

IMCB Invited Speaker



Speaker : A/Prof. Frederic Meunier
*NHMRC Senior Research Fellow, Queensland Brain Institute,
University of Queensland, Australia*

Date : 16 April 2013 (Tuesday)

Time : 11:00AM - 12:00PM

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

Host : Prof. Wanjin Hong

Seminar :

**New insights into the neurosecretory mechanism gleaned
using single vesicle and particle tracking**

Neurons and neurosecretory cells communicate through the release of neurotransmitter and hormones stored in synaptic and secretory vesicles. Our laboratory study the microenvironmental forces that transport these vesicles to the plasma membrane to undergo Ca^{2+} -dependent fusion. How secretory vesicles are recruited to the cortical actin network from where they are shuttled to the plasma membrane is currently unknown. We have used an array of new techniques including single vesicles and single particle tracking to uncover new insights into the mechanism by which secretory vesicles interact with the cortical actin network in an activity-dependent manner. I will highlight the sequential role played by Myosin VI and the lipid phosphatidylinositol(4,5)bisphosphate in anchoring secretory vesicles to the cortical actin network¹ prior to actively shuttling them to the plasma membrane^{2,3}.

1 Tomatis, V. M. *et al.* Myosin VI small insert isoform maintains exocytosis by tethering secretory granules to the cortical actin. *J Cell Biol* 200, 301-320, (2013).

2 Wen, P. J., Osborne, S. L. & Meunier, F. A. Dynamic control of neuroexocytosis by phosphoinositides in health and disease. *Progress in lipid research* 50, 52-61, (2011).

3 Wen, P. J. *et al.* Phosphatidylinositol(4,5)bisphosphate coordinates actin-mediated mobilization and translocation of secretory vesicles to the plasma membrane of chromaffin cells. *Nature communications* 2, 491, (2011).

About the Speaker :

Associate Professor Frederic Meunier obtained his Masters degree in Neurophysiology at the Paris XI University, France in 1992 and completed his Ph.D in Neurobiology at the CNRS Gif-sur-Yvette, France in 1996. He was the recipient of a European Biotechnology Fellowship and went on to postgraduate work at the Department of Biochemistry at Imperial College (1997-1999) and at Cancer Research UK (2000-2002) in London, UK. After a short sabbatical at the LMB-MRC in Cambridge (UK), he became a group leader at the School of Biomedical Sciences at the University of Queensland in 2003. He joined the Queensland Brain Institute of the University of Queensland, Australia in 2007 and obtained an NHMRC senior research fellowship in 2009.