Announcing Keystone Symposia’s 2015 conference on:

Plant Receptor Kinases: From Molecules to Environment

February 8–13, 2015
Sagebrush Inn and Conference Center
Taos, New Mexico, USA

Scientific Organizers: Cyril Zipfel and Steven C. Huber

Cell surface receptor kinases are one of the major components used by plants to rapidly translate extracellular signals into appropriate intracellular responses to changing environmental and developmental conditions. This meeting highlights recent developments in our understanding of receptor kinases, from their evolution, to the pathways they are involved in, to the molecular details underlying their function (e.g., post-translational modifications, structure, cell biology).

Session Topics:
• Growth and Development I & II
• Brassinosteroid Perception and Signaling
• Cell Biology of RKs
• Interaction with Environment: Symbioses
• Interaction with Environment: Innate Immunity
• Translation of Receptor Kinase Biology
• Evolution of Plant RKs
• Workshop 1: Structural Biology of Plant RKs
• Workshop 2: Proteomics Analysis of Plant RKs

To see the full program and for additional details, visit www.keystonesymposia.org/15B3.
SUNDAY, FEBRUARY 8
Arrival and Registration

MONDAY, FEBRUARY 9
Welcoming Address
Steven C. Huber, USDA/ARS, University of Illinois at Urbana-Champaign, USA
Cyril Zipfel, University of Zurich, Switzerland

Keynote Address
*Steven C. Huber, USDA/ARS, University of Illinois at Urbana-Champaign, USA
Mark A. Lemmon, University of Pennsylvania Perelman School of Medicine, USA

Signaling Mechanisms of Animal Receptor Tyrosine Kinases
Zachary Nimchuk, Virginia Polytechnic Institute and State University, USA

Growth and Development I
Zachary Nimchuk, Virginia Polytechnic Institute and State University, USA
All Together Now: Receptor Kinase Function in Plant Stem Cell Regulation
Tom Beeckman, Universiteit Gent, Belgium

*Reidunn Birgitta Aalen, University of Oslo, Norway
Communicating Break-Down - Leucine-Rich Repeat Receptor-Like Kinases Involved in Cell Separation Events during Plant Development

Antje Heese, University of Missouri, Columbia, USA
Root System Development and the Search for RK-Dependent Signaling

Jaimie M. Van Norman, University of California, Riverside, USA
Short Talk: A Vesicular Trafficking ENTH-Domain Protein Functions in Plasma Membrane Localization of the Receptor Kinase FLS

Workshop 1: Structural Biology of Plant RKs
*Jijie Chai, Tsinghua University, China
*Michael Hothorn, University of Geneva, Switzerland
Jean-Jacques Bono, Laboratoire des Interactions Plantes-Microorganismes, LIPM, France
Structure-Function Study of LYR3: A LysM-RLK which Binds Lipo-Chitooligosaccharides with High Affinity

Jeryl Cheng, Aarhus University, Denmark
Structural and Biochemical Characterisation of the Lotus japonicus Lys6: A Lym Receptor Like Kinase Involved in Chitin Perception

Peter DiGennaro, University of California, Berkeley, USA
Tertiary Structures of Diverse CLE Peptides Share a Conserved Core, with Distinct Molecular Dynamics and Receptor Binding Characteristics

Jan Hejatko, Central European Institute of Technology, Masaryk University, Czech Republic
Structural Insights into Specificity of Multistep Phosphorelay Signaling in Arabidopsis

Brassinosteroid Perception and Signaling
*Steven C. Huber, USDA/ARS, University of Illinois at Urbana-Champaign, USA
Functional Studies of Phosphorylation Events in Early BR Signaling
Steven D. Clouse, North Carolina State University, USA
Role of Protein Interacting Networks and Phosphorylation in LRR RLK Function
Michael Hothorn, University of Geneva, Switzerland
Atomic Insights into the Early Steps of Brassinosteroid Signaling
Sebastian Wolf, University of Heidelberg, Germany
Short Talk: Receptor-Mediated Signaling from the Plant Cell Wall

Poster Session 1

TUESDAY, FEBRUARY 10
Cell Biology of RKs
Hannah Kuhn, Sainsbury Laboratory, UK
Traffic Control for Plant Immunity and Receptor Kinases

*Eugenia Russinova, University of Ghent, Belgium
Endocytosis of Plant Receptor Kinases

Yvonne Stahl, Heinrich-Heine-Universität Düsseldorf, Germany
RK Complexes in Root Meristems

Sacco de Vries, Wageningen University, Netherlands
Modeling the Arabidopsis Somatic Embryogenesis Receptor-Like Kinase Signaling Pathways

Christine Faulkner, John Innes Centre, UK
Short Talk: A Plasmodesmata-Specific LysM Receptor Complex Identifies Subcellular Specificity in Chitin Perception and Signaling

Hidenori Takeuchi, Nagoya University, Japan
Short Talk: Tip-Localized Receptor Kinase Controls Directional Growth of Pollen Tubes toward Attractant LURE Peptide

Interaction with Environment: Symbioses
Thomas Ott, University of Munich, Germany
Receptor-Dependent Sequential Assembly of a Symbiosis-Specific Membrane Microdomain

Elena Simona Radutoiu, Aarhus University, Denmark
Roles of LysM-RKs in Microbe Perception and Accommodation

Julie V. Cullimore, French National Institute for Agricultural Research, France
Lipo-Chitooligosaccharide Responses and Perception by LysM-RKs

Sudip Saha, University of Calcutta, India
Short Talk: Deregulated SYMRK Hyperactivates Spontaneous Nodulation

Poster Session 2

WEDNESDAY, FEBRUARY 11
Interaction with Environment: Innate Immunity
*Cyril Zipfel, University of Zurich, Switzerland

Connecting the Dots: Linking PAMP Perception to Receptor Kinase-Mediated Immune Outputs
Libo Shan, Texas A&M University, USA
Ubiquitination in Plant Immune Receptor Complex Regulation and Signaling
Jian-Min Zhou, Chinese Academy of Sciences, China
Receptor-Like Cytoplasmic Kinases Regulating Plant Innate Immunity
Jijie Chai, Tsinghua University, China
Structural Study of Plant Pattern Recognition Receptors

Growth and Development II
*Keiko U. Torii, University of Washington, USA
Receptor-Kinase Complexes in Stomatal Patterning
Ueli Grossniklaus, University of Zurich, Switzerland
Mechanisms of FERONIA RLK Signaling in Pollen Tube Reception
Herman R. Höfte, Institut Jean-Pierre Bourguin, INRA Centre de Versailles-Grignon, France
Perception of Cell Wall Integrity by Receptor-Like Kinases
Miyoshi Haruta, University of Wisconsin Madison, USA
Short Talk: An S-Domain Receptor-Like Kinase Mediates Lipopolysaccharide Perception in Arabidopsis thaliana

Poster Session 3

THURSDAY, FEBRUARY 12

Translation of Receptor Kinase Biology
*Giles E.D. Oldroyd, University of Cambridge, UK
Chito-Oligosaccharide and Lipochito-Oligosaccharide Perception during Symbiont and PAMP Signaling
Antonio Molina, Universidad Politecnica Madrid, Centro de Biotecnologia y Genomica Plantas, Spain
Perception of Cell Wall-Derived Signals and Regulation of Plant Disease Resistance
Sarah R. Hind, Boyce Thompson Institute, USA
Short Talk: The Tomato Receptor FLAGELLIN-SENSING 3 Perceives Flagellin and Activates Immune Signaling
Rory Pruitt, University of California, Davis, USA
Short Talk: The Rice Immune Receptor XA21 Is Activated by the Sulfated Bacterial Peptide RaxX
Qingyu Wu, Cold Spring Harbor Laboratory, USA
Short Talk: A Maize Leucine-Rich Repeat Receptor-Like Kinase Interacts with Galpha and a CLAVATA LRR Receptor-Like Protein: A New Player in Shoot Meristem Regulation?

Workshop 2: Proteomics Analysis of Plant RKs
*Steven D. Clouse, North Carolina State University, USA
Hernan Avila-Pacheco, Broad Institute of MIT and Harvard, USA
ERECTA: Phosphorylation and Interacting Partners in Plant Development
Klaas Bouwmeester, Wageningen University, Netherlands
Lectin Receptor Kinases: Sentinel in Defense against Plant Pathogens
Zuh-Jyh Dan Lin, University of California, Davis, USA
An Arabidopsis Receptor-Like Cytoplasmic Kinase Functions as a Negative Regulator of Plant Immunity
Frank L.H. Menke, Sainsbury Laboratory, UK
Targeted Phosphoproteomics Identifies Negative Regulator of Pattern Recognition Receptor FLS2
Aranka M. van der Burgh, Wageningen University, Netherlands
CF-4, Present in a Constitutive Complex with the Receptor-Like Kinase (RLK) SOBIR1/EVR, Recruits BAK1 to Mount Plant Immunity

Evolution of Plant RKs
Yoko Nishizawa, National Institute of Agrobiological Sciences, Japan
Manipulation of Chitin-Mediated Rice-Blast Fungus Interactions by Engineering Receptor Kinases
*Rene Geurts, Wageningen University, Netherlands
Perception of Rhizobium Lipochitooligosaccharide Signals by Non-Legumes
Thorsten Nürnberger, University of Tübingen, Germany
Short Talk: Exploiting Natural Variation to Identify and Characterize Plant Immune Receptors
Aleksia Vaattovaara, University of Helsinki, Finland
Short Talk: Evolution of the CRKs and Other DUF26-Containing Gene Families in Plants

Meeting Wrap-Up: Outcomes and Future Directions
*Cyril Zipfel, University of Zurich, Switzerland
*Steven C. Huber, USDA/ARS, University of Illinois at Urbana-Champaign, USA

FRIDAY, FEBRUARY 13

Departure