REGIONAL CENTRE FOR BIOTECHNOLOGY

Workshop Seminar

The Balancing Act of Mitosis-Meiosis Decision

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8:30 am

Seminar Room

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Abstract

Most higher organisms reproduce sexually. Sexual mode of reproduction depends on the ability to form the gametes - sperm and egg, which are produced exclusively by the germ cells. In the gonad, a population of mitotically-cycling germ cells, called the germline stem cells (GSCs), are maintained throughout adulthood. Some of these cells differentiate to form gametes, while others self-renew to replenish GSCs. Shift towards only self-renewal or differentiation will cause germline tumor or loss of GSCs. Therefore, maintenance of a balance between self-renewal and differentiation is critical to ensure continuous production of gametes. Translational regulators of the PUF family are conserved regulators of this balance in diverse organisms. Our laboratory focusses on how the PUF proteins function in this processes using the nematode Caenorhabditis elegans as the model organism. In my talk, I will explain how C. elegans serves as an excellent model to employ a vareity of tools - classical genetics, molecular genetics, cell biology and biochemistry - to decipher the function molecules such as the PUF proteins; and present our recent results on what we learnt about one PUF protein, namely PUF-8, functions to maintain the miotsis-meiosis balance.