DIPARTIMENTO DI FARMACIA E BIOTECNOLOGIE

Life & Chemical Sciences Seminars

Engineering Bacterial communities: from sensing to bioremediation

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Martedì 13 marzo ore **14:30** – presso Aula 1 via Belmeloro 6
(ospite Prof. P. Brigidi)

Abstract

New approaches to engineering microorganisms are being developed that utilise standardised approaches, mathematical modelling and systematic design to create new biological applications using synthetic biology approaches. To-date the majority of these applications have involved the engineering of a single species. However, in natural systems, these organisms do not exist in isolation. They exist as part of complex communities that have evolved to co-exist, often in mutualistic associations. If we have to make the most of synthetic biology approaches for the development of applications outside of the laboratory we must develop the technology that allows microbial communities to be engineered. In this talk I will present out research in the area developing technology for microbial community engineering. I will illustrate our work by reference to work in the areas of engineering waste-water communities for micropollutant breakdown, the engineering of multicellular communities for biosensing applications and for the engineering of bacterial communities that improve plant growth and health.

Biosketch

Anil Wipat is the Professor of Bioinformatics at the School of Computing Science at Newcastle University. He co-directs Newcastle's Interdisciplinary Computing and Complex BioSystems (ICOS) research group. He is also affiliated with the Centre for Bacterial Cell Biology and co-director of the Centre for Synthetic Biology and Bioexploitation. His research is focussed on integrative bioinformatics, systems and synthetic biology. The biological applications of his research are quite diverse ranging from microbiology and metagenomics, through to the mechanisms of human genetic disease and ageing.

Commissione Ricerca e Attività Correlate