Institute of Molecular and Cell Biology
A*STAR

SEMINAR ANNOUNCEMENT

We would like to invite you to attend this seminar hosted by Prof. Wanjin Hong:

Date: 15 January 2015, Thursday
Time: 11:00AM – 12:00PM
Venue: Level 3, IMCB Seminar Room 3-46, Proteos, Biopolis

Speaker: Dr. Sreenivasan Ponnambalam, Reader in Human Disease Biology, School of Molecular & Cellular Biology, University of Leeds, UK
Title: Multidisciplinary Studies in Angiogenesis & Vascular Physiology in Health & Disease

Blood vessels use membrane-bound receptors to bind soluble factors that regulate development, homeostasis and health. Aberrant regulation of vascular receptor-ligand complexes can cause a variety of dysfunctional states including cancer, heart disease and peripheral arterial disease. This seminar will compare and contrast 2 different types of ligands: vascular endothelial growth factors (VEGFs) and oxidised low-density lipoprotein particles (OxLDLs). The mammalian endothelium expresses specific receptors that bind such substances which trigger signal transduction pathways that regulate many aspects of endothelial function. VEGF-A regulates many aspects of endothelial function by binding 2 receptor tyrosine kinases called VEGFR1 and VEGFR2 and is strongly linked to cancer and tumour metastasis. I will show our current understanding of how different splice isoforms may 'program' VEGFR function resulting in unique signal transduction and gene expression that controls cell proliferation, migration, tubulogenesis and inflammation. In contrast, the vascular LOX-1 scavenger receptor binds OxLDL and is implicated in promoting atherosclerosis. I will show how cell biology, gene therapy and transgenic mouse studies have been integrated to identify new membrane trafficking step that is important for the development of atherosclerosis. These 2 different models systems highlight the need for a multidisciplinary approach to understanding complex cellular functions that are relevant to pathological states such as cancer and heart disease.

Biography:
The University of Birmingham was where I did my Biochemistry BSc and my PhD on catabolite-mediated gene expression in bacteria. In 1988, a postdoc at Stanford University Medical School (USA) began my long-term cell biology interest with cloning of the human and rat beta2 adaptin polypeptides that are part of the AP2 adaptor complex that regulates receptor-mediated endocytosis. In 1991, a 2nd postdoc with Graham Warren at Cancer Research UK London, studied mechanisms of trans-Golgi network localisation. In 1995, I became principal investigator and Medical Research Council Senior Research Fellow at the University of Dundee (Scotland) where I studied the integration of signal transduction and membrane trafficking pathways. In 2000, I was appointed to the School of Molecular and Cellular Biology at Leeds. Here, my laboratory is studying how our understanding of vascular receptor-ligand interactions can be applied to diagnosis and treatment of serious chronic disease states.

ALL ARE WELCOME *(No registration required)*