

SINERGY SEMINAR SERIES

NUS Synthetic Biology for Clinical and Technological Innovation (NUS SynCTI)
Member of Singapore Consortium for Synthetic Biology (Sinergy)



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Enabling a rapid transition to a global bioeconomy with synthetic biology - opportunities and challenges

Petroleum has played an important role in the social, economic and political history of the world particularly in Singapore. The start of the 20th century, led to an industrial revolution in petrochemicals now accounting for about 40% of the global chemicals market worth around \$3 trillion. Given the growing global population, the widespread effects of climate change and the growing environmental pollution problem, there is an urgent need to re-think how human activities can be sustained. One growing area which aims to address these challenges is the concept of the Bioeconomy and in this talk, I will describe how new bioeconomies will be enabled by synthetic biology technology developments to accelerate the transition to global bio-based processes and products.

Professor Paul Freemont is the co-founder of the Imperial College Centre for Synthetic Biology and Innovation (2009) and co-founder and co-director of the National UK Innovation and Knowledge Centre for Synthetic Biology (SynbiCITE; since 2013) and Director of the London DNA Foundry (since 2016) at Imperial College London. He is also currently the Head of the Section of Structural Biology in the Department of Medicine at Imperial. His research interests span from understanding the molecular mechanisms of human diseases and infection to developing synthetic biology foundational tools for specific applications. His research group has pioneered the use of cell free extract systems for synthetic biology prototyping, biosensor applications and distributed manufacturing and he is the author of over 220 scientific publications (H-index 72). He is an elected member of European Molecular Biology Organisation and Fellow of the Royal Society of Biology and Royal Society of Medicine. He was a co-author of the British Government's UK Synthetic Biology Roadmap and recent member of the Ad Hoc Technical Expert Group (AHTEG) on synthetic biology for the United Nations Convention for Biological Diversity (UN-CBD). He has also appeared regularly on radio and television broadcasts on the subject of synthetic biology and has successfully co-supervised Imperial iGEM teams since 2006.

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