

BDR SEMINAR (Online)

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Tuesday, February 22, 2022

14:00-15:00

Zoom meeting URL will be announced on the event day by e-mail.

※This seminar is only for BDR members.

Pairing and recombination of homologous chromosomes in mammalian meiosis

Summary

In order to faithfully transmit their genetic information to their progeny, eukaryotic species possess a specialized form of cell division called meiosis. During meiosis, the chromosome number is accurately halved through two successive rounds of cell division, and the result is haploid germ cells. The fossil record indicates that organisms were undergoing meiosis already in the Cambrian period (approximately 500 million years ago), suggesting that meiosis is an ancient process acquired early in eukaryotic evolution and that this process is essential for the great diversity of species that have arisen over time. Indeed, the molecular processes, and even the specific proteins, that are involved in meiosis are well conserved from unicellular model systems (such as yeasts) to humans. The characteristic events during meiosis are the pairing and recombination of homologous chromosomes in prophase I, which increase genetic diversity and, more importantly, ensure the correct segregation of homologous chromosomes. Defects in this process are reported to be the cause of various genetic disorders such as aneuploidy, infertility, and azoospermia in human patients. In my talk, I will summarize our recent findings on the molecular regulation of mammalian meiosis, focusing especially on the meiosis-specific regulation of telomeres and homologous recombination.



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