

# Keystone Symposia: RNA Silencing: Mechanism, Biology and Application

Sponsored by Isis Pharmaceuticals, Inc.

January 14–19, 2010 • Keystone Resort • Keystone, Colorado • USA

Scientific Organizers: Phillip D. Zamore and Beverly L. Davidson

## PROGRAM FACULTY & TALKS

**Victor Ambros**, University of Massachusetts, USA

*Small RNAs in C. elegans*

**Daniel G. Anderson**, Massachusetts Institute of Technology, USA

*A siRNA Delivery Toolkit*

**David P. Bartel**, Massachusetts Institute of Technology, USA

*Experimental and Computational Approaches to Understanding miRNA Function*

**Brenda L. Bass**, University of Utah, USA

*Regulation of Dicing by Adenosine Deamination*

**David C. Baulcombe**, University of Cambridge, UK

*Pol IV: A Specialized RNA Polymerase Collaborates with Small RNAs to Silence Gene Expression*

**James C. Carrington**<sup>\*</sup>, Oregon State University, USA

*Small RNA-Directed Silencing Pathways in Plants*

**Xuemei Chen**, University of California, Riverside, USA

*Three Polymerases in siRNA-Directed Transcriptional Gene Silencing*

**Beverly L. Davidson**, University of Iowa, USA

*Small RNAs on the Brain*

**Jennifer A. Doudna**, University of California, Berkeley, USA

*Understanding How Dicer Makes Small RNAs*

**Sarah C.R. Elgin**, Washington University, USA

*Targeting Heterochromatin Formation in Drosophila*

**Witold Filipowicz**, Friedrich Miescher Institute for Biomedical Research, Switzerland

*The Mechanism of Translational Repression by Small RNAs*

**Elaine Fuchs**, Howard Hughes Medical Institute, Rockefeller University, USA

*MicroRNAs and Stem Cells*

**Brenton R. Graveley**, University of Connecticut Health Center, USA

*The Role of Small RNAs in Stem Cells and Regeneration in Planarians*

**Shiv I. S. Grewal**, National Institutes of Health, USA

*RNAi and Heterochromatin Factors Suppress Antisense RNAs*

**Gregory J. Hannon**, Cold Spring Harbor Laboratory, USA

*Understanding piRNA Biology*

**Elisa Izaurralde**, MPI for Developmental Biology, Germany

*A Role for PABPC1 in the miRNA Pathway*

**Leemor Joshua-Tor**, Cold Spring Harbor Laboratory, USA

*Talk Title to be Determined*

**Mark A. Kay**, Stanford University, USA

*Mechanism of MicroRNA Mediated Transgene Silencing*

**Rene Ketting**, Hubrecht Institute, Netherlands

*Effects of piRNAs and siRNAs on Chromosomes*

**V. Narry Kim**<sup>\*</sup>, Seoul National University, South Korea

*The Making of a miRNA*

**Craig C. Mello**, University of Massachusetts Medical School, USA

*piRNAs in Worms: The Same, but Different*

**Danesh Moazed**, Harvard Medical School, USA

*Small RNA-Directed DNA Silencing in S. pombe*

**Dinshaw J. Patel**, Memorial Sloan-Kettering Cancer Center, USA

*Argonautes: Seeing the Core of RNA Silencing*

**Alexander Y. Rudensky**, Memorial Sloan Kettering Cancer Center, USA

*Role of miRNAs in T-Cell Function*

**Gary B. Ruvkun**, Massachusetts General Hospital, Harvard Medical School, USA

*Genetic Analysis Reveals the Complexity of the C. elegans RNA Silencing Pathways*

**Premlata Shankar**, Texas Tech University Health Sciences Center, USA

*Targeting siRNAs to T-Cells for Anti-Viral Therapy*

**Phillip A. Sharp**, Massachusetts Institute of Technology, USA

*Small RNA Function in Mammals*

**Mikiko C. Siomi**, Keio University School of Medicine, Japan

*piRNAs in the Fly Germ Line*

**Deepak Srivastava**, Gladstone Institute of Cardiovascular Disease, USA

*Small RNAs: At the Heart of Development*

**Alexander (Sasha) Tarakhovski**, Rockefeller University, USA

*Role of Ago Proteins in Immunity*

**Olivier Voinnet**, Institut de Biologie Moléculaire des Plantes, France

*Function and Regulation of miRNA Pathways in Plants*

**Gene W. Yeo**, University of California, San Diego, USA

*MicroRNA Targets in Human Embryonic Stem Cells*

**Phillip D. Zamore**, University of Massachusetts Medical School, USA

*Small RNAs and Genomic Defense*



Since the discovery in 1993 of the first small silencing RNA, a dizzying number of small RNA classes have been identified, including microRNAs, various types of siRNAs and piRNAs. These classes differ in their biogenesis, modes of target regulation and in the biological pathways they regulate. However, there is also a growing realization that these distinct small RNA pathways are interconnected. These pathways function in RNA-based immunity, developmental gene regulation, transcriptional silencing and genomic stability. The aim of this meeting is to explore the similarities and differences between RNA silencing pathways, to probe their underlying molecular mechanisms, to learn – by illustrative examples – the logic behind RNA-guided regulation of gene expression and to explore new methods for harnessing these mechanisms for gene discovery and therapeutics applications.

## PROGRAM PLENARY SESSIONS & WORKSHOPS:

- Structure and Regulation of Small RNAs
- Regulation of Small RNA Pathways
- miRNA Biogenesis and Function
- Small RNA Therapeutics
- siRNAs and RNAi I & II
- Workshop: piRNA Biogenesis and Function
- miRNA in Disease and Development
- miRNA and The Stem Cell Fate

## DEADLINES:

Abstract & Scholarship: September 17, 2009

Late-Breaking Abstract: October 15, 2009

Early Registration: November 16, 2009

[www.keystonesymposia.org/10A7](http://www.keystonesymposia.org/10A7)

**KEYSTONE SYMPOSIA™**  
on Molecular and Cellular Biology  
Accelerating Life Science Discovery

PO Box 1630 • Silverthorne, CO 80498 • USA  
[www.keystonesymposia.org](http://www.keystonesymposia.org) • 1-800-253-0685 • 1-970-262-1230

<sup>\*</sup>Keynote speaker. Program subject to change. Current as of September 14, 2009