



**TATA INSTITUTE OF FUNDAMENTAL RESEARCH  
ENDOWMENT FUND**

**ZITA LOBO MEMORIAL AWARD LECTURE**

**Title: The process of GEEC endocytosis and signal amplification at the plasmamembrane**

**Dr. Sudha Kumari**

In metazoan cells, the cytosol and the extracellular milieu are separated by the plasmamembrane (PM). The communication between these two chemically distinct environments is brought about by highly regulated endocytic and signaling processes. One such process, namely the GPI-Anchored Protein enriched Early Endosomal Compartment (GEEC) endocytic pathway has been the focus of the thesis work of Dr. Sudha Kumari. While a majority of GPI-APs and a large bulk of PM are internalized via the GEEC pathway, its molecular mechanism remained unclear. The results from her experiments revealed that a coupling of two GTPases and subsequent dynamic actin polymerization at the PM is required for efficient operation of the GEEC pathway. Furthermore, the post-endocytic fate of GPI-APs endocytosed via GEECs was dictated by the membrane cholesterol composition and extracellular pH. Together, these results implied that the GEEC pathway is a constitutive internalization portal that is highly sensitive to the extracellular environment and cortical actin remodeling.

In this talk, Dr.Sudha will primarily discuss the molecular regulation and cargo sorting features of the GEEC pathway. In addition, she will briefly introduce the role of cortical actin in facilitating receptor signal amplification at the PM, which aids in sensitive yet robust signaling response inside the cell.

**Sudha Kumari was a PhD student at TIFR-NCBS and was awarded the Zita Lobo Memorial Award in 2009-10 for Best PhD Thesis titled "Dynamin-independent endocytosis: molecular mechanisms and membrane dynamics".**



**June 18, 2014 at 4 p.m.**

**Lecture Room AG 69, TIFR, Homi Bhabha Road, Mumbai 400005.**