Institute of Medical Biology
A*STAR

Seminar Announcement

- All Are Welcome -



Speaker: **Dr. Annemiek Beverdam**

Senior Lecturer, Head of the Developmental and Regenerative Dermatology Unit School of Medical Sciences Secretary of the Australia and New Zealand Society for Cell and Developmental Biology

Title : ***"Mechanoprotein YAP in the Control of Epidermal Homeostasis and Skin Disease"***

Date : 21 Mar 2017 (Tuesday)
Time : 11.00am – 12.00pm
Venue : Breakthrough Theatrette, Matrix Level 4, Biopolis
Host : Prof Birgit Lane
(Tel: 6407 0151, email: birgit.lane@imb.a-star.edu.sg)

Abstract of the Seminar:

Skin disease is the fourth leading nonfatal disease globally. Yes-associated protein (YAP) is a pivotal regulator of stem cells that acts as a mechanosensor in the control of tissue regeneration. The molecular mechanisms that control stem cell proliferation in response to YAP activity remain unknown. We discovered that YAP activity in the mouse epidermis drives WNT- and ROCK-dependent mechanotransduction pathways, to elevate collagen-mediated dermal stiffness. Furthermore, we observed increased nuclear YAP and β-catenin localization with tumor progression in murine and in human cutaneous SCC and BCC, together with gradually increasing ROCK-dependent mechanosignalling and stromal fibrosis. In addition, we found that epidermal YAP drives a type 2 immune response that leads to eczema development in mice, and we found elevated YAP activity in the spongiotic keratinocytes of human eczema patients.

Our work reveals that YAP acts as a central mechanoprotein capable of not only responding to but also driving mechanical force during epidermal homeostasis. This has implications for our understanding of normal tissue regeneration and the development of regenerative disease displaying increased YAP activity.

About the Speaker:

Dr. Annemiek Beverdam is a developmental mouse geneticist. She obtained her PhD at the Hubrecht Institute in The Netherlands in 2001. In 2002, she performed a short postdoc at the National Cancer Institute in Genoa, Italy. Then, she moved to Brisbane, Australia for a second postdoc at the Institute of Molecular Biosciences, and she was senior postdoc at The University of Queensland. In 2013, she was recruited to UNSW Sydney, and in 2015 she was promoted to Senior Lecturer. Her lab studies the genetic and molecular context in which mechanoprotein YAP acts to control stem cell proliferation in normal epidermal homeostasis, and how these processes are perturbed in regenerative skin disease such as skin cancer and eczema. Her research is supported by funding from the NHMRC, and she published in leading journals including The Journal of Investigative Dermatology, Development, and Human Molecular Genetics.