CDB SEMINAR

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Friday, November 29, 2013
17:00~18:00 A7F Seminar Room

Epigenetic reprogramming of mouse sperm genome following fertilization

Summary

Terminally differentiated sperm is epigenetically reprogrammed to a totipotent state after fertilization by maternal factors. During this process, dynamic epigenetic events, including *de novo* nucleosome assembly and global DNA demethylation, occur in the paternal genome of mouse zygotes. In my talk, I would like to introduce our recent discoveries including:

1). The mechanism of the DNA demethylation of paternal genome: we have revealed that Tet3-mediated conversion of 5-methylcytosine into 5-hydroxymethyl-, 5-formyl-, and 5-carboxyl-cytosine followed by DNA replication-dependent dilution accounts for paternal DNA demethylation.

2). The biological role of *de novo* nucleosome assembly: we successfully generated a nucleosome-depleted paternal genome by inhibition of maternal histone incorporation in zygote. Analyses of the nucleosome-free paternal pronucleus revealed that *de novo* nucleosome assembly is required for nuclear pore complex assembly.

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