

# Keystone Symposia in Daejeon

# Small Regulatory RNAs

Daejeon Convention Center | Daejeon, South Korea | April 14–18, 2019

## Scientific Organizers:

**V. Narry Kim**, Institute for Basic Science, South Korea

**Gregory J. Hannon**, University of Cambridge, UK

**Lin He**, University of California, Berkeley, USA

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

*Developed in collaboration with the Institute for Basic Science*

*Small regulatory RNAs are integral players in eukaryotic gene regulation, and are involved in numerous developmental and pathological pathways. Although the field has been making remarkable progresses in recent years, it still has a number of seminal questions. We need to understand how cell signaling pathways are connected to small RNA pathways, how small RNAs are regulated and function during cell fate transition, how small RNAs interact with subcellular compartments, if and how they are transported between cells, and how small RNAs participate in immune response. We also need to gain a systemic view of small RNAs and their targets in the context of gene network, and to understand their involvements in human diseases, not just cancer but also other genetic and metabolic disorders. This conference brings together scientists studying diverse animal and plant model organisms, which will offer an opportunity to understand the mechanism and function of small RNAs in an evolutionary and physiological context. The symposium will also bridge the gaps between fundamental knowledge, clinical needs and technical development by addressing issues such as small RNA involvement in diseases, in vivo delivery of RNA and technical challenges in RNA detection at single-molecule and single-cell levels. Compared with other conferences on RNA, this conference is unique in that it focuses on small regulatory RNAs, yet it is highly diverse in research approaches and biological systems. It will serve as a central forum for the small RNA community.*

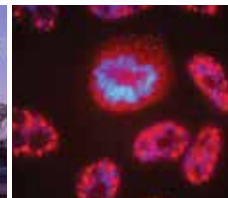
## Session Topics:

- MicroRNA Biogenesis and Turnover
- MicroRNA Function in Development and Stem Cells
- MicroRNA Function in Disease
- Small RNAs as Therapeutic and Diagnostic Tools
- Mechanism of RNA Silencing
- Lessons from CRISPR
- Diverse Small RNA Pathways

*Scholarship/Discounted Abstract Deadline: Dec 19, 2018; Abstract Deadline: Jan 16, 2019;*

*Discounted Registration Deadline: Feb 13, 2019*

Visit [www.keystonesymposia.org/19D7](http://www.keystonesymposia.org/19D7) for more details.



KEYSTONE SYMPOSIA™  
on Molecular and Cellular Biology

*Accelerating Life Science Discovery*

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Left image of RNA in cell nucleus courtesy of National Cancer Institute, NIH

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## Small Regulatory RNAs (D7)

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### SUNDAY, APRIL 14

#### Arrival and Registration

### MONDAY, APRIL 15

#### Welcome and Memorial Speech for Elisa Izaurralde

\*V. Narry Kim, Institute for Basic Science, South Korea

Oliver Weichenrieder†, Max Planck Institute for Developmental Biology, Germany

#### Keynote Address

David P. Bartel, HHMI, MIT and Whitehead Institute, USA  
*MicroRNAs*

#### MicroRNA Biogenesis and Turnover

Gunter Meister, University of Regensburg, Germany  
*Regulators of microRNA Biogenesis*

Helge Großhans, Friedrich Miescher Institute - FMI, Switzerland  
*Promoting Adulthood Through One miRNA With a Single Target*

Short Talk(s) Chosen from Abstracts

#### Poster Session 1

#### Workshop 1

Short Talk(s) Chosen from Abstracts

#### MicroRNA Function in Development and Stem Cells

Lin He, University of California, Berkeley, USA  
*MIR-34 in the Regulation of Stem Cells*

Stefania Nicoli, Yale University, USA  
*microRNA-223 Limits Hematopoietic Stem Cell Production from the Developing Aorta*

Anton J. Enright, University of Cambridge, UK  
*MicroRNA Evolution and Function*

Short Talk(s) Chosen from Abstracts

### TUESDAY, APRIL 16

#### MicroRNA Function in Disease

Joshua T. Mendell, HHMI/University of Texas Southwestern Medical Center, USA  
*Regulation of Argonaute by Posttranslational Modification*

Kwangseog Ahn, Seoul National University, School of Biological Sciences, South Korea  
*Regulation of Innate Antiviral Defenses by RNA-Mediated Interactions between Virus and Host*

Rui Yi, University of Colorado Boulder, USA  
*MicroRNA-Mediated Regulatory Network in Hair Follicle Stem Cells*

Jun-An Chen, Academia Sinica, Taiwan  
*The Role of MicroRNA during Motor Neuron Development and Degeneration*

Short Talk(s) Chosen from Abstracts

#### Small RNAs as Therapeutic and Diagnostic Tools

Anastasia Khvorova, University of Massachusetts Medical School, USA

*Modification of Oligonucleotide for in vivo Delivery*

Martin Maier†, Alnylam Pharmaceuticals, USA

*Small RNA-based Therapy*

Short Talk(s) Chosen from Abstracts

#### Poster Session 2

### WEDNESDAY, APRIL 17

#### Mechanism of RNA Silencing

Xuemei Chen, University of California, Riverside, USA  
*MicroRNA Regulation in Arabidopsis*

Yukihide Tomari, University of Tokyo, Japan  
*Biochemical and Biophysical Dissection of RNA Silencing*

Phillip D. Zamore, University of Massachusetts Medical School, USA  
*Talk Title to be Announced*

Mofang Liu, Shanghai Institutes of Biological Sciences, Chinese Academy of Sciences, China

*Multiple Roles of MIWI/piRNAs in Regulating Spermiogenesis in Mice*

Short Talk(s) Chosen from Abstracts

#### Poster Session 3

#### Workshop 2

Short Talk(s) Chosen from Abstracts

#### Lessons from CRISPR

Yanli Wang, Chinese Academy of Sciences, China  
*Class 2 CRISPR-Cas RNA-Guided Endonucleases and Inhibitors*

Jin-Soo Kim, Institute for Basic Science, South Korea  
*CRISPR Genome Editing*

Chirlmin Joo, Delft University of Technology, Netherlands  
*Single-Molecule Analysis of Fast and Accurate Target Recognition by Small RNAs*

Dinshaw J. Patel, Memorial Sloan Kettering Cancer Center, USA  
*Structure-based Mechanistic Insights into CRISPR-Cas Surveillance Complexes*

Short Talk(s) Chosen from Abstracts

### THURSDAY, APRIL 18

#### Diverse Small RNA Pathways I

Mikiko C. Siomi, University of Tokyo, Japan  
*PiRNA Biogenesis*

Alexei A. Aravin, California Institute of Technology, USA  
*PiRNA in DNA Methylation in Mouse Male Germ Cells*

Yijun Qi, Tsinghua University, China  
*Transcriptional Regulation by Small RNAs in Plants*

Short Talk(s) Chosen from Abstracts

#### Diverse Small RNA Pathways II

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**Victor R. Ambros**, University of Massachusetts, USA  
*Developmental Regulation and Function of Let-7a microRNA in C. elegans*

**V. Narry Kim**, Institute for Basic Science, South Korea  
*MicroRNA Processing Machinery*

**Short Talk Chosen from Abstracts**

### Closing Keynote Address

**Phillip A. Sharp**, Massachusetts Institute of Technology, USA  
*Networks of microRNA in Normal and Cancer Cell States*

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

### FRIDAY, APRIL 19

#### Departure