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Director of the Biological Laboratory 1924 to 1936

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XXXI (1966) The Genetic Code	LXIX (2004) Epigenetics
XXXII (1967) Antibodies	LXX (2005) Molecular Approaches to Controlling Cancer
XXXIII (1968) Replication of DNA in Microorganisms	LXXI (2006) Regulatory RNAs
XXXIV (1969) The Mechanism of Protein Synthesis	LXXII (2007) Clocks and Rhythms
XXXV (1970) Transcription of Genetic Material	LXXIII (2008) Control and Regulation of Stem Cells
XXXVI (1971) Structure and Function of Proteins at the Three-dimensional Level	LXXIV (2009) Evolution: The Molecular Landscape
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vii

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Foreword

The year 2015 marked the sesquicentennial anniversary of Gregor Mendel's landmark 1865 presentation of his paper "Experiments on Plant Hybridization," which laid the groundwork for modern genetics. Seminal discoveries throughout the 20th century followed, not least of which was the demonstration that chromatin carried traits, the formalization of the concept of the gene as the hereditary unit, the discovery of DNA as the hereditary material, the discovery of the double helix structure of DNA, and the elucidation of many mechanisms now known to operate to express and protect the hereditary material in its nuclear, cellular, and organismal context. The year also marked the 125th anniversary of Cold Spring Harbor Laboratory as well as the 80th Cold Spring Harbor Laboratory Symposium on Quantitative Biology, the preeminent and storied series of landmark meetings initiated by Reginald Harris in 1933. It therefore seemed fitting to focus this year's Symposium on 21st Century Genetics: Genes at Work to provide a current synthesis of genetic mechanisms and genome/chromosome biology. The decision to plan the 2015 Symposium on this theme reflects the enormous research progress achieved in recent years, and it was intended to provide a broad synthesis of the current state of the field, setting the stage for future discoveries and application.

Opening night speakers included Robert Tjian (HHMI and UC Berkeley) on probing transcription regulation by single-molecule imaging; Denis Duboule (EPF Lausanne, Switzerland), who spoke about long-range regulation during development and evolution; Ron Evans (Salk Institute for Biological Studies) on nuclear receptors—feast, famine, and physiology; and Angelika Amon (Massachusetts Institute of Technology), who addressed the effects of aneuploidy on cellular fitness and tumorigenesis. Svante Pääbo (Max Planck Institute for Evolutionary Anthropology, Germany) addressed The Genetic Legacy of Neanderthals in an outstanding Dorcas Cummings Lecture for Laboratory friends, neighbors, and Symposium participants in advance of the annual dinner parties. Susan Gasser provided a masterful Summary at the conclusion of the Symposium immediately before the final banquet.

This Symposium was attended by almost 350 scientists from universities around the country and the world, and the program included 65 invited presentations and 135 poster presentations. To disseminate the latest results and discussion of the Symposium to a wider audience, attendees were able to share many of the Symposium talks with their colleagues who were unable to attend using the Leading Strand video archive. A collection of interviews by Rhiannon Macrae (Cell Press), Guy Riddihough (*Science*), Richard Sever (CSHL Press), Jiaying Tan (Cell Press), Jan Witkowski (CSHL Banbury Center), and Eytan Zlotorynski (*Nature Reviews Molecular Cell Biology*) with leading experts in the field were arranged during the Symposium, are distributed as free video from the Cold Spring Harbor Symposium interviews website, and are included in these proceedings as Conversations at the Symposium following the scientific papers.

We thank Val Pakaluk, Mary Smith, and 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 Jan Argentine, Inez Sialiano, and Kathleen Bubbeo. Contributions from the following companies and foundations provide core support for the Symposium and the Cold Spring Harbor meetings program: Agilent Technologies, Bristol-Myers Squibb Company, Genentech, Life Technologies (part of Thermo Fisher Scientific), Monsanto Company, and New England BioLabs. Financial support from the corporate sponsors of our meetings program is essential for these Symposia to remain a success, and we are most grateful for their continued support.

Terri Grodzicker
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Contents

Symposium Participants	v
Foreword	xv
 Gene Control	
Imaging Transcription: Past, Present, and Future <i>Robert A. Coleman, Zhe Liu, Xavier Darzacq, Robert Tjian, Robert H. Singer, and Timothée Lionnet</i>	1
Visualizing the <i>HoxD</i> Gene Cluster at the Nanoscale Level <i>Pierre J. Fabre, Alexander Benke, Suliana Manley, and Denis Duboule</i>	9
Transcriptional Enhancers: Bridging the Genome and Phenome <i>Bing Ren and Feng Yue</i>	17
Regulatory Principles Governing Tissue Specificity of Developmental Enhancers <i>Emma K. Farley, Katrina M. Olson, and Michael S. Levine</i>	27
The Importance of Controlling Transcription Elongation at Coding and Noncoding RNA Loci <i>Benjamin S. Scruggs and Karen Adelman</i>	33
 Chromatin Domains and Nuclear Position	
Regulatory Domains and Their Mechanisms <i>Nezha S. Benabdallah and Wendy A. Bickmore</i>	45
Large-Scale Chromatin Structure–Function Relationships during the Cell Cycle and Development: Insights from Replication Timing <i>Vishnu Dileep, Juan Carlos Rivera-Mulia, Jiao Sima, and David M. Gilbert</i>	53
Prenucleosomes and Active Chromatin <i>Mai T. Khuong, Jia Fei, Haruhiko Ishii, and James T. Kadonaga</i>	65
HIPMap: A High-Throughput Imaging Method for Mapping Spatial Gene Positions <i>Sigal Shachar, Gianluca Pegoraro, and Tom Misteli</i>	73
Genome Organization and Chromosome Architecture <i>Giorgio Bernardi</i>	83
 Genome Stability	
A System to Study Aneuploidy In Vivo <i>Sarah J. Pfau and Angelika Amon</i>	93
Resolution of Recombination Intermediates: Mechanisms and Regulation <i>Stephen C. West, Miguel G. Blanco, Ying Wai Chan, Joao Matos, Shriparna Sarbajna, and Haley D.M. Wyatt</i>	103
21st Century Genetics: Mass Spectrometry of Yeast Telomerase <i>Kah Wai Lin and Virginia A. Zakian</i>	111
From Mutational Mechanisms in Single Cells to Mutational Patterns in Cancer Genomes <i>Cheng-Zhong Zhang and David Pellman</i>	117
The Evolution of Tumors in Mice and Humans with Germline p53 Mutations <i>Arnold J. Levine, Chang S. Chan, Crissy Dudgeon, Anna Puzio-Kuter, and Pierre Hainaut</i>	139
 Germ Cells and Early Development	
Mechanism and Reconstitution In Vitro of Germ Cell Development in Mammals <i>Kazuki Kurimoto and Mitinori Saitou</i>	147
Erase–Maintain–Establish: Natural Reprogramming of the Mammalian Epigenome <i>Milena Leseva, Barbara B. Knowles, Daniel M. Messerschmidt, and Davor Solter</i>	155
Regulation of Reprogramming and Cellular Plasticity through Histone Exchange and Histone Variant Incorporation <i>Xavier Gaume and Maria-Elena Torres-Padilla</i>	165

<i>ZFP57 and the Targeted Maintenance of Postfertilization Genomic Imprints</i> <i>Nozomi Takahashi, Dionne Gray, Ruslan Strogantsev, Angela Noon, Celia Delahaye, William C. Skarnes, Peri H. Tate, and Anne C. Ferguson-Smith</i>	177
Embryonic Stem Cells and Development	
Biological Networks Governing the Acquisition, Maintenance, and Dissolution of Pluripotency: Insights from Functional Genomics Approaches <i>Kevin Andrew Uy Gonzales and Huck-Hui Ng</i>	189
Monitoring Dynamics of DNA Methylation at Single-Cell Resolution during Development and Disease <i>Yonatan Stelzer and Rudolf Jaenisch</i>	199
Perturbing Chromatin Structure to Understand Mechanisms of Gene Expression <i>Caroline R. Bartman and Gerd A. Blobel</i>	207
Mechanisms Underlying the Selection and Function of Macrophage-Specific Enhancers <i>Verena M. Link, David Gosselin, and Christopher K. Glass</i>	213
Metabolism and Signaling	
Clock-Talk: Interactions between Central and Peripheral Circadian Oscillators in Mammals <i>Ueli Schibler, Ivana Gotic, Camille Saini, Pascal Gos, Thomas Curie, Yann Emmenegger, Flore Sinturel, Pauline Gosselin, Alan Gerber, Fabienne Fleury-Olela, Gianpaolo Rando, Maud Demarque, and Paul Franken</i>	223
Dissecting the Rev-erb α Cistrome and the Mechanisms Controlling Circadian Transcription in Liver <i>Bin Fang and Mitchell A. Lazar</i>	233
Modulating the Genomic Programming of Adipocytes <i>Anne Loft, Søren Fisker Schmidt, and Susanne Mandrup</i>	239
Targeting Transcriptional and Epigenetic Reprogramming in Stromal Cells in Fibrosis and Cancer <i>Nasun Hah, Mara H. Sherman, Ruth T. Yu, Michael Downes, and Ronald M. Evans</i>	249
Regulation of ROR γ t in Inflammatory Lymphoid Cell Differentiation <i>Wendy Huang and Dan R. Littman</i>	257
Evolution	
How Transcription Networks Evolve and Produce Biological Novelty <i>Isabel Nokedal and Alexander D. Johnson</i>	265
The African Turquoise Killifish: A Model for Exploring Vertebrate Aging and Diseases in the Fast Lane <i>Itamar Harel and Anne Brunet</i>	275
Transposable Elements, Polydactyl Proteins, and the Genesis of Human-Specific Transcription Networks <i>Didier Trono</i>	281
Dorcas Cummings Lecture	289
Svante Pääbo	291
Conversations at the Symposium	295
Geneviève Almouzni	297
Angelika Amon	299
Julius Brennecke	302
Emmanuelle Charpentier	305
Job Dekker	308
Titia de Lange	311
Jennifer Doudna	314
Denis Duboule	316
Ron Evans	318
Anne Ferguson-Smith	321
Edith Heard	324
David Kingsley	327

CONTENTS

xix

Arnold Levine	330
Susan Lindquist	332
Dan Littman	334
Richard Morimoto	336
David Page	338
Wolf Reik	340
Bing Ren	342
Ueli Schibler	344
Davor Solter	346
Alexander Tarakhovsky	348
Joanna Wysocka	351
Rick Young	353
Author Index	355
Subject Index	357

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