IMG

Institute of Molecular Genetics
of the Czech Academy of Sciences

Regular Wednesday IMG seminar

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"Enigmatic germline-restricted chromosome of songbirds has different centromere compared to regular chromosomes"

Centromeres are an important part of chromosomes which direct chromosome segregation during cell division. Their modifications can therefore explain the unusual mitotic and meiotic behaviour of certain chromosomes, such as the germline-restricted chromosome (GRC) of songbirds. This chromosome is eliminated from somatic cells during early embryogenesis and later also from male germ cells during spermatogenesis. We used a combination of cytogenetic and genomic approaches to identify the centromeric sequences of two closely related songbird species, the common nightingale (*Luscinia megarhynchos*) and the thrush nightingale (*L. luscinia*). We found a 436-bp satellite repeat present in the centromeric regions of all regular chromosomes (i.e., autosomes and sex chromosomes). Interestingly, hybridization of the probe to this repeat on meiotic spreads suggested that this repeat is missing on the GRC. Our results indicate that the change of the centromeric sequence may underlie the unusual inheritance and programmed DNA elimination of the GRC in songbirds.

The seminar will be held

on Wednesday 10th December 2025 at 15:00

in the Milan Hašek Auditorium at IMG

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