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Keywords

Meiosis, DNA repair, recombination, *Arabidopsis*

Research interest

Research in the Schlögelhofer laboratory is focused on meiotic DNA repair and recombination in the model plant *Arabidopsis thaliana* and to some extent in the yeast *Saccharomyces cerevisiae*. Meiosis is a two-step cell division essential for the reduction of the genome prior to the formation of generative cells. Pre-meiotic DNA replication is followed by DNA double strand break (DSB) formation, which initiates reciprocal exchange of former maternal and paternal genetic material during subsequent homologous recombination (HR) DNA repair. We are interested in *cis* and *trans* acting factors that mediate meiotic DSB formation, DSB processing and HR and in understanding the mechanisms that govern and co-ordinate these processes. Furthermore, we are developing novel strategies to alter meiotic recombination for plant breeding purposes.

Academic career and positions held to date

1996 – 1998	Diploma student, University of Vienna
1998 – 2002	PhD student at the Institute of Botany, University of Vienna, Austria
2002	Post-doc at the Institute of Botany, University of Vienna, Austria
2003 – 2010	Independent research group leader at the Department of Chromosome Biology, Max F. Perutz Laboratories, University of Vienna

2007 – 2010	APART fellowship of the Austrian Academy of Sciences
2010 – 2012	Assistant Professor at the Department of Chromosome Biology, Max F. Perutz Laboratories, University of Vienna
since 2012	Associated Professor at the Department of Chromosome Biology, Max F. Perutz Laboratories, University of Vienna

Academic recognition

5 most important invitations to present at scientific conferences

The EMBO Meeting in Amsterdam, NL; August 29- September 1, 2009
 Gordon Meiosis Conference in New London, USA; June 13-18, 2010
 Gordon Meiosis Conference in New London, USA; Jun 3-8, 2012
 EMBO Meiosis Meeting in Dresden, Germany; September 14-19, 2013
 International RecA and DNA repair Conference in Taipei, Taiwan; September 15-17, 2015

Most important academic award received

APART fellowship of the Austrian Academy of Sciences

5 most important peer review activities

PLoS Genetics
 Plant Cell
 Nucleic Acid Research
 National Science Foundation – USA
 BBSRC – UK

Teaching at the University of Vienna

General and Molecular Genetics (Lecture Series) (Bachelor)
 Plants Molecular Biology I (Lecture series) (Bachelor)
 Basic course in Molecular Biology (Practical course) (Bachelor)
 Advanced course in Molecular Biology (Practical course) (Master)
 Advanced course in Genetics (Practical course) (Master)
 Advanced course in Cytogenetics (Practical course) (Master)
 Various seminars (Literature, current topics, experimental design) (Master, PhD)

Publications

Rampler E., Stranzl T., Orbán-Németh Z., Hollenstein D.M., Hudecz O., **Schloegelhofer P.***, Mechtler K.* (2015). Comprehensive crosslinking mass spectrometry reveals parallel orientation and flexible conformations of plant HOP2/MND1. *J Proteome Res.* 2015 Nov 4. [Epub ahead of print] doi: 10.1021/acs.jproteome.5b00903

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Kurzbauer, M.T., Uanschou, C., Chen, D., and **Schlögelhofer, P.***. (2012). The Recombinases DMC1 and RAD51 Are Functionally and Spatially Separated during Meiosis in Arabidopsis. *Plant Cell* **24**, 2058-2070. doi: 10.1105/tpc.112.098459

Kurzbauer, M.T., and **Schlögelhofer, P.***. (2011). Retinoblastoma protein goes green: the role of RBR in Arabidopsis meiosis. *EMBO J* **30**, 631-633. doi: 10.1038/emboj.2011.9

Edlinger, B., and **Schlögelhofer, P.***. (2011). Have a break: determinants of meiotic DNA double strand break (DSB) formation and processing in plants. *J Exp Bot* **62**, 1545-1563. doi: 10.1093/jxb/erq421

Dean P. J., Siwiec T., Waterworth W., **Schlögelhofer P.**, Armstrong S. J. and West E. C.* (2009) A novel ATM dependant X-ray inducible gene is essential for both plant meiosis and gametogenesis. *Plant J.* - 2009 Jun;58(5):791-802

Uanschou C., Siwiec T., Pedrosa-Harand A., Kerzendorfer C., Sanchez-Moran E., Novatchkova M., Akimcheva A., Woglar A., Klein F. and **Schlögelhofer P.*** (2007) A novel plant gene essential for meiosis is related to the human CtIP and the yeast COM1/SAE2 gene. *EMBO J.* 2007 Dec 12;26(24):5061-70. doi: 10.1038/sj.emboj.7601913

Vignard J., Siwiec T., Chelysheva L., Vrielynck N., Gonord F., Armstrong S.J., **Schlögelhofer P.*** and Mercier R.* (2007) The Interplay of RecA-related Proteins and the MND1-HOP2 Complex during Meiosis in *Arabidopsis thaliana*. *PLoS Genet.* 2007 Oct;3(10):1894-906. doi:10.1371/journal.pgen.0030176

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Schlögelhofer P., Nizhynska V., Feik N., Chambon C., Potuschak T., Wanzenböck E.M., Schweizer D., Bachmair A.* (2002) The upstream Sal repeat-containing segment of *Arabidopsis thaliana* ribosomal DNA intergenic region (IGR) enhances the activity of adjacent protein-coding genes. *Plant Mol Biol* 49(6):655-67. PMID: 12081373

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Schlögelhofer P., Bachmair A.* (2002) A test of fusion protein stability in the plant, *Arabidopsis thaliana*, reveals degradation signals from ACC synthase and from the plant N-end rule pathway. *Plant Cell Rep* 21: 174-179 doi: 10.1007/s00299-002-0493-5

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