

# PHD ORAL DEFENSE

## REDOX HOMEOSTASIS IN THE *DROSOPHILA* TESTIS STEM CELL SELF-RENEWAL AND MAINTENANCE

Reactive oxygen species (ROS) act as important signaling molecules required for fundamental biological processes such as stem cell maintenance. However, aberrant ROS levels lead to oxidative stress, which is highly associated with various human diseases such as cancer and aging. Here, I examined the effects of redox states on stem cell maintenance, and identified the downstream effectors of ROS that control stem cell behaviour, using the *Drosophila* testis germline stem cell (GSC) model. High ROS resulted in the activation of EGFR signaling, which functions to promote GSC differentiation, leading to a GSC loss. By contrast, low ROS caused an over-growth of GSC-like cells. To understand the mechanisms utilized by ROS to control GSC behavior, I have also established gene expression profiling of testes with different ROS levels and characterized downstream effectors, including Maf-S and Mkp3, which are transcriptionally regulated by redox signaling.

Wednesday

14 November 2018

10.00 am - 11.00 am

Seminar Room, MD10

Level 2, Anatomy Museum

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