

ICB seminar series 2015/16 chairman: Prof. Dr. Rudi Gunawan

MICROFLUIDIC TECHNOLOGIES FOR THE BOTTOM-UP CONSTRUC-TION OF ARTIFICIAL CELLS

Prof. Dr. Oscar Ces Department of Chemistry, Imperial College London

ETH Hönggerberg, 04/05/2016 HCI J 7, 15.00 h

The Seminar will be followed by an Apéro



Abstract. This talk will outline microfluidic strategies for bottom-up synthetic biology that are being used to construct multi-compartment artificial cells where the contents and connectivity of each compartment can be controlled. These compartments are separated by biological functional membranes that can facilitate transport between the compartments themselves and between the compartments and external environment. These technologies have enabled us to engineer multi-step enzymatic signalling cascades into the cells leading to in-situ chemical synthesis and systems that are capable of sensing and responding to their environment. Finally, we have developed printing strategies for translating these enzymatic pathways into microfluidic flow reactors that have the potential to be scaled-up for industrial usage.

Speaker highlights. Dr Oscar Ces is a Reader at the Department of Chemistry at Imperial College London. He is co-chair of the Institute of Chemical Biology (ICB), director of the ICB Centre for Doctoral Training and co-director of the Membrane Biophysics Platform. His expertise lies in soft condensed matter and membrane biophysics, artificial cells, bottom-up synthetic biology, membrane-protein interactions, biomembrane mechanics, drug-membrane interactions, single-cell analysis using microfluidic technologies and biomimetic-microfluidic systems.



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