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: 25 November 2014, Tuesday
Time: 11:00AM – 12:00PM
Venue: Level 3, IMCB Seminar Room 3-46, Proteos, Biopolis

Speaker: Prof. David James, Leonard P Ullman Chair in Metabolic Systems Biology, School of Molecular Bioscience and Sydney Medical School, Charles Perkins Centre, The University of Sydney, Australia
Title: From Cell Biology to Systems Biology

Cybernetics was originally coined in the mid 1900's as a discipline to study the dynamic interrelationships that define complex systems. Exercise has substantial benefit in treating and preventing obesity and its related metabolic disorders. There has been considerable interest in identifying major biological pathways triggered by exercise that yield these beneficial effects. In the current study we have interrogated the exercise induced signal transduction landscape in humans by analyzing changes in protein phosphorylation in skeletal muscle before and after exercise. This has led to the identification of >1,000 exercise-regulated Phosphopeptides. These comprise known substrates as well as known kinase networks including AMPK, CAMKII and PKA as well as novel substrates of some of these kinases, one of which will be described in detail. However, surprisingly these data also include ~900 regulated Phosphopeptides that constitute the 'hidden exercise phosphoproteome'. This research serves as an ideal foundation for future efforts to use cybernetics to tease apart exercise induced changes in a range of biological pathways.

Biography:
David James received his PhD from the Garvan Institute in 1985 and since then has made major contributions to our understanding of insulin action. In the late 1980s he published a series of Nature papers describing the identification and characterization of the insulin responsive glucose transporter GLUT4. He then focused his efforts on unveiling the cellular and molecular control of insulin-stimulated glucose transport. He has also made contributions in the area of SNARE proteins, signal transduction and more recently has established new interests in systems biology.

David has held positions at the Washington University School of Medicine in St Louis, at the University of Queensland, and at the Garvan Institute of Medical Research, where he was Director of the Diabetes & Obesity Research Program from 2002 until early 2014. He is currently Professor of Systems Biology and Associate Academic Director (Research) at the Charles Perkins Centre, The University of Sydney.

Prof James was the winner of the prestigious Glaxo Wellcome research medal in 1999, and was elected as a Fellow of the Australian Academy of Science in 2007.

ALL ARE WELCOME *(No registration required)*