

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Climate Change-Linked Stress Tolerance in Plants (M4)

May 13-16, 2019 • Herrenhausen Palace • Hannover, Germany

Scientific Organizers: Julian Schroeder and Julia Bailey-Serres

Organized in collaboration with Volkswagen Foundation

Global Health Travel Award Deadline: December 18, 2018 / Abstract & Scholarship Deadline: January 15, 2019 / Abstract Deadline: February 13, 2019 / Discounted Registration Deadline: March 13, 2019

### MONDAY, MAY 13

#### Arrival and Registration

### TUESDAY, MAY 14

#### Welcome and Keynote Address

**Giles E.D. Oldroyd**, University of Cambridge, UK  
*Reducing the Dependence on Inorganic Fertilizers with Symbiotic Microbial Associations*

#### Harnessing Stress Tolerance from Genetic Diversity

**Maria von Korff Schmising**, University Düsseldorf and Max Planck Institute for Plant Breeding Research, Germany  
*Breeding Improved Drought and Heat Resistance in Barley*

**Amelia Henry**, International Rice Research Institute, Philippines  
*Harnessing Genetic Diversity to Achieve Drought Tolerance in Rice*

**Julia Bailey-Serres**, University of California, Riverside, USA  
*Dynamic Mechanisms of Water Extreme Resilience*

#### Short Talk(s) Chosen from Abstracts

#### Workshop 1: Advances in GWAS and Gene-Editing Towards Stress Tolerance

##### Short Talks Chosen from Abstracts

#### Responses to Elevated Greenhouse Gases: Physiology to Productivity

**Lisa Ainsworth**, University of Illinois and USDA, USA  
*Improving Crop Physiological Responses to Rising Ozone Pollution*

**Julian I. Schroeder**, University of California, San Diego, USA  
*CO<sub>2</sub> Sensing and Signal Transduction in Regulation of Plant Transpiration*

**Diana Santelia**, University of Zürich, Switzerland  
*CO<sub>2</sub>, Starch and Stress Survival Strategies*

#### Short Talk Chosen from Abstracts

#### Poster Session 1

### WEDNESDAY, MAY 15

#### Resilience through Synthetic Solutions

**Julie E. Gray**, University of Sheffield, UK  
*Engineering Stomata to Reduce Crop Water Use*

**Sean Cutler**, University of California, Riverside, USA  
*Programmable Plants – Synthetic Approaches to Engineering Drought Tolerance*

**Lizhong Xiong**, Huazhong Agricultural University, China  
*GWAS and Engineering of Drought Resistance in Rice*

#### Short Talk(s) Chosen from Abstracts

#### Workshop 2: New Sustainable Alternatives for Meeting Protein and Nutrient Needs of the Future

**B. Greg Mitchell**, University of California San Diego Scripps Institution of Oceanography, USA  
*The Potential of Protein and Food Production in Salt Tolerant Algae*

#### Short Talks Chosen from Abstracts

#### Developmental Reprogramming under Stress

**José R. Dinneny**, Stanford University, USA  
*Sensing and Developmental Response to Salinity*

**Christa Testerink**, Wageningen University, Netherlands  
*Out of Shape during Stress: Mechanisms of Root Architecture Remodeling in Response to Salt*

**Mikio Nakazono**, Nagoya University, Japan  
*Root Traits that Determine Waterlogging Resilience in Rice and Maize*

#### Short Talk Chosen from Abstracts

#### Poster Session 2

### THURSDAY, MAY 16

#### Genomes to Stress Resilience Mechanisms

**Christine Queitsch**, University of Washington, USA  
*Epigenomics of Heat Stress Responses in Model Species*

**Graeme L. Hammer**, University of Queensland, Australia  
*The Physiology, Genetics and Modelling of Heat Tolerance in Grain Sorghum*

**Maheshi Dassanayake**, Louisiana State University, USA  
*Learning from Nature: Salt Tolerance Strategies*

**Tomoaki Horie**, Shinshu University, Japan  
*Molecular Mechanisms that Enhance Salt Tolerance in Cereals*

#### Short Talk(s) Chosen from Abstracts

#### Workshop 3: GWAS and Abiotic Stress Resistance

##### Short Talks Chosen from Abstracts

#### Discovery of New Stress Tolerance Mechanisms and Loci

**François Tardieu**, French National Institute for Agricultural Research, INRA, France  
*Genetic Analysis of Drought Tolerance with a Scenario-Dependent Probabilistic Approach*

**Edward S. Buckler**, USDA-ARS, USA  
*Maize NAM Population-Based Breeding for Abiotic Stress Tolerance*

**Vipula Shukla**, Bill & Melinda Gates Foundation, USA  
*Abiotic Stress Resistant Crops in Africa*

#### Meeting Wrap-Up: Outcomes and Future Directions (Organizers)

### FRIDAY, MAY 17

#### Departure