**Tata Institute of Fundamental Research**
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad – 500 046

# Students' Annual Seminar

## Exploring the Role of Stx11 in Store-operated Calcium Entry

## Sritama Datta

Store-operated calcium entry (SOCE) is necessary for sustained calcium signalling in numerous cell types. Orai1, forms the pore subunit of store-operated CRAC (Calcium Release Activated Calcium) channels in the plasma membrane (PM) and Stim1 (Stromal Interaction Molecule), the ER-membrane resident calcium sensor, is required to cluster and activate Orai1 in the ER-PM junctions. Previous studies from the lab have shown that α-SNAP (alpha-soluble NSF associated protein) directly associates with Orai1 and Stim1 and is required for the functional assembly of the CRAC channel complex. With the hypothesis that additional SNARE family proteins might regulate SOCE, previously, RNAi screens were done in the lab which have identified Stx11 as a direct regulator of SOCE. We have found that Stx11 co-localises with resting Orai1 in the membrane. In Stx11 depleted cells, Orai1 cannot be efficiently clustered by Stim1 in the ER-PM junctions, which are the sites of SOCE, even though the level of expression and the ER/PM targeting of these proteins was normal. Other preliminary studies in the lab indicate that the N-terminus of Orai1 might be necessary for a direct interaction with Stx11. My ongoing work is to determine whether the unclustered and the clustered fraction of Orai1 in ER-PM junctions are still functional.

***Friday, Apr 19th 2024***

***14:30 Hrs (Tea / Coffee 14:15 Hrs)***

***Seminar Hall, TIFR-H***