

Seminar

Curvature-dependent Reorganisation of Endoplasmic Reticulum during Epithelial Cell Migration

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Epithelial tissues close gaps of varying sizes and geometries using two distinct mechanisms: lamellipodial crawling at convex edges and purse-string contraction at concave edges. Cooperation between these dual modes of migration is fundamental to re-establish tissue integrity and is shown to depend on geometry of the gap. However, very little is known about how the cells respond to the geometrical cues. My research focuses on how the endoplasmic reticulum (ER) undergoes edge curvature-dependent reorganisation, forming tubules at convex and sheets at concave regions. This morphological tuning is driven by differential cytoskeletal forces at different curvatures. ER structure in turn modulates focal adhesion orientation, guiding appropriate migration mode. Our findings identify the ER as a key mechano-transducer that integrates cytoskeletal signals to orchestrate geometry-dependent epithelial gap closure.

Tuesday, May 20th 2025

10:00 Hrs (Tea / Coffee 09:45 Hrs)

Auditorium, TIFRH