

## Foreword

The Cold Spring Harbor Symposia on Quantitative Biology series is now in its 84th year, having been initiated by then-Director Reginald Harris back in 1933 when the Symposium lasted a full month! The Cold Spring Harbor Symposia bring together scientists to present and evaluate new data and ideas in rapidly moving areas of biological research. Each year, a topic is chosen at a stage at which general and intensive scrutiny and review are warranted. Many previous Cold Spring Harbor Symposia have addressed different aspects of RNA biology, including Nucleic Acids and Nucleoproteins in 1947, Transcription of Genetic Material in 1970, Mechanisms of Transcription in 1998, The Ribosome in 2001, and Regulatory RNAs in 2006. The enormous progress in the field in the past 15 years led us to conclude that the time was past due for another Symposium squarely focused on RNA. In fact, this is only the second Symposium in its entire history to include RNA in the title of the meeting, which we think conveys how central this molecule is in so many areas of the biology of the cell and increasingly to how we think about treating disease. Topics addressed at the 2019 Symposium included RNA-based structures; RNA modifications; nuclear localization of RNA; quality control and editing; RNA and gene regulation; cotranscriptional splicing; intron–exon boundaries; alternative polyadenylation; transposon control; small noncoding RNAs; long noncoding RNAs; RNA and development; membraneless organelles; phase separation; RNA-based diseases; and novel RNA functions.

The Symposium attracted more than 400 participants and provided an extraordinary five-day synthesis of current understanding in the field. Opening night talks setting the scene for later sessions included Roy Parker (HHMI/University of Colorado Boulder) on RNP granules in health and disease, Christine Mayr (Memorial Sloan Kettering Cancer Center) on the regulation of 3' UTR–mediated protein–protein interactions, Joshua Mendell (UT Southwestern Medical Center) on the regulation and function of noncoding RNAs in mammalian physiology and disease, and Adrian Krainer (Cold Spring Harbor Laboratory), who addressed targeted modulation of splicing or nonsense-mediated mRNA decay (NMD) for disease therapy. Jennifer Doudna (HHMI/University of California Berkeley) delivered a fascinating Dorcas Cummings lecture on “Editing the Code of Life” for the Laboratory’s friends and neighbors. Rising to the challenging task of condensing more than 50 talks over the prior five days, Gideon Dreyfuss (HHMI/University of Pennsylvania School of Medicine) provided a masterly summary of the state of the field at the conclusion of the Symposium. Interviews by participating editors, including Steve Mao, Richard Sever, Anke Sparmann, Lara Szewczak, Carika Weldon, and Jan Witkowski, were conducted throughout the Symposium to provide a snapshot of the state of current research and are available on the CSHL Leading Strand channel (<https://www.youtube.com/user/LeadingStrand>). Transcripts of these Symposium conversations are provided here.

We thank Val Pakaluk, Mary Smith, Ed Campodonico, and his staff in the Meetings & Courses Program for their assistance in organizing and running the Symposium and John Inglis and his staff at Cold Spring Harbor Laboratory Press, particularly Inez Sialiano, Maria Smit, Kathleen Bubbeo, and Denise Weiss, for publishing the printed and online versions of the Symposium proceedings. Photographer Connie Brukin captured candid snapshots throughout the meeting.

### *Symposium Organizers*

Terri Grodzicker, David Stewart, and Bruce Stillman  
Cold Spring Harbor Laboratory

### *Symposium Editors*

David Stewart and Bruce Stillman  
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# Contents

Symposium Participants	vii
Foreword	xix
<b>Global Analyses and Structures</b>	
Zipcode Binding Protein 1 (ZBP1; IGF2BP1): A Model for Sequence-Specific RNA Regulation <i>Jeetayu Biswas, Leti Nunez, Sulagna Das, Young J. Yoon, Carolina Eliscovich, and Robert H. Singer</i>	1
Pre-mRNA Splicing in the Nuclear Landscape <i>Tucker J. Carrocci and Karla M. Neugebauer</i>	11
Recognition of Poly(A) RNA through Its Intrinsic Helical Structure <i>Terence T.L. Tang and Lori A. Passmore</i>	21
Subcellular Spatial Transcriptomes: Emerging Frontier for Understanding Gene Regulation <i>Furqan M. Fazal and Howard Y. Chang</i>	31
<b>Gene Regulation</b>	
Transcriptional Coactivator PGC-1 $\alpha$ Binding to Newly Synthesized RNA via CBP80: A Nexus for Co- and Posttranscriptional Gene Regulation <i>Xavier Rambout, Hana Cho, and Lynne E. Maquat</i>	47
Mechanistic Dissection of RNA-Binding Proteins in Regulated Gene Expression at Chromatin Levels <i>Jia-Yu Chen, Do-Hwan Lim, and Xiang-Dong Fu</i>	55
Linking RNA Processing and Function <i>Run-Wen Yao, Chu-Xiao Liu, and Ling-Ling Chen</i>	67
Attenuation of Eukaryotic Protein-Coding Gene Expression via Premature Transcription Termination <i>Deirdre C. Tatomer and Jeremy E. Wilusz</i>	83
<b>Regulation of RNA Functions</b>	
3' UTRs Regulate Protein Functions by Providing a Nurturing Niche during Protein Synthesis <i>Christine Mayr</i>	95
The THO Complex as a Paradigm for the Prevention of Cotranscriptional R-Loops <i>Rosa Luna, Ana G. Rondón, Carmen Pérez-Calero, Irene Salas-Armenteros, and Andrés Aguilera</i>	105
U1 snRNP Telescripting Roles in Transcription and Its Mechanism <i>Chao Di, Byung Ran So, Zhiqiang Cai, Chie Arai, Jingqi Duan, and Gideon Dreyfuss</i>	115
Functional and Mechanistic Interplay of Host and Viral Alternative Splicing Regulation during Influenza Infection <i>Matthew G. Thompson and Kristen W. Lynch</i>	123
<b>Chromatin and RNA</b>	
Small RNA Function in Plants: From Chromatin to the Next Generation <i>Jean-Sébastien Parent, Filipe Borges, Atsushi Shimada, and Robert A. Martienssen</i>	133
A Nuclear RNA Degradation Pathway Helps Silence Polycomb/H3K27me3-Marked Loci in <i>Caenorhabditis elegans</i> <i>Anna Mattout, Dimos Gaidatzis, Véronique Kalck, and Susan M. Gasser</i>	141
To Process or to Decay: A Mechanistic View of the Nuclear RNA Exosome <i>Mahesh Lingaraju, Jan M. Schuller, Sebastian Falk, Piotr Gerlach, Fabien Bonneau, Jérôme Basquin, Christian Benda, and Elena Conti</i>	155
Long Noncoding RNAs in Development and Regeneration of the Neural Lineage <i>Hadas Hezroni, Rotem Ben Tov Perry, and Igor Ulitsky</i>	165

**Small RNAs and Defense Systems**

How Complementary Targets Expose the microRNA 3' End for Tailing and Trimming during Target-Directed microRNA Degradation <i>Paulina Pawlica, Jessica Sheu-Gruttadauria, Ian J. MacRae, and Joan A. Steitz</i>	179
Dicer's Helicase Domain: A Meeting Place for Regulatory Proteins <i>Sarah R. Hansen, Adedeji M. Aderounmu, Helen M. Donelick, and Brenda L. Bass</i>	185
Reconstitution of siRNA Biogenesis In Vitro: Novel Reaction Mechanisms and RNA Channeling in the RNA-Directed DNA Methylation Pathway <i>Jasleen Singh and Craig S. Pikaard</i>	195

**Membraneless Bodies and Phase Separation**

RNP Granule Formation: Lessons from P-Bodies and Stress Granules <i>Giulia Ada Corbet and Roy Parker</i>	203
Biophysical Properties of HP1-Mediated Heterochromatin <i>Serena Sanulli, John D. Gross, and Geeta J. Narlikar</i>	217
Architectural RNAs for Membraneless Nuclear Body Formation <i>Tomohiro Yamazaki, Shinichi Nakagawa, and Tetsuro Hirose</i>	227

**Summary**

Myriad RNAs and RNA-Binding Proteins Control Cell Functions, Explain Diseases, and Guide New Therapies <i>Byung Ran So and Gideon Dreyfuss</i>	239
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**Dorcas Cummings Lecture**

Dorcas Cummings Lecture <i>Jennifer Doudna</i>	245
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**Conversations at the Symposium**

Karen Adelman	253
Andrés Aguilera	256
David Bartel	259
Ling-Ling Chen	262
Caroline Dean	264
Susan Gasser	266
Samie Jaffrey	268
Leemor Joshua-Tor	271
Alberto Kornblihtt	274
Adrian Krainer	276
Lynne Maquat	279
Karla Neugebauer	282
Nicholas Proudfoot	285
Oliver Rando	288
Phillip Sharp	291
Maria-Elena Torres-Padilla	294
Igor Ulitsky	296
Jeremy Wilusz	299
Feng Zhang	302

**Author Index**

305

**Subject Index**

307