



CDB SEMINAR

Toshie Kai

Temasek Lifesciences laboratory, Singapore

Tuesday, December 21, 2010

15:30~16:30 A7F Seminar Room

Nuage: birth and beyond of germline

piRNA

Summary

The most important cell lineage for the survival of sexually reproducing metazoans is the germline, due to its unique role in gamete production and species continuity. The fidelity of genomic information in the germline has to be tightly regulated for accurate transmission to the next generation. In many animal germline cells, Piwi-interacting RNAs (piRNAs) are reported to silence the expression of one class of mobile genetic elements, retroelements, whose transposition may afflict the genome with mutational burden.

We and others have proposed that *nuage*, a well-conserved perinuclear organelle found in germline cells, may be the sites where germline piRNAs are amplified in a feed-forward loop, called ping-pong cycle. I will introduce our recent findings supporting this model. Proteins required for biogenesis of piRNAs, including Piwi-subfamily proteins, Aubergine and Argonoute3, assemble at perinuclear region as a large complex to produce germline piRNAs. We have reported some nuage components which contribute this process, and they show interesting genetic interaction. We are also working on spatiotemporal regulation of nuage function during spermatogenesis and during mitosis. Our detailed analysis on Vas revealed an unexpected role of Vas and piRNA pathway for mitotic chromosome condensation in *Drosophila* germline cells. I will also touch on dynamics of nuage components in male germline cells and their potential function in nuclear silencing.

Host:

Akira Nakamura

Germline
Development, CDB
akiran@cdb.riken.jp
Tel: 078-306-0103
(ext: 1442)

RIKEN CENTER for DEVELOPMENTAL BIOLOGY (CDB)