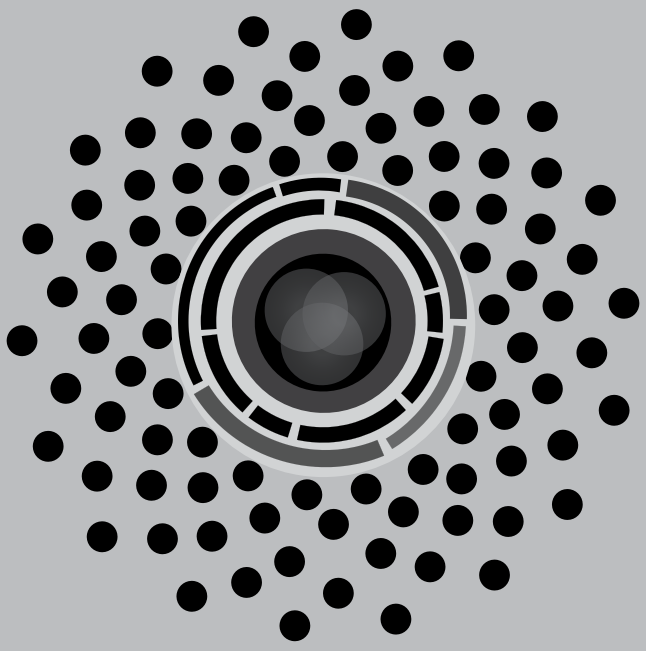
Wednesday
December 7, 2016



cell biology 2016

ascb annual meeting

san francisco, california · dec 3-7

Notes

7:30-11:30 am	Registration Open	Registration Area
8:30-11:05 am	Minisymposium 20: Cell Division- Chromosome and Cytoskeletal Dynamics	Room 104
	Minisymposium 21: Cell Migration and Invasion	Room 305
	Minisymposium 22: Cell-Fate Determination in Signaling and Differentiation	Room 310
	Minisymposium 23: Membrane Traffic Control By Cytoskeletal and Molecular Machines	Room 306
	Minisymposium 24: Membrane-less Organelles	Room 302
	Minisymposium 25: Organ Development, Homeostasis, and Disease	Room 301
	Minisymposium 26: Use Synthetic Biology to Measure and Manipulate Cell Biology	Room 309
8:30-11:05 am	Special Interest Subgroup Subgroup U: Understanding T Cell Activation, Developing Tools for Cancer Immunotherapy	Room 102
11:20 am-12:20 pm	Symposium 7: Nuclear Organization	Hall E

Minisymposium 20: Cell Division- Chromosome and Cytoskeletal Dynamics

8:30-11:05 am **Room 104**

Co-Chairs: **Karen Oegema**, Ludwig Institute for Cancer Research/UCSD; and **Marius Wernig**, Stanford University

8:30 am Introduction

8:35 am M201 Single-molecule localization microscopy reveals a dynamic architecture within the synaptonemal complex in *C. elegans* meiosis. **S. Köhler**[1], **M. Wojcik**[2], **K. Xu**[2], **A.F. Dernburg**[1]; [1]Molecular & Cell Biology, University of California, Berkeley, Berkeley, CA, [2]Chemistry, University of California, Berkeley, Berkeley, CA

8:50 am M202 BAF forms a rigid shell around anaphase chromosomes to prevent micronucleation. **M. Samwer**[1], **P.S. Schmalhorst**[2], **M. Schneider**[1], **R. Höfler**[1], **D.W. Gerlich**[1]; [1]Institute of Molecular Biotechnology of the Austrian Academy of Sciences (IMBA), Vienna, Austria, [2]Institute of Science and Technology Austria (IST Austria), Vienna, Austria

9:05 am M203 Microtubules push chromosomes apart in anaphase. **C. Yu**[1], **S. Redemann**[2], **H. Wu**[3], **T. Yoo**[1], **T. Müller-Reichert**[2], **D.J. Needleman**[1,4]; [1]School of Engineering and Applied Sciences, Harvard University, Cambridge, MA, [2]Medical Faculty Carl Gustav Carus, Technische Universität, Dresden, Germany, [3]Physics, Harvard University, Cambridge, MA, [4]Molecular and Cellular Biology and Center for Systems Biology, Harvard University, Cambridge, MA

9:20 am M204 Meiotic drive depends on spindle asymmetry induced by cortical proximity. **T. Akera**[1], **L. Chmatal**[1], **K. Yang**[1], **C. Janke**[2], **R.M. Schultz**[1], **M.A. Lampson**[1]; [1]Biology, University of Pennsylvania, Philadelphia, PA, [2]Signaling, Neurobiology and Cancer, Institut Curie, Orsay, France

9:35 am M205 SFI1 recruits USP9X to stabilize the microcephaly protein STIL. **A.T. Kodani**[1,2], **J.F. Reiter**[1], **C.A. Walsh**[2]; [1]Biochemistry and Biophysics, UCSF, San Francisco, CA, [2]Genetics and Genomics, Boston Children's Hospital, Boston, MA

9:50 am M206 Human microcephaly protein RTTN interacts with STIL and is required for assembly of full-length centrioles. **H. Chen**[1,2], **C. Wu**[2,3], **Y. Lin**[2], **W. Wang**[3], **T.K. Tang**[2]; [1]Graduate Institution of Life Sciences, National Defense Medical Center, Taipei, Taiwan, [2]Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan, [3]National Yang-Ming University, Taipei, Taiwan

10:05 am M207 Epsilon-tubulin deletion in human cells results in loss of centrioles and a futile procentriole formation/disintegration cycle. **J.T. Wang**[1], **C. Hoerner**[1,2], **D. Kong**[3], **J. Loncarek**[3], **T. Stearns**[1,4]; [1]Department of Biology, Stanford University, Stanford, CA, [2]Department of Medicine - Division of Oncology, Stanford School of Medicine, Stanford, CA, [3]Laboratory of Protein Dynamics and Signaling, Center for Cancer Research - Frederick, National Cancer Institute, National Institutes of Health, Frederick, MD, [4]Department of Genetics, Stanford School of Medicine, Stanford, CA

10:20 am M208 FLIRTing with cell division during development to study the spatiotemporal regulation of protein function in vivo. **S. Sundaramoorthy**[1], **T. Davies**[1], **Y. Zhuravlev**[1], **S. Hirsch**[1], **M. Shirasu-Hiza**[2], **J. Dumont**[3], **J.C. Canman**[1]; [1]Pathology and Cell biology, Columbia University Medical Center, New York, NY, [2]Genetics and Development, Columbia University Medical Center, New York, NY, [3]Cell Division and Reproduction, Institut Jacques Monod, Paris, France

10:35 am M209 Membrane composition is important in contractile ring anchoring in *Schizosaccharomyces pombe*. **C.E. Snider**[1], **A.H. Willet**[1], **J. Chen**[1], **K.L. Gould**[1]; [1]Department of Cell and Developmental Biology, Vanderbilt University, Nashville, TN

10:50 am M210 Integrated model of cytokinetic ring constriction and septation in fission yeast reproduces experimental values of ring tension. **S. Wang**[1], **S. Thiyagarajan**[1], **B. O'Shaughnessy**[2]; [1]Physics, Columbia University, New York, NY, [2]Chemical Engineering, Columbia University, New York, NY

Minisymposium 21: Cell Migration and Invasion

8:30-11:05 am **Room 305**

Co-Chairs: **Jan Lammerding**, Cornell University; and **Tatjana Piotrowski**, Stowers Institute for Medical Research

8:30 am Introduction

8:35 am M211 Moving beyond animal cell migration: deep evolutionary conservation of "alpha-motility" and "blebbing-motility". **L. Fritz-Laylin**[1], **S. Lord**[1], **R.D. Mullins**[1]; [1]Molecular and Cellular Pharmacology, University of California San Francisco, San Francisco, CA

8:50 am M212 Curvotaxis directs cell migration through cell-scale topographical landscapes. **L. Pieuchot**[1], **M. Vassaux**[2], **T. Cloatre**[1], **I. Brigaud**[1], **T. Petithory**[1], **J. Milan**[2], **M. Bigerelle**[3], **K. Anselme**[1]; [1]IS2M, CNRS UMR 736, Mulhouse, France, [2]ISM, CNRS UMR 7287, Marseille, France, [3]LAMIH, CNRS UMR 8201, Valenciennes, France

9:05 am M213 Intracellular mechanics and fluid dynamics in rapidly-moving amoeboid cell motility. **C.K. Chan**[1], **T.Y. Tsai**[2], **E.F. Koslover**[3], **R.M. Garner**[1], **A. Hadjitheodorou**[1], **J.A. Theriot**[1]; [1]Biochemistry, Stanford University School of Medicine, Stanford, CA, [2]Systems Biology, Harvard Medical School, Boston, MA, [3]Physics, University of California, San Diego, San Diego, CA

9:20 am M214 FMNL formins are required for lamellipodial force generation. **F. Kage**[1,2], **M. Winterhoff**[3], **V. Haas**[1,2], **J.M. Müller**[4], **T. Thalheim**[5], **A. Freise**[2], **S. Bruehmann**[3], **J. Kollasser**[1], **J. Block**[1], **G. Dimchev**[1,2], **M. Geyer**[6], **C.H. Brakebusch**[7], **T.E. Stradal**[1], **M. Carlier**[8], **M. Sixt**[4], **J. Käs**[5], **J. Faix**[3], **K. Rottner**[1,2]; [1]Molecular Cell Biology, Helmholtz Centre for Infection Research, Braunschweig, Germany, [2]Molecular Cell Biology, Technical University Braunschweig, Braunschweig, Germany, [3]Institute for Biophysical Chemistry, Hannover Medical School, Hannover, Germany, [4]Institute of Science and Technology , Klosterneuburg, Austria, [5]Institut für experimentelle Physik , Leipzig University, Leipzig, Germany, [6]Institute of Innate Immunity, University of Bonn, Bonn, Germany, [7]BRIC, University of Copenhagen, Copenhagen, Germany, [8]Cytoskeleton Dynamics and Motility, National Centre for Scientific Research, Paris, France

9:35 am M215 FMN2 is a melanoma metastasis-promoter that mediates formation of a perinuclear actin/adhesion system to protect nuclei and DNA from damage during confined cell migration. **C.T. Skau**[1], **R.S. Fischer**[1], **P.S. Gurel**[1], **H.R. Thiam**[1,2], **A. Tubbs**[3], **M.A. Baird**[1,4], **M.W. Davidson**[4], **M. Piel**[2], **G.M. Alushin**[1], **A. Nussenzweig**[3], **P.S. Steeg**[5], **C.M. Waterman**[1]; [1]Cell Biology and Physiology Center, National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, MD, [2]UMR 144 Institut Curie/CNRS, Institut Curie, Paris, France, [3]Laboratory of Genome Integrity, National Cancer Institute, National Institutes of Health, Bethesda, MD, [4]Magnet Lab, Florida State University, Tallahassee, FL, [5]Center for Cancer Research, National Cancer Institute, National Institutes of Health, Bethesda, MD

9:50 am M216 Adenomatous polyposis coli (APC)-mediated actin nucleation is required for directed cell migration. **M. Angeles Juanes-Ortiz**[1], **R. Jaiswal**[1], **A. Badache**[2], **B.L. Goode**[1]; [1]Biology, Brandeis University, Waltham, MA, [2]Centre de Recherche en Cancerologie de Marseille , Institut Paoli-Calmettes, Marseille, France

10:05 am M217 Notch signaling plays a crucial role in the signaling network that coordinates cell migration, organ size control and cell shape changes during morphogenesis. **A. Kozlowskaja-Gumbriene**[1], **R. Alexander**[1], **M. McClain**[1], **T. Piotrowski**[1]; [1]Stowers Institute for Medical Research, Kansas City, MO

10:20 am M218 Hemodynamic Profiles Tune the Arrest and Extravasation of Circulating Tumor Cells. **G. Follain**[1], **N. Osmani**[1], **G. Allio**[1], **N. Fekonja**[1], **S. Harlepp**[2], **J.G. Goetz**[1]; [1]MN3T, iNSERM U1109, Strasbourg, France, [2]DON, IPCMS, Strasbourg, France

10:35 am M219 Mechanobiology of epithelia on native basement membranes and relevance for cancer cell invasion. **M. Plodinec**[1,2], **P. Oertle**[2], **D. Assgeirson**[2], **W. Halfter**[3], **S. Eppenberger Castori**[1], **E.C. Obermann**[1], **A. Glentis**[4], **D. Matic Vignjevic**[4], **R.Y. Lim**[2]; [1]Institute of Pathology, University Hospital of Basel, Basel, Switzerland, [2]Biozentrum and the Swiss Nanoscience Institute, University of Basel, Basel, Switzerland, [3]Eye Hospital, University Hospital Basel, Basel, Switzerland, [4]CNRS, Institut Curie, PSL Research University, Paris, France

10:50 am M220 Decreased lamin A in invasive breast cancer: a key node controlling mechanical and biochemical aspects of metastasis. **E.S. Bell**[1,2], **P. Shah**[2], **P.M. Davidson**[1,2], **A.L. McGregor**[1,2], **G.R. Fedorchak**[1,2], **P. Isermann**[1,2], **J. Lammerding**[1,2]; [1]Meinig School of Biomedical Engineering, Cornell University, Ithaca, NY, [2]Weill Institute for Cell and Molecular Biology, Cornell University, Ithaca, NY

● Minisymposium 22: Cell-Fate Determination in Signaling and Differentiation

8:30-11:05 am **Room 310**

Co-Chairs: **Kun-Liang Guan**, University of California, San Diego; and **George Eisenhoffer**, The University of Texas MD Anderson Cancer Center

8:30 am Introduction

8:35 am M221 Regulation of Cell Turnover During Epithelial Tissue Homeostasis. **C. Brock**[1], **S.T. Wallin**[1], **E.A. Sumner**[2], **G.T. Eisenhoffer**[1,2]; [1]Genetics, The University of Texas MD Anderson Cancer Center, Houston, TX, [2]Graduate School of Biomedical Sciences, The University of Texas Health Science Center at Houston, Houston, TX

8:50 am M222 Hippo regulates Hedgehog signaling in digital morphogenesis. **C. Tang**[1,2], **X. Wu**[1,2]; [1]Zhejiang University, Institution of Stem Cell and Regenerative Medicine, Hangzhou, China, [2]School of Medicine, Zhejiang University, Department of Pharmacology, Hangzhou, China

9:05 am M223 Centrosome Amplification Disrupts Renal Development and Causes Cystic Kidney Disease. **K. Shim**[1], **L. Dionne**[1], **M. Hoshi**[1], **V. Marthiens**[2], **A. Knoten**[1], **R. Basto**[2], **S. Jain**[1], **M.R. Mahjoub**[1]; [1]Dept. of Medicine (Nephrology), Washington University, St Louis, MO, [2]Institue Curie, Paris, France

9:20 am M224 Protein phosphatases generate specificity in the fission yeast ARK signaling network. **L. Deng**[1], **M. Lee**[1], **J.B. Moseley**[1]; [1]Biochemistry, Dartmouth, Hanover, NH

9:35 am M225 A Galpha-s/PKA tumor suppressor pathway restraining YAP1 and GLI in epithelial stem cells. **R. Iglesias-Bartolome**[1]; [1]Laboratory of Cellular and Molecular Biology (LCMB), National Cancer Institute (NCI), Bethesda, MD

9:50 am M226 Comparative forward genetic screens in haploid human cells reveal new regulatory mechanisms in WNT signaling. **A.M. Lebensohn**[1], **R. Dubey**[1], **L.R. Neitzel**[2], **O. Tacchelly-Benites**[3], **E. Yang**[3], **C.D. Marceau**[4], **E.M. Davis**[5], **B.B. Patel**[1], **Z.B. Nejad**[1], **Y. Ahmed**[3], **E. Lee**[2], **J.E. Carette**[4], **R. Rohatgi**[1]; [1]Departments of Biochemistry and Medicine, Stanford University School of Medicine, Stanford, CA, [2]Department of Cell and Developmental Biology, Vanderbilt University Medical Center, Nashville, TN, [3]Department of Genetics and the Norris Cotton Cancer Center, Geisel School of Medicine at Dartmouth College, Hanover, NH, [4]Department of Microbiology and Immunology, Stanford University School of Medicine, Stanford, CA, [5]Department of Molecular, Cellular, and Developmental Biology, University of Colorado at Boulder, Boulder, CO

10:05 am M227 Asymmetric activity without asymmetric localization: the KA1 domain regulates PAR-1 activity during cell polarization. **A.W. Folkmann**[1], **G. Seydoux**[1]; [1]Department of Molecular Biology and Genetics, Johns Hopkins University School of Medicine/HHMI, Baltimore, MD

10:20 am M228 Hippo Pathway target Rae1 regulates mitosis, organ size, and feeds back to regulate Hippo Pathway Homeostasis. **M. Jahanshahi**[1], **K. Hsiao**[1], **A. Jenny**[2], **C.M. Pfleger**[1]; [1]Oncological Sciences, Icahn School of Medicine at Mount Sinai, New York, NY, [2]Developmental and Molecular Biology, Albert Einstein College of Medicine, New York, NY

10:35 am M229 *Rap1* and Hippo pathway collaborate to polarize directional protrusions in *Drosophila* border cell migration. **Y. Chang**[1,2], **Y. Hsieh**[2], **T. Huang**[2], **D.J. Montell**[3], **C.A. Jang**[2]; [1]Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan, [2]Institute of Biotechnology, National Cheng Kung University, Tainan, Taiwan, [3]Molecular, Cellular and Developmental Biology, University of California, Santa Barbara, Santa Barbara, United States

10:50 am M230 Hippo pathway in cell growth, organ size, and tumorigenesis. **T. Moroishi**[1], **K-L Guan**[1]; [1]Pharmacology, UCSD, La Jolla, CA

● Minisymposium 23: Membrane Traffic Control By Cytoskeletal and Molecular Machines

8:30-11:05 am **Room 306**

Co-Chairs: **Tina Lee**, Carnegie Mellon University; and **Max Nachury**, Stanford University

8:30 am Introduction

8:35 am M231 A three-dimensional extracellular matrix enhances cell viability by increasing negative membrane curvature to stimulate Arf6/Rac/Pak activity. **F. Kai**[1], **G. Ou**[1], **J. Friedland**[1], **C. Frantz**[1], **R. Tourdot**[2], **W. Guo**[3], **C.S. Chen**[4], **R. Radhakrishnan**[2,5], **A. Long**[6], **S. Dumont**[6], **V.M. Weaver**[1,7,8,9,10]; [1]Surgery, University of California, San Francisco, San Francisco, CA, [2]Chemical and Biomolecular Engineering, University of Pennsylvania, Philadelphia, Philadelphia, PA, [3]Biology, University of Pennsylvania, Philadelphia, Philadelphia, PA, [4]Biomedical Engineering, Boston University, Boston, MA, [5]Bioengineering, University of Pennsylvania, Philadelphia, Philadelphia, PA, [6]Department of Cellular and Molecular Pharmacology, University of California, San Francisco, San Francisco, CA, [7]Anatomy, University of California, San Francisco, San Francisco, CA, [8]Bioengineering and Therapeutic Sciences, University of California, San Francisco, San Francisco, CA, [9]Eli and Edythe Broad Center of Regeneration Medicine and Stem Cell Research, University of California, San Francisco, San Francisco, CA, [10]Helen Diller Comprehensive Cancer Center, University of California, San Francisco, San Francisco, CA

8:50 am M232 Single-molecule dynamics of IFT particles and motors at the tip of *C. elegans* cilia. **J. Mijalkovic**[1,2], **J. Van Krugten**[1,2], **F. Oswald**[1,2], **S. Acar**[1,2], **E.J. Peterman**[1,2]; [1]Physics and Astronomy, VU University, Amsterdam, Netherlands, [2]LaserLab, Amsterdam, Netherlands

9:05 am M233 Spatio-temporal dynamics of small GTPases and IRSp53 drive CLIC/GEEC endocytic vesicle formation via ARP2/3 based actin polymerization. **M. Sathe**[1], **G. Muthukrishnan**[1], **M. Thattai**[1,2], **S. Mayor**[1,3]; [1]National Center for Biological Sciences Science (TIFR), Bellary Road, Bangalore, India, [2]Simons Centre for the Study of Living Machines, (NCBS-TIFR), Bangalore, India, [3]Institute for Stem Cell Biology and Regenerative Medicine, Bangalore, India

9:20 am M234 Actin-dependent ectocytosis and BBSome-mediated retrieval drive the removal of activated GPCRs from cilia. **A.R. Nager**[1], **F. Ye**[1], **V. Herranz-Pérez**[2], **D. Portran**[1], **J.S. Goldstein**[1], **J. Manuel Garcia-Verdugo**[2], **M.V. Nachury**[1]; [1]Department of Molecular and Cellular Physiology, Stanford University, Stanford , CA, [2]Instituto Cavanilles, Laboratorio de Neurobiología Comparada, Universitat de València, CIBERNED, Spain

9:35 am M235 Activation cycle of β-arrestin allowing independent trafficking and signaling functions. **K. Eichel**[1], **B. Barsi-Rhyne**[1], **M. von Zastrow**[1]; [1]Department of Psychiatry, University of California, San Francisco,

San Francisco, CA

9:50 am M236 The binding energy of the atlastin crossover conformation drives membrane fusion. **J. Winsor**[1], **T.H. Lee**[1]; [1]Biological Sciences, Carnegie Mellon University, Pittsburgh, PA

10:05 am M237 Membrane fission by protein crowding. **W.T. Snead**[1], **C.C. Hayden**[1], **A.K. Gadok**[1], **P. Rangamani**[2], **J.C. Stachowiak**[1]; [1]Biomedical Engineering, The University of Texas at Austin, Austin, TX, [2]Mechanical and Aerospace Engineering, University of California, San Diego, La Jolla, CA

10:20 am M238 Reconstitution of endocytic actin networks on supported lipid bilayers. **E.H. Stoops**[1], **M. Wojcik**[2], **S.T. Low-Nam**[2], **J.T. Groves**[2], **K. Xu**[2], **D.G. Drubin**[1]; [1]Molecular and Cell Biology, University of California, Berkeley, Berkeley, CA, [2]Chemistry, University of California, Berkeley, Berkeley, CA

10:35 am M239 Sec3 Promotes the Binary t-SNARE Complex Assembly and Membrane Fusion. **P. Yue**[1], **Y. Zhang**[2], **K. Mei**[1], **S. Wang**[1], **J. Lesigang**[2], **Y. Zhu**[1], **G. Dong**[2], **W. Guo**[1]; [1]Biology, University of Pennsylvania, Philadelphia, PA, [2]Max F. Perutz Laboratories, Medical University of Vienna, Vienna, Austria

10:50 am M240 The Sec61 translocon controls IRE1 activity during the unfolded protein response. **A. Sundaram**[1], **R. Plumb**[1], **S. Appathurai**[1], **M. Mariappan**[1]; [1]Department of Cell Biology, Nanobiology Institute, Yale University, West Haven, CT

● Minisymposium 24: Membrane-less Organelles

8:30-11:05 am **Room 302**

Co-Chairs: **Yves Barral**, ETH Zürich, Switzerland; and **Geraldine Seydoux**, Johns Hopkins University School of Medicine/HHMI

8:30 am Introduction

8:35 am M241 ER compartmentalization facilitates lineage-specific confinement of protein aggregation during yeast aging. **J. Saarikangas**[1], **F. Caudron**[1], **R. Prasad**[1], **D.F. Moreno**[2], M**. Aldea**[2], **Y. Barral**[1]; [1]Institute of Biochemistry, ETH Zurich, Zurich, Switzerland, [2]Institut de Biologia Molecular de Barcelona, CSIC, Barcelona, Spain

*8:50 am M242 Prion Biology at the Interface of Protein Misfolding and its Cellular Environment. **T.R. Serio**[1]; [1]Department of Molecular and Cellular Biology, The University of Arizona, Tucson, AZ

9:05 am M243 Single-molecule microscopy reveals constrained diffusion by a polar matrix microdomain. **A. von Diezmann**[1], **K. Lasker**[2], **T.H. Mann**[2], **L. Shapiro**[2], **W.E. Moerner**[1]; [1]Chemistry, Stanford University, Stanford, CA, [2]Developmental Biology, Stanford University School of Medicine, Stanford, CA

9:20 am M244 Developmentally regulated histone/lipid droplet interactions control nuclear histone levels in *Drosophila* embryos. **M.R. Johnson**[1], **M.A. Welte**[1]; [1]Biology, University of Rochester, Rochester, NY

9:35 am M245 Filaments formed by the translation initiation factor eIF2B: high-resolution insights into a survival strategy. **G. Marini**[1], **E. Nüske**[1], **S. Alberti**[1], **G. Pigino**[1]; [1]Max Planck Institute of Molecular Cell Biology and Genetics, Dresden, Germany

9:50 am M246 Metabolite regulated partitioning of metabolic enzymes into RNA granules. **K. Begovich**[1], **J.E. Wilhelm**[1]; [1]Cell and Developmental Biology, University of California, San Diego, La Jolla, CA

10:05 am M247 Three complementary mechanisms of quality control ensure RNP granule functionality and dynamics. **D. Mateju**[1], **E. Boczek**[1], **J. Wang**[1], **A. Kopach**[1], **S. Maharana**[1], **A. Patel**[1], **H.O. Lee**[1], **M. Jahnel**[1], **S.W. Grill**[1], **A.A. Hyman**[1], **S. Alberti**[1]; [1]Max Planck Institute of Molecular Cell Biology and Genetics, Dresden, Germany

10:20 am M248 The role of RNA sequence in controlling polyQ-protein phase transitions. **E.M. Langdon**[1], **H. Zhang**[2], **P. Occhipinti**[1], **A.S. Gladfelter**[1]; [1]Biology, University of North Carolina, Chapel Hill , NC, [2]Biology, Dartmouth College, Hanover, NH

10:35 am M249 Spatial patterning of RNA granules by RNA-induced phase separation of an intrinsically-disordered granule scaffold. **J. Smith**[1], **D. Calidas**[1], **H. Schmidt**[1], **T. Lu**[1], **G. Seydoux**[1]; [1]Molecular Biology and Genetics, Johns Hopkins University School of Medicine, Baltimore, MD

10:50 am M250 Single-particle dynamics underlying the segregation of GFP::PIE-1 during asymmetric division of the C. elegans zygote. **Y. Wu**[1], **B. Han**[1], **E. Griffin**[1]; [1]Biology, Dartmouth College, Hanover, NH

*Tricia Serio won the 2016 WICB Mid-Career Award for Excellence in Research.

Minisymposium 25: Organ Development, Homeostasis, and Disease

8:30-11:05 am **Room 301**

Co-Chairs: **David Bilder**, University of California, Berkeley; and **Andrew Ewald**, Johns Hopkins University School of Medicine

8:30 am Introduction

8:35 am M251 Mammary epithelial cells spatiotemporally coordinate molecular activities and mechanical forces to drive radial intercalation during ductal elongation. **N.M. Neumann**[1,2,3], **M.C. Perrone**[4], **J.H. Veldhuis**[4], **G.W. Brodland**[4], **A.J. Ewald**[1,2,3]; [1]Center for Cell Dynamics, Johns Hopkins University School of Medicine, Baltimore, MD, [2]Department of Cell Biology, Johns Hopkins University School of Medicine, Baltimore, MD, [3]Department of Oncology, Johns Hopkins University School of Medicine, Baltimore, MD, [4]Department of Civil and Environmental Engineering, University of Waterloo, Waterloo, Canada

*8:50 am M252 Tissue-scale coordination of cellular homeostatic and repair behaviors in live mice. **V. Greco**[1]; [1]Genetics and Yale Stem Cell Center, Yale, New Haven, CT

9:05 am M253 Patterning the Mammalian Epidermis by the Planar Cell Polarity Pathway. **D. Devenport**[1], **M. Cetera**[1], **B. Joyce**[1], **L. Leybova**[1]; [1]Department of Molecular Biology, Princeton University, Princeton, NJ

9:20 am M254 Feedback inhibition of stem cell divisions equalizes cell production and loss during intestinal epithelial turnover. **J. Liang**[1], **L.E. O'Brien**[1]; [1]Molecular and Cellular Physiology, Stanford University, Stanford, CA

9:35 am M255 Epithelial self-healing is recapitulated by a 3D biomimetic E-cadherin junction. **D.J. Cohen**[1], **M. Gloerich**[1], **W.J. Nelson**[1]; [1]Biology, Stanford University, Stanford, CA

9:50 am M256 The Matriptase-Par2-EGFr signaling pathway regulates cell extrusion, proliferation and survival in the zebrafish embryonic epidermis. **A. Schepis**[1], **S. Coughlin**[1]; [1]Cardio-Vascular Research Institute, University California San Francisco, San Francisco, CA

10:05 am M257 Macrophage-dependent cytoplasmic transfer drives melanoma metastasis *in vivo*. **M. Roh-Johnson**[1], **A.N. Shah**[1], **R.E. Hernandez**[2], **C.B. Moens**[1]; [1]Basic Sciences, Fred Hutchinson Cancer Research Center, Seattle, WA, [2]Pediatric Infectious Disease, Seattle Childrens Hospital, Seattle, WA

10:20 am M258 Targeting the active extracellular matrix as anti-metastatic therapy in a breast cancer model. **V. Plaks**[1], **J. Chou**[1], **C. Maynard**[1], **N. Kong**[1], **R. van den Bijgaart**[1], **D. Talmi-Frank**[2], **I. Solomonov**[2], **C. Koopman**[1], **E. Hadler-Olsen**[1], **M. Headley**[3], **C. Lin**[1], **M. Owyong**[1], **I. Sagi**[2], **Z. Werb**[1]; [1]Anatomy, UCSF, San Francisco, CA, [2]Biological Regulation, Weizmann Institute, Rehovot, Israel, [3]Pathology, UCSF, San Francisco, CA

10:35 am M259 Mena^{INV} expression, initiated by macrophage-tumor cell contact, regulates invadopodium-dependent tumor cell dissemination during metastasis. **C.R. Surve**[1], **M. Weidmann**[1], **J. Pignatelli**[1], **J. Bravo-Cordero**[2], **G.S. Karagiannis**[1], **M.H. Oktay**[1,3], **J.S. Condeelis**[1]; [1]Anatomy and Structural Biology, Albert Einstein college of Medicine, Bronx, NY, [2]Medicine, Mount Sinai School of Medicine, New York, NY, [3]Pathology, Albert Einstein college of Medicine, Bronx, NY

10:50 am M260 Formin-dependent Adhesions are required to Initiate Invasion by Intact Epithelia. **T. Fessenden**[1,2,3,4], **M. Perez-Neut**[4,5], **G.R. Ramirez-SanJuan**[1,2,3,6], **Y.M. Beckham**[1,2,3], **M.L. Gardel**[2,3,4]; [1]Institute for Biophysical Dynamics, University of Chicago, Chicago, IL, [2]Department of Physics, University of Chicago, Chicago, IL, [3]James Franck Institute, University of Chicago, Chicago, IL, [4]Committee on Cancer Biology, University of Chicago, Chicago, IL, [5]Ben May Department for Cancer Research, University of Chicago, Chicago, IL, [6]Graduate Program on Biophysical Sciences, University of Chicago, Chicago, IL

*Valentina Greco won the 2016 Early Career Award.

Minisymposium 26: Use Synthetic Biology to Measure and Manipulate Cell Biology

8:30-11:05 am **Room 309**

Co-Chairs: **John Dueber**, University of California, San Francisco; and **Ron Weiss**, Massachusetts Institute of Technology

8:30 am Introduction

8:35 am M261 A Synthetic Cell-like System to Investigate the Cell Size and Shape Dependence of GTPase Signaling. **J.G. Bermudez**[1], **P.G. Torre**[2], **M.C. Good**[1,2]; [1]Bioengineering, University of Pennsylvania, Philadelphia, PA, [2]Cell and Developmental Biology, University of Pennsylvania, Philadelphia, PA

8:50 am M262 Conversion of Extracellular Signals to Programmable Genome Manipulation via CRISPRouter. **P.P. Dingal**[1,2,3], **N.H. Kipniss**[1], **Y. Gao**[4], **L.S. Qi**[1,2,3]; [1]Bioengineering, Stanford University, Stanford, CA, [2]Chemical and Systems Biology, Stanford University, Stanford, CA, [3]Stanford ChEM-H, Stanford University, Stanford, CA, [4]Cancer Biology Graduate Program, Stanford University, Stanford, CA

9:05 am M263 The impact of chromatin dynamics on Cas9-mediated genome editing in human cells. **R.M. Daer**[1,2], **J.P. Cutts**[1], **D.A. Brafman**[1], **K.A. Haynes**[1]; [1]School of Biological and Health Systems Engineering, Arizona State

University, Tempe, AZ, [2]Biological Design Graduate Program, Arizona State University, Tempe, AZ

9:20 am M264 CRISPR-based genome-wide screen identifies protein homeostasis factors that control Tau aggregation and propagation in human cells. **J.J. Chen**[1], **D. Nathaniel**[1], **S. Mok**[1], **J. Gestwicki**[1], **M. Kampmann**[1]; [1]Institute for Neurodegenerative Diseases, UCSF, San Francisco, CA

9:35 am M265 Single-cell CRISPRi screens interrogating the unfolded protein response. **T. Norman**[1,2], **B. Adamson**[1,2], **M. Jost**[1,2], **J. Nunez**[1,2], **J.S. Weissman**[1,2]; [1]Cellular and Molecular Pharmacology, University of California, San Francisco, San Francisco, CA, [2]Howard Hughes Medical Institute, University of California, San Francisco, San Francisco, CA

9:50 am M266 Mimicking transient activation of protein kinases in living cells. **J. Klomp**[1], **A. Ray**[1], **V. Huyot**[1], **K.B. Collins**[1], **A.V. Karginov**[1]; [1]Pharmacology, University of Illinois - Chicago, Chicago, IL

10:05 am M267 Phenotypic variability and plasticity in influenza A virus measured using multi-spectral viral strains. **M.D. Vahey**[1], **D.A. Fletcher**[1,2]; [1]Department of Bioengineering, University of California, Berkeley, Berkeley, CA, [2]Physical Biosciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA

10:20 am M268 Temporal design of cancer combinatorial therapy guided by single-cell dynamics. **S. Chen**[1,2], **G. Lahav**[1]; [1]Systems Biology, Harvard Medical School, Cambridge, MA, [2]Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan

10:35 am M269 Systematic genetic analysis of subcellular morphology using yeast phenomics. **B.J. Andrews**[1], **E. Styles**[1], **M. Mattiazzi Usaj**[1], **A. Verster**[2], **O. Krause**[3], **H. Friesen**[1], **C. Boone**[1]; [1]The Donnelly Centre, University of Toronto, Toronto, ON, [2]Genome Sciences, University of Washington, Seattle, WA, [3]Electrical and Computer Engineering, University of Toronto, Toronto, ON

10:50 am M270 Quantitative characterization of genetic parts and circuits using protoplasts for plant synthetic biology. **K.A. Schuamberg**[1], **M.S. Antunes**[2], **T.K. Kassaw**[2], **W. Xu**[3], **C. Zalewski**[2], **J.I. Medford**[2], **A. Prasad**[1,3]; [1]School of Biomedical Engineering, Colorado State University, Fort Collins, CO, [2]Biology, Colorado State University, Fort Collins, CO, [3]Chemical and Biological Engineering, Colorado State University, Fort Collins, CO

● Special Interest Subgroup

8:30-11:05 am **Room 102**

The following member-organized sessions was selected by the ASCB Program Committee. All meeting attendees are welcome to participate. Meeting registration is required.

Subgroup U: Understanding T Cell Activation, Developing Tools for Cancer Immunotherapy

Organizer: **Xiaolei Su**, University of California, San Francisco

T cells mediate immune responses to pathogens and tumors. In the past decade, significant progress has been made toward understanding some critical parts of T cell activation, including how the T cell receptor recognizes foreign antigens versus self antigens and how only a few antigens can trigger the activation of an entire T cell. Engineering approaches have been used to modulate T cell activation and provide tools for cancer immunotherapy. For example, chimeric antigen receptors can confer new specific targets for T cells. Manipulating T cell signal transduction enables fine tuning of signaling responses. This subgroup will discuss recent progress in understanding the mechanisms of T cell activation and how the knowledge gleaned from basic research is or will be used to develop tools for cancer treatment.

Presentations:

8:30-8:34 am Introduction. **Xiaolei Su**, University of California, San Francisco

8:34-8:52 am Phase transition of TCR signaling: from in vitro reconstitution to cell engineering. **Xiaolei Su**, University of California, San Francisco

8:52-9:10 am Chemical biology approaches to interrogate antigen recognition by conventional and engineered T cells. **Jianming Xie**, University of Southern California

9:10-9:28 am Signal transduction through a DNA-based T cell receptor. **Marcus Taylor**, University of California, San Francisco/National Center for Biological Sciences, India

9:28-9:46 am Regulation of LAT microclusters by cortical actin during T cell activation. **Jonathon Ditlev**, University of Texas Southwestern Medical Center

9:46-9:52 am Break

9:52-10:10 am Architectural control of cytotoxic T cell function. **Fella Tamzalit**, Memorial Sloan Kettering Cancer Center

10:10-10:28 am Insights into the Cytoskeletal Processes Influencing T cell Social Behavior. **Sudha Kumari**, Massachusetts Institute of Technology

10:28-10:46 am Regulation of T cell fate and function by ubiquitin. **Paula Oliver**, University of Pennsylvania

10:46-11:04 am Quantitative aspects of PD-1 signaling: preferential suppression of costimulation. **Enfu Hui**, University of California, San Diego

● Symposium 7: Nuclear Organization

11:20 am-12:20 pm **Hall E**

Chair: **Rebecca Heald**, University of California, Berkeley

11:20 am S16 The role of heterochromatin in a complex organism: stabilizing the genome. **S.M. Gasser**[1,2]; [1]Director, Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland, [2]University of Basel, Basel, Switzerland

11:50 am S17 Following Single mRNAs from Birth to Death in Living Cells. **R.H. Singer**[1,2]; [1]Anatomy and Structural Biology, Albert Einstein College of Medicine, Bronx, NY, [2]Janelia Research Campus of the HHMI, Ashburn, VA

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