
Seminar

Understanding membrane protein interaction and regulation using solid state NMR spectroscopy

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Membrane proteins represent a biologically and technically important challenge to the established methods for biomolecular structural characterization. Rapid developments in high-resolution solid state NMR spectroscopy have opened up this technique as a complement to X-ray crystallography for understanding their structure, function and regulation at the sub-molecular level in their native environment – fluid lipid bilayers. I will discuss some of my work in the development of oriented and magic angle spinning techniques in solid state NMR spectroscopy and their application in understanding the regulation of cardiac and skeletal muscle relaxation processes. Specifically, the structural basis for the highly conserved regulatory interaction between sarcolipin and Sarcoplasmic Reticulum Ca^{2+} ATPase - the primary protein that effects muscle relaxation, will be addressed. In addition, I will talk about how these solid state NMR techniques combined with orthogonal biophysical experiments will be used in order to understand the structure and organization of a hetero-oligomeric complex involved in the transport of pyruvate into the mitochondria – a central node of a wide range of metabolic processes.

Tuesday, Sep 16th 2014

11:30 AM (Tea/Coffee at 11:15 AM)

Seminar Hall, TCIS