CDB SEMINAR

Speaker: Kentaro Nabeshima

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Title: "Meiotic chromosome morphogenesis and function in *C. elegans*"

Date:	Thursday, April 1
Time:	16:00 P.M.～ 17:00 P.M.
Place:	7th floor Conference Room of Building A, CDB

Summary:

Most sexually reproducing organisms depend on the regulated formation of crossovers, and the consequent chiasmata, to accomplish successful segregation of homologous chromosomes at the meiosis I division. A robust, chromosome-wide crossover control system limits chromosome pairs to one crossover in most meioses in the nematode *Caenorhabditis elegans*; this system has been proposed to rely on structural integrity of meiotic chromosome axes. We test this hypothesis using a newly isolated mutant, *him-3(me80)*, that assembles reduced levels of meiosis-specific axis component HIM-3 along cohesin-containing chromosome axes. Whereas pairing, synapsis and crossing over are eliminated when HIM-3 is completely absent, the *me80* mutant supports assembly of synaptonemal complex protein SYP-1 along some paired chromosomes, resulting in partial competence for chiasma formation. Here, we present both genetic and cytological evidence indicating that the *him-3(me80)* mutation leads to an increased incidence of meiotic products with two crossovers. These results indicate that limiting the amount of a major axis component results in a reduced capacity either to communicate the presence of a (nascent) crossover and/or to discourage others in response.

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