

SEMINAR ANNOUNCEMENT

We would like to invite you to attend this seminar hosted by Prof. Wanjin Hong (IMCB) & Dr. Weiping Han (SBIC)

Date: 3 November 2014, Monday

Time: 11:00AM – 12:00PM

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

Speaker: Prof. Peter Gunning, Associate Dean (Research), Faculty of Medicine, University of New South Wales

Title: Tropomyosin: The path from cell architecture and signaling to cancer therapy

All organisms from bacteria to plants and animals have evolved the capacity to generate multiple 'actin' filaments which differ in their composition and perform functionally distinct roles within the cell. Animals achieve this using one or two cytoskeletal actins and multiple isoforms of tropomyosin which form co-polymers resulting in distinct filament populations. The majority of actin filaments in mammals exist as a co-polymer of actin and tropomyosin. The use of genetically modified cells and mice has revealed that tropomyosin isoforms are engaged in a broad range of isoform-specific functions. Recent work has focussed on the cancer-associated tropomyosin Tm5NM1. All known tumour cells retain Tm5NM1 and cancer progression is usually associated with reductions in the levels of most Tm's except Tm5NM1. The retention of Tm5NM1 in tumour cells may be related to its obligatory role in the MEK/ERK pathway and regulation of cell proliferation. Tm5NM1-containing actin filaments are required for the nuclear translocation of ERK2 and knock-out of Tm5NM1 results in cells with complete resistance to ERK2 inhibition. We have recently developed anti-Tm5NM1 drugs for the treatment of cancer. Drug treatment leads to the disassembly of the tumour cell actin cytoskeleton but does not impact striated muscle or differentiated cells in culture. The drugs have shown efficacy in whole animal tumour models of melanoma and neuroblastoma. The initial lead, TR100, leads to disruption of the G to F actin ratio and induces apoptosis via the intrinsic pathway. A new drug series has been developed which shows a substantial 'therapeutic window' and these drugs are currently in preclinical development for the childhood cancer, neuroblastoma and several adult cancers.

Biography:

Professor Peter Gunning is the Head of the Oncology Research Unit in the School of Medical Sciences and Associate Dean (Research) in the Faculty of Medicine at the University of New South Wales. His research is focused on the development of new therapeutic strategies for the treatment of childhood cancer. These strategies target the skeleton of the cancer cell and build on the principles of cell architecture that Professor Gunning's group has discovered over the last 20 years. Professor Gunning has published over 100 primary research articles and has recently edited the first book devoted to his field of research. Previous appointments have included leadership roles as Chair of the Division of Research at The Children's Hospital at Westmead, Chair of the Westmead Research Hub Executive and Chair, Board of Bio-Link, a company established by the NSW Government to support commercialisation of biomedical intellectual property.

ALL ARE WELCOME (No registration required)