



Invitation

September 13, 2024 (Friday)

15:00 - 16:00

Speaker: Prof. Satyajit (Jitu) Mayor

Leverhulme International Professor

Centre for Mechanochemical Cell Biology

Warwick Medical School

**Title: Encoding mechanical and chemical information
in cell membrane organization: a sensory engram**

The surface of a eukaryotic cell interfaces with the external milieu constantly decoding signals in the form of chemical and mechanical inputs. These cues are interpreted primarily by membrane receptors which are embedded in the plasma membrane, a fluid matrix templated by an active cortical actin meshwork. One such membrane receptor, the integrin receptor, receives chemical inputs in the form of the extracellular matrix, and mechanical signals from the physical environment. Prof. Mayor's group found that the activation of these two pathways result in the creation of localized membrane domains consisting of nanoclusters of GPI-anchored proteins and lipids, resembling active emulsions. These membrane domains are generated by active processes involving acto-myosin stresses, imprinting the membrane with unique patterns. They hypothesize that this enables the encoding of the chemical and mechanical nature of the external milieu, resulting in the regulation of crucial aspects of integrin receptor function such as cell spreading and migration. Thus, this ATP-fueled membrane composite behaves as a mechano-responsive medium, serving to integrate chemical and physical cues presented at the cell periphery for the regulation of cell physiology.

Following this seminar, we will have a small **workshop** at the same venue (16:00 – 16:40). Jitu will talk about “**The membrane of a living cell - an ATP-fueled fabric**”.

Venue: Lab3 C700

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