CDB SEMINAR

Guangshuo Ou

UCSF/HHMI

Tuesday, January 26, 2010

16:00~17:00 A7F Seminar Room

Molecular and Cellular Mechanisms of *C.elegans* Q Neuroblast Development

Summary

A fundamental challenge in developmental biology and neuroscience is to understand how a neuroblast develops to neurons. We choose *C. elegans* Q neuroblasts as our experimental system to tackle this problem. Q neuroblasts generate sensory and inter neurons by asymmetric cell division, long distance migration, apoptosis and neuritogenesis during L1 larva stage. We have developed high resolution live Q cell imaging techniques to visualize all of the events above by spinning disk focal microscopy, placing us a unique position for such studies. Two recent discoveries will be reported; (1) we address molecular signatures of Q cell distinct migratory behavior and we find that up-regulation of a Rho family GTPase and down-regulation an integrin alpha subunit is associated with some Q descedants that migrate faster and further than others; (2) we address mechanisms of how Q cell asymmetric division make two daughter cells of different sizes and we find that Q cells achieve this by either spindle displacement or asymmetric assembly of contractile ring. Our work revealed that time-lapse analysis of *C. elegans* Q neuroblast development at subcellular or molecular level is technically feasible and can provide new information to their biology with a combination of genetic and biochemical approaches.

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