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v spolupráci so
Slovenskou spoločnosťou pre biochémiu a molekulárnu biológiu

Vás pozývajú na 56. prednášku v rámci Kuželových seminárov:

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Chromosome segregation in meiosis

ktorá sa uskutoční 5. mája 2006 (piatok) o 14:00
v miestnosti B1-320 Prírodovedeckej fakulty UK

http://www.fns.uniba.sk/~kbi/kuzela

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Education / Emloyment:

2006- group leader, Department of Chromosome Biology, Univ. of Vienna, Max F. Perutz Laboratories, Vienna, Austria

2003-2006 postdoctoral researcher, IMP (Research Institute of Molecular Pathology), Vienna, Austria (Prof. K. Nasmyth)

2001-2003 postdoctoral researcher, Dept. of Zoology, Univ. of Oxford, Oxford, UK (Dr. S.E. Kearsey)

1996-2001 PhD study, Institute of Microbiology and Genetics, Univ. of Vienna, Vienna, Austria (Prof. R.J. Schweyen)

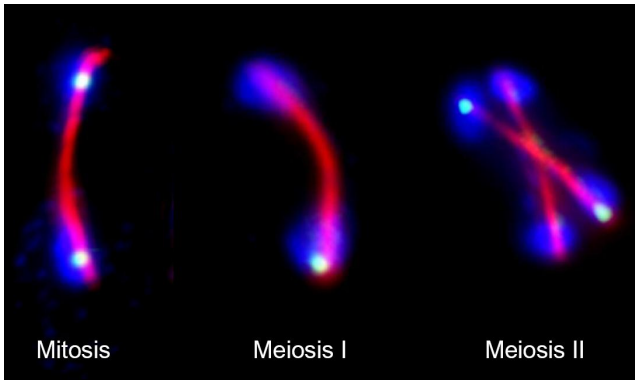
1991-1996 Faculty of Natural Sciences, Comenius University, Bratislava, Slovakia (Dr. M. Obernauerova / Prof. J. Subik)

Awards:

2006 The Austrian Science Fund (FWF) grant

2005 EMBO Small grant for initiatives in science & society

2003 EMBO long-term fellowship



Sexually reproducing organisms rely on the precise reduction of chromosome number during a specialized cell division called meiosis. Whereas mitosis produces diploid daughter cells from diploid cells, meiosis generates haploid gametes from diploid precursors.

During meiosis, a single round of DNA replication is followed by two rounds of chromosome segregation, called meiosis I and meiosis II. The second meiotic division is similar to mitosis in that sister centromeres are pulled to opposite poles of the cell. The first meiotic division is, however, fundamentally different. The formation of chiasmata, as a result of reciprocal recombination between homologous chromatids, and the orientation of sister kinetochores toward the same pole (mono-orientation) together ensure that maternal and paternal centromeres are pulled in opposite directions on meiosis I spindles. Segregation of chromosomes during meiosis I is triggered by separase cleavage of the cohesin's Rec8 subunit along chromosome arms; this separase cleavage resolves chiasmata. Cohesin in the vicinity of centromeres is protected from separase cleavage during meiosis I and holds sister chromatids together until anaphase II. It enables proper segregation of sister chromatids during meiosis II. Thus, formation of chiasmata as a result of crossing over, mono-orientation of sister kinetochores, and protection of centromeric cohesion during meiosis I are three key features of meiotic chromosome segregation.

Recent publications:

Riedel CG, Katis VL, Katou Y, Mori S, Itoh T, Helmhart W, Galova M, Petronczki M, Gregan J, Cetin B, Mudrak I, Ogris E, Mechtler K, Pelletier L, Buchholz F, Shirahige K, Nasmyth K. (2006). Protein phosphatase 2A protects centromeric sister chromatid cohesion during meiosis I. *Nature* , in press.

Vaur S, Cubizolles F, Plane G, Genier S, Rabitsch PK, Gregan J, Nasmyth K, Vanoosthuyse V, Hardwick KG, Javerzat JP. (2005). Control of Shugoshin function during fission-yeast meiosis. *Curr. Biol.* 15(24):2263-70

Gregan J, Rabitsch PK, Sakem B, Csutak O, Latypov V, Lehmann E, Kohli J, Nasmyth K. (2005). Novel genes required for meiotic chromosome segregation are identified by a high-throughput knockout screen in fission yeast. *Curr. Biol.* 15(18):1663-9

Katis VL, Galova M, Rabitsch KP, Gregan J, Nasmyth K. (2004). Maintenance of cohesin at centromeres after meiosis I in budding yeast requires a kinetochore-associated protein related to MEI-S332. *Curr. Biol.* 14(7):560-72

Rabitsch KP, Gregan J, Schleiffer A, Javerzat JP, Eisenhaber F, Nasmyth K. (2004). Two fission yeast homologs of Drosophila Mei-S332 are required for chromosome segregation during meiosis I and II. *Curr. Biol.* 14(4):287-301