Institute of Medical Biology
A*STAR

Seminar Announcement

- All Are Welcome -



Speaker: **Prof Matthew Simpson**
Queensland University of Technology (QUT)

Title : **"Understanding and improving reproducibility of laboratory experiments in cell biology"**

Date : **27 July 2016 (Wednesday)**
Time : **11.00pm – 12.00pm**
Venue : **Creation Theatrette, Matrix Level 4, Biopolis**
Host : **Prof Zee Upton**
(Tel: 6407 0153, email: zee.upton@imb.a-star.edu.sg)

Abstract of the Seminar:

Research that cannot be reproduced was one of the most debated topics in science in 2015. With global expenditure in biotechnology and biomedical engineering expected to exceed US$200 billion in 2016, the financial risk associated with making decisions that are based on irreproducible experimental research is staggering. Understanding and improving reproducibility of cell biology experiments has the potential to revolutionise the way that experiments are performed, interpreted and reported. In this presentation we will discuss the reproducibility of a scratch assay, which is a standard experimental method used to quantify collective cell migration. Collective cell migration is relevant to embryonic development, tissue regeneration and many diseases, such as cancer. Although scratch assays are routinely used, there is no standard, widely accepted method for performing, quantifying or interpreting these experiments, and they are widely reported to be irreproducible. By carefully calibrating the solution of a typical reaction-diffusion equation to a new suite of scratch assay data, we demonstrate major gaps in our knowledge about the mechanisms that give rise to collective cell migration. This exercise illustrates the potential for relatively simple mathematical models to change the way that we conceptualise collective cell migration, and to change the way that we design and interpret experimental procedures.

About the Speaker:

Prof Simpson is an Australian Research Council Future Fellow and Professor of Mathematics at Queensland University of Technology (QUT). In 1998 he completed a Bachelor of Environmental Engineering from the University of Newcastle (Australia), and in 2004 he completed a PhD in Environmental Engineering at the University of Western Australia. From 2003-2009 he held positions as a research fellow, and then as an Australian Research Council Postdoctoral Fellow at the University of Melbourne, where he moved into applied mathematics and mathematical biology. He has been at QUT since 2010.