



Join Keystone Symposia  
for the 2016 conference on:

# Plant Epigenetics: From Genotype to Phenotype

February 15–19, 2016

Sagebrush Inn & Suites | Taos, New Mexico | USA

Scientific Organizers:

Scott D. Michaels, Doris Wagner and Nathan M. Springer

*The modification of chromatin, including DNA and histones, allows for the manifestation of multiple phenotypes from the same DNA sequence. In this way, chromatin modifications contribute to variation at multiple levels, ranging from the expression of individual genes, to the differentiation of cell types, to population-level phenotypic diversity. As sessile organisms, plants also integrate a myriad of environmental cues into different phenotypic or growth responses via the epigenome. This meeting will focus on recent breakthroughs in our mechanistic understanding of how epigenetic modifications shape the expression of genotype into phenotype in plants. Bringing together a diverse group of experts from academia and industry will allow attendees to explore the frontiers of plant epigenetics and forge interdisciplinary collaborations.*

**Session Topics:**

- Epigenetic Systems I: DNA Methylation
- Epigenetic Systems II: RNA-Mediated Regulation
- Epigenetic Systems III: Histone Modifications and Variants
- The Dynamic Epigenome
- Nuclear Organization
- Epigenetic Regulation of Stem Cells and Development
- Crop Epigenetics: Hybridization and Heterosis
- Natural Variation and Ecological Epigenetics



Submitting an abstract is a great way of participating in the conference through poster presentation and possible selection for a short talk.

**Scholarship & Discounted Abstract Deadline: Oct 14, 2015**

**Abstract Deadline: Nov 16, 2015**

**Discounted Registration Deadline: Dec 15, 2015**

For additional details, visit [www.keystonesymposia.org/16B1](http://www.keystonesymposia.org/16B1).

**KEYSTONE SYMPOSIA™**  
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### MONDAY, FEBRUARY 15

#### Arrival and Registration

### TUESDAY, FEBRUARY 16

#### Welcome and Keynote Address

\***Scott D. Michaels**, Indiana University, USA

**Steven E. Jacobsen**, University of California, Los Angeles, USA  
*RNA Directed DNA Methylation*

\***Doris Wagner**, University of Pennsylvania, USA

\***Nathan M. Springer**, University of Minnesota, USA

#### Epigenetic Systems I: DNA Methylation

\***Steven E. Jacobsen**, University of California, Los Angeles, USA

**Jian-Kang Zhu**, Purdue University and Shanghai Center for Plant Stress Biology, CAS, USA  
*Active DNA Demethylation and Epigenetic Anti-Silencing in Plants*

**Jonathan Cahn**, University of Western Australia, Australia  
*Short Talk: Identification and Characterization of DNA Methylation Readers in Arabidopsis Thaliana*

**R. Keith Slotkin**, Ohio State University, USA  
*Short Talk: Movement of siRNAs into Sperm Cells Directs Transposable Element Silencing*

**Karen M. McGinnis**, Florida State University, USA  
*Epigenetic Regulation of Gene Expression in Maize*

#### Epigenetic Systems II: RNA-Mediated Regulation

\***R. Keith Slotkin**, Ohio State University, USA

**Andrzej T. Wierzbicki**, University of Michigan, USA  
*Role of Long Noncoding RNA in RNA-Directed DNA Methylation*

**Jixian Zhai**, University of California, Los Angeles, USA  
*Short Talk: A One Precursor One siRNA Model for Pol IV-Dependent siRNA Biogenesis*

**Robert A. Martienssen**, Cold Spring Harbor Laboratory, USA  
*Heterochromatin Reprogramming and Epigenetic Inheritance: How to Avoid Bad Karma*

**Caroline Dean**, John Innes Centre, UK  
*Cold-Induced Epigenetic Switching at FLC*

**Mathew G. Lewsey**, The Salk Institute for Biological Studies, USA  
*Short Talk: Mobile Small RNAs Regulate Genome-Wide DNA Methylation*

#### Poster Session 1

### WEDNESDAY, FEBRUARY 17

#### Epigenetic Systems III: Histone Modifications and Variants

\***Caroline Dean**, John Innes Centre, UK

**Zoya Avramova**, University of Nebraska-Lincoln, USA  
*Chromatin Modifications at Arabidopsis Stress-Response Genes; Transient versus Persistent (epigenetic) Histone Marks in Response to Repeated Dehydration Stress*

**Toshiro Ito**, Temasek Life Sciences Laboratory, Singapore  
*Recruitment and Eviction of PcG in the Dynamics of H3K27me3*

**Ido Keren**, SUNY-Stony Brook University, USA

*Short Talk: Epigenetic Control of Organ Growth-Related Genes by OTLD1, an Arabidopsis Histone Deubiquitinase*

**Frederic Berger**, Gregor Mendel Laboratory, Austria  
*Reprogramming and Indexing the Genome with Histone Variants*

**Inna Lermontova**, Institute of Plant Genetics, Germany  
*Short Talk: DNA Binding Capability of the cenH3 Assembly Factor KNL2 in Arabidopsis Thaliana*

**Crisanto Gutiérrez**, Centro de Biología Molecular Severo Ochoa, Spain

*The Arabidopsis Chromatin Landscape: Impact on Cell Cycle and Genome Replication*

#### The Dynamic Epigenome

\***Robert A. Martienssen**, Cold Spring Harbor Laboratory, USA

**Ortrun Mittelsten Scheid**, Gregor Mendel Institute of Molecular Plant Biology, Austria

*Epigenetic Responses to Stress*

**Jong-Myong Kim**, Riken Center for Sustainable Resource Science, Japan

*Short Talk: Novel Epigenetic and Antisense RNA Regulation in Plant Abiotic Stress Responses*

**Robert Schmitz**, University of Georgia, USA  
*Encyclopedia of Eukaryotic DNA Methylation - From Patterns to Mechanisms and Functions*

**Anna Amtmann**, University of Glasgow, UK  
*Chromatin-Based Processes in Plant Responses to Abiotic Stress*

**Jonathan D.G. Jones**, Sainsbury Laboratory, UK  
*Short Talk: Transcriptional Regulation of Defense Genes by the RPS4/RRS1 Intracellular Immune Receptor Complex*

#### Poster Session 2

### THURSDAY, FEBRUARY 18

#### Nuclear Organization

\***Frederic Berger**, Gregor Mendel Laboratory, Austria

**Craig S. Pikaard**, HHMI/Indiana University, USA  
*Genetics and Chromosome Engineering of Ribosomal RNA Gene Dosage Control and NOR Inactivation*

**Paul Fransz**, Universiteit van Amsterdam, Netherlands  
*Dynamic 3D-Organization of Chromosomes and Heterochromatin in Arabidopsis*

**Scott D. Michaels**, Indiana University, USA  
*Large-Scale Heterochromatic Remodeling Facilitates DNA Repair*

**Fernando A. Rabanal**, Gregor Mendel Institute of Molecular Plant Biology, Austria

*Short Talk: Nucleolus Organizer Regions Genetically Interact to Silence Each Other, and Control rRNA Transcription in Arabidopsis thaliana*

**Fredy Barneche**, Institut de Biologie de l'Ecole Normale Supérieure, France

*Light Controlled Nuclear Reorganization during Arabidopsis Seedling Development*

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### EPIC Organizational Meeting

#### Epigenetic Regulation of Stem Cells and Development

\***Ortrun Mittelsten Scheid**, Gregor Mendel Institute of Molecular Plant Biology, Austria

**Doris Wagner**, University of Pennsylvania, USA  
*(Re)programming of Cell Identity and Transcription in Response to Developmental or Environmental Cues*

**Iva Mozgová**, Swedish University of Agricultural Sciences, Sweden  
*Short Talk: PRC2 Represses Hormone-Induced Totipotency of Plant Somatic Cells*

**Claude Becker**, Max Planck Institute for Developmental Biology, Germany  
*Plants Release Precursors of Histone Deacetylase Inhibitors to Suppress Growth of Competitors*

**Maike Stam**, University of Amsterdam, Netherlands

### Poster Session 3

#### FRIDAY, FEBRUARY 19

##### Crop Epigenetics: Hybridization and Heterosis

\***Magnus Nordborg**, Gregor Mendel Institute, Austria

**Elizabeth S. Dennis**, CSIRO, Australia  
*Arabidopsis Hybrids and Hybrid Mimics*

**Felix Seifert**, University of Hamburg, Germany  
*Short Talk: Maize Heterosis - Antagonistic Activity of Specific Small RNA Populations*

**Jon Reinders**, DuPont Pioneer, USA  
*Utilizing DNA Methylation in Breeding Programs*

**Nathan M. Springer**, University of Minnesota, USA  
*Variations on a Theme: Methylome Patterning in a Complex Genome*

**Mario Arteaga Vázquez**, Universidad Veracruzana, Mexico  
*Paramutation and Development*

##### Natural Variation and Ecological Epigenetics

\***Jon Reinders**, DuPont Pioneer, USA

**Magnus Nordborg**, Gregor Mendel Institute, Austria  
*Natural Variation in DNA Methylation: Causes and Consequences*

**Frank Johannes**, Technical University Munich, Germany  
*Rate of Spontaneous Epimutations in *A. thaliana*: Facts and Prospects*

**Xiaofeng Cao**, Chinese Academy of Sciences, China  
*Post-Transcriptional Regulation Mediated by Protein Arginine Methylation*

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

#### SATURDAY, FEBRUARY 20

##### Departure