Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad - 500107

Internal Seminar

Cooperativity and Fluctuation in Mitochondrial Potential within the Epithelial Monolayer

Sanjay Karki

TCIS, Hyderabad

Cells in a typical epithelial tissue are connected together by several types of cell-cell junctions. These connections mediate intercellular mechanical force transmission and lead to the collective cellular dynamics, in which every cell within the collective coordinates its activity with respect to its neighbours. Though the collective dynamics has emerged in several phenomena, including cell migration, polarization, competition, and division, collective regulation of cellular metabolism remains elusive. Here, we reveal the preliminary evidence supporting collective dynamics of mitochondrial potential. I will essentially talk about the dynamic heterogeneity in mitochondrial potential, which is represented by the spontaneous spatiotemporal fluctuation of the potential in a monolayer. Our finding further suggests that cells collectively tune their metabolic state in response to mechanical microenvironment, and mitochondrial potential possibly correlates with local monolayer stress. Finally, I will present its relevance in collective cell migration and cell competition.

Friday, Jul 13th 2018

11:30 AM (Tea/Coffee at 11:00 AM)

Class Room - 1, TIFR-H