

SynCTI SEMINAR SERIES

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



Dr Jeroen Muller

Biotransformation Group Leader
Nestlé

From Gene to Activity - Exploiting the Potential of Nestlé Culture Collection

Nestlé boasts a culture collection of more than 3000 food-grade strains (Nestlé Culture Collection, NCC) that has been integrated into an R&D network covering microbiology, fermentation, food processing, nutrition and health, as well as clinical trials, enabling the development of a large range of functional foods containing beneficial microbes. Today the genomes of all NCC strains have been sequenced, assembled and annotated. The resulting genome databank allows direct evaluation and exploration of the NCC microbes for development of fermented foods with enhanced taste and texture, functional benefits, and/or probiotics. The sequenced NCC can also be used to identify and source specific enzymes, as well as enable easy screening for the presence or absence of undesired metabolic pathways or antibiotic resistance genes. In this presentation, we will illustrate how the newly developed bacterial genomic platform is used to go from gene to activity, bridging between in silico analysis and preclinical or proof-of-concept human trials. Examples include the use of lactic acid bacteria to deliver functional molecules or enzymes that could alleviate specific food adverse reactions, identification and application of lactic acid bacteria as delivery systems for micro-nutrients like iron, the use of specific lactic acid bacterial enzymes for the conversion of sugars into fibers and the identification of metabolic routes for the production of desired flavor molecules.

Biography

Dr. Jeroen Muller graduated from Delft University of Technology with a degree in Biochemical Engineering and received his PhD in Microbiology from University College Cork, Ireland. He has over 10 years of working experience in the bioprocessing industry with expertise in probiotic fermentation, enzyme hydrolyses and solid-state fermentation. Within Nestlé, Dr Muller leads the Global Biotransformation Expert Network, which explores the use of biotransformation as a natural technology to deliver healthy and tasty products. In Singapore, he leads the Biotransformation team supporting the brands MAGGI, MILO and NESCAFE to deliver technologies for product innovation.

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CeLs Auditorium

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Hosted by A/P Poh Chueh Loo