IMG

Institute of Molecular Genetics
of the Czech Academy of Sciences

Regular Wednesday IMG seminar

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Laboratory of Germ Cell Development

"A chance for fertility despite bad DNA breaks (AKA The effect of crossing-over rate on fertility)"

Programmed meiotic DNA breaks are essential for mammalian fertility but dangerous for genome integrity. DNA-binding H3-lysine-trimethyltransferase PRDM9 determines the positions of the meiotic DNA breaks, which can be repaired as crossovers or noncrossovers. The crossover/noncrossover decision is regulated by many factors that include RING-domain E3 ligase RNF212. The dosage of the *Rnf212* gene in mouse affects the crossover rate per meiotic cell and variants in the human *RNF212* gene are associated with crossover rates. Deficiency for RNF212 leads to complete arrest of meiosis at the metaphase stage. The deficiency for human and rodent PRDM9 causes partial to complete pachytene arrest, depending on unknown genetic factors. We will present results demonstrating that the dosage of *Rnf212* (and thus crossover rate) affects meiotic progression and germ cell counts of semisterile *Prdm9*-deficient mice. Our findings offer an insight into the mechanisms and treatment possibilities of some cases of infertility.

The seminar will be held

on Wednesday 22nd November 2023 at 15:00

in the Milan Hašek Auditorium at IMG

(Institute of Molecular Genetics of the Czech Academy of Sciences, Vídeňská 1083, Prague 4)