UNIVERSITY OF Southampton

Institute for Life Sciences Seminar

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Date: Monday 1 July 2013, 17:00
Venue: Building 6, Room 1077 (L/T A)

"The Perfect Slime - Contributions of the Matrix to the Emergent Properties of Biofilms"

In biofilms, microbial life is organized within a matrix of extracellular polymeric substances (EPS). This matrix keeps biofilms together and provides their mechanical stability. It allows for the formation of synergistic microconsortia, orchestrated degradation of recalcitrant organics, intense communication, expression of virulence factors, and extended tolerance to antibiotics and disinfectants. Extracellular enzymes are retained by the matrix and turn it into an external digestion system. Thus, the matrix enables the biofilm organisms to develop emerging properties, i.e., properties which are not predictable from those of planktonic microorganisms. Living in a biofilm is a quantum leap in terms of survival chances, spectrum of nutrients which can be utilized and complex organization of interactions. Thus, the matrix imparts biofilms with properties of a cooperative tissue, although it should not be neglected that, in spite of all cooperation, biofilms are also the stage of fierce competition. In summary, the matrix is a major reason for the evolutionary success of the biofilm mode of life.

Refreshments available after the seminar