

SEMINAR ANNOUNCEMENT

We would like to invite you to attend this seminar hosted by Prof. Walter Hunziker:

Date: 12 January 2015, Monday

Time: 11:00AM – 12:00PM

Venue: Level 3, IMCB Seminar Room 3-46, Proteos, Biopolis

Speaker: Dr. Shiva Tyagarajan, Junior Group Leader, Department of Pharmacology and Toxicology, University of Zurich, Switzerland

Title: Building bridges (gephyrin) for effective downstream communication: A story of GABAergic synapse biology

Fast synaptic inhibition in the CNS is mediated mainly by type A γ -Aminobutyric acid receptors (GABAARs), which form ligand-gated chloride channels in the membrane. The receptors are immobilized at synaptic sites via their interaction(s) with proteins at the post-synaptic density (PSD) in order to be activated by pre-synaptically released neurotransmitter. Identifying the biochemical architecture of the PSD and elucidating their structure-function relationship is essential to understand synapse function. The PSD contains signaling molecules that monitor changes in network activity in real time to dynamically adapt the local synapse structure and function. The focus of my research is on a multifunctional protein gephyrin, which acts as an organizer of sophisticated scaffolds at GABAergic synapses to facilitate inhibitory neurotransmission. My research has identified gephyrin scaffolds as a hub for downstream signaling, facilitating monosynaptic adaptations, and also heterosynaptic cross talk. My research employs diverse methodologies to identify fundamental neural mechanisms and study formation and plasticity at GABAergic synapses. These mechanisms are especially relevant in the context of brain disorders..

Biography:

My scientific quest started with a Bachelors education in Botany, and a minor in Biotechnology, introducing me to the dual world of plants and microbes. However, my desire to understand the molecular underpinnings of the microbial world took me to the Molecular Biophysics Unit at the Indian Institute of Science. I designed temperature sensitive mutants of the E.Coli gyrase, CcdB, to understand the biophysical basis of protein folding for my Master thesis. My Ph.D was in the field of tumor virology from the Pennsylvania State University. The world of small DNA tumor viruses offered insights into how such small viruses hijack the eukaryotic cellular machinery for their own gain. I moved to the University of Zurich for my post-doctoral training in neurobiology. I have subsequently combined my expertise in biochemistry and molecular biology with brain morphology and microscopy to understand the fundamental basis of brain function.

ALL ARE WELCOME (No registration required)