The Singapore Bioimaging Consortium (SBIC) and
Institute of Molecular and Cell Biology (IMCB)
present a seminar

on

"Tropomyosin Directed Regulation of the Actin Cytoskeleton in Time and Space; Identification of Specific Filaments involved in Metabolism in the Mouse"

Speaker: **Dr Peter Gunning**
Head, Oncology Research Unit
University of New South Wales
Date : **Friday, 31 August 2012**
Time : **11.00am – 12.00pm**
Venue : **SBIC Seminar Room**
11 Biopolis Way
Level 2, Helios Building
Singapore 138667
(Please use Level 1 entrance)

Abstract

The actin cytoskeleton is directly involved in many cellular processes and a major question is how such diversity of function is managed by cells. The key issue is how to spatially and temporally control both qualitative and quantitative aspects of actin cytoskeleton function. It has become increasingly clear that the isoforms of one of the core components of most actin filaments, tropomyosin, form homopolymers along the length of the actin polymer which in turn dictate the functional capacity of the resulting filament. Using gene knockout and transgenic mice we have identified a specific tropomyosin isoform which regulates the level of white abdominal tissue and glucose uptake. The mechanism of action has been tested in both the mice and in adipocytes in culture. The impact on fat level involves changes in both proliferation and adipocyte size and the impact on glucose transport involves regulation of myo1c.

About the Speaker

Professor Gunning received his PhD in Australia at Monash University with Laurie Austin and first postdoc at Stanford University with Eric Shooter focusing on neuronal regeneration and neurogenesis. This was followed by a second postdoc at Stanford with Larry Kedes where he was involved in cloning the genes encoding the human contractile apparatus. Prof Gunning returned to Australia in 1987 to establish his own

group which focuses on the mechanism by which the actin cytoskeleton participates in a wide range on cellular functions. His work has combined animal and cell culture approaches with molecular genetics to identify the capacity of actin and tropomyosin isoforms to diversify the function of the actin cytoskeleton. This has led to the discovery of the role of tropomyosins in the temporal and spatial specification of actin filament function as reviewed by his group in Ann Rev Cell and DevBiol, Trends in Cell Biol and Physiol Rev.

--- Admission is free and all are welcome ---