



CEPLAS

International CEPLAS/IPK Summer School 2024

Translational Plant Biodiversity Research



September 22–26, 2024

Kloster Drübeck, Ilsenburg-Drübeck, Germany

Plant research is strategically important to enable scientific, social, and political transformation of agricultural production. To adapt crops to future demands, such as climate change and limited resources, it is crucial to understand the functional impact of biodiversity on trait performance and adaptation. Biodiversity is defined by genetic and epigenetic variation in genomes. The Cluster of Excellence in Plant Sciences (CEPLAS) and the IPK (Leibniz Institute of Plant Genetics and Crop Plant Research) are two European centers for plant research that collaborate to enhance translational biodiversity research. Their research activities encompass fundamental discoveries of biological phenomena as well as application-oriented innovations. To support these efforts, CEPLAS and IPK have recently established the Center for Translational Plant Biodiversity Research (TRANSCEND). TRANSCEND aims to improve the perception of plant research in politics and society by integrating further expertise and know-how in Europe and beyond. TRANSCEND is the foundation of an extensive coalition for innovative plant sciences. Its primary objective is to facilitate the transition towards a more sustainable and resilient agri-food sector, which is a crucial component of a sustainable society. This will be accomplished by identifying opportunities for teaching, collaboration, networking, and sharing knowledge and skills to strengthen plant science as a whole. The joint Summer School aims to promote networking and support the next generation of researchers.

Program

International CEPLAS - IPK Summer School, September 22-26, 2024

Kloster Drübeck, in Ilsenburg-Drübeck, Germany

- Talks: **35 min + 10 min disc.**
- Short Talks by Early Career Researchers (ECR): **10 + 5 min disc.**
- Meal Times: Breakfast 7:30 – 9:00 a.m., Lunch 12:00 – 1:00 p.m., Dinner 6:15 – 7:30 p.m.

Sunday, September 22

2:30 - 5:00 p.m. Registration and Check-In

5:00 p.m. **Welcome and Introduction by Jens Freitag and Stanislav Kopriva**

6:15 – 7:30 p.m. Dinner

7:30 p.m. Chair: Jens Freitag
Key Note Lecture:
Svenja Augustin (CEPLAS) and Robert Hoffie (IPK)
Give Genes A Chance! – Lessons from Science Communication on the Political Stage

8:30 p.m. Get-together

Monday, September 23

- 09:00 – 12:00 **Interactive Workshop Food Security**
Loss of Biodiversity affects Food Security. *What can we do?*
Introduction – Dorit Grunewald, University of Cologne,
Coordinator of the Food Security Network
- Lecture: Manuela Nagel, IPK Gatersleben,**
The role of gene banks for food security
- ca. 10:30 a.m. In between **Coffee break**
- 12:00 - 1:00 p.m. **Lunch**
- Session 1 - Chair: Laura Armbruster**
- 1:30 – 2:15 p.m. **Alain Tissier, IPB Halle**
From knock-outs to knock-ins: application of the Cas-Exo technology for plant breeding
- 2:15 – 3:00 p.m. **Kathrin Wippel, University of Amsterdam**
(Inter-)Bacterial effects on plant protection and root exudation
- 3:00 – 3:30 p.m. **Coffee Break**
- Session 2 - Chair: Stanislav Kopriva**
- 3:30 – 3:45 p.m. **Nina Trubanova, University College Dublin**
Genome-specific association study (GSAS) for exploration of variability in hemp
- 3:45 – 4:00 p.m. **Tracyline Jayo Manyasi, University of Nairobi**
Point of care diagnostics on banana Fusarium wilt in Mozambique
- 4:00 – 4:15 p.m. **Alessandra Renella, University of Molise**
Metabolomic characterization of autochthonous lentil ecotypes from the Italian Apennine regions
- Session 3 - Chair: Gabriel Oliveira Ragazzo**
- 4:15 – 5:00 p.m. **Stefan Heckmann, IPK Gatersleben**
Towards harnessing meiotic recombination in barley (*Hordeum vulgare*)
- 5:00 – 5:45 p.m. **Nicolaus von Wiren, IPK Gatersleben**
Nitrogen nutrition as versatile determinant of root plasticity
- 6:15 – 7:30 p.m. **Dinner**
- 7:30 – 9:00 p.m. **Poster Session I**

Tuesday, September 24

Chair: Gabriel Oliveira Ragazzo

- 9:00 – 9:45 a.m. **Bart Thomma, University of Cologne, CEPLAS**
Effector-mediated microbiota manipulation by fungal plant pathogens
- 9:45 – 10:00 a.m. **Coffee Break**
- 10:00 – 11:30 a.m. **3 parallel Workshops** (round 1)

Behind the scenes of the publishing process – Mary Williams
Science Communication – Svenja Augustin and Robert HOFFIE
Successful Networking for Personal Branding – Claudia Benassi
- 12:00 - 1:00 p.m. **Lunch**
- 1:30 – 3:00 p.m. **3 parallel Workshops** (round 2)
- 3:00 – 3:30 p.m. **Coffee Break**
- Session 4 - Chair: Laura Armbruster**
- 3:30 – 3:45 p.m. **Miroslav Berka, Mendel University Brno**
Molecular response of *Fragaria vesca* to different environmental condition
- 3:45 – 4:00 p.m. **Vanessa Reyes Loiza, Centre for Research in Agricultural Genomics (CRAG), Barcelona**
Dynamics of Suberin and Cutin Deposition in Response to Environmental Stimuli
- Session 5 - Chair: Sebastian Samwald**
- 4:00 – 4:45 p.m. **Manuela Nagel, IPK Gatersleben**
Racing for viability – the importance of the glassy state for conservation
- 4:45 – 5:30 p.m. **Ute Armbruster, Heinrich Heine University Dusseldorf, CEPLAS**
Photosynthesis in time and space
- 6:15 – 7:30 p.m. **Dinner**
- 7:30 – 9:00 p.m. **Poster Session II**

Wednesday, September 25

Session 7 - Chair: Gabriel Oliviera Ragazzo

- 09:00 – 09:45 a.m. **André Marques, MPIPZ Köln, CEPLAS**
Evolutionary dynamics of repeat-based holocentromeres
- 09:45 – 10:30 a.m. **Leonie Luginbuehl, University of Cambridge**
Carbon assimilation and allocation: From single cells to plant microbial systems
- 10:30 – 11:00 a.m. **Coffee break**

Session 8 - Chair: Sebastian Samwald

- 11:00 – 11:15 a.m. **Ademola Adeyomoye Adewuyi, University of Malaysia**
Assessment of Candidate Markers for tolerance to *Fusarium oxysporum* f. sp. cubense TR4 in F2 population of Wild Banana *Musa Acuminata* subsp. Malaccensis
- 11:15 – 11:30 a.m. **Santosh Hadagali, University of Agriculture, Krakow**
QTL mapping for vernalization from transposable elements perspective in carrot (*Daucus carota* L.)
- 11:30 – 11:45 a.m. **Veronica Berková, Mendel University Brno**
The fungus *Acremonium alternatum* enhances salt stress tolerance by regulating host redox homeostasis and phytohormone signaling
- 12:00 - 1:00 p.m. **Lunch**
- 1:30 – 6 p.m. **Social Program**
- 6:00 – 7:30 p.m. **Dinner**
Come together

Thursday, September 25

Session 9 - Chair: Stanislav Kopriva

09:00 – 09:45 a.m. **Pau Formosa-Jordan, MPIPZ Köln, CEPLAS**
Using computational morphodynamics to understand plant development

9:45 – 10:30 a.m. **Amanda Souza Camara, IPK Gatersleben**
Exploring structural diversity, lessons from the pan-proteome of barley

10:30 – 11:00 a.m. **Coffee break**

Session 10 - Chair: Gabriel Oliveira Ragazzo

11:00 – 11:45 a.m. **Katharina Bürstenbinder, IPB Halle**
Microtubule functions in plants: evolutionary aspects and biological implications

11:45 – 12:15 p.m. **Concluding Remarks, Jens Freitag and Stanislav Kopriva**
Announcement of Best Talk Award and Best Poster Award

12:15 – 1:00 p.m. **Lunch**

1:30 p.m. **Bus transfer to IPK Gatersleben and Wernigerode train station**

3:15 p.m. **Welcome and short introduction to IPK**

3:30 – 4:30 p.m. **Tour 1**

4:30 – 4:50 p.m. **Coffee break**

4:50 – 5:50 p.m. **Tour 2**

Each participant has the option of taking part in both tours:

1. Preserving, researching, and using biological diversity - the federal ex-situ gene bank

2. Digital phenotyping of above- and below-ground plant areas

6:00 p.m. **Official end of the Summer School programme**

Bus transfer to Quedlinburg