail MH, Rice SA, Bifani P, Hariharan S, Paul VD, Sriram B, Dam LC, Chan CC, Ho P, Goh BC, Chung SJ, Goh KCM, Thong SH, Kwa ALH, Ostrowski A, Aung TT, Razali H, Low SWY, Bhattacharyya MS, Gautam HK, Lakshminarayanan R, Sicheritz-Ponte´n T, Clokie MRJ, Moreira W*, van Steensel MAM* - PHAGE: Therapy, Applications, and Research. DOI: 10.1089/phage.2022.29028.nkv

2. Hydrogen sulfide sensitizes Acinetobacter baumannii to killing by antibiotics. Ng SY, Ong KX, Surendran ST, Sinha A, Lai JJH, Chen J, Liang J, Tay LKS, Cui L, Loo HL, Ho P, Han J, Moreira W (2020) - Frontiers in Microbiology. DOI: 10.3389/fmicb.2020.01875

3. A macromolecule reversing antibiotic resistance phenotype and repurposing drugs as potent antibiotics. Ding X, Yang C, Moreira W, Yuan P, Periaswamy B, Florez de Sessions P, Tan J, Lee A, Ong KX, Zhao H, Park N, Liang ZC, Hedrick JL, Yang YY. (May 2020) - Advanced Science. DOI: 10.1002/advs.202001374