Institute of Molecular and Cell Biology
A*STAR

SEMINAR ANNOUNCEMENT

We would like to invite you to attend this seminar hosted by Prof. Walter Hunziker:

Date: 8 September 2014, Monday
Time: 11:00AM – 12:00PM
Venue: Level 3, IMCB Seminar Room 3-46, Proteos, Biopolis

Speaker: Prof. Robert Kelsh, Department of Biology and Biochemistry, University of Bath, United Kingdom
Title: Pigment pattern formation in embryonic zebrafish - is there a role for suppressing adult melanocyte stem cells?

Pigment pattern formation is a classic problem in developmental biology, intimately linked to the control of pigment cell stem cells. In fish, early larval pigment cells form by direct development of neural crest cells, whereas the adult pattern derives from adult pigment stem cells set aside in the embryo which remain quiescent until metamorphosis. Zebrafish *parade* mutants show the normal embryonic/larval pigment pattern plus ectopic melanocytes and iridophores in the posterior trunk. Contrary to expectations (Kelsh et al, 1996, Development 123, 369), these are not cells of mixed fate, but closely-associated independent melanocytes and iridophores. We have positionally cloned parade, identifying mutations affecting endothelin receptor A2 (ednra2) as causal. Strikingly, ednra2 expression is restricted to the blood vessels, but vessel morphology in *parade* mutants is normal. Genetic analysis indicates that ectopic pigment cells of each type form independently, and that iridophores are less dependent on *shady* activity than the normal embryonic cells. A screen for chemical rescue of the *parade* phenotype identifies ErbB inhibitors, known to affect establishment of adult pigment stem cells. We propose that ectopic pigment cells arise by precocious differentiation from adult pigment stem cells.

Biography:
Robert Kelsh did his undergraduate degree at the University of Cambridge, where he studied Natural Sciences, with a specialty in Zoology. He then did his PhD at the University of Cambridge with Michael Akam, studying the evolution of Hox gene expression patterns in insects. In 1992, he moved to the laboratory of Christianne Nüsslein-Volhard at the Max-Planck-Institute for Developmental Biology in Tübingen, as part of the team doing the first large-scale mutagenesis screen in zebrafish, focusing on mutants affecting pigment cell development. In 1994 he joined the laboratory of Judith Eisen, beginning the analysis of some of these pigment mutants, before taking a position as a Lecturer at the University of Bath in 1997. His work has continued to focus on understanding the genetic mechanisms of pigment cell development from the neural crest. He was promoted to Senior Lecturer and Reader and to Professor in 2012.

ALL ARE WELCOME *(No registration required)*