



20. - 24. June 2022

# International Conference on Sexual Plant Reproduction



# PROGRAMME

## Monday June 20

10:00-13:00 *Registration*

13:00-14:00 *Lunch*

**14:00-14:30 Conference Opening**

**14:30-18:00 Session 1: Flowering and Flower Organ Development**

Chair: Lucia Colombo, *Universita degli Studi di Milano, Italy*

**14:30-15:00 Keynote Talk 1**

**Development and evolution of petal nanoscale ridges that scatter light and influence animal behaviour**

Beverley J. Glover, *University of Cambridge, UK*

15:00-15:20 Abstract Talk 1.1

**Control of flowering time and yield by winter bud dormancy in oilseed rape**

Steven Penfield, *John Innes Centre, Norwich, UK*

15:20-15:40 Abstract Talk 1.2

**Florigenesis and juvenile phase transition in *Cannabis sativa* plants**

Ben Spitzer-Rimon, *ARO - Volcani Institute, Rishon LeZion, Israel*

15:40-16:00 Abstract Talk 1.3

**Unraveling flowering development in the smallest angiosperm**

Cristian Mateo-Elizalde, *Cold Spring Harbor Laboratory, New York, NY, USA*

16:00-16:40 *Coffee Break*

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- 16:40-17:00 Abstract Talk 1.4  
**The beta-subunit of nascent polypeptide associated complex plays a role in flowers and siliques development of *Arabidopsis thaliana***  
Jan Fíla, *Institute of Experimental Botany of the Czech Academy of Sciences, Prague, Czech Republic*
- 17:00-17:20 Abstract Talk 1.5  
**SCI1 is expressed at the *Nicotiana tabacum* floral meristem and is a direct target of key flower development transcription factors**  
Maria Helena S. Goldman, *University of Sao Paulo, Brazil*
- 17:20-17:40 Abstract Talk 1.6  
**ARGONAUTE-mediated RNA silencing in anther development**  
Reina Komiya, *Science and Technology Graduate University, Okinawa, Japan*
- 17:40-18:00 Abstract Talk 1.7  
**Sexual dimorphism, male biasness and ambophily in *Zanthoxylum armatum*; traits for reproductive efficiency**  
Renu Sharma, *University of Jammu, India*
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**Welcome Drink**  
(18:00-20:00)  
*Hotel Pyramida*

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## Tuesday June 21

**9:00-12:50**     **Session 2: Gametogenesis and Meiosis**  
Chair: Ueli Grossniklaus, *University of Zurich, Switzerland*

**9:00-9:30**     **Keynote Talk 2**  
**What limits meiotic crossovers?**  
Raphael Mercier, *Max Planck Institute for Plant Breeding Research, Cologne, Germany*

9:30-9:50     Abstract Talk 2.1  
**Structural maintenance of chromosomes SMC5/6 complex is necessary for meiotic chromosome reduction in *Arabidopsis***  
Aleš Pečinka, *Institute of Experimental Botany of the Czech Academy of Sciences, Olomouc, Czech Republic*

9:50-10:10     Abstract Talk 2.2  
**H3K9 demethylases are required for male meiosis in *Arabidopsis thaliana***  
Hua Jiang, *Leibniz Institute of Plant Genetics and Crop Plant Research, Gatersleben, Germany*

10:10-10:30     Abstract Talk 2.3  
**Dissection of meiotic recombination and genomic architecture of holocentric plants with repeat-based centromeres**  
Meng Zhang, *Max Planck Institute for Plant Breeding Research, Cologne, Germany*

10:30-11:10     *Coffee Break*

11:10-11:30     Abstract Talk 2.4  
**ZIP4: stabilization of wheat as a polyploid and its impact on breeding**  
Azahara C. Martin, *John Innes Centre, Norwich, UK*

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11:30-11:50 Abstract Talk 2.5  
**Members of the ELMOD protein family specify formation of distinct aperture domains on the *Arabidopsis* pollen surface**  
Anna Dobritsa, *Ohio State University, Columbus, OH, USA*

11:50-12:10 Abstract Talk 2.6  
**Multi-omics approach to describe gene expression dynamics in developing pollen of *Arabidopsis thaliana***  
Božena Klodová, *Institute of Experimental Botany of the Czech Academy of Sciences, Prague, Czech Republic*

12:10-12:30 Abstract Talk 2.7  
**HvTDF1 gene reveals a conserved role in controlling anther tapetum development in dicot and monocot**  
Zoe Wilson, *University of Nottingham, UK*

12:30-12:50 Abstract Talk 2.8  
**The VACUOLAR SORTING PROTEIN 13 (VPS13) affects female germline establishment and progression by acting on small RNA pathway**  
Mara Cucinotta, *Universita degli Studi di Milano, Italy*

12:50-14:00 *Lunch*

**14:00-17:50 Session 3: Pollen-Pistil Interactions and Pollen Tube Growth**  
Chair: Ravi Palanivelu, *University of Arizona, Tucson, AZ, USA*

**14:00-14:30 Keynote Talk 3**  
**Death is life – programmed cell death in compatible and incompatible pollen pistil interactions**  
Moritz Nowack, *VIB and Ghent University, Ghent, Belgium*

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- 14:30-14:50 Abstract Talk 3.1  
**Two subgroups of *Arabidopsis* receptor-like kinases regulate intra- and inter-species pollen-pistil interactions**  
Daphne R. Goring, *University of Toronto, Canada*
- 14:50-15:10 Abstract Talk 3.2  
**Engineered *Arabidopsis* pollen establishes a role of ATP depletion and cytosolic acidification in *Papaver* self-incompatibility**  
Ludi Wang, *Aberystwyth University, UK*
- 15:10-15:30 Abstract Talk 3.3  
**Flavonols take the heat out of heat stress to protect pollen from elevated ROS**  
Joëlle K. Mühlemann, *imate Resilient Crop Production lab, KU Leuven, Department of Biosystems, Division of Crop Biotechnics, Belgium*
- 15:30-16:10 *Coffee Break*
- 16:10-16:30 Abstract Talk 3.4  
**Transcriptome reprogramming in the *Arabidopsis* male germline during the progamic phase**  
Jörg D. Becker, *Instituto Gulbenkian de Ciencia, Oeiras, Portugal*
- 16:30-16:50 Abstract Talk 3.5  
**Integration of ion dynamics into a membrane potential gradient in pollen tubes**  
Jose A Feijó, *University of Maryland, College Park, MA, USA*
- 16:50-17:10 Abstract Talk 3.6  
**Molecular basis of pollen germination and tube growth in rice**  
Ki-Hong Jung, *Kyung Hee University, Yongin, Republic of Korea*

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17:10-17:30 Abstract Talk 3.7  
**Keeping growth in check – regulation of polar signaling in pollen of *Arabidopsis thaliana***  
Philipp Denninger, *Technical University of Munich, Germany*

17:30-17:50 Abstract Talk 3.8  
**Enhanced pollen tube integrity was selected during breeding of tomato varieties that set fruit at elevated temperature**  
Sorel Ouonkap Yimga, *Brown University, Providence, RI, USA*

**17:50-20:00 Poster Session 1**

## Wednesday June 22

**9:00-12:10**      **Session 4: Fertilization Mechanisms**  
Chair: Stefanie Sprunck, *University of Regensburg, Regensburg, Germany*

**9:00-9:30**      **Keynote Talk 4**  
**Novel pathways controlling sperm nuclear migration during flowering plant fertilization**  
Tomokazu Kawashima, *University of Kentucky, Lexington, KY, USA*

9:30-9:50      Abstract Talk 4.1  
**RNA binding proteins at the nexus of pollen tube guidance**  
Said Hafidh, *Institute of Experimental Botany of the Czech Academy of Sciences, Prague, Czech Republic*

9:50-10:10      Abstract Talk 4.2  
**The JAGGER GPI-anchor defines the protein subcellular localization. Does it mediate JAGGER function?**  
Sílvia Coimbra, *Universidade do Porto, Portugal*

10:10-10:30      Abstract Talk 4.3  
**Redox interplay of ROS-level dynamics and glutathione metabolism upon gamete fusion and subsequent zygotic development in rice**  
Kasidit Rattanawong, *Tokyo Metropolitan University, Japan*

10:30-11:10      *Coffee Break*

11:10-11:30      Abstract Talk 4.4  
**“Cells-in-a-cell”: Which roles for the endo-plasma membrane that wraps the sperm cells?**  
Thomas Widiez, *Université de Lyon, France*



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11:30-11:50 Abstract Talk 4.5  
**Fertilization initiates seed nutrition by degradation of callose deposition at the phloem end**  
Ryushiro Kasahara, *Nagoya University, Japan*

11:50-12:10 Abstract Talk 4.6  
**ECS1 and ECS2 suppress the formation of haploid plants by promoting double fertilization**  
Thomas Nakel, *University of Bremen, Germany*

12:10-13:00 *Lunch*

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**Excursion**  
**Prague City Centre**  
(13:00-15:00)

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**15:00-18:00 Session 5: Apomixis, Evolution and Ecology**  
Chair: Viktor Žárský, *Charles University, Prague, Czech Republic*

**15:00-15:30 Keynote Talk 5**  
**From single cells to flowers: Gene-regulatory mechanisms controlling organ specification in *Arabidopsis* flowers**  
Kerstin Kaufmann, *Humboldt-University, Berlin, Germany*

15:30-15:50 Abstract Talk 5.1  
**Transcriptome analysis of sexual and apomictic *Boechera* leads to identification of the RNA helicase GAM as crucial regulator for gametogenesis**  
Anja Schmidt, *Heidelberg University, Germany*

15:50-16:10 Abstract Talk 5.2  
**Development and evolution in male gametogenesis**  
David Twell, *University of Leicester, UK*

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16:10-16:30 Abstract Talk 5.3  
**Genomic and ecological differentiation in a South American grass**  
Diego Hojsgaard, *Leibniz Institute of Plant Genetics and Crop Plant Research, Gatersleben, Germany*

16:30-17:00 *Coffee Break*

17:00-17:20 Abstract Talk 5.4  
**Pollen number is regulated by REDUCED POLLEN NUMBER1 encoding ribosome assembly factor and is characterized by an enriched selection signal among traits related to selfing syndrome in *Arabidopsis thaliana***  
Kentaro K. Shimizu, *University of Zurich, Zurich, Switzerland*

17:20-17:40 Abstract Talk 5.5  
**Pre-zygotic mate selection in *Nicotiana attenuata***  
Patrycja Baraniecka, *Max Planck Institute for Chemical Ecology, Jena, Germany*

17:40-18:00 Abstract Talk 5.6  
**Phylogenetic and expression analysis of CENH3 and APOLLO genes in sexual and apomictic *Boechera* species**  
Vladimir Brukhin, *Komarov Botanical Institute, Russian Academy of Sciences, St. Petersburg, Russia*

**18:00-20:00 Poster Session 2**

## Thursday June 23

9:00-12:50

### **Session 6: Embryogenesis, Seed and Fruit Development**

Chair: David Honys, *Czech Academy of Sciences, Prague, Czech Republic*

9:00-9:30

### **Keynote Talk 6**

#### **Apoplastic modifications in plant reproductive development: The (w)hole story**

Gwyneth Ingram, *Université de Lyon, France*

9:30-9:50

Abstract Talk 6.1

#### **Embryonic elimination and post-meiotic drive of chromosomes – different sites of the same coin?**

Andreas Houben, *Leibniz Institute of Plant Genetics and Crop Plant Research, Gatersleben, Germany*

9:50-10:10

Abstract Talk 6.2

#### **Setting up the stage for analyzing parental-dosage-dependent effects on barley grain development**

Anna Nowicka, *Institute of Experimental Botany of the Czech Academy of Sciences, Olomouc, Czech Republic*

10:10-10:30

Abstract Talk 6.3

#### **High temperatures impact on early seed development and embryo morphogenesis in *Arabidopsis thaliana***

Juan Francisco Sánchez López, *CEITEC Masaryk University, Brno, Czech Republic*

10:30-11:10

*Coffee Break*

11:10-11:30

Abstract Talk 6.4

#### **Do *VIM* genes have a role in embryo and endosperm development?**

Karina Orozco Natividad, *Centro de Investigación y de Estudios Avanzados (Cinvestav), Irapuato, México*

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11:30-11:50 Abstract Talk 6.5  
**Distinct parental signals polarize the *Arabidopsis* zygote to initiate the embryonic patterning process**  
Martin Bayer, *Max Planck Institute for Biology, Tübingen, Germany*

11:50-12:10 Abstract Talk 6.6  
**Time to sleep or to germinate? A case of legumes seed dormancy**  
Petr Smýkal, *Palacký University in Olomouc, Czech Republic*

12:10-12:30 Abstract Talk 6.7  
**Seed coat-derived brassinosteroids non-cell autonomously regulate endosperm development**  
Rita B. Lima, *University of Potsdam, Germany*

12:30-12:50 Abstract Talk 6.8  
**Small RNA functions in plant embryos**  
Michael Nodine, *Wageningen University, The Netherlands*

12:50-14:00 *Lunch*

**14:00-17:10 Session 7: Epigenetic Mechanisms**  
Chair: Thomas Dresselhaus, *University of Regensburg, Regensburg, Germany*

**14:00-14:30 Keynote Talk 7**  
**Regulation and function of endosperm cellularization**  
Claudia Köhler, *Max Planck Institute of Molecular Plant Physiology, Potsdam-Golm, Germany*

14:30-14:50 Abstract Talk 7.1  
**Active DNA demethylation in pollen counteracts heterochromatic silencing**  
Daniel Bouyer, *École Normale Supérieure de Lyon, France*

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14:50-15:10 Abstract Talk 7.2  
**Temperature stress impairs centromere structure and segregation of meiotic chromosomes in *Arabidopsis***  
Karel Řiha, *CEITEC Masaryk University, Brno, Czech Republic*

15:10-15:30 Abstract Talk 7.3  
**RNA directed DNA methylation impacts seed development in the obligate outcrosser *Capsella grandiflora***  
Mark A Beilstein, *University of Arizona, Tucson, AZ, USA*

15:30-16:10 *Coffee Break*

16:10-16:30 Abstract Talk 7.4  
**DNA methylation and genetic imprinting in water lily (*Nymphaea*) seeds: implications for endosperm and seed evolution**  
Rebecca A. Povilus, *Whitehead Institute, Cambridge MA, USA*

16:30-16:50 Abstract Talk 7.5  
**Homology-based regulation of pollen-side dominance hierarchy between small RNAs and their targets in *Brassicaceae*.**  
Risa Kobayashi, *Nara Institute of Science and Technology, Japan*

16:50-17:10 Abstract Talk 7.6  
**Exploring the cellular basis of organ curvature using 3D digital ovules**  
Kay Schneitz, *Technical University of Munich, Freising, Germany*

**17:10-18:00 General Assembly**

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**Conference Dinner**

(19:00-21:00)

*City of Prague Mayor's Residency*

*Mariánské náměstí 1/98, Praha 1 – Staré Město*

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## Friday June 24

**9:00-9:40**      **Special Keynote Talk**  
**Membrane receptor kinase signaling proteins in plant development**  
Michael Hothorn, *University of Geneva, Switzerland*

**9:40-11:50**      **Session 8: Applications in Plant Breeding**  
Chair: Karina van der Linde, *University of Regensburg, Germany*

**9:40-10:10**      **Keynote Talk 8**  
**Exploitation of uniparental genome elimination for accelerated plant breeding and genetics**  
Ravi Maruthachalam, *Indian Institute of Science Education and Research, Vithura, Kerala, India*

10:10-10:50      *Coffee Break*

10:50-11:10      Abstract Talk 8.1  
**Pollen and ovule quality analysis for plant reproduction**  
Iris Heidmann, *Acepo, Enkhuizen, The Netherlands*

11:10-11:30      Abstract Talk 8.2  
**Genome-wide association analysis of wild and domesticated barley identifies hitherto unknown domestication loci as well as new breeding targets for important yield traits**  
Jesper Harholt, *Carlsberg Research Laboratory, Copenhagen, Denmark*

11:30-11:50      Abstract Talk 8.3  
**Generation of haploidy inducers in barley by targeted mutagenesis**  
Jochen Kumlehn, *Leibniz Institute of Plant Genetics and Crop Plant Research, Gatersleben, Germany*

**11:50-12:10**      **Meeting Closure**

12:10-13:10      *Lunch*