

# SINERGY SEMINAR SERIES

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



## Professor Richard I Kitney

Co-Director and Co-Founder of the EPSRC National Centre for Synthetic Biology and Innovation (CSynBI) and the UK National Industrial Translation Centre for Synthetic Biology (SynbiCITE) - Imperial College London

### The Importance of Standards, Foundries and Information Systems in BioDesign and Industrial Translation

The seminar will address the role of standards, foundries and information systems in relation to BioDesign and industrial translation. These will be discussed against the background of the development of BioEconomy strategy and associated roadmaps - together with the need for a low carbon economy. Synthetic biology/engineering biology will be introduced as platform technology and BioDesign in the context of prototyping and the DBTL cycle. One important endpoint of BioDesign is industrial translation. This will be discussed in relation to reproducibility and reliability - and how a strategy for engineering biology from the laboratory to the market is being developed. Technical standards and Biofoundries are important elements of this strategy. The next section of the seminar will consider the role of characterisation and Information systems. A standard for capturing characterisation data, in the context of information systems and data integration, will be described in relation to Biofoundries. This will be discussed in terms of characterisation protocols relating to constitutive promoters and the development of associated datasheets. A case study of the design of a lycopene pathway will be presented in the context of toolkits, Information Systems and the design of experiments (DoE). The final section of the seminar will consider how the overall strategy relates to the development of industrial manufacturing in the context of engineering biology.

*Professor Kitney is Professor of Biomedical Systems Engineering; Co-Director and Co-Founder of the EPSRC National Centre for Synthetic Biology and Innovation (CSynBI) and the UK National Industrial Translation Centre for Synthetic Biology (SynbiCITE) - Imperial College London. Kitney was Founding Head of the Department of Bioengineering at Imperial College. He is a member of the UK Government's Ministerial Committee on Synthetic Biology, Chair of its Science and Engineering Subgroup, and is an author of both of the UK Government's strategic roadmaps for synthetic biology. Kitney Chaired The Royal Academy of Engineering Inquiry into Synthetic Biology – Synthetic Biology: Scope, Applications and Implications (published in May 2009). Kitney was made a Fellow of the World Technology Network in 1999 for his innovative work in the fields of health and medicine. He was made an Academician of the International Academy of Biomedical Engineering in September 2003. He is also a Fellow of AIMBE, the America Academy of Biomedical Engineering. In 2006 he was made an Honorary Fellow of both The Royal College of Physicians and The Royal College of Surgeons (UK). He is a Visiting Professor at Singapore's National University (NUS) and an International Fellow of the US Engineering Biology Research Consortium.*

Tuesday, 28<sup>th</sup> May 2019 | 11am  
CeLS Auditorium #01-07

[syncti.org](http://syncti.org) | [sinergy.sg](http://sinergy.sg)  
Hosted by: A/Prof Poh Chueh Loo

