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Chromosome Segregation and Structure

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Symposium Organizers: Terri Grodzicker, David Stewart, and
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XXI (1956) Genetic Mechanisms: Structure and Function	LXI (1996) Function & Dysfunction in the Nervous System
XXII (1957) Population Studies: Animal Ecology and Demography	LXII (1997) Pattern Formation during Development
XXIII (1958) Exchange of Genetic Material: Mechanism and Consequences	LXIII (1998) Mechanisms of Transcription
XXIV (1959) Genetics and Twentieth Century Darwinism	LXIV (1999) Signaling and Gene Expression in the Immune System
XXV (1960) Biological Clocks	LXV (2000) Biological Responses to DNA Damage
XXVI (1961) Cellular Regulatory Mechanisms	LXVI (2001) The Ribosome
XXVII (1962) Basic Mechanisms in Animal Virus Biology	LXVII (2002) The Cardiovascular System
XXVIII (1963) Synthesis and Structure of Macromolecules	LXVIII (2003) The Genome of Homo sapiens
XXIX (1964) Human Genetics	LXIX (2004) Epigenetics
XXX (1965) Sensory Receptors	LXX (2005) Molecular Approaches to Controlling Cancer
XXXI (1966) The Genetic Code	LXXI (2006) Regulatory RNAs
XXXII (1967) Antibodies	LXXII (2007) Clocks and Rhythms
XXXIII (1968) Replication of DNA in Microorganisms	LXXIII (2008) Control and Regulation of Stem Cells
XXXIV (1969) The Mechanism of Protein Synthesis	LXXIV (2009) Evolution: The Molecular Landscape
XXXV (1970) Transcription of Genetic Material	LXXV (2010) Nuclear Organization and Function
XXXVI (1971) Structure and Function of Proteins at the Three-dimensional Level	LXXVI (2011) Metabolism and Disease
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XXXVIII (1973) Chromosome Structure and Function	LXXVIII (2013) Immunity and Tolerance
XXXIX (1974) Tumor Viruses	LXXIX (2014) Cognition
XL (1975) The Synapse	LXXX (2015) 21st Century Genetics: Genes at Work
	LXXXI (2016) Targeting Cancer

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vii

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 Row 3: C. Chapard, B.N. Zhang; B. de Massy, G. Nir; E. Heard, K. Zaret
 Row 4: Symposium picnic

Row 1: S. West, J. Bateman; C. Montagna, G. Andriani, J. Schneider; J. Chen, M. Taileb

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Row 4: C. Montagna, G. Andriani; S. Gerbi, J. Bateman; S. Gasser, T. Misteli

Foreword

The decision to focus the 82nd Symposium on Chromosome Segregation and Structure reflects the enormous progress in our understanding of segregation, dynamics, and stability of chromosomes, the essential packaging for the organism's hereditary material. Many previous Cold Spring Harbor Symposia have been devoted to chromosome biology, notably *Genes and Chromosomes: Structure and Organization* (1941); *Genetic Mechanisms: Structure and Function* (1956); *Chromosome Structure and Function* (1973); *Chromatin* (1977); *Structures of DNA* (1982); *DNA and Chromosomes* (1993); *Epigenetics* (2004); and *Nuclear Organization and Function* (2010). Every decade has seen important advances in the field, so it is unsurprising that past Symposia have shed light from many angles on the structure and function of chromosomes. Current research in chromosome biology and dynamics includes many different fields, models, and approaches, and this Symposium offered the timely opportunity to bring together researchers using a multitude of advanced tools and techniques to investigate key chromosomal mechanisms and their aberrant function in disease. The scope of the meeting included the structure, division, and segregation of chromosomes in germ cell and somatic lineages in a variety of organisms.

Topics addressed at the 2017 Symposium included meiosis; mitosis; chromosome segregation; centrosomes and centrioles, ploidy, chromosome segregation errors, and disease; asymmetric cell division; nuclear architecture; chromosome structure and condensation; sister chromatid cohesion; genome stability; and germ cells. The Symposium attracted more than 280 participants and provided an extraordinary five-day synthesis of current understanding in the field. Opening night talks setting the scene for later sessions included Steven Henikoff on the inner kinetochore complex, Angelika Amon on cell nonautonomous regulation of chromosome segregation, Scott Keeney on DNA dynamics during meiosis, and Mónica Bettencourt-Dias on centrosome biogenesis. David Page delivered a fascinating Dorcas Cummings lecture on “Sex and Disease—Do Males and Females Read Their Genomes Differently?” for the Laboratory's friends and neighbors. Rising to the challenging task of condensing more than 50 talks over the prior five days, David Pellman provided a masterly summary of the state of the field at the conclusion of the Symposium. Interviews with leading scientists by participating editors, including Kim Baumann, Beth Moorefield, Richard Sever, Lara Szewczak, 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 YouTube channel (<https://www.youtube.com/user/LeadingStrand>). Transcripts of these Symposium conversations are provided here.

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 Inez Sialiano, Jan Argentine, 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
Cold Spring Harbor Laboratory

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Contents

Symposium Participants	v
Foreword	xv
 Chromatin, Histones, and Instability	
Shaping Chromatin in the Nucleus: The Bricks and the Architects <i>David Sitbon, Katrina Podsypanina, Tejas Yadav, and Geneviève Almouzni</i>	1
The Importance of Satellite Sequence Repression for Genome Stability <i>Peter Zeller and Susan M. Gasser</i>	15
Structure and Epigenetic Regulation of Chromatin Fibers <i>Ping Chen and Guohong Li</i>	25
 Chromosome Biology and Genome Architecture	
The Role of Bromodomain and Extraterminal Motif (BET) Proteins in Chromatin Structure <i>Sarah C. Hsu and Gerd A. Blobel</i>	37
Emerging Evidence of Chromosome Folding by Loop Extrusion <i>Geoffrey Fudenberg, Nezar Abdennur, Maxim Imakaev, Anton Goloborodko, and Leonid A. Mirny</i>	45
SpotLearn: Convolutional Neural Network for Detection of Fluorescence In Situ Hybridization (FISH) Signals in High-Throughput Imaging Approaches <i>Prabhakar R. Gudla, Koh Nakayama, Gianluca Pegoraro, and Tom Misteli</i>	57
 Centromeres and Kinetochores	
Remarkable Evolutionary Plasticity of Centromeric Chromatin <i>Steven Henikoff, Jitendra Thakur, Sivakanthan Kasinathan, and Paul B. Talbert</i>	71
Molecular Structures of Yeast Kinetochores Subcomplexes and Their Roles in Chromosome Segregation <i>Simon Jenni, Yoana N. Dimitrova, Roberto Valverde, Stephen M. Hinshaw, and Stephen C. Harrison</i>	83
Aurora A Kinase Function at Kinetochores <i>Jennifer G. DeLuca</i>	91
RotoStep: A Chromosome Dynamics Simulator Reveals Mechanisms of Loop Extrusion <i>Josh Lawrimore, Brandon Friedman, Ayush Doshi, and Kerry Bloom</i>	101
Taming the Beast: Control of APC/C ^{Cdc20} -Dependent Destruction <i>Pablo Lara-Gonzalez, Taekyung Kim, and Arshad Desai</i>	111
 Organizing Chromosomes during Segregation	
Noncanonical Biogenesis of Centrioles and Basal Bodies <i>Catarina Nabais, Sónia Gomes Pereira, and Mónica Bettencourt-Dias</i>	123
Impact of Centrosome Aberrations on Chromosome Segregation and Tissue Architecture in Cancer <i>Erich A. Nigg, Dominik Schnerch, and Olivier Ganier</i>	137
The ABCs of Centriole Architecture: The Form and Function of Triplet Microtubules <i>Jennifer T. Wang and Tim Stearns</i>	145
Mitotic Chromosome Assembly In Vitro: Functional Cross Talk between Nucleosomes and Condensins <i>Keishi Shintomi and Tatsuya Hirano</i>	157
 Mitosis and Cell Cycle	
Spindle-to-Cortex Communication in Cleaving Frog Eggs <i>Timothy J. Mitchison and Christine M. Field</i>	165

Nucleosome-Dependent Pathways That Control Mitotic Progression	<i>Hironori Funabiki, Christopher Jenness, and Christian Zierhut</i>	173
Knotty Problems during Mitosis: Mechanistic Insight into the Processing of Ultrafine DNA Bridges in Anaphase	<i>Kata Sarlós, Andreas Biebricher, Erwin J.G. Petermann, Gijs J.L. Wuite, and Ian D. Hickson</i>	187
Low-Level, Global Transcription during Mitosis and Dynamic Gene Reactivation during Mitotic Exit	<i>Katherine C. Palozola, Hong Liu, Dario Nicetto, and Kenneth S. Zaret</i>	197
Genome Instability as a Consequence of Defects in the Resolution of Recombination Intermediates	<i>Stephen C. West and Ying Wai Chan</i>	207
Meiosis		
Reconstitution of Female Germ Cell Fate Determination and Meiotic Initiation in Mammals	<i>So I. Nagaoka and Mitinori Saitou</i>	213
Regulation of Crossover Frequency and Distribution during Meiotic Recombination	<i>Takamune T. Saito and Monica P. Colaiácovo</i>	223
Oocyte Quality Control: Causes, Mechanisms, and Consequences	<i>Neil Hunter</i>	235
Cellular and Molecular Mechanisms of Centromere Drive	<i>Michael A. Lampson and Ben E. Black</i>	249
Hierarchical Regulation of Centromeric Cohesion Protection by Meikin and Shugoshin during Meiosis I	<i>Seira Miyazaki, Jihye Kim, Takeshi Sakuno, and Yoshinori Watanabe</i>	259
Germ Cells, Imprinting, Gene Dosage, and Regulation		
Topologically Associating Domains in Chromosome Architecture and Gene Regulatory Landscapes during Development, Disease, and Evolution	<i>Rafael Galupa and Edith Heard</i>	267
Dynamic Control of Chromosome Topology and Gene Expression by a Chromatin Modification	<i>Qian Bian, Erika C. Anderson, Katjuša Brejc, and Barbara J. Meyer</i>	279
Polytene Chromosome Structure and Somatic Genome Instability	<i>Allan C. Spradling</i>	293
Heterochromatin, Errors, And Damage		
Symmetry from Asymmetry or Asymmetry from Symmetry?	<i>Elizabeth W. Kahney, Rajesh Ranjan, Ryan J. Gleason, and Xin Chen</i>	305
Function of Junk: Pericentromeric Satellite DNA in Chromosome Maintenance	<i>Madhav Jagannathan and Yukiko M. Yamashita</i>	319
Homologous Recombination and Replication Fork Protection: BRCA2 and More!	<i>Weiran Feng and Maria Jasin</i>	329
Fork Protection and Therapy Resistance in Hereditary Breast Cancer	<i>Sharon B. Cantor and Jennifer A. Calvo</i>	339
Summary		
How the Genome Folds, Divides, Lives, and Dies	<i>Whitney L. Johnson, Kathleen T. Xie, Mijung Kwon, Shiwei Liu, and David Pellman</i>	349
Dorcas Cummings Lecture		
	<i>David Page</i>	363
Conversations at the Symposium		
Marisa Bartolomei		369
Mónica Bettencourt-Dias		372
Kerry Bloom		375
Iain Cheeseman		378
Monica P. Colaiácovo		381

CONTENTS

xvii

Bernard de Massy	384
Arshad Desai	386
Daniel Durocher	389
Steve Henikoff	391
Martin Hetzer	394
Ian Hickson	397
Maria Jasin	400
Leonid Mirny	403
Timothy Mitchison	406
Tim Stearns	409
Aaron Straight	413
Yukiko Yamashita	416
Author Index	419
Subject Index	421

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