

CRBM external seminar
BIOLuM

Thursday **October 16th, 11:00 am** Salle Marcel Dorée

Should I stay or Should I go?
Coordinating Cell Cycle Progression
and Chromosome Segregation in Oocytes

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Group leader Team MOM (Mechanisms of Meiosis) , Institut Jacques Monod, Paris



Katja Wassmann studied Biology at the University of Vienna. After her diploma work at the Institute of Botany she joined the group of Gustav Ammerer for her PhD at the IMP and the Vienna Biocenter. She carried out work on the cell cycle control of the budding yeast mating pathway and obtained her PhD in 1996. She went on to work on the human spindle assembly checkpoint protein Mad2 in the lab of Robert Benezra at the MSKCC in New York until 2001. This was followed by a second postdoc at Pierre and Marie Curie University in Paris, with B. Maro and then C. Jessus, on cell cycle control and the spindle checkpoint in mouse oocytes. There, Katja obtained a junior scientist position and independent grant funding through the Avenir program in 2005, and became independent group leader in 2007. Since 2022 she is a senior group leader at the Institut Jacques Monod.

Abstract

Sexual reproduction requires the generation of haploid gametes through two meiotic divisions, named meiosis I and II. In mammals and especially humans, female gametogenesis is highly error prone, leading to the generation of oocytes harbouring the wrong chromosome content. Projects in my group aim at dissecting the molecular mechanisms underlying the two meiotic divisions with a focus on oocytes, to understand how errors occur. The central question we study deals with the issue of how meiosis I-specific events are executed only in meiosis I, and those of meiosis II only in meiosis II. We are using various model systems (*Xenopus* and mouse oocytes, *S. cerevisiae*), using sophisticated imaging approaches, biochemistry, and global mass spectrometry.

Selected publications

- El Jailani S, Cladière D, Nikalayevich E, Touati SA, Chesnokova V, Melmed S, Buffin E, Wassmann K. Eliminating separase inhibition reveals absence of robust cohesin protection in oocyte metaphase II. *EMBO J*, 44(18):5187-5214, 05 Aug 2025
- Langeoire A, Kem-Seng A, Cladière D, Wassmann K, Buffin E. Prolonged metaphase II arrest weakens Aurora B/C-dependent error correction in mouse oocytes. *Curr Biol*, 35(9):2019-2031.e4, 10 Apr 2025
- Celebic D, Polat I, Legros V, Chevreux G, Wassmann K, Touati SA. Qualitative rather than quantitative phosphoregulation shapes the end of meiosis I in budding yeast. *EMBO J*, 43(7):1325-1350, 06 Feb 2024
- Bouftas N, Schneider L, Halder M, Demmig R, Baack M, Cladière D, Walter M, Al Abdallah H, Kleinhempel C, Messaritaki R, Müller J, Passarelli F, Wehrle P, Heim A, Wassmann K, Mayer TU. Cyclin B3 implements timely vertebrate oocyte arrest for fertilization. *Dev Cell*, 57(19):2305-2320.e6, 30 Sep 2022
- Nikalayevich E, El Jailani S, Dupré A, Cladière D, Gryaznova Y, Fosse C, Buffin E, Touati SA, Wassmann K. Aurora B/C-dependent phosphorylation promotes Rec8 cleavage in mammalian oocytes. *Curr Biol*, 32(10):2281-2290.e4, 05 Apr 2022
- Gryaznova Y, Keating L, Touati SA, Cladière D, El Yakoubi W, Buffin E, Wassmann K. Kinetochore individualization in meiosis I is required for centromeric cohesin removal in meiosis II. *EMBO J*, 40(7):e106797, 01 Mar 2021
- Karasu ME, Bouftas N, Keeney S, Wassmann K. Cyclin B3 promotes anaphase I onset in oocyte meiosis. *J Cell Biol*, 218(4):1265-1281, 05 Feb 2019