



**TIFR Centre for Interdisciplinary Sciences,
Narsingi, Hyderabad 500075**

Seminar

**Persistent Signaling from Internalized Glucagon like
Peptide1 Receptor Promotes Glucose Stimulated
Insulin Secretion in Pancreatic beta Cells**

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Abstract: Glucagon like peptide 1 receptor (GLP-1R) activation regulates whole body glucose homeostasis. The receptor is stimulated both by orthosteric and allosteric activation. However the mechanism of activation and trafficking dynamics of the receptor is incompletely understood. In our present study we synthesized a novel functional analogue of GLP-1 conjugated to tetramethyl rhodamine to monitor the internalization of the receptor. Our data shows that receptor after being internalized is sorted to lysosomes. In endosomes, receptor-ligand complex is found to be co-localized with adenylate cyclase. Pharmacological inhibition of endocytosis attenuates GLP-1 receptor mediated cAMP generation and consequent downstream protein kinase-A substrate phosphorylation and glucose stimulated insulin secretion. Our study underlines a paradigm shift in GLP-1 receptor signaling and trafficking. The receptor ligand complex triggers cAMP generation both in plasma membrane and in endosomes which has implications in receptor mediated regulation of insulin secretion.

Date: Tuesday, January 29th 2013

Time: 11:30AM (Tea/Coffee at 11:15AM)

Venue: Conference Hall, TCIS

All are cordially invited