BIOENGINEERING SEMINAR

“Engineering Bioluminescent Sensor Proteins and Beyond: from Point-of-Care Diagnostics to DNA-Based Molecular Computing”

Monday, December 10, 2018, 14h00
EPFL – room AI 1 153

Prof. Maarten Merkx
Institute for Complex Molecular Systems (ICMS), Eindhoven University of Technology, Eindhoven (NL)

host: Prof. Bruno Correia

Abstract

In my presentation I’ll show how modular protein sensor design strategies originally developed for FRET sensor proteins are easily adapted for the development of robust BRET and dual BRET/FRET sensors. In particular I’ll focus on the development of various BRET-based homogenous assays that allow detection of antibodies (LUMABS; LUMinescent AntiBody Sensors), small molecules, proteins and DNA/RNA directly in complex matrices such as blood plasma. In addition to developing BRET-based homogenous immunoassays for point-of-care diagnostics, my group is also exploring more complex biomolecular systems that can integrate sensing of multiple analytes, signal processing and actuation all on a molecular level. In my lecture I’ll present generic strategies that combine protein-based sensing and actuation with DNA-based computing, including efforts to confine and accelerate these molecular computational networks by templating on supramolecular polymers.

See current Bioengineering seminar calendar at https://bioengineering.epfl.ch/seminars