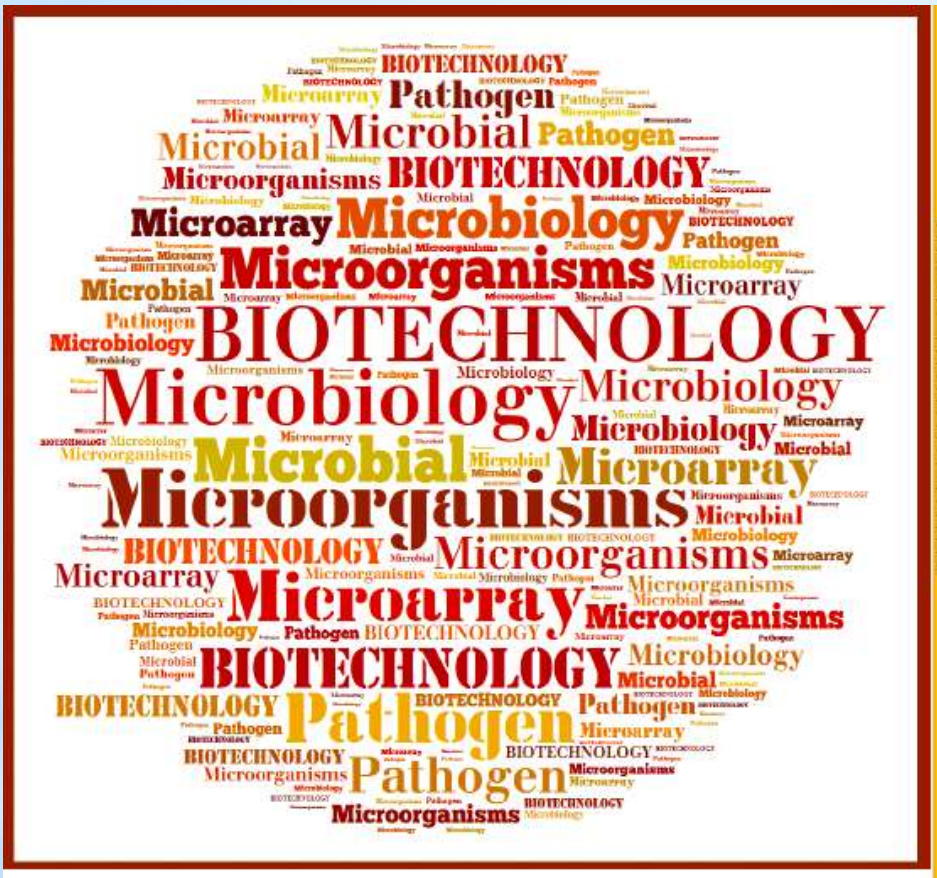
Singapore Society for Microbiology and Biotechnology 47th Annual General Meeting



Date: 24 August 2020, 2.00-4.00pm
Mode: On-line Zoom meeting (please register via email to ssmbsec@gmail.com)

Programme:

2.00pm – Talk by Prof Ooi Eng Eong , Duke-NUS Medical School
Leapfrogging COVID-19 vaccine development

2.25pm – Talk by Prof Stephen Pointing, Yale-NUS College, NUS
The ecology of desert microbes – from Earth to Mars

2.55pm - Break

3.00pm – SSMB 47th Annual General Meeting (for SSMB members only)

SSMB 47th AGM :

Leapfrogging COVID-19 vaccine development

Ooi Eng Eong BMBS, PhD, FRCPath
Professor and Deputy Director, Programme in Emerging Infectious Diseases, Duke-NUS Medical School
Co-Director, Viral Research and Experimental Medicine Centre, SingHealth Duke-NUS Academic Medical Centre

Abstract

The emergence of the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) in late 2019 has spread throughout the world to cause a coronavirus disease-19 (COVID-19) pandemic. Tens of millions of people have suffered from this acute respiratory illness, which in some cases have progressed to systemic complications, acute respiratory distress syndrome and death. Disease prevention has had to rely on social distancing, including slow down or even shutdown of certain economic sectors to limit virus transmission. COVID-19 has thus caused societies throughout the world in terms of lives and livelihoods. Vaccines that effectively prevent COVID-19 and SARS-CoV-2 infection and dissemination are thus urgently needed. In collaboration with Arcturus Therapeutics, Singapore has ventured into clinical development of a self-replicating mRNA COVID-19 vaccine named, LUNAR-CoV19. This vaccine has now completed pre-clinical studies, the data of which has justified phase 1 clinical trial in Singapore. I will describe the evidence that shaped the clinical development of this vaccine as well as the pre-clinical data that enabled a bench-to-bedside journey that shortened a 3-5 year journey into about 5 months.

Biography

Ooi Eng Eong is trained in medicine at the University of Nottingham and conducted his doctoral studies on molecular epidemiology at the National University of Singapore. He has been working in the field of dengue for 20 years and his research interest spans dengue epidemiology to molecular pathogenesis of arboviral diseases. His laboratory interfaces clinical studies with virology and immunology to address the research questions. Findings from these studies have been published in journals such as New England Journal of Medicine, Science and Nature Medicine. He is also the Director of the Global Dengue and Aedes-Transmitted Diseases Consortium, which provides consultation to health agencies in the development and implementation of innovative, targeted and synergistic approaches to prevent and control Aedes-transmitted diseases, including dengue, Zika, chikungunya and yellow fever. He is a three-time recipient of the Clinician-Scientist (Senior Investigator) Award by the National Medical Research Council of Singapore.

SSMB 47th AGM:

The ecology of desert microbes – from Earth to Mars

Prof Stephen Pointing, Yale-NUS College, NUS

Abstract

Deserts comprise the largest terrestrial biome on Earth. In extreme deserts, environmental stress limits animal and plant life such that microbial communities assume the dominant ecological role[1]. In this presentation I will describe the role of cyanobacteria as keystone microbial taxa, and how they scaffold diverse communities that include other bacteria, eukaryotic microorganisms and bryophytes. Desert microbiology has significant applied value in predicting and ameliorating drought response, dust storms and productivity patterns in drylands in response to climate change[2]. I will present data from ongoing research in these areas as well as an exciting collaboration with the US space agency NASA, where desert microbes are being used to evaluate technology to be deployed on Mars surface in the search for traces of extraterrestrial life[3].

1.Pointing, S. B. S. B. & Belnap, J. Microbial colonization and controls in dryland systems. *Nat. Rev. Microbiol.* **10**, 551–562 (2012).
2.Pointing, S. B. S. B. & Belnap, J. Disturbance to desert soil ecosystems contributes to dust-mediated impacts at regional scales. *Biodivers. Conserv.* **23**, 1659–1667 (2014).
3.Warren-Rhodes, K. *et al.* Subsurface microbial habitats in an extreme desert Mars-analogue environment. *Front. Microbiol.* **10**, 10.3389/fmicb.2019.00069 (2019).

Biography

Professor Stephen (Steve) Pointing is Professor and Director of Science at Yale-NUS College in Singapore. Steve earned his BSc and MSc degrees in microbiology from the UK. He won the prestigious Sainsbury Scholarship for postgraduate environmental research at the Bermuda Ocean Institute, and was awarded a PhD in marine microbiology in 1995. Steve gained his MBA in Education Management from Leicester University in 2010. Prior to joining Yale-NUS he held academic positions in the UK, Hong Kong, Japan and New Zealand. Professor Pointing's research addresses fundamental questions in biogeography: the science of understanding spatial and temporal distributions for life. Current research is focused on resolving drivers of microbial diversity in desert environments, estimating intercontinental dispersal of airborne microbes, and applied research to evaluate technology designed to search for traces of life on Mars.