

Keystone Symposia: RNA Silencing Mechanisms in Plants

Sponsored by the Gordon and Betty Moore Foundation and Monsanto Company

February 21–26, 2010 • Hilton Santa Fe/Historic Plaza • Santa Fe, New Mexico • USA

Scientific Organizers: Marjori Ann Matzke and James C. Carrington

PROGRAM FACULTY & TALKS

Michael J. Axtell, Pennsylvania State University, USA

Deep Sequencing to Identify miRNA and siRNA Targets

David C. Baulcombe*, University of Cambridge, UK

Small RNAs in Plants

Jozsef Burgyán, Plant Virology Institute-CNR, Italy

Viral Suppressors of RNA Silencing

Xiaofeng Cao, Institute of Genetics and Developmental Biology, China

Small RNA-Directed Epigenetic Natural Variation in Arabidopsis thaliana

James C. Carrington, Oregon State University, USA

Mechanisms of miRNA-Mediated Suppression

Vicki L. Chandler, Gordon and Betty Moore Foundation, USA

Small RNAs and Paramutation in Maize

Xuemei Chen, University of California, Riverside, USA

Methylation of miRNAs and siRNAs

Caroline Dean, John Innes Centre, UK

RRM Proteins and Small RNAs in Regulation of Flowering Time

Shou-Wei Ding, University of California, Riverside, USA

RNA Silencing and Viral Immunity

Joseph R. Ecker, The Salk Institute, USA

Connecting Genetic and Epigenetic Variation in 1,001 Arabidopsis Genomes

Nina V. Fedoroff, Pennsylvania State University, USA

Biochemical Analysis of microRNA Processing

Pamela J. Green, Delaware Biotechnology Institute, USA

Analysis of miRNAs and Target RNAs

Sarah C. Hake, Plant Gene Expression Center, USA

miRNA-Mediated Regulation and Domestication of Maize

Gregory Heck, Monsanto Co., USA

Commercial Applications of Gene Silencing

Steven E. Jacobsen, HHMI/University of California, Los Angeles, USA

Small RNA-Mediated Gene Silencing in Arabidopsis

Julia Kehr, Centre of Plant Biotechnology and Genomics, Spain

The Roles of Small Phloem RNAs in Stress Responses

Robert Martienssen, Cold Spring Harbor Laboratory, USA

Natural Variation in Small RNA-Regulation of Plant Genes

Marjori Ann Matzke, Gregor Mendel Institute of Molecular Plant Biology, Austrian

Academy of Sciences, Austria

RNA-Directed DNA Methylation in Arabidopsis

Michael Metzlaiff, Bayer BioScience N.V., Belgium

Using RNAi to Engineer Crop Plants

Blake C. Meyers, University of Delaware, USA

Deep Sequencing of Small RNAs

Magnus Nordborg, University of Southern California, USA

Talk Title to be Determined

Jurek Paszkowski, University of Geneva, Switzerland

DNA Methylation and Transgenerational Epigenetic Inheritance

Craig S. Pikaard, Washington University, USA

Roles of Pol IV and Pol V Transcription in RNA Silencing

R. Scott Poethig, University of Pennsylvania, USA

miRNAs and Developmental Timing in Plants

Yijun Qi, National Institute of Biological Sciences, China

Sorting Small RNAs into Argonaute Complexes

Marja Timmermans, Cold Spring Harbor Laboratory, USA

Pattern Formation by Mobile Small RNAs

Herve Vaucheret, Institut National de la Recherche Agronomique, France

Exo-Ribonucleases and Post-Transcriptional Gene Silencing

Olivier Voinnet, Institut de Biologie Moléculaire des Plantes, France

Cell to Cell Movement of RNA Silencing Signals

Jian-Kang Zhu, University of California, Riverside, USA

Small RNAs Related to Stress and DNA Demethylation



Although the core mechanisms of RNA silencing are conserved across eukaryotes, plants have deployed gene silencing in a particularly wide variety of molecular, developmental, adaptive, defensive and epigenetic contexts. Plants, therefore, serve as among the most insightful models to illuminate mechanisms of RNA-directed DNA methylation and transcriptional silencing, antiviral defense, small RNA biogenesis and effector mechanisms and the roles of small RNA-mediated regulation in development and stress responses. We will highlight recent mechanistic advances in how RNA silencing pathways integrate with plant processes, acting at levels ranging from single-nucleotide to population, as regulatory devices. Session topics emphasize integration between silencing mechanisms and developmental regulation and stress responses, DNA and chromatin modification, host-pathogen dynamics and natural variation. The symposium will also highlight cutting-edge, high-throughput technology being developed and applied in order to understand the roles of RNA-mediated silencing across the plant genome.

PROGRAM PLENARY SESSIONS:

- Small RNA Biogenesis and Effector Mechanisms
- Silencing and Intercellular Signals
- Epigenetics, Heterochromatin and DNA Methylation
- Integration of Silencing Mechanisms, Development and Stress Responses
- Integration of RNA Silencing and RNA Metabolism
- Interaction of Pathogens and RNA Silencing Mechanisms
- Genome-Wide Technologies and Applications of RNA Silencing
- Natural Variation and RNA Silencing

DEADLINES:

Abstract & Scholarship: October 21, 2009

Late-Breaking Abstract: November 20, 2009

Early Registration: December 21, 2009

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*Keynote speaker. Program subject to change. Current as of September 15, 2009