

Redox homeostasis in the *Drosophila* testis stem cell self-renewal and maintenance

For PhD Qualifying Examination (PQE) “Oral Component” – Open Seminar

Cancer stem cells (CSCs) are considered one of the primary causes for drug resistance and tumour recurrence. CSCs maintain low reactive oxygen species (ROS), and increased ROS by oxidizing agents show to selectively kill CSCs in leukaemia. Notably, CSCs share many properties with normal stem cells; they proliferate indefinitely, self-renew and maintain low ROS. This suggests that elucidating the redox regulatory mechanisms in normal stem cells and characterizing the mechanisms utilized by ROS signalling to influence stem cell behaviour will yield valuable insights into how CSCs are regulated by redox homeostasis and may also lead to the development of therapeutic interventions targeting CSCs. The *Drosophila* testis serves as an ideal *in vivo* model to study stem cells behaviour. Our study showed that high ROS induced by oxidant treatment or by modulating Keap1/Nrf2 signalling activity cause a loss of germline stem cells (GSCs) by promoting a precocious differentiation of the cells. By contrast, low ROS levels induced by antioxidant treatment or modulation of Keap1/Nrf2 signalling led to an over-growth of GSCs. Our study of *Drosophila* testes demonstrates that ROS levels a vital role in the maintenance and self-renewal of stem cells.

Speaker :

Miss Sharon Tan Wui Sing

Graduate Student
Department of Anatomy
National University of Singapore
Singapore 117594

Thursday
21st April 2016
3.00pm – 3.45pm

Anatomy Seminar
Room, L2, MD10,
Department of
Anatomy, NUS.

DEPARTMENT
OF
ANATOMY

Address enquiries to Dr Baeg Gyeong Hun at 65167973
or Ms Carolyn Ang at 65163200. All are welcome.