



CDB SEMINAR

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Friday, November 29, 2013

16:00~17:00 A7F Seminar Room

Tet1-mediated epigenetic reprogramming in primordial germ cell

Summary

Mouse primordial germ cells (PGCs) undergo genome-wide reprogramming of DNA methylation to reset the epigenome for totipotency. However, its molecular mechanism and physiological significance have been elusive for a long time. Recently we revealed that 5mC-specific dioxygenase Tet1 plays central role in germ cell reprogramming. Analyses of Tet1-KO mice demonstrated that Tet1-mediated active demethylation is important for meiotic gene activation in female germ line. Tet1 deficiency causes defects in the meiotic process, which leads to significant reduction of female germ-cell numbers and fertility. Furthermore, we found that Tet1 plays a critical role in the erasure of genomic imprinting during PGC reprogramming. The progenies derived from mating between Tet1-KO males and wild-type females exhibit aberrant hypermethylation and dysregulation of imprinted genes, leading to a number of variable phenotypes including placental, fetal and postnatal growth defects, and early embryonic lethality. In this talk, I'd like to summarize my recent work on germ cell reprogramming and introduce the latest data related to genomic imprinting erasure.

Host:

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