# Planning the Future of Genomics: Foundational Research and Applications in Genomic Medicine July 6-8, 2010 Airlie Center, Warrenton, VA

# PARTICIPANT LIST

### Goncalo Abecasis, Ph.D.

Department of Biostatistics and Center for Statistical Genetics School of Public Health University of Michigan

#### Ajay, Ph.D.

Division of Extramural Research National Human Genome Research Institute National Institutes of Health

Mark Akeson, Ph.D. Biomolecular Engineering Department School of Engineering University of California, Santa Cruz

**Joshua Akey, Ph.D.** Department of Genome Sciences University of Washington

# Bruce Alberts, Ph.D.

Science Magazine
American Association for the Advancement of Science
Department of Biochemistry and Biophysics
University of California, San Francisco
U.S. Science Envoy
U.S. Department of State

# David M. Altshuler, Ph.D., M.D.

Harvard Medical School and Massachusetts General Hospital Broad Institute and Massachusetts Institute of Technology

#### David A. Asch, M.D., M.B.A.

The Wharton School University of Pennsylvania Leonard Davis Institute of Health Economics Center for Health Equity Research and Promotion Philadelphia VA Medical Center

Ann Ashby, M.B.A. Foundation for the National Institutes of Health

# Christopher P. Austin, M.D.

NIH Chemical Genomics Center National Human Genome Research Institute National Institutes of Health

# **Alice Bailey**

Office of the Director National Human Genome Research Institute National Institutes of Health

# Joan Ellen Bailey-Wilson, Ph.D.

Statistical Genetics Section Inherited Disease Research Branch National Human Genome Research Institute National Institutes of Health

**Dennis G. Ballinger, Ph.D.** Complete Genomics, Inc.

# James Francis Battey, Jr., M.D., Ph.D.

National Institute on Deafness and Other Communication Disorders National Institutes of Health

# Andy Baxevanis, Ph.D.

National Human Genome Research Institute National Institutes of Health

# **Barbara B. Biesecker, M.S.** Social and Behavioral Research Branch National Human Genome Research Institute National Institutes of Health

Leslie Glenn Biesecker, M.D.

Genetic Disease Research Branch Division of Intramural Research National Human Genome Research Institute National Institutes of Health

**Ewan Birney, Ph.D.** PANDA Group EMBL - EBI

# David M. Bodine, Ph.D.

Genetics and Molecular Biology Branch National Human Genome Research Institute National Institutes of Health

Michael L. Boehnke, Ph.D.

Department of Biostatistics University of Michigan

# Eric Boerwinkle, Ph.D.

Division of Epidemiology Department of Human Genetics and Environmental Sciences The University of Texas School of Public Health

# Vivien Bonazzi, Ph.D., M.S.

Centers of Excellence in Genomic Science National Human Genome Research Institute National Institutes of Health

Vence L. Bonham, J.D.
Education and Community Involvement Branch
Office of Policy, Communications, and Education
Division of Intramural Research
Social and Behavioral Research Branch
National Human Genome Research Institute
National Institutes of Health **Ebony Bookman, Ph.D.** Office of Population Genomics National Human Genome Research Institute National Insitutues of Health

# David Botstein, Ph.D.

Lewis-Sigler Institute for Integrative Genomics Princeton University

Joann Boughman, Ph.D. American Society of Human Genetics

# Joy Tracy Boyer

ELSI Research Program National Human Genome Research Institute National Institutes of Health

# Linda Brady, Ph.D.

Division of Neuroscience and Basic Behavioral Science National Institute of Mental Health National Institutes of Health

# Lawrence C. Brody, Ph.D.

Genome Technology Branch National Human Genome Research Institute National Institutes of Health

# Lisa D. Brooks, Ph.D.

Genetic Variation Program National Human Genome Research Institute National Institutes of Health

# Wylie Burke, M.D., Ph.D.

Department of Bioethics and Humanities University of Washington

# Joe Campbell, Ph.D.

National Human Genome Research Institute National Institutes of Health

# Fabio Candotti, M.D.

Genetics and Molecular Biology Branch National Human Genome Research Institute National Institutes of Health **Sue Celniker, Ph.D.** Department of Genome Dynamics Life Sciences Division Lawrence Berkeley National Laboratory

#### Aravinda Chakravarti, Ph.D.

Center for Complex Disease Genomics McKusick-Nathans Institute of Genetic Medicine School of Medicine Johns Hopkins University

#### Stephen J. Chanock, M.D.

Laboratory of Translational Genomics Core Genotyping Facility Division of Cancer Epidemiology and Genetics National Cancer Institute National Institutes of Health

**R. Alta Charo, J.D.** Law School and School of Medicine and Public Health University of Wisconsin

**Cheryl Chick** National Human Genome Research Institute National Institutes of Health

Lynda Chin, M.D. Harvard Medical School Dana-Farber Cancer Institute Broad Institute Melanoma Program Dana-Farber/Harvard Cancer Center Belfer Institute for Applied Cancer Science

**Rex Chisholm, Ph.D.** Feinberg School of Medicine Northwestern University

**Mildred Cho, Ph.D.** Center for Biomedical Ethics Stanford University

**George Church, Ph.D.** Department of Genetics Harvard Medical School **Barak Cohen, Ph.D.** Department of Genetics School of Medicine Washington University in St. Louis

**Jorge Contreras, J.D.** School of Law Washington University in St. Louis

**Richard Cooper, M.D.** Department of Preventive Medicine and Epidemiology Stritch School of Medicine Loyola University

# Nancy Jean Cox, Ph.D.

Section of Genetic Medicine Department of Medicine The University of Chicago

**Christine Cutillo** National Human Genome Research Institute National Institutes of Health

**Robert Darnell, M.D., Ph.D.** Howard Hughes Medical Institute The Rockefeller University

**Camilla Day, Ph.D.** Board of Governors Center for Inherited Disease Research National Human Genome Research Institute National Institutes of Health

**Gregory John Downing, D.O., Ph.D.** U.S. Department of Health and Human Services

**Lynn G. Dressler, Dr.P.H., M.A.** Eshelman School of Pharmacy Institute of Pharmacogenomics and Individualized Therapy The University of North Carolina at Chapel Hill

**Richard Durbin, M.S.** Informatics Division Wellcome Trust Sanger Institute Geoffrey Duyk, M.D., Ph.D. TPG Biotech

**Joseph Ecker, Ph.D.** Plant Biology Laboratory Genomic Analysis Laboratory The Salk Institute

**Evan Eichler, Ph.D.** Department of Genome Sciences University of Washington Howard Hughes Medical Institute

Laura Elnitski, Ph.D. Genomic Functional Analysis Section Genome Technology Branch National Human Genome Research Institute National Institutes of Health

James P. Evans, M.D., Ph.D. Genetics in Medicine Genetics Department School of Medicine The University of North Carolina at Chapel Hill

W. Gregory Feero, M.D., Ph.D. Genomic Healthcare Branch National Human Genome Research Institute National Insitutes of Health Maine-Dartmouth Family Medicine Residency Program

Elise Feingold, Ph.D. National Human Genome Research Institute National Institutes of Health

Kevin T. FitzGerald, Ph.D., M.Div. Center for Clinical Bioethics Department of Oncology Medical Center Georgetown University

**Colin F. Fletcher, Ph.D.** National Human Genome Research Institute National Institutes of Health Scott E. Fraser, Ph.D. Biological Imaging Center Rosen Center for Biological Imaging Division of Biology Beckman Institute California Institute of Technology

### Claire M. Fraser-Liggett, Ph.D.

Departments of Medicine and of Microbiology and Immunology School of Medicine Institute for Genome Sciences University of Maryland

Kelly A. Frazer, Ph.D.

Department of Pediatrics Division of Genome Information Sciences Moores Cancer Center University of California, San Diego

# Phyllis Frosst, Ph.D.

Policy and Program Analysis Branch National Human Genome Research Institute National Institutes of Health

**Barbara Fuller, J.D.** National Human Genome Research Institute

National Human Genome Research Institute National Institutes of Health

Stacey Gabriel, Ph.D.

Genome Sequencing and Analysis Program Broad Institute

Vanessa Northington Gamble, M.D., Ph.D. The George Washington University

Levi A. Garraway, M.D., Ph.D.

Department of Medical Oncology Brigham and Women's Hospital and Dana-Farber Cancer Institute Harvard Medical School Broad Institute

# Sarah Gehlert, Ph.D.

George Warren Brown School of Social Work and The Institute of Public Health Washington University in St. Louis

### Gail Geller, Sc.D., M.H.S.

Department of Medicine School of Medicine Berman Institute of Bioethics Johns Hopkins University

### Gregory G. Germino, M.D.

National Institute of Diabetes and Digestive and Kidney Diseases National Institutes of Health

# Gary Hugh Gibbons, M.D.

Cardiovascular Research Institute Department of Physiology Morehouse School of Medicine

# Richard A. Gibbs, Ph.D.

Human Genome Sequencing Center Baylor College of Medicine

# Geoffrey Steven Ginsburg, M.D., Ph.D.

Center for Genomic Medicine Duke Institute for Genome Sciences and Policy Duke University

# Maria Y. Giovanni, Ph.D.

National Institute of Allergy and Infectious Diseases National Institutes of Health

# Jonathan Max Gitlin, Ph.D.

Policy and Program Analysis Branch National Human Genome Research Institute National Institutes of Health

**David Benjamin Goldstein, Ph.D.** Center for Human Genome Variation Duke University

**Peter Good, Ph.D.** National Human Genome Research Institute National Institutes of Health

**Bettie J. Graham, Ph.D.** Division of Extramural Research National Human Genome Research Institute National Institutes of Health

# **Struan Grant, Ph.D.** Center for Applied Genomics Department of Human Genetics Children's Hospital of Philadelphia Research Institute

# Eric D. Green, M.D., Ph.D.

National Human Genome Research Institute National Institutes of Health

# Robert C. Green, M.D., M.P.H.

Center for Translational Genomics and Health Outcomes Department of Neurology Alzheimer's Disease Center School of Medicine Boston University rcgreen@bu.edu (617) 638-5362

# **George S. Grills**

Core Facilities in the Life Sciences Life Sciences Core Laboratories Center Cornell University

# Steve Groft, Pharm.D.

Office of Rare Diseases Research Office of the Director National Institutes of Health

# Alan E. Guttmacher, Ph.D.

National Institute of Child Health and Human Development National Institutes of Health

# Mark Samuel Guyer, Ph.D.

Division of Extramural Research National Human Genome Research Institute National Institutes of Health

# Jonathan Haines, Ph.D.

Center for Human Genetics Research Vanderbilt University Medical Center

# Ross C. Hardison, Ph.D. Department of Biochemistry and Molecular Biology Center for Comparative Genomics and Bioinformatics The Pennsylvania State University

Gail Henderson, Ph.D. Department of Social Medicine UNC Center for Genomics and Society School of Medicine The University of North Carolina at Chapel Hill

**Lucia Hindorff, Ph.D., M.P.H.** Office of Population Genomics National Human Genome Research Institute National Institutes of Health

**Richard J. Hodes, M.D.** National Institute on Aging National Institutes of Health

**R. Rodney Howell, M.D.** Department of Pediatrics Miller School of Medicine University of Miami

**Kathy L. Hudson, Ph.D.** Immediate Office of the Director National Institutes of Health

**Chanita Hughes-Halbert, Ph.D.** Department of Psychiatry Center for Community-Based Research and Health Disparities University of Pennsylvania

Michael W. Hunkapiller, Ph.D. Alloy Ventures

Howard John Jacob, Ph.D. Human and Molecular Genetics Center Department of Physiology Medical College of Wisconsin Department of Pediatrics Children's Hospital of Wisconsin Gail Jarvik, M.D., Ph.D. Division of Medical Genetics Department of Medicine School of Medicine University of Washington

Jean Frances Jenkins, Ph.D., R.N.

Genomic Healthcare Branch National Human Genome Research Institute National Institutes of Health

Hanlee P. Ji, M.D. Division of Oncology Department of Medicine School of Medicine Stanford Genome Technology Center Stanford University

#### **Lynn B. Jorde, Ph.D.** Department of Human Genetics School of Medicine The University of Utah

**Eric Juengst, Ph.D.** Department of Bioethics Center for Genetic Research Ethics and Law School of Medicine Case Western Reserve University

Heather Junkins, M.S. Office of Population Genomics National Human Genome Research Institute National Institutes of Health

**Gary Karpen, Ph.D.** Life Sciences Division Lawrence Berkeley National Laboratory

Daniel L. Kastner, M.D., Ph.D. Intramural Research Program Office of the Clinical Director National Institute of Arthritis and Musculoskeletal and Skin Diseases National Institutes of Health

**Manolis Kellis, M.Eng.** Department of Computer Science Broad Institute

# Muin Khoury, M.D., Ph.D. Office of Public Health Genomics Centers for Disease Control and Prevention U.S. Department of Health and Human Services

Rebecca Kolberg, M.S.

Office of Communications and Public Liaison Office of the Director National Institutes of Health

**Bruce R. Korf, M.D., Ph.D.** Department of Genetics The University of Alabama at Birmingham

# Pui-Yan Kwok, M.D., Ph.D.

Department of Dermatology Cardiovascular Research Institute Institute for Human Genetics University of California, San Francisco

**Eric Lai, Ph.D.** Developmental Biology Program Sloan-Kettering Institute

**Eric Lander, Ph.D.** Broad Institute

### **David H. Ledbetter, Ph.D.** Division of Medical Genetics

Department of Human Genetics School of Medicine Emory University

**Darryl Leja, M.F.A.** Intramural Publication Support Office National Human Genome Research Institute National Institutes of Health

**Debra G.B. Leonard, M.D., Ph.D.** Clinical Laboratories Pathology Residency Training Program Department of Pathology and Laboratory Medicine Weill Cornell Medical College and New York-Presbyterian Hospital Caryn Lerman, Ph.D.

Center for Interdisciplinary Research on Nicotine Addiction Department of Psychiatry University of Pennsylvania

# Richard P. Lifton, Sc.D., M.D., Ph.D.

Program in Genetics and Medicine Yale School of Medicine Howard Hughes Medical Institute

David Lipman, M.D.

National Center for Biotechnology Information National Library of Medicine National Institutes of Health

# Paul Liu, M.D., Ph.D.

Genetics and Molecular Biology Branch National Human Genome Research Institute National Institutes of Health

# **Rebecca Lowdon**

Division of Extramural Research National Human Genome Research Institute National Institutes of Health

# James R. Lupski, M.D., Ph.D.

Department of Molecular and Human Genetics Baylor College of Medicine

# Teri Manolio, M.D., Ph.D.

Office of Population Genomics National Human Genome Research Institute National Institutes of Health

# Elaine Mardis, Ph.D.

The Genome Center School of Medicine Washington University

# Elliott Margulies, Ph.D.

Genome Informatics Section Genome Technology Branch National Human Genome Research Institute National Institutes of Health Jean E. McEwen, Ph.D., J.D. ELSI Research Program Division of Extramural Research National Human Genome Research Institute National Institutes of Health

**Joseph D. McInerney, M.A., M.S.** National Coalition for Health Professional Education in Genetics

**Kent D. McKelvey, M.D.** Departments of Genetics and Family Medicine University of Arkansas for Medical Sciences

Howard McLeod, Pharm.D. Institute for Pharmacogenomics and Individualized Therapy Eshelman School of Pharmacy The University of North Carolina at Chapel Hill

#### Deirdre R. Meldrum, Ph.D., M.S.

Ira A. Fulton Schools of Engineering
Center for Biosignatures Discovery Automation
The Biodesign Institute at Arizona State University
School of Electrical, Computer, and Energy Engineering
Arizona State University

#### Paul Meltzer, M.D., Ph.D.

Genetics Branch Center for Cancer Research National Cancer Institute National Institutes of Health

Jill P. Mesirov, Ph.D. Broad Institute

Enrique Michelotti, Ph.D.

Molecular Libraries Program National Human Genome Research Institute National Institutes of Health

Aubrey Miller, M.D., M.P.H. National Institute of Environmental Health Sciences National Institutes of Health Patrice M. Milos, Ph.D., M.A. Helicos BioSciences Corporation

Janis Mullaney, M.B.A. Office of Administrative Management National Human Genome Research Institute National Institutes of Health

#### Jim Mullikin, Ph.D.

Intramural Sequencing Center Genome Technology Branch National Human Genome Research Institute National Institutes of Health

**Richard Myers, Ph.D.** HudsonAlpha Institute for Biotechnology

#### Ken Nakamura, Ph.D.

Division of Extramural Research National Human Genome Research Institute National Institutes of Health

#### John Nelson, Ph.D.

Molecular and Cellular Biology Laboratory Biosciences Organization GE Global Research

Karen Elizabeth Nelson, Ph.D.

Office of the Director Rockville Campus J. Craig Venter Institute

#### Debbie Nickerson, Ph.D.

Department of Genome Sciences School of Medicine University of Washington

#### Kenneth Offit, M.D., M.P.H.

Clinical Genetics Service Department of Medicine Memorial Sloan-Kettering Cancer Center Weill Cornell Medical College

#### Susan E. Old, Ph.D.

NIH Center for Translational Therapeutics National Center for Research Resources National Institutes of Health **Brian Oliver, Ph.D.** Section of Developmental Genomics National Institute of Diabetes and Digestive and Kidney Diseases National Institutes of Health

**P. Pearl O'Rourke, M.D.** Partners HealthCare System, Inc.

**Pilar Nicole Ossorio, Ph.D., J.D.** Department of Medical History and Bioethics School of Law University of Wisconsin

James Ostell, Ph.D. Information Engineering Branch National Center for Biotechnology Information National Library of Medicine National Institutes of Health

Elaine Ann Ostrander, Ph.D. Cancer Genetics Branch National Human Genome Research Institute National Institutes of Health

Vivian Ota Wang, Ph.D. National Human Genome Research Institute National Institutes of Health

**Francis Ouellette, M.S.** Ontario Institute for Cancer Research

**Brad Ozenberger, Ph.D.** National Human Genome Research Institute National Institutes of Health

Jacqueline D. Palchik, M.S. National Human Genome Research Institute National Institutes of Health

William Pavan, Ph.D. Genetic Disease Research Branch National Human Genome Research Institute National Institutes of Health

**Dana Pe'er, Ph.D.** Department of Biological Sciences Columbia University **Andrew Peterson, Ph.D.** Department of Molecular Biology Genentech

Jane L. Peterson, Ph.D. Division of Extramural Research National Human Genome Research Institute National Institutes of Health

**Chris P. Ponting, Ph.D., M.S.** Functional Genomics Unit United Kingdom Medical Research Council

**Rudy O. Pozzatti, Ph.D.** Review Branch National Human Genome Research Institute National Institutes of Health

**Lita Proctor, Ph.D.** Human Microbiome Project National Human Genome Research Institute National Institutes of Health

**Reed Pyeritz, M.D., Ph.D.** Division of Medical Genetics Department of Medicine School of Medicine University of Pennsylvania

**Rajkumar Sewcharan Ramesar, Ph.D.** Division of Human Genetics Department of Clinical Laboratory Sciences Human Genetics Research Unit University of Cape Town

**Erin Ramos, Ph.D., M.P.H.** Office of Population Genomics National Human Genome Research Institute National Institutes of Health

Aviv Regev, Ph.D. Broad Institute Masachusetts Institute of Technology Howard Hughes Medical Instittue

Philip Reilly, M.D., J.D. Third Rock Ventures

# Dan Roden, M.D.

Oates Institute for Experimental Therapeutics Vanderbilt University School of Medicine

Laura Lyman Rodriguez, Ph.D. Communications and Education Branch National Human Genome Research Institute National Institutes of Health

Ellen Rolfes, M.S. Office of Administrative Management Office of the Director National Human Genome Research Institute National Institutes of Health

### Karen H. Rothenberg, J.D., M.P.A., M.P.A.

Law and Health Care Program School of Law University of Maryland

### Charles Rotimi, Ph.D.

Center for Research on Genomics and Global Health National Human Genome Research Institute National Institutes of Health

Eddy Rubin, M.D., Ph.D. Joint Genome Institute

#### Steven Salzberg, Ph.D.

Center for Bioinformatics and Computational Biology Department of Computer Science University of Maryland

**Pamela Sankar, Ph.D.** Department of Medical Ethics University of Pennsylvania

Alan Schafer, Ph.D. Wellcome Trust

**Jeffery A. Schloss, Ph.D.** Division of Extramural Research National Human Genome Research Institute National Institutes of Health Joan A. Scott, M.S., C.G.C. Genetics and Public Policy Center Berman Institute of Bioethics Johns Hopkins University

**Julie Segre, Ph.D.** National Human Genome Research Institute National Institutes of Health

### Jay Shendure, M.D., Ph.D.

Department of Genome Sciences School of Medicine University of Washington

#### Susan B. Shurin, M.D.

National Heart, Lung, and Blood Institute National Institutes of Health

#### Arend Sidow, Ph.D.

Departments of Pathology and of Genetics Schoolof Medicine Stanford University

Sue Siegel Mohr Davidow Ventures

# Paul A. Sieving, D.M.D., Ph.D.

National Eye Institute National Institutes of Health

#### Jane Silverthorne, Ph.D.

Division of Integrative Organismal Systems Directorate for Biological Sciences National Science Foundation

#### **Geoffrey Cash Spencer**

Communications and Public Liaison Branch National Human Genome Research Institute National Institutes of Health

#### John A. Stamatoyannopoulos, M.D.

Departments of Genome Sciences and of Medicine School of Medicine University of Washington

### Louis Staudt, M.D., Ph.D.

Center for Cancer Research Metabolism Branch National Cancer Institute National Institutes of Health

### Michael Rudolf Stratton, Ph.D.

Wellcome Trust Sanger Institute Cancer Genome Project Institute of Cancer Research

Holly K. Tabor, Ph.D. Division of Pediatrics Department of Pediatrics School of Medicine University of Washington and Treuman Katz Center for Pediatric Bioethics

Seattle Children's Hospital Gary F. Temple, M.D., M.S. National Human Genome Research Institute

**Sharon Fontaine Terry, M.A.** Genetic Alliance

National Institutes of Health

# Zivana Tezak, Ph.D.

Office of In Vitro Device Evaluation and Safety Center for Devices and Radiological Health U.S. Food and Drug Administration

#### Larry James Thompson, M.S., M.F.A.

Communications and Public Liaison Branch National Human Genome Research Institute National Institutes of Health

#### Elizabeth J. Thomson, Sc.D., M.S., R.N.

ELSI Research Program Division of Extramural Research National Human Genome Research Institute National Institutes of Health

# Cynthia J. Tifft, M.D., Ph.D.

Office of the Clinical Director National Human Genome Research Institute National Institutes of Health David Valle, M.D. McKusick-Nathans Institute of Genetic Medicine School of Medicine Johns Hopkins University

### Susan Vasquez

Office of the Director National Human Genome Research Institute National Institutes of Health

### Valda Vinson, Ph.D.

Science Magazine American Association for the Advancement of Science

# Nora D. Volkow, M.D.

National Institute on Drug Abuse National Institutes of Health

# Simona Volpi, Ph.D., Pharm.D.

Department of Extramural Research National Human Genome Research Institute National Institutes of Health

# Lu Wang, Ph.D.

National Human Genome Research Institute National Institutes of Health

# Robert H. Waterston, M.D., Ph.D.

Department of Genome Sciences School of Medicine University of Washington

James Weber, Ph.D. PreventionGenetics

# **Richard Merle Weinshilboum, M.D.**

Division of Clinical Pharmacology Department of Molecular Pharmacology and Experimental Therapeutics Mayo Clinic

# George Weinstock, Ph.D.

The Genome Center School of Medicine Washington University

#### **Chris Wellington**

National Human Genome Research Institute National Institutes of Health

# Kris Wetterstrand, M.S.

Office of the Director Division of Extramural Research National Human Genome Research Institute National Institutes of Health

### Nancy Sabin Wexler, Ph.D.

Departments of Neurology and Psychiatry Columbia University Hereditary Disease Foundation

# Huntington F. Willard, Ph.D.

Duke Institute for Genome Sciences and Policy Departments of Molecular Genetics and Biology Duke University

# Marc S. Williams, M.D.

Clinical Genetics Institute Intermountain Healthcare

# Alexander Frederick Wilson, Ph.D.

Genometrics Section Inherited Disease Research Branch National Human Genome Research Institute National Institutes of Health

# James Wilson, M.D.

Department of Medicine University of Mississippi Medical Center

# **Richard Wilson, Ph.D.**

The Genome Center School of Medicine Washington University

# Dyann Wirth, Ph.D.

Department of Immunology and Infectious Diseases Harvard School of Public Health

# Barbara Wold, Ph.D.

Beckman Institute California Institute of Technology Susan M. Wolf, J.D. Joint Degree Program and Consortium on Law and Values University of Minnesota Law School

# Mark Yandell, Ph.D.

Eccles Institute of Human Genetics School of Medicine The University of Utah

# Richard A. Young, Ph.D.

Whitehead Institute for Biomedical Research and Massachusetts Institute of Technology

### Julia Zhang

National Human Genome Research Institute National Institutes of Health