

# IMCB Invited Speaker



**Speaker : Prof. Anthony Wilkinson**  
*Structural Biology Laboratory, Department of Chemistry,  
University of York, UK*

Date : 27 September 2013, Friday

Time : 4:00PM - 5:00PM

Venue : IMCB Seminar Room 3-46, Level 3, Proteos, Biopolis

Host : Dr. Edward Manser

## Seminar :

### Protein Complexes Regulating Transcription and Shaping Adaptation and Cell Fate in *Bacillus*

Under nutrient rich conditions, bacteria grow and multiply by a process of cell expansion followed by division at mid-cell to generate identical daughter cells. When starved, bacteria slow down their metabolism and adopt various strategies to survive. Some bacteria have the capacity to form dormant cell forms called spores, which are resistant to many chemical and physical challenges that normally kill bacteria. The capacity of spores to lie dormant and then germinate presents threats as well as potential benefits to human health and welfare. Here I will describe structural and interaction studies of regulatory proteins involved in sporulation in *Bacillus subtilis*. These proteins have roles in nutrient sensing, DNA replication control and the spatial and temporal control of RNA polymerase sigma factor activity. Finally, I will describe work on a bifunctional protein complex that mediates both a process of bacterial phagocytosis and the formation of an intercellular channel during cell differentiation during spore formation.

## About the Speaker :

Tony Wilkinson trained for his PhD with Professor Alan Fersht at Imperial College London working in protein engineering on tyrosyl tRNA synthetase. He subsequently spent two years as a post-doctoral fellow in the laboratory of Professor James Wang at Harvard University working on DNA topoisomerases and learning DNA enzymology, followed by a further two years with Professor Guy Dodson at the University of York learning protein crystallography working on ligand discrimination in myoglobin and the allosteric mechanism in haemoglobin. He subsequently took up an academic post in the York Structural Biology Laboratory in the Chemistry Department where he is now a Professor. His group has studied sequence-independent peptide binding in transporter systems and transcriptional regulators in *Bacillus* with a focus on the control and execution of the process of cell development leading to the formation of dormant spores. More recently he has been working on proteins from *Plasmodium* that represent potential drug targets in malaria.