

Minisymposia Schedule

Sunday, December 6

Minisymposium 1
8:30 am–10:35 am

Ballroom 20A

Cancer Cells

Co-Chairs: *Erik Sahai*, Cancer Research UK London Research Institute, and *Charles J. Sherr*, St. Jude Children's Research Hospital/HHMI

8:30 am
Introduction

8:35 am
*Imaging the Metastatic Process. *E. Sahai, S. Giampieri*; Tumour Cell Biology Laboratory, Cancer Research UK London Research Institute, London, United Kingdom

8:55 am
Regulation of Cellular Self-Renewal by the Arf Tumor Suppressor. *A. Gromley, M.L. Churchman, C.J. Sherr*; Department of Tumor Cell Biology, St. Jude Children's Research Hospital/HHMI, Memphis, TN

9:15 am
The Role of miR-128 in Glioma Tumor Initiation and Maintenance. *T. Papagiannakopoulos¹, A. Weaver², R. Gill¹, I. Hernandez¹, E. Huillard³, D. H. Rowitch³, F. M. White², K. S. Kosik¹*; ¹Neuroscience Research Institute, University of California, Santa Barbara, Santa Barbara, CA, ²The David H. Koch Institute for Integrative Cancer Research, Massachusetts Institute of Technology, Cambridge, MA, ³Pediatrics and Neurological Surgery and the Institute for Regeneration Medicine, University of California, San Francisco, San Francisco, CA

9:35 am
p21^{WAF1}-dependent Emil Down-regulation After DNA Damage Maintains G2 Arrest. *J. Lee^{1,2}, J. A. Kim^{1,2}, V. Barbier², A. Fotedar², R. Fotedar^{1,2,3}*; ¹Institut de Biologie Structural Jean Pierre Ebel, Grenoble, France, ²Sidney Kimmel Cancer Center, San Diego, CA, ³Burnham Institute for Medical Research, La Jolla, CA

9:55 am
Effects of p120 Ablation on Normal Mammary Gland Development and PyMT-induced Mammary Tumor Progression. *S. Kurley¹, M. A. Davis¹, B. Bierie¹, W. J. Muller², A. B. Reynolds¹*; ¹Cancer Biology, Vanderbilt University, Nashville, TN, ²Biochemistry and Medicine, McGill University, Montreal, QC, Canada

10:15 am
Pseudopodial-Enriched Atypical Kinase One (PEAK1) Is a Novel Protein That Regulates ErbB2-induced Cellular Mitogenesis and Migration. *J. A. Kelber^{1,2}, Y. Wang^{1,2}, H. Tran Cao³, W. Wang^{1,2}, S. Kaushal², R. Hoffman³, M. Bouvet^{2,3}, R. Klemke^{1,2}*; ¹Pathology, University of California, San Diego, La Jolla, CA, ²Moore's Cancer Center, University of California, San Diego, La Jolla, CA, ³Department of Surgery, University of California, San Diego, La Jolla, CA

*EMBO Young Investigators Programme Lecture

Minisymposium 2
8:30 am–10:35 am

Room 29A-D

Cell–Cell Interactions

Co-Chairs: *W. James Nelson*, Stanford University, and *Erin Schuman*, Max Planck Institute for Brain Research

8:30 am
Introduction

8:35 am
Drosophila Lar, a Receptor Tyrosine Phosphatase, Regulates Cell Adhesion between Germline Stem Cells and the Niche. *S. Srinivasan*¹, *A. Mahowald*², *M. Fuller*¹; ¹Developmental Biology, Stanford University, Stanford, CA, ²Molecular Genetics and Cell Biology, University of Chicago, Chicago, IL

8:55 am
Calcium-dependent Dynamics of Cadherin Interactions at Synapses and Cell-Cell Junctions. *E. Schuman*¹, *S. Kim*², *J. Mok*², *C. Tai*², *E. Mosser*²; ¹Division of Biology, California Institute of Technology/HHMI, Max Planck Institute for Brain Research, Pasadena, CA, ²Biology, Caltech, Pasadena, CA

9:15 am
Imaging Trans-Synaptic Protein-Protein Interactions to Study the Molecular Mechanisms of Synapse Development. *A.Y. Ting*, *A. Thyagarajan*; Chemistry, Massachusetts Institute of Technology, Cambridge, MA

9:35 am
Mechanosensitive Cadherin Complex with Links to the Keratin Cytoskeleton Regulates Cell Polarity and Directed Protrusions Driving Collective Cell Migration. *G. Weber*, *M.A. Bjerke*, *D.W. DeSimone*; Department of Cell Biology, University of Virginia, Charlottesville, VA

9:55 am
Alpha-catenin Regulation of Actin Dynamics and Cell-Cell Adhesion. *A. V. Kwiatkowski*^{2, 1}, *J. M. Benjamin*^{2, 1}, *S. Pokutta*^{3, 1}, *W. I. Weis*^{3, 1}, *W. Nelson*^{2, 1}; ¹Department of Molecular and Cellular Physiology, Stanford University, Stanford, CA, ²Department of Biology, Stanford University, Stanford, CA, ³Department of Structural Biology, Stanford University, Stanford, CA

10:15 am
An Essential Role for p120-catenin in Vascular Patterning and Endothelial Proliferation. *R. G. Oas*¹, *K. Xiao*¹, *S. Summers*¹, *K. B. Wittich*¹, *C. M. Chiasson*¹, *W. Martin*², *H. E. Grossniklaus*³, *P. A. Vincent*⁴, *A. B. Reynolds*⁵, *A. P. Kowalczyk*^{1, 6}; ¹Cell Biology, Emory University, Atlanta, GA, ²Transgenic Mouse Core Facility, Emory University, Atlanta, GA, ³Department of Ophthalmology, Emory University, Atlanta, GA, ⁴The Center for Cardiovascular Sciences, Albany Medical College, Albany, NY, ⁵Department of Cancer Biology, Vanderbilt University, Nashville, TN, ⁶Department of Dermatology, Emory University, Atlanta, GA

Minisymposium 3
8:30 am – 10:35 am

Room 28A-E

Cell Polarity

Co-Chairs: *Julie Ahringer*, University of Cambridge, and *Jeremy Nance*, Skirball Inst of Biomolecular Medicine
8:30 am

Introduction

8:35 am

Cell Polarity in the *C. elegans* Embryo. *J. Ahringer*; Wellcome Trust/Cancer Research UK Gurdon Institute, University of Cambridge, Cambridge, United Kingdom

8:55 am

Microtubules and PAR-2 Break Symmetry to Initiate Polarization of the *C. elegans* Zygote. *S.A. Zonies, F. Motegi, G. Seydoux*; Johns Hopkins University School of Medicine, Baltimore, MD

9:15 am

PIP₂ Directs Spermatid Cell Polarity and Exocyst Localization in *Drosophila*. *L. Fabian¹, H. Wei¹, J. Rollins², T. Noguchi³, J. Blankenship⁷, G. Polevoy¹, L. Gervais⁵, A. Guichet⁵, M. Fuller⁴, J. A. Brill^{1,6}*; ¹Developmental and Stem Cell Biology, Hospital for Sick Children, Toronto, ON, Canada, ²Division of Science, The College of Mount Saint Vincent, New York, NY, ³Center for Developmental Biology, Kobe, Japan, ⁴Department of Developmental Biology, Stanford University School of Medicine, Palo Alto, CA, ⁵Institut Jacques Monod, CNRS-University of Paris Diderot, Paris, France, ⁶Department of Molecular Genetics, University of Toronto, Toronto, ON, Canada, ⁷Department of Biological Sciences, University of Denver, Denver, CO

9:35 am

Contact-mediated Polarization of *C. elegans* Early Embryos. *J. Nance*; Department of Cellular and Molecular Biology, Skirball Institute of Biomolecular Medicine, New York University School of Medicine, New York, NY

9:55 am

A Molecular Pathway Regulating Apical Exocytosis and Cell Polarity during Epithelial Lumen Formation. *D. Bryant¹, A. Datta¹, A. Rodriguez-Fraticelli², J. Peränen³, F. Martin-Belmonte², K. Mostov¹*; ¹University of California, San Francisco, San Francisco, CA, ²Centro de Biología Molecular Severo-Ochoa, Madrid, Spain, ³University of Helsinki, Helsinki, Finland

10:15 am

Reversal of Neuronal Polarity After Axon Removal: Converting a Dendrite into a Regenerating Axon by Rebuilding the Microtubule Cytoskeleton. *M.C. Stone, M.M. Nguyen, J. Tao, M.M. Rolls*; Biochemistry and Molecular Biology, The Pennsylvania State University, University Park, PA

Minisymposium 4
8:30 am–10:35 am

Ballroom 20B/C

Chromatin Organization and Dynamics

Co-Chairs: *Asifa Akhtar*, European Molecular Biology Laboratory, and *Andy Belmont*, University of Illinois at Urbana–Champaign

8:30 am
Introduction

8:35 am
Dosage Compensation in *Drosophila*. *A. Akhtar, J.M. Vaquerizas*; Gene Expression Unit, European Molecular Biology Laboratory Heidelberg, Heidelberg, Germany

8:55 am
O-GlcNAc Is Part of the Histone Code. *K. Sakabe, Z. Wang, G.W. Hart*; Biological Chemistry, Johns Hopkins University, School of Medicine, Baltimore, MD

9:15 am
Double Strand DNA Breaks Recruit Centromere Protein A. *S. G. Zeitlin^{1,7}, N. M. Baker^{4,3}, B. R. Chapados⁶, E. Soutoglou⁵, J. Y. Wang², M. W. Berns³, D. W. Cleveland^{7,1}*; ¹Cellular and Molecular Medicine, University of California, San Diego, La Jolla, CA, ²Moores-UCSD Cancer Center, University of California, San Diego, San Diego, CA, ³Bioengineering, University of California, San Diego, San Diego, CA, ⁴Electrical Engineering, University of California, San Diego, San Diego, CA, ⁵IGBMC, Strasbourg, France, ⁶The Scripps Research Institute, La Jolla, CA, ⁷Ludwig Institute for Cancer Research, La Jolla, CA

9:35 am
The MRG15 Chromodomain Protein Physically Interacts with Condensins to Modulate Global Chromosome Architecture and Local Gene Expression. *G. Bosco, H.F. Smith, T.A. Hartl, M. Roberts*; Molecular & Cellular Biology, University of Arizona, Tucson, AZ

9:55 am
RNA:DNA Hybrids Control Pericentric Heterochromatin Formation and Chromosome Segregation through the SUV39H2 and SETDB1 Histone Methyltransferases. *L. Strickland, A.F. Straight*; Biochemistry, Stanford University, Stanford, CA

10:15 am
Cis and trans Determinants of Large-scale Chromatin Structure. *A. Belmont¹, Y. Hu¹, W. Wu¹, M. Plutz¹, Q. Bian¹, I. Kireev^{1,2}*; ¹Department of Cell and Developmental Biology, University of Illinois at Urbana-Champaign, Urbana, IL, ²Electron Microscopy, Moscow State University, Moscow, Russia

Minisymposium 5
8:30 am–10:35 am

Room 31A-C

Clocks

Co-Chairs: *Carl H. Johnson*, Vanderbilt University, and *Amita Sehgal*, University of Pennsylvania School of Medicine/HHMI

8:30 am
Introduction

8:35 am
The Essence of Time: Biological Clock Nanomachines, DNA Topology, and Fitness. *C. Johnson*; Department of Biological Sciences, Vanderbilt University, Nashville, TN

8:55 am
A Cyanobacterial Model for How Cells Tell Time. *S.S. Golden*, Molecular Biology, University of California, San Diego, La Jolla, CA

9:15 am
Role of a Jumonji-domain Containing Protein in Circadian Clock. *S. Panda*; The Salk Institute for Biological Studies, La Jolla, CA

9:35 am
Cellular Basis of Rhythmic Behaviors. *A. Sehgal, K. Xu, J. DiAngelo*; Department of Neuroscience, University of Pennsylvania School of Medicine/HHMI, Philadelphia, PA

9:55 am
AMP Kinase Regulates the Circadian Clock by Cryptochrome Phosphorylation and Degradation. *K. Lamia¹, U. Sachdeva⁴, L. DiTacchio³, S. Panda³, R. Shaw², C. Thompson^{4,6}, R. Evans^{1,5}*; ¹Gene Expression Laboratory, The Salk Institute for Biological Studies, La Jolla, CA, ²Molecular and Cellular Biology Laboratory, The Salk Institute for Biological Studies, La Jolla, CA, ³Regulatory Biology Laboratory, The Salk Institute for Biological Studies, La Jolla, CA, ⁴Abramson Family Cancer Research Institute and Department of Cancer Biology, University of Pennsylvania School of Medicine, Philadelphia, PA, ⁵Howard Hughes Medical Institute, The Salk Institute for Biological Studies, La Jolla, CA, ⁶Howard Hughes Medical Institute, University of Pennsylvania School of Medicine, Philadelphia, PA

10:15 am
Src-family Tyrosine Kinase Phosphorylation Directs the Degradation of the Clock Protein Timeless via Ubiquitylation and c-Cbl Interaction. *L. O'Reilly, T.E. Smithgall*; Department of Microbiology and Molecular Genetics, University of Pittsburgh School of Medicine, Pittsburgh, PA

Minisymposium 6
8:30 am–10:35 am

Ballroom 20D

Intracellular Trafficking

Co-Chairs: *Elizabeth Miller*, Columbia University, and *Joachim Seemann*, University of Texas Southwestern Medical Center at Dallas

8:30 am
Introduction

8:35 am
A Novel Sec24 Mutant Links Cargo Capture to the GTP Cycle of the COPII Coat. *L. Kung-Tran¹, R. Buchanan¹, E. Futai², R. Schekman², E. Miller¹*; ¹Biological Sciences, Columbia University, New York, NY, ²Molecular and Cell Biology, University of California, Berkeley, Berkeley, CA

8:55 am
*Transporting Cholesterol Out of the Lysosome: A Pocket-to-Pocket Handoff from NPC2 to NPC1. *R. E. Infante¹, H. Kwon², M. L. Wang¹, L. Abi-Mosleh¹, J. Deisenhofer², M. S. Brown¹, J. L. Goldstein¹*; ¹Molecular Genetics, University of Texas Southwestern Medical Center, Dallas, TX, ²Biochemistry, University of Texas Southwestern Medical Center, Dallas, TX

9:15 am
Building the Primary Cilium Membrane: Regulation of GEF Trafficking and Activity and a Rab11-Rab8 Cascade. *C. J. Westlake¹, K. J. Wright¹, M. Nachury², L. M. Baye³, J. Rahajeng⁵, K. E. Ervin¹, J. S. Beck⁴, L. Phu¹, D. S. Kirkpatrick¹, S. Caplan⁵, D. C. Slusarski³, V. Sheffield⁴, R. H. Scheller¹, P. K. Jackson¹*; ¹Genentech, South San Francisco, CA, ²Department of Molecular and Cellular Physiology, Stanford University, Stanford, CA, ³Department of Biology, University of Iowa, Iowa City, IA, ⁴Department of Pediatrics and Howard Hughes Medical Institute, University of Iowa, Iowa City, IA, ⁵Department of Biochemistry and Molecular Biology, University of Nebraska Medical Center, Omaha, NE

9:35 am
Interplay between Epsins and Sla2 Is Essential for Endocytosis in Yeast. *M. Skruzny, T. Brach, R. Ciuffa, M. Wachsmuth, M. Kaksonen*; Cell Biology and Biophysics, EMBL, Heidelberg, Germany

9:55 am
A Novel, Evolutionarily Conserved Rab5 Effector Controls Rab GTPase Conversion on the Surface on Phagosomes. *J.M. Kinchen, K.S. Ravichandran*; Center for Cell Clearance, Department of Microbiology, University of Virginia, Charlottesville, VA

10:15 am
Regulation of Golgi Division and Mitotic Progression by Golgi Matrix Proteins. *J. Wei, J. Seemann*; Department of Cell Biology, University of Texas Southwestern Medical Center at Dallas, Dallas, TX

* *Rodney E. Infante* is the recipient of the Norton B. Gilula Memorial Award.

Minisymposium 7
8:30 am–10:35 am

Room 30A-E

Regulation of Cell Growth

Co-Chairs: *Duoja Pan*, Johns Hopkins University School of Medicine/HHMI, and *David Sabatini*, Whitehead Institute for Biomedical Research/MIT/HHMI

8:30 am
Introduction

8:35 am
Growth Control by the mTOR Pathway. *D. Sabatini*; Whitehead Institute for Biomedical Research/Massachusetts Institute of Technology/HHMI, Cambridge, MA

8:55 am
hVps34 Activates PLD1 Upstream of mTORC1. *M. Yoon*¹, *Y. Yan*², *J. M. Backer*², *G. Du*³, *M. A. Frohman*⁴, *J. Chen*¹; ¹Cell and Developmental Biology, University of Illinois at Urbana-Champaign, Urbana, IL, ²Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY, ³Integrative Biology and Pharmacology, University of Texas Health Science Center at Houston, Houston, TX, ⁴Pharmacology and the Center for Developmental Genetics, University Medical Center, State University of New York at Stony Brook, Stony Brook, NY

9:15 am
Mechanisms Linking Cell Geometry and Mitotic Entry in Fission Yeast. *J. Moseley*¹, *A. Mayeux*², *A. Paoletti*², *P. Nurse*¹; ¹The Rockefeller University, New York, NY, ²Institut Curie, Paris, France

9:35 am
Control of Organ Size by the *Hippo* Signaling Pathway. *D. Pan*; Department of Molecular Biology & Genetics, Johns Hopkins University School of Medicine/HHMI, Baltimore, MD

9:55 am
Identifying Targets of the *Hippo* Tumor Suppressor Pathway That Regulate Growth and Proliferation. *C. M. Pfleger*¹, *M. Jahanshahi*¹, *K. Hsiao*², *A. Jenny*³; ¹Oncological Sciences, The Mount Sinai School of Medicine, New York, NY, ²Neuroscience, The Mount Sinai School of Medicine, New York, NY, ³Department of Developmental and Molecular Biology, Albert Einstein College of Medicine, Bronx, NY

10:15 am
A Novel Mechanism for Cell Size Control by Regulators of the Retinoblastoma Tumor Suppressor Pathway. *J. Umen*, *B. Olson*, *C. Lopez*, *Y. Li*; Plant Biology Laboratory, The Salk Institute, La Jolla, CA

Minisymposium 8
8:30 am–10:35 am

Room 33A-C

Working Group: What Is Life?

Moderator: *Nicole King*, University of California, Berkeley

Presenters: *Nicole King*, University of California, Berkeley
Zac Cande, University of California, Berkeley
Norman R. Pace, University of Colorado, Boulder

What is life? Our view of life spans a broad horizon, from the molecular to the cellular to the complex developmental processes that characterize organisms such as humans. Progress in each of these arenas over the past decades has profoundly changed the perspective that we have on life and on the evolutionary paths that have resulted in the life forms we see today. Three speakers will address these levels of perspective on what is life.

Norman Pace will address our current view of life's diversity and patterns of large-scale evolution as seen from the standpoint of molecular phylogeny. Recent results have provided the outlines of a universal tree of life, but much of deep evolution remains clouded. Zac Cande will address questions concerning the evolution of cell division and meiosis in eukaryotes using the highly divergent microbial eukaryotes *Giardia intestinalis* and *Naegleria gruberi* as model organisms. Nicole King will address the potential roles of genome evolution, cell biology, and the influence of the environment in the evolution of animals from their single-celled ancestor

Monday, December 7

Minisymposium 9
8:30 am–10:35 am

Room 31A-C

Cellular Basis of Morphogenesis

Co-Chairs: *Gail Martin*, University of California, San Francisco, and *John Wallingford*, University of Texas, Austin

8:30 am
Introduction

8:35 am
A Molecular Clutch Linking Actomyosin Contractility to Cell Movements. *M. Roh, G. Shemer, J. McClellan, B. Goldstein*; University of North Carolina at Chapel Hill, Chapel Hill, NC

8:55 am
Sensory Dendrites Extend by ‘Dropping Anchor’ Prior to Cell Migration. *M.G. Heiman, S. Shaham*; Rockefeller University, New York, NY

9:15 am
Drosophila Cytonemes Are Ligand-specific Cell Extensions That Ferry Signaling Molecules over Long Distance. *S. Roy, F. Hsiung, T.B. Kornberg*; Cardio Vascular Research Institute, University of California San Francisco, San Francisco, CA

9:35 am
Planar Cell Polarity, Ciliogenesis, and Neural Tube Closure. *J. Wallingford*^{1,2}; ¹Howard Hughes Medical Institute, Austin, TX, ²Section of Molecular Cell and Developmental Biology, University of Texas, Austin, TX

9:55 am
Regulated Cell Polarity Defines Long Bone Morphology. *A.T. Dudley, M.J. Ahrens, Y. Li, H. Jiang*; BMBCB, Northwestern University, Evanston, IL

10:15 am
Regulation of Oriented Cell Division by Receptor Tyrosine Kinase Signaling in Airway Morphogenesis. *G. Martin, N. Tang, R. Metzger*; Department of Anatomy, University of California, San Francisco, San Francisco, CA

Minisymposium 10
8:30 am–10:35 am

Ballroom 20A

Cilia and Centrosomes

Co-Chairs: *Monica Bettencourt-Dias*, Instituto Gulbenkian de Ciência, and *Maxence Nachury*, Stanford University School of Medicine

8:30 am
Introduction

8:35 am
Evolution of Centriole Assembly Mechanisms. *Z. Carvalho-Santos¹, F. Cadete², P. Machado¹, P. Branco¹, A. Rodrigues-Martins¹, J. Borrego-Pinto¹, N. Matias¹, J. Pereira-Leal², M. Bettencourt-Dias¹*; ¹Cell Cycle Regulation Lab, Instituto Gulbenkian de Ciência, Oeiras, Portugal, ²Computational Genomics Lab, Instituto Gulbenkian de Ciência, Oeiras, Portugal

8:55 am
*Poc1 Is Required for Basal Body Stabilization. *C. G. Pearson¹, D. P. Osborne², T. H. Giddings¹, P. L. Beales², M. Winey¹*; ¹MCD Biology, University of Colorado, Boulder, CO, ²Molecular Medicine Unit, University College London, London, United Kingdom

9:15 am
Novel Features in Formation and Function of the “9+2” Axoneme Revealed by a Basal Body-Deficient Mutant of *Chlamydomonas*. *M. Hirono, Y. Nakazawa, R. Kamiya*; Department of Biological Sciences, University of Tokyo, Tokyo, Japan

9:35 am
Cell Shape and Stiffness Regulate Ciliogenesis in Cell Cycle Arrested Cells. *A. Pitaval¹, Q. Tseng¹, M. Bornens², M. Théry¹*; ¹DSV iRTSV, CEA, Grenoble, France, ²UMR144, Institut Curie, Paris, France

9:55 am
The BBSome Functions as a Coat Complex for Ciliary Membrane Trafficking. *H. Jin¹, S. Roehl White¹, N. Shida¹, J. Bazan², M. Nachury¹*; ¹Department of Molecular and Cellular Physiology, Stanford University School of Medicine, Stanford, CA, ²Department of Protein Engineering, Genentech, South San Francisco, CA

10:15 am
The *Chlamydomonas* BBSome Is Transported by a Subset of IFT Particles and Necessary for Normal Flagellar Membrane Composition. *K. F. Lehtreck¹, E. C. Johnson¹, T. Sakai², B. A. Ballif⁵, D. Cochran¹, G. Pazour⁴, J. Evans³, M. Ikebe², G. B. Witman¹*; ¹Department of Cell Biology, University of Massachusetts Medical School, Worcester, MA, ²Department of Physiology, University of Massachusetts Medical School, Worcester, MA, ³Department of Biochemistry and Molecular Pharmacology, University of Massachusetts Medical School, Worcester, MA, ⁴Program in Molecular Medicine, University of Massachusetts Medical School, Worcester, MA, ⁵Department of Biology, University of Vermont, Burlington, VT

**Chad G. Pearson* is the recipient of the Merton Bernfield Award.

Minisymposium 11
8:30 am–10:35 am

Room 28A-E

Host-Pathogen Interactions
Supported by National Center for Research Resources, NIH

Co-Chairs: *Kasturi Haldar*, University of Notre Dame, and *Roger Innes*, Indiana University

8:30 am
Introduction

8:35 am
Molecular Mechanisms Underlying Pathogen Recognition in Plants. *R. Innes, B. DeYoung, R. Bhat, D. Qi, N. Rodibaugh*; Department of Biology, Indiana University, Bloomington, IN

8:55 am
Dissecting Host-Pathogen Interactions in Real Time: New Tools for Visualizing Type-III Secretion. *A.E. Palmer, S.B. VanEngelenburg*; Chemistry & Biochemistry, University of Colorado, Boulder, CO

9:15 am
Exosomes as Regulators of the Immune Response Against Mycobacterial Infections. *J. Schorey*; Biological Sciences, University of Notre Dame, Notre Dame, IN

9:35 am
Evolutionary Arms Races Involving the Innate Immunity Factor Protein Kinase R. *N. Elde¹, S. Child², A. Geballe^{2,3,4}, H. Malik¹*; ¹Basic Sciences, Fred Hutchinson Cancer Research Center, Seattle, WA, ²Human Biology, Fred Hutchinson Cancer Research Center, Seattle, WA, ³Clinical Research, Fred Hutchinson Cancer Research Center, Seattle, WA, ⁴Medicine and Microbiology, University of Washington, Seattle, WA

9:55 am
The Influenza Virus M2 Ion Channel Protein Mediates the ESCRT-independent Budding of Filamentous Virions. *J. Rossman¹, X. Jing¹, G. Leser¹, R. A. Lamb^{1,2}*; ¹Biochemistry, Molecular Biology and Cell Biology, Northwestern University, Evanston, IL, ²Howard Hughes Medical Institute, Chevy Chase, MD

10:15 am
A Novel Pseudopodial Component of the Dendritic Cell Anti-fungal Response: The Fungipod. *A.K. Neumann, K. Jacobson*; Cell & Developmental Biology, University of North Carolina at Chapel Hill, Chapel Hill, NC

Minisymposium 12
8:30 am–10:35 am

Room 29A-D

Lipid Dynamics

Co-Chairs: *Benjamin Podbilewicz*, Technion- Israel Institute of Technology, and *Petra Schwille*, Biotechnology Center (BIOTEC), TU

8:30 am
Introduction

8:35 am
Dynamics of Plasma Membrane Reorganization Induced by Equinatoxin II. *A. J. García-Sáez*¹, *S. Buschhorn*², *H. Keller*¹, *G. Anderluh*³, *K. Simons*², *P. Schwille*¹; ¹Biophysics-Schwille Lab, Biotechnology Center (BIOTEC), TU Dresden, Dresden, Germany, ²MPI for Cell Biology and Genetics, Dresden, Germany, ³University of Ljubljana, Ljubljana, Slovenia

8:55 am
FF Proteins Fuse Plasma Membranes and Sculpt Cells into Rings, Tubes, and Menorahs. *O. Avinoam*, *K. Fridman*, *L. Friedlander*, *M. Oren-Suissa*, *H. Raveh*, *K. Smurova*, *C. Valansi*, *J. Verdin*, *B. Podbilewicz*; Biology, Technion- srael Institute of Technology, Haifa, Israel

9:15 am
Phosphatidylinositol-(4,5)-bisphosphate Dynamics in Clathrin-mediated Endocytosis. *C.N. Antonescu*, *M. Mettlen*, *D. Loerke*, *D. Nunez*, *G. Danuser*, *S.L. Schmid*; Cell Biology, The Scripps Research Institute, La Jolla, CA

9:35 am
Regulation of Phosphoinositide Dynamics at Endocytic Clathrin-coated Pits by the Inositol 5-phosphatase SHIP2. *F. Nakatsu*^{1,2}, *R. Perera*¹, *L. Lucast*^{1,2}, *R. Zoncu*^{1,2}, *F. Gertler*³, *D. Toomre*¹, *P. De Camilli*^{1,2}; ¹Department of Cell Biology, Yale University School of Medicine, New Haven, CT, ²Howard Hughes Medical Institute, Yale University School of Medicine, New Haven, CT, ³Department of Biology, Massachusetts Institute of Technology, Cambridge, MA

9:55 am
Characterization of Atlastin-mediated Membrane Fusion In Vitro. *T.J. Moss*, *J.A. McNew*; Biochemistry and Cell Biology, Rice University, Houston, TX

10:15 am
*A Combined Genetics and Lipidomics Approach to Explore Metabolism and Functions of Membrane Lipids. *X. Guan*¹, *C. M. Souza*², *H. Pichler*³, *M. Wenk*¹, *H. Riezman*²; ¹Biochemistry and Biological Sciences, National University of Singapore, Singapore, ²Biochemistry, University of Geneva, Geneva, Switzerland, ³Graz University of Technology, Graz, Austria

**Xue Li Guan* is the recipient of the *Molecular Biology of the Cell* Paper of the Year Award.

Minisymposium 13
8:30 am–10:35 am

Room 30A-E

Nuclear Structure

Supported by National Center for Research Resources, NIH

Co-Chairs: *A. Gregory Matera*, University of North Carolina at Chapel Hill, and *Lindsay Shopland*, University of Maine

8:30 am
Introduction

8:35 am
Nuclear Body Crosstalk. *K. Praveen, T.K. Rajendra, A. Matera*; Department of Biology, University of North Carolina at Chapel Hill, Chapel Hill, NC

8:55 am
Nuclear Protein and Cajal Body-associated Coilin Modulates the Mitochondrial Apoptotic Pathway Following UV-C-induced Chromatin Damage. *P. Texier, M. Sabra, B. Gibert, N. Vey, J. El Maalouf, P. Lomonte*; Center for Molecular and Cellular Genetic, CNRS, Villeurbanne, France

9:15 am
Son Is Essential for Nuclear Speckle Organization and Cell Cycle Progression. *A. Sharma^{1,3}, H. Takata², K. Shibahara², A. Bubulya³, P. Bubulya³*; ¹Biomedical Sciences Program, Wright State University, Dayton, OH, ²Integrated Genetics, National Institute of Genetics, Shizuoka, Japan, ³Biological Sciences, Wright State University, Dayton, OH

9:35 am
An Atypical Progeria Mutation Alters Lamin Polymerization, Nuclear Assembly, and Chromosome Organization. *P. Taimen¹, K. Pflieger¹, T. Shimi¹, D. Möller², K. Ben-Harush³, M. R. Erdos⁴, S. A. Adam¹, H. Herrmann², O. Medalia³, F. S. Collins⁴, A. Goldman¹, R. Goldman¹*; ¹Cell and Molecular Biology, Northwestern University Medical School, Chicago, IL, ²Division of Molecular Genetics, German Cancer Research Center, Heidelberg, Germany, ³Department of Life Sciences, Ben Gurion University and the NIBN, Beer-Sheva, Israel, ⁴Genome Technology Branch, National Human Genome Research Institute, Bethesda, MD

9:55 am
Integrity of the Nuclear Lamina Is Required for Germline Stem Cell Homeostasis. *P. Geyer, B. Pinto, L. Wallrath*; University of Iowa, Iowa City, IA

10:15 am
Distinct Clustering of Active and Repressed Genes at the Nuclear Periphery of Mouse Embryonic Stem Cells. *L. Luo, L. Shopland*; Institute for Molecular Biophysics, The Jackson Laboratory, Bar Harbor, ME

Minisymposium 14
8:30 am–10:35 am

Ballroom 20B/C

Organization and Dynamics of the Cytoskeleton

Co-Chairs: *James Bear*, University of North Carolina at Chapel Hill, and *Gero Steinberg*, University of Exeter

8:30 am
Introduction

8:35 am
Intermediate Filaments Bind Tubulin and Function as a Local Tubulin Reservoir to Modulate the Assembly of Microtubules. *J. Eyer*^{2,1}, *A. Bocquet*^{2,3}, *R. Berges*², *R. Frank*⁴, *P. Robert*², *A. C. Peterson*⁵;
¹Neurobiology & Transgenesis, INSERM, Angers, France, ²Neurobiology & Transgenesis, Université, Angers, France, ³Centre de Recherche Pierre Fabre, Castres, France, ⁴Department of Chemical Biology, Helmholtz Centre for Infection Research, Braunschweig, Germany, ⁵Laboratory of Developmental Biology, McGill University, Montreal, QC, Canada

8:55 am
Acetylation of Microtubules Is a Regulator of Their Sensitivity to Severing by Katanin in Neurons and Fibroblasts. *H. Sudo*, *P.W. Baas*; Drexel University College of Medicine, Philadelphia, PA

9:15 am
Microtubule Organization and Motor Co-operation in Long-range Endosomes Motility. *G. Steinberg*¹, *M. Schuster*¹, *G. Fink*², *J. Collemare*¹; ¹University of Exeter, Exeter, United Kingdom, ²MPI-CBG, Dresden, Germany

9:35 am
A Network of Formin Inhibitors Required for Actin Assembly and Architecture. *M.A. Chesarone*, *C.J. Gould*, *B. Goode*; Biology, Brandeis University, Waltham, MA

9:55 am
Regulation of Rho Proteins Homeostasis by RhoGDI1. *E. Boulter*¹, *R. Garcia-Mata*¹, *C. Guilluy*¹, *A. D. Dubash*¹, *G. Rossi*¹, *P. J. Brennwald*¹, *K. Burridge*^{1,2}; ¹Cell and Developmental Biology, University of North Carolina at Chapel Hill, Chapel Hill, NC, ²Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill, Chapel Hill, NC

10:15 am
The Arp2/3 Activator WASH Controls the Fission of Endosomes through a Large Multiprotein Complex. *E. Derivery*^{1,2}, *C. Sousa*², *J. J. Gautier*², *B. Lombard*¹, *D. Loew*¹, *A. Gautreau*^{1,2}; ¹CNRS, UMR144, Institut Curie, Paris, France, ²Lab Enzymologie et Biochimie Structurales, CNRS, Gif-sur-Yvette, France

Minisymposium 15
8:30 am–10:35 am

Ballroom 20D

Systems Biology

Co-Chairs: *Aimée Dudley*, Institute for Systems Biology, and *Peter K. Sorger*, Harvard Medical School

8:30 am
Introduction

8:35 am
Sake to Chocolate: Systems Genetics and Natural Variation in Yeast. *V. L. Ahyong¹, C. Ludlow¹, A. C. Scott¹, P. Ruusuvaori^{1,2}, U. Lao¹, L. A. Baumgardner¹, D. B. Martin¹, I. Shmulevich¹, A. M. Dudley¹*; ¹Institute for Systems Biology, Seattle, WA, ²Department of Signal Processing, Tampere University of Technology, Tampere, Finland

8:55 am
A High-Content Screen to Functionally Classify Proteins Required for Cell Viability and Division. *R. Green¹, A. Audhya², A. Desai¹, K. F. Oegema¹*; ¹Cellular and Molecular Medicine, Ludwig Institute for Cancer Research, University of California, San Diego, La Jolla, CA, ²Department of Biomolecular Chemistry, University of Wisconsin–Madison Medical School, Madison, WI

9:15 am
Mitochondrial Network Morphology: Control of Abundance and Topology in Budding Yeast. *S. M. Rafelski¹, M. P. Viana², K. S. Thorn¹, L. F. Costa², W. Marshall¹*; ¹Biochemistry & Biophysics, University of California, San Francisco, San Francisco, CA, ²Inst. de Fisica de Sao Carlos, Universidad de Sao Paulo, Sao Carlos, Sao Paulo, Brazil

9:35 am
Quantitative Output of a Signaling Pathway Is Controlled by Microtubule-mediated Repositioning of the Nucleus. *G. Pesce¹, R. C. Yu¹, A. A. Colman-Lerner^{1,3}, D. Rockwell¹, S. Berrios¹, R. Brent^{1,2}*; ¹Molecular Sciences Institute, Berkeley, CA, ²Fred Hutchinson Cancer Research Center, Seattle, WA, ³Laboratorio de Fisiologia y Biología Molecular, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Buenos Aires, Capital Federal, Argentina

9:55 am
Reconstructing the EGFR Autocrine Signaling Network by Integrating Proteomic and Genomic Data. *H. Shankar³, M. Singhal³, T. H. Heibeck², V. A. Petyuk², W. Qian², H. Wiley¹*; ¹EMSL, Pacific Northwest National Laboratory, Richland, WA, ²Biological Sciences, Pacific Northwest National Laboratory, Richland, WA, ³Computational Biology and Bioinformatics, Pacific Northwest National Laboratory, Richland, WA

10:15 am
Cell to Cell Variability in the Responses of Mammalian Cells to Death Ligands. *P. Sorger, S. Spencer, B. Aldridge, J. Albeck, S. Gaudet, D. Flusberg, J. Burke, W. Chen*; Department of Systems Biology, Harvard Medical School, Boston, MA

Minisymposium 16
8:30 am–10:35 am

Room 33A-C

Working Group: Cancer Stem Cells

Moderator: *Sean Morrison*, University of Michigan/HHMI

Presenters: *Sean Morrison*, University of Michigan/HHMI
Peter Dirks, Hospital for Sick Children
Franziska Michor, Memorial Sloan-Kettering Cancer Center

The cancer stem cell model has proposed that many cancers are hierarchically organized into epigenetically distinct subpopulations of cancer cells that have intrinsic differences in their capacity to proliferate and to contribute to disease. Data on several cancers, including hematopoietic malignancies, epithelial malignancies and brain tumors, suggest that these cancers are driven by rare or infrequent cancer stem cells that give rise to much larger populations of nontumorigenic/nonleukemogenic cancer cells. If true, this suggests we might more effectively treat cancer by focusing on the elimination of the small subpopulations of cancer stem cells, even if therapies do not eliminate the bulk populations of nontumorigenic cancer cells. On the other hand, questions have been raised regarding the assays that have been used to test the cancer stem cell model and the robustness of the markers that have been used to distinguish cancer stem cells from nontumorigenic cancer cells. In some cancers, tumorigenic potential appears to be a common attribute of many cells rather than a unique property of a distinct subpopulation of cancer stem cells.

Tuesday, December 8

Minisymposium 17
8:30 am–10:35 am

Room 29A-D

Autophagy and Organelle Turnover

Co-Chairs: *Judith Klumperman*, University Medical Center, and *Beth Levine*, University of Texas Southwestern Medical Center/HHMI

8:30 am
Introduction

8:35 am
Mannose-6-phosphate Receptor Independent Pathways of Lysosome Biogenesis. *J. Klumperman*¹, *E. van Meel*¹, *M. Boonen*², *S. Mg*³, *V. Oorschot*¹, *C. ten Brink*¹, *J. Mayor*³, *S. Kornfeld*²; ¹Cell Microscopy Center, University Medical Center, Utrecht, Netherlands, ²Internal Medicine, Washington University School of Medicine, St. Louis, MO, ³Cellular Organization and Signalling, National Centre for Biological Sciences, Bangalore, India

8:55 am
A Gene Network Regulating Lysosomal Biogenesis and Function. *M. Sardiello*¹, *M. Palmieri*¹, *A. di Ronza*¹, *D. L. Medina*¹, *M. Valenza*², *V. A. Gennarino*¹, *C. Di Malta*¹, *F. Donaudy*¹, *V. Embrione*¹, *R. Polishchuk*³, *S. Banfi*¹, *G. Parenti*^{1, 4}, *E. Cattaneo*², *A. Ballabio*^{1, 4}; ¹Telethon Institute of Genetics and Medicine, Telethon Foundation, Naples, Italy, ²Department of Pharmacological Sciences and Center for Stem Cell Research, University of Milan, Milan, Italy, ³Department of Cell Biology and Oncology, Consorzio Mario Negri Sud, Chieti, Italy, ⁴Department of Pediatrics, Federico II University, Naples, Italy

9:15 am
Drosophila dAcinus Regulates Endocytic and Autophagic Trafficking. *H. Kramer*, *A.S. Haberman*; Department of Neuroscience, University of Texas Southwestern, Dallas, TX

9:35 am
Molecular Regulation of the Autophagy Function of Beclin 1. *B. Levine*^{1, 2, 3}, *Y. Wei*^{1, 3}, *N. Becker*^{1, 3}, *M. Anderson*¹; ¹Department of Internal Medicine, University of Texas Southwestern Medical Center, Dallas, TX, ²Department of Microbiology, University of Texas Southwestern Medical Center, Dallas, TX, ³Howard Hughes Medical Institute, University of Texas Southwestern Medical Center, Dallas, TX

9:55 am
Control of Autophagy Initiation by Phosphoinositide 3-phosphatase Jumpy. *I. Vergne*¹, *E. Roberts*¹, *R. A. Elmaoued*¹, *V. Tosch*², *M. A. Delgado*¹, *T. Proikas-Cezanne*³, *J. Laporte*², *V. Deretic*^{1, 4}; ¹Molecular Genetics and Microbiology, University of New Mexico, School of Medicine, Albuquerque, NM, ²Neurobiology and Genetics, IGBMC, University Louis Pasteur de Strasbourg, College de France, Illkirch, France, ³Molecular Biology, University of Tuebingen, Tuebingen, Germany, ⁴Cell Biology and Physiology, University of New Mexico, School of Medicine, Albuquerque, NM

10:15 am
ATG12 Conjugation to ATG3 Regulates Mitochondrial Homeostasis. *J. Debnath*^{1, 2}, *L. Radoshevich*¹, *L. Murrow*¹, *E. Fernandez*¹, *N. Chen*¹, *S. Roy*¹; ¹Pathology, University of California, San Francisco, San Francisco, CA, ²Diller Cancer Center, University of California, San Francisco, San Francisco, CA

Minisymposium 18
8:30 am–10:35 am

Room Ballroom 20B/C

Cell and Tissue Mechanics

Co-Chairs: *Dan Kiehart*, Duke University, and *Ellen A. Lumpkin*, Baylor College of Medicine

8:30 am
Introduction

8:35 am
Membrane Tension and Crowding Pressure: The Multimodal Mechanism of the Mechanosensitive Channel
MscS. *S. Sukharev*, *K. Kamaraju*, *V. Belyy*, *M. Boer*, *A. Anishkin*; Biology, University of Maryland, College Park, MD

8:55 am
Flows and Tension during Cortical Polarization of the *C. elegans* Zygote. *M. Mayer*^{1,2}, *M. Depken*^{2,1,3}, *J. S. Bois*^{2,1}, *F. Jülicher*², *S. W. Grill*^{1,2}; ¹MPI for Molecular Cell Biology and Genetics, Dresden, Germany, ²MPI for the Physics of Complex Systems, Dresden, Germany, ³Vrije Universiteit, Amsterdam, Netherlands

9:15 am
Mechanically Gated Ion Channels in *Drosophila* Morphogenesis. *G. Hunter*, *D. Kiehart*; Department of Biology, Duke University, Durham, NC

9:35 am
Mechanotransduction in the Merkel Cell-Neurite Complex, a Conserved Vertebrate Touch Receptor. *E. Lumpkin*^{1,2,3}, *H. Haerberle*¹, *S. Maricich*⁴, *S. Wellnitz*¹, *A. M. Nelson*¹, *D. Lesniak*⁵, *G. Gerling*⁵, *H. Zoghbi*^{1,3,4}; ¹Department of Neuroscience, Baylor College of Medicine, Houston, TX, ²Molecular Physiology and Biophysics, Baylor College of Medicine, Houston, TX, ³Molecular and Human Genetics, Baylor College of Medicine, Houston, TX, ⁴Pediatrics, Baylor College of Medicine, Houston, TX, ⁵Systems and Information Engineering, University of Virginia, Charlottesville, VA

9:55 am
Uncovering a Postnatal Remodeling of Cochlear Hair Cell Apical Circumferential Shape Driven by Hair Bundle Morphogenetic Cues. *R. Etournay*^{2,1}, *L. Lepelletier*¹, *J. Boutet de Monvel*¹, *V. Michel*¹, *J. Hardelin*¹, *C. Petit*¹; ¹Institut Pasteur, Inserm UMRS587, Paris, France, ²Molecular Cell Biology and Genetics, Max Planck Institute, Dresden, Germany

10:15 am
Structure, Dynamics, and Elasticity of Cadherin-23 Repeats Involved in Hereditary Deafness. *M. Sotomayor*^{1,2}, *W. Weihofen*³, *R. Gaudet*³, *D. P. Corey*^{1,2}; ¹Neurobiology, Harvard Medical School, Boston, MA, ²Howard Hughes Medical Institute, Boston, MA, ³Molecular and Cellular Biology, Harvard University, Cambridge, MA

Minisymposium 19
8:30 am–10:35 am

Ballroom 20A

Cell Migration
Supported by Cytoskeleton, Inc.

Co-Chairs: *Alissa Weaver*, Vanderbilt University Medical Center, and *Jochen Wittbrodt*, University of Heidelberg and Forschungszentrum Karlsruhe

8:30 am
Introduction

8:35 am
Regulation of Invadopodia by Extracellular Matrix Characteristics. *A. Weaver¹, K. Branch¹, N. Alexander¹, A. Parekh¹, S. Guelcher²*; ¹Department of Cancer Biology, Vanderbilt University Medical Center, Nashville, TN, ²Chemical Engineering, Vanderbilt University, Nashville, TN

8:55 am
Nanoscale Protein Organization in Focal Adhesions. *P. Kanchanawong¹, G. Shtengel², E. B. Ramko³, M. W. Davidson^{3,4}, H. F. Hess², C. M. Waterman¹*; ¹Laboratory of Cell and Tissue Morphodynamics, National Heart Lung and Blood Institute, Bethesda, MD, ²Janelia Farm Research Campus, Howard Hughes Medical Institute, Ashburn, VA, ³National High Magnetic Field Laboratory, The Florida State University, Tallahassee, FL, ⁴Department of Biological Science, The Florida State University, Tallahassee, FL

9:15 am
Regulation of Epithelial Cell Motile Behavior through Crosstalk between Extracellular Matrix- and Cell-Cell Adhesions. *N. Borghi¹, M. Lowndes¹, W. Nelson^{1,2}*; ¹Biology, Stanford University, Stanford, CA, ²Molecular and Cellular Physiology, Stanford University, Stanford, CA

9:35 am
Protein Kinase A Governs a RhoA-RhoGDI-driven Protrusion-Retraction Pacemaker in Migrating Cells. *E. Tkachenko¹, M. Sabouri², O. Pertz³, M. Machacek², C. Kim¹, G. Danuser², M. Ginsberg¹*; ¹Medicine, University of California, San Diego, La Jolla, CA, ²Biology, The Scripps Research Institute, La Jolla, CA, ³University of Basel, Basel, Switzerland

9:55 am
Neutrophil Migration in a Transgenic Zebrafish Model of WHIM Syndrome. *K. B. Walters¹, A. Huttenlocher^{1,2}*; ¹Cell and Molecular Biology, University of Wisconsin–Madison, Madison, WI, ²Medical Microbiology and Immunology, University of Wisconsin–Madison, Madison, WI

10:15 am
Molecular and Cellular Mechanisms of Vertebrate Eye Morphogenesis. *J. Wittbrodt^{1,2}, J. Martinez-Morales³, K. Brown⁴*; ¹Developmental Biology/Physiology, University of Heidelberg, Heidelberg, Germany, ²Institute for Toxicology and Genetics, Forschungszentrum Karlsruhe, Germany, Germany, ³Centro Andaluz de Biología del Desarrollo, Universidad Pablo de Olavide, Sevilla, Spain, ⁴Developmental Biology Unit, European Molecular Biology Laboratory, Heidelberg, Germany

Minisymposium 20
8:30 am–10:35 am

Room 28A-E

Functional Organization of Plasma Membranes

Co-Chairs: *Benedicte Dargent*, Université de la Méditerranée, and *Matthew Rasband*, Baylor College of Medicine

8:30 am
Introduction

8:35 am
Myotubularin Roles in Muscle-specific Membrane Compartmentalization. *I. Ribeiro, A. Kiger*; University of California, San Diego, La Jolla, CA

8:55 am
A Novel Two-tiered Model for Spectrin Function in *Drosophila*. *G.H. Mazock, R.R. Dubreuil*; University of Illinois at Chicago, Chicago, IL

9:15 am
Direct Interaction between Dynactin-4 and Ankyrin-B Is Required for Membrane Localization of the Dystrophin-Glycoprotein-Complex in Muscle Fibers. *G. Ayalon, J. Hostettler, J. Davis, J. Hoffman, V. Bennett*; Cell Biology, Duke University Medical Center, Durham, NC

9:35 am
The Functional Organization of the Axonal Membrane in Health and Disease. *M. Rasband*; Department of Neuroscience, Baylor College of Medicine, Houston, TX

9:55 am
Neurofascin Accumulation at the Axonal Initial Segment Is Promoted by Neurotrophin Signaling and Doublecortin (DCX). *B. Winckler, C. Yap, M. Vakulenko*; Neuroscience, University of Virginia, Charlottesville, VA

10:15 am
Functional Organization of Ion Channels at the Axonal Initial Segment. *B. Dargent*, INSERM UMR 641, Université de la Méditerranée, Marseille, France

Minisymposium 21
8:30 am–10:35 am

Ballroom 20D

Mitosis and Meiosis
Supported by Cytoskeleton, Inc.

Co-Chairs: *Jennifer DeLuca*, Colorado State University, and *Arshad Desai*, University of California, San Diego

8:30 am
Introduction

8:35 am
Molecular Recognition at the Kinetochore-Microtubule Interface. *G.J. Guimaraes, K.F. DeLuca, A.K. Verma, L. Sundin, J. DeLuca*; Biochemistry and Molecular Biology Department, Colorado State University, Fort Collins, CO

8:55 am
The Importance of Augmin, and Mitotic Spindle-templated Microtubule Nucleation, in a Developing Organism. *T. Duncan¹, A. Wainman¹, D. W. Buster², J. Metz², A. Ma², D. Sharp², J. G. Wakefield¹*; ¹Department of Zoology, University of Oxford, Oxford, United Kingdom, ²Department of Physiology and Biophysics, Albert Einstein College of Medicine, New York, NY

9:15 am
MgcRacGAP Is Required for Centromere Maintenance. *A. Lagana, J.F. Dorn, V. De Rop, A. Lavoie-Lennon, P.S. Maddox*; Pathologie et Biologie Cellulaire, IRIC, University of Montreal, Montreal, Quebec, Canada

9:35 am
Kinetochore Dynein and Spindle Checkpoint Silencing in Human Cells. *R. Gassmann, A.J. Holland, D.W. Cleveland, A. Desai*; Ludwig Institute for Cancer Research, University of California, San Diego, La Jolla, CA

9:55 am
Phosphorylation-dependent Regulation of CENP-E by Aurora Kinases Is Essential for Chromosome Congression. *Y. Kim¹, A. J. Holland¹, W. Lan¹, D. W. Cleveland^{1,2}*; ¹Ludwig Institute for Cancer Research, La Jolla, CA, ²Department of Cellular and Molecular Medicine, University of California, San Diego, La Jolla, CA

10:15 am
Structure of the Fungal Monopolin Complex: A Bivalent Chromosome Cross-linker. *K. D. Corbett¹, C. K. Yip², T. Walz², S. C. Harrison¹*; ¹Biological Chemistry and Molecular Pharmacology, Harvard Medical School, Boston, MA, ²Cell Biology, Harvard Medical School, Boston, MA

Minisymposium 22
8:30 am–10:35 am

Room 31A-C

Stress Responses

Co-Chairs: *Richard Morimoto*, Northwestern University, and *David Ron*, Skirball Institute of Biomedical Medicine/New York University

8:30 am
Introduction

8:35 am
Allosteric Activation of IRE1 via a Novel Ligand Binding Pocket. *R. Wiseman*^{1,3}, *Y. Zhang*¹, *K. Lee*², *H. P. Harding*¹, *J. Price*³, *F. Sicheri*², *D. Ron*¹; ¹Skirball Institute, New York University School of Medicine, New York, NY, ²Samuel Lunenfeld Research Institute, University of Toronto, Toronto, ON, Canada, ³Department of Chemistry, The Scripps Research Institute, La Jolla, CA

8:55 am
Membrane Expansion Alleviates Endoplasmic Reticulum Stress Independently of the Unfolded Protein Response. *S. Schuck*¹, *W. A. Prinz*², *K. S. Thorn*¹, *P. Walter*¹; ¹University of California, San Francisco, San Francisco, CA, ²National Institutes of Health, Bethesda, MD

9:15 am
A Ribosome-anchored Chaperone Network That Facilitates Eukaryotic Ribosome Biogenesis. *V. Albanese*, *S. Reissmann*, *J. Frydman*; Biology, Stanford University, Stanford, CA

9:35 am
A New Role for the Ubr1 E3 Ubiquitin Ligase in Cytoplasmic Quality Control. *J. Heck*, *S. Cheung*, *R.Y. Hampton*; Division of Biological Sciences, University of California San Diego, La Jolla, CA

9:55 am
Genome-wide Translational Profiling of the eIF2 α -mediated Stress Response with Single-Nucleotide Precision. *N. T. Ingolia*^{1,2}, *S. Ghaemmaghami*^{1,2}, *J. R. Newman*^{1,2}, *J. Weissman*^{1,2}; ¹Cellular and Molecular Pharmacology, University of California, San Francisco, San Francisco, CA, ²Howard Hughes Medical Institute, San Francisco, CA

10:15 am
The Proteostasis Challenge: Stress, Aging, and Diseases of Protein Conformation. *R. Morimoto*^{1,2}; ¹Department of Biochemistry, Molecular Biology and Cell Biology, Northwestern University, Evanston, IL, ²Rice Institute for Biomedical Research, Northwestern University, Evanston, IL

Minisymposium 23
8:30 am–10:35 am

Room 30A-E

The Nuclear Envelope and Nuclear Pore Complex

Co-Chairs: *Beatriz Fontoura*, University of Texas Southwestern Medical Center, and *Dirk Görlich*, Max Planck Institute for Biophysical Chemistry

8:30 am
Introduction

8:35 am
The Permeability Barrier of Nuclear Pore Complexes. *D. Görlich*¹, *C. Ader*², *M. Baldus*², *S. Frey*¹;
¹Department of Cellular Logistics, Max Planck Institute for Biophysical Chemistry, Göttingen, Germany, Göttingen, Germany, ²Bijvoet Center for Biomolecular Research, Utrecht University, Utrecht, Netherlands

8:55 am
*Nuclear Pore Components Play an Essential Role in Developmental Transcription. *M. Capelson*, *Y. Liang*, *M.W. Hetzer*; MCBL-Z, The Salk Institute for Biological Studies, La Jolla, CA

9:15 am
Transportin Regulates Major Mitotic Assembly Events: From Spindle Assembly to Nuclear Pore Assembly. *C. Bernis*¹, *C. K. Lau*¹, *V. A. Delmar*¹, *R. C. Chan*^{1,2}, *Q. Phung*¹, *B. Fichtman*¹, *B. A. Rasala*^{1,3}, *D. J. Forbes*¹; ¹Division of Biological Sciences, University of California San Diego, San Diego, CA, ²Department of Developmental Biology, Stanford University, Stanford, CA, ³The Scripps Research Institute, La Jolla, CA

9:35 am
Overlapping Functions of Nuclear Envelope Proteins NET25 (Lem2) and Emerin in Regulation of ERK Signaling in Myoblast Differentiation. *M.D. Huber*, *T. Guan*, *L. Gerace*; Cell Biology, The Scripps Research Institute, La Jolla, CA

9:55 am
 α II Spectrin Is an Essential Structural and Mechanical Component of Nucleoskeleton. *Z. Zhong*¹, *K. L. Wilson*², *K. Dahl*¹; ¹Carnegie Mellon University, Pittsburgh, PA, ²Johns Hopkins University School of Medicine, Baltimore, MD

10:15 am
Nuclear Transport Factors: From Viral Pathogenesis to Cell Division. *R. K. Mishra*², *N. Satterly*¹, *M. Roth*¹, *M. Mata*¹, *A. Arnaoutov*², *P. Chakraborty*¹, *G. Versteeg*³, *A. Garcia-Sastre*³, *M. Dasso*², *B. Fontoura*¹;
¹Department of Cell Biology, University of Texas Southwestern Medical Center, Dallas, TX, ²Laboratory of Gene Regulation and Development, National Institute of Child Health and Human Development, NIH, Bethesda, MD, ³Department of Medicine, Mount Sinai School of Medicine, New York, NY

* *Martin W. Hetzer* is the recipient of the Early Career Life Scientist Award.

Minisymposium 24
8:30 am–10:35 am

Room 33A-C

Working Group: Cell Biology of Disease

Moderator: *Christine Seidman*, Harvard Medical School

Presenters: *Christine Seidman*, Harvard Medical School
Kevin Campbell, University of Iowa/HHMI
Michael Caplan, Yale University School of Medicine

Discovery of the genetic causes for human pathologies provide unparalleled opportunities to explore the consequences of altering particular cell biology machinery. In this session Kevin Campbell will describe how dystroglycan mutations revealed that dystroglycan-linked basal lamina is essential to the maintenance of sarcolemmal integrity and protects muscles from damage. Christine Seidman will discuss how mutations in sarcomere proteins alter biophysical properties and elicit transcriptional responses in noncontracting cells. Michael Caplan will describe mechanisms that govern protein trafficking to the cilia in the context of polycystic kidney disease and consider how disruption of protein trafficking contributes to the pathogenesis of genetic diseases.

Wednesday, December 9

Minisymposium 25
8:30 am–10:35 am

Room 28A-E

Cell Cortex and Membrane Dynamics

Co-Chairs: *Buzz Baum*, University College London, and *Doug Robinson*, Johns Hopkins University School of Medicine

8:30 am
Introduction

8:35 am
The Role of the Actin Cytoskeleton in Mitotic Cell Rounding. *B. Baum, P. Kunda, H. Matthews*; MRC Laboratory for Molecular Cell Biology and Department of Cell and Developmental Biology, UCL, London, United Kingdom

8:55 am
Cortical Instabilities Stabilize the Cleavage Furrow during Cytokinesis. *J. Sedzinski^{1,2}, M. Biro^{1,2}, A. Oswald¹, E. Paluch^{1,2}*; ¹MPI-CBG, Dresden, Germany, ²IIMCB, Warsaw, Poland

9:15 am
The Cell Shape Changes of Cytokinesis. *D. Robinson*; Department of Cell Biology, Johns Hopkins University School of Medicine, Baltimore, MD

9:35 am
The GEF/GAP Abr Differentially Regulates Rho and Cdc42 Activity Zones during Single Cell Wound Healing and Is Targeted by Binding to Active Rho. *E. Vaughan, W.M. Bement*; University of Wisconsin, Madison, WI

9:55 am
Cell-Substrate Adhesion Negatively Regulates Clathrin-dependent Endocytosis. *E. Batchelder^{1,2}, D. Yazar^{1,2}*; ¹The Whitehead Institute for Biomedical Research, Cambridge, MA, ²The Koch Institute for Integrative Cancer Research at Massachusetts Institute of Technology, Cambridge, MA

10:15 am
Sbf Scaffolds Mtm Phosphatase and Class II PI3-Kinase to Coordinately Regulate PI(3)P-mediated Roles in Endolysosomal Homeostasis and That Balance Cortical Dynamics Affecting Cell Shape. *S. Jean, M. Velichkova, J. Juan, A. Kiger*; Division of Biological Sciences, University of California, San Diego, La Jolla, CA

Minisymposium 26
8:30 am–10:35 am

Ballroom 20D

Cell Matrix Interactions and Signaling

Co-Chairs: *Mark Ginsberg*, University of California, San Diego, and *Erica A. Golemis*, Fox Chase Cancer Center

8:30 am
Introduction

8:35 am
Double-Edged Action of NEDD9 in Mammary Tumorigenesis. *E. Golemis, E. Izumchenko, M.K. Singh, J. Little, N. Tikhmyanova*; Program in Molecular and Translational Medicine, Fox Chase Cancer Center, Philadelphia, PA

8:55 am
Mechanotransduction during Axon Chemoattraction to Netrin. *S.W. Moore, N. Biais, M.P. Sheetz*; Biological Sciences, Columbia University, New York, NY

9:15 am
Involvement of Protein Tyrosine Kinases in Control of Cell Polarization by Extracellular Matrix Rigidity. *A. Lichtenstein¹, M. Prager-Khoutorsky¹, R. Krishnan², Z. Kam¹, B. Geiger¹, A. D. Bershadsky¹*; ¹Department of Molecular Cell Biology, Weizmann Institute of Science, Rehovot, Israel, ²Department of Environmental Health, Harvard School of Public Health, Boston, MA

9:35 am
Rapping Up Cell Adhesion. *M. Ginsberg*; Department of Medicine, University of California, San Diego, La Jolla, CA

9:55 am
Tumor Inflammation and Progression Depend on PI3-kinase γ -mediated Activation of Integrin $\alpha 4\beta 1$ in Myeloid Cells. *M. C. Schmid¹, L. M. Acevedo^{1,2}, C. Avraamides¹, L. Ellies², Y. Shaked³, P. Foubert¹, S. Kang^{1,4}, C. Thomas¹, C. Felsen¹, M. T. Makale^{1,2}, L. Barnes^{1,2}, C. Feral⁵, W. Wrasidlo¹, S. L. Blair¹, T. Papayannopoulou⁶, R. Kerbel⁷, M. Ginsberg⁵, D. A. Cheresh^{1,2}, J. A. Varner^{1,5}*; ¹Moores Cancer Center, University of California, San Diego, La Jolla, CA, ²Pathology, University of California, San Diego, La Jolla, CA, ³Molecular Pharmacology, Technion, Haifa, Israel, ⁴Life Science, Ewha Womans University, Seoul, South Korea, ⁵Medicine, University of California, San Diego, La Jolla, CA, ⁶Medicine, University of Washington, Seattle, WA, ⁷Molecular and Cellular Biology, Sunnybrook Health Sciences Centre, Toronto, ON, Canada

10:15 am
ARF6-regulated Shedding of Plasma Membrane-derived Microvesicles Facilitates Cell-Matrix Interactions and Matrix Degradation. *V. Chari¹, J. Clancy¹, C. Plou¹, P. Chavrier², G. Raposo², C. D'Souza-Schorey¹*; ¹University of Notre Dame, Notre Dame, IN, ²Institut Curie, Paris, France

Minisymposium 27
8:30 am–10:35 am

Room 31A-C

Cell Senescence and Cell Death

Co-Chairs: *Laura Attardi*, Stanford University School of Medicine, and *Nika N. Danial*, Dana-Farber Cancer Institute and Harvard Medical School

8:30 am
Introduction

8:35 am
Using Knock-in Mice to Define p53's Mechanism of Action in Senescence, Apoptosis, and Tumor Suppression. *C. Brady¹, D. Jiang¹, T. Johnson¹, L. Jarvis¹, S. Basak¹, L. Attardi^{1,2}*; ¹Department of Radiation and Cancer Biology, Stanford University School of Medicine, Stanford, CA, ²Department of Genetics, Stanford University, Stanford, CA

8:55 am
In Neurons, the Checkpoint Kinase ATM Protects Against Reactive Oxygen Induced Cyclin D1 Elevation and Cell Death. *M. Hitomi², D. W. Stacey¹*; ¹Molecular Genetics, The Cleveland Clinic, Cleveland, OH, ²Stem Cell Biology, The Cleveland Clinic, Cleveland, OH

9:15 am
SACK-Expansion of Human Hepatocytic Adult Stem Cells That Display Immortal DNA Strand Co-Segregation. *K. Panchalingam¹, L. Jacox², J. Clifton³, D. Josic³, B. Cappiello⁴, J. L. Sherley¹*; ¹Adult Stem Cell Technology Center, Boston Biomedical Research Institute, Watertown, MA, ²Harvard School of Dental Medicine, Boston, MA, ³Department of Molecular Pharmacology, Physiology and Biotechnology, Brown University, Providence, RI, ⁴School of Science and Engineering, Tulane University, New Orleans, LA

9:35 am
Mst1 Is an Interacting Protein That Mediates PHLPPs Induced Apoptosis in Cancer Cells. *M. Qiao^{1,3}, Y. Wang², X. Xu², G. S. Stein³, J. D. Iglehart^{4,5}, Q. Shi², A. B. Pardee¹*; ¹Medical Oncology, Dana-Farber Cancer Institute, Boston, MA, ²Institute of Biomedical Sciences, Fudan University, Shanghai, China, ³Cell Biology and Cancer Center, University of Massachusetts Medical School, Worcester, MA, ⁴Cancer Biology, Dana-Farber Cancer Institute, Boston, MA, ⁵Surgery, Brigham and Women's Hospital, Boston, MA

9:55 am
Calcium Signal Is Involved in the Cadmium-induced Generation of Reactive Oxygen Species and Activation of MAPK/mTOR Network Leading to Neuronal Cell Death. *B. Xu¹, S. Huang^{1,2}, L. Chen¹, L. Liu¹, Y. Luo¹*; ¹Biochemistry and Molecular Biology, Louisiana State University Health Sciences Center, Shreveport, LA, ²Feist-Weiller Cancer Center, Louisiana State University Health Sciences Center, Shreveport, LA

10:15 am
Metabolism Meets Apoptosis: A Role for Pro-apoptotic BAD in Glucose Sensing. *N. Danial*; Department of Pathology, Dana-Farber Cancer Institute, Harvard Medical School, Boston, MA

Minisymposium 28
8:30 am–10:35 am

Ballroom 20A

ES Cells, iPS Cells, and Germ Cells

Co-Chairs: *Lawrence S. B. Goldstein*, University of California, San Diego School of Medicine/HHMI, and *Renee A. Reijo Pera*, Stanford University

8:30 am
Introduction

8:35 am
Cell Fate Decisions in the Human Embryo. *R. Reijo Pera*^{1,2}, *K. Kee*^{1,2}, *S. Panula*^{1,2}; ¹Institute for Stem Cell Biology and Regenerative Medicine, Stanford University, Palo Alto, CA, ²Department of Obstetrics and Gynecology, Stanford University, Palo Alto, CA

8:55 am
A *C. elegans* LSD1 Demethylase Contributes to Germline Immortality by Reprogramming Epigenetic Memory. *D. Katz*¹, *T. Edwards*¹, *V. Reinke*², *W. G. Kelly*¹; ¹Biology Department, Emory University, Atlanta, GA, ²Genetics, Yale University, New Haven, CT

9:15 am
Dual Roles of Stem Cell Antigen-1 Regulation in the Bone Marrow. *H.C. Kwan*; CVRI, University of California, San Francisco, San Francisco, CA

9:35 am
Development of Platform and Assays for High Throughput Analysis of Cardiomyocytes Physiology and Toxicity. *F. Cerignoli*¹, *D. Charlot*^{2,3}, *P. McDonough*⁴, *R. Ingermanson*⁴, *J. Price*^{2,4}, *M. Mercola*¹; ¹Del E. Webb Neuroscience, Aging and Stem Cell Research Center, Burnham Institute for Medical Research, La Jolla, CA, ²Quantitative Microscopy Laboratory, Burnham Institute for Medical Research, La Jolla, CA, ³Bioengineering, University of California, San Diego, CA, ⁴Vala Sciences Inc, San Diego, CA

9:55 am
*Regulation of Asymmetric Stem Cell Division in the *Drosophila* Male Germ Line. *Y. M. Yamashita*^{1,2}; ¹Life Sciences Institute, University of Michigan, Ann Arbor, Ann Arbor, MI, ²Cell and Developmental Biology, University of Michigan, Ann Arbor, Ann Arbor, MI

10:15 am
Human Pluripotent Stem Cell Models of Alzheimer's Disease and Niemann-Pick Type C. *L. Goldstein*; Department of Cellular and Molecular Medicine, University of California, San Diego School of Medicine/HHMI, La Jolla, CA

**Yukiko Yamashita* is the recipient of the WICB Junior Award.

Minisymposium 29
8:30 am–10:35 am

Ballroom 20B/C

Molecular Motors

Co-Chairs: *Samara Reck-Peterson*, Harvard Medical School, and *Linda Wordeman*, University of Washington School of Medicine

8:30 am
Introduction

8:35 am
Optimization of Kinesin-13 Microtubule Depolymerase Activity Reveals a General Mechanism for Diffusional Motility. *J. Cooper, M. Wagenbach, C. Asbury, L. Wordeman*; Department of Physiology and Biophysics, University of Washington School of Medicine, Seattle, WA

8:55 am
Tail Domain-dependent Regulation of the Kinesin-8 Depolymerase. *X. Su^{1,2}, M. Gupta³, W. Qiu⁴, S. Reck-Peterson⁴, D. Pellman^{1,2}*; ¹Department of Pediatric Oncology, Dana-Farber Cancer Institute, Boston, MA, ²Howard Hughes Medical Institute, Harvard Medical School, Boston, MA, ³Department of Molecular Genetics and Cell Biology, University of Chicago, Chicago, IL, ⁴Department of Cell Biology, Harvard Medical School, Boston, MA

9:15 am
Novel Role for Microtubule Motor Protein Eg5 in Protein Translation. *K. M. Bartoli¹, J. Jakovljevic², J. L. Woolford², W. S. Saunders^{1,3}*; ¹Biochemistry and Molecular Genetics, University of Pittsburgh, Pittsburgh, PA, ²Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, PA, ³Department of Biological Sciences, University of Pittsburgh, Pittsburgh, PA

9:35 am
Coupled Myosin VI Motors Facilitate 10 μ m Long Unidirectional Movement on a Dense Dendritic F-actin Meshwork. *S. Sivaramakrishnan, J.A. Spudich*; Stanford University, Stanford, CA

9:55 am
Regulation of Cytoplasmic Dynein Motor Activity. *S. Reck-Peterson¹, J. Huang¹, J. Kardon², C. Cho², R. Vale²*; ¹Department of Cell Biology, Harvard Medical School, Boston, MA, ²Cellular and Molecular Pharmacology, University of California, San Francisco, School of Medicine, San Francisco, CA

10:15 am
A Neurodegenerative Mutation in Cytoplasmic Dynein Reveals Novel Regulation of Motor Activity. *K. M. Ori-McKenney¹, J. Xu², S. P. Gross², R. Vallee¹*; ¹Pathology, Columbia University, New York, NY, ²Developmental and Cell Biology, University of California–Irvine, Irvine, CA

Minisymposium 30
8:30 am–10:35 am

Room 29A-D

RNA Biology

Co-Chairs: *Brenda Bass*, University of Utah, and *James Eberwine*, University of Pennsylvania School of Medicine/PENN Genome Frontiers Institute

8:30 am
Introduction

8:35 am
Single Cell mRNA Analysis: RNA Drives Cellular Phenotype and Functionality of mRNA Containing Retained Introns in Neurons. *P. Buckley*¹, *M. Lee*², *T. Bell*¹, *K. Miyashiro*¹, *J. Sul*¹, *J. Kim*^{2,3}, *J. Eberwine*^{1,3};
¹Department of Pharmacology, University of Pennsylvania School of Medicine, Philadelphia, PA,
²Biology, University of Pennsylvania, Philadelphia, PA, ³PENN Genome Frontiers Institute, University of Pennsylvania School of Medicine, Philadelphia, PA

8:55 am
Phosphorylation of Tristetraprolin (TTP) by the p38-Activated Kinase MK2 Impairs Deadenylation Recruitment and mRNA Decay. *S.L. Clement*, *J. Lykke-Andersen*; Division of Biological Sciences, University of California, San Diego, La Jolla, CA

9:15 am
Functional Importance of the di-sRNP Structure of Archaeal Methylation-guide Box C/D sRNPs. *F. Bleichert*¹, *K. Gagnon*², *B. Brown*², *E. Maxwell*², *A. Leschziner*³, *V. Unger*⁴, *S. J. Baserga*^{4,1,5}; ¹Genetics, Yale University, New Haven, CT, ²Molecular and Structural Biochemistry, North Carolina State University, Raleigh, NC, ³Molecular and Cellular Biology, Harvard University, Cambridge, MA, ⁴Molecular Biophysics and Biochemistry, Yale University, New Haven, CT, ⁵Therapeutic Radiology, Yale University, New Haven, CT

9:35 am
A Cajal Body Is Not Essential for Post-transcriptional Modification of Spliceosomal snRNAs. *S. Deryusheva*, *J. Gall*; Embryology, Carnegie Institution, Baltimore, MD

9:55 am
Regulation of mRNA Stability and Translation by a Cell Fate Control System. *J. Jansen*, *A. Wanless*, *E. Weiss*; Biochemistry, Molecular Biology, and Cell Biology, Northwestern University, Evanston, IL

10:15 am
The Role of Dicer's Helicase Domain. *N.C. Welker*, *P.J. Aruscavage*, *T.S. Maity*, *B.L. Bass*; Department of Biochemistry, University of Utah, Salt Lake City, UT

Minisymposium 31
8:30 am–10:35 am

Room 30A-E

Undergraduate Biology Curriculum in the 21st Century

Co-Chairs: *Caroline Kane*, University of California, Berkeley, and *Mark Rose*, Princeton University

8:30 am
Introduction

8:35 am
A New, Interdisciplinary Foundation for the Life Sciences. *R.A. Lue*; Molecular and Cellular Biology, Harvard University, Cambridge, MA

8:55 am
Integrated Introductory Science Curriculum for Undergraduates at Princeton. *D. Botstein*; Lewis-Sigler Institute, Princeton University, Princeton, NJ

9:15 am
Mathematics Plus Biology Equals Improved Curriculum. *A. Campbell*^{1,3}, *L. J. Heyer*^{2,3}, *C. J. Paradise*¹; ¹Biology, Davidson College, Davidson, NC, ²Mathematics, Davidson College, Davidson, NC, ³Genome Consortium for Active Teaching, Davidson, NC

9:35 am
The Genomics Education Partnership, 2009. *S. Elgin*¹, *S. Bhalla*², *A. Goodman*³, *L. Mays-Hoopes*⁴, *G. Regisford*⁵, *A. Rosenwald*⁶, *W. Leung*¹, *C. Shaffer*¹, *D. Lopatto*⁷; ¹Biology, Washington University, St. Louis, MO, ²Johnson C Smith University, Charlotte, NC, ³Cal Poly San Luis Obispo, San Luis Obispo, CA, ⁴Pomona College, Claremont, CA, ⁵Prairie View A&M University, Prairie View, TX, ⁶Georgetown University, Washington, DC, ⁷Grinnell College, Grinnell, IA

9:55 am
Undergraduate Laboratory Renaissance: A Research Integrated Curriculum. *J. Roecklein-Canfield*, *R. Gurney*, *N. Lee*; Chemistry, Simmons College, Boston, MA

10:15 am
StarBiochem: 3D Protein Visualization in the Classroom. *L. M. Aleman*^{1,2}, *C. Shubert*², *G. Walker*¹; ¹Biology, Massachusetts Institute of Technology, Cambridge, MA, ²Office of Educational Innovation and Technology, Massachusetts Institute of Technology, Cambridge, MA

Minisymposium 32
8:30 am–10:35 am

Room 33A-C

Working Group: What Is the Golgi?

Moderator: *Kathryn E. Howell*, University of Colorado, School of Medicine

Presenters: *Kathryn E. Howell*, University of Colorado, School of Medicine
Benjamin Glick, University of Chicago
Sean Munro, Medical Research Council Laboratory of Molecular Biology

The Golgi apparatus has been a source of debate ever since Camillo Golgi first observed an "internal reticular apparatus" in metal-impregnated Purkinje cells in 1898. Electron microscopy later revealed a photogenic organelle consisting of a stack of membrane-bound cisternae. However, the relationships between Golgi structure and function have been hard to define. The Golgi is now accepted as the central sorting station in the exocytic pathway and the interface between the exocytic and endocytic pathways, but controversy persists about its organization, the mechanism of its internal traffic, its link to the cell cycle, and even its purpose.

The discussion leaders will engage with each other and the audience to address a range of issues. Kathryn Howell will discuss novel insights obtained from electron tomography of the mammalian Golgi complex. Sean Munro will discuss the roles of membrane lipids and cytosolically oriented proteins in Golgi function. Ben Glick will describe how the nonstacked Golgi in *Saccharomyces cerevisiae* is providing unique insights into Golgi dynamics. A theme of the presentations will be that a comparative evaluation of different eukaryotes can illuminate conserved versus cell-type-specific features of the Golgi.