

**Wednesday**  
**December 16, 2015**



2015 cell biology  
ascb annual meeting  
san diego, california · december 12-16

## Notes

7:30-11:30 am	<p>Registration Open</p> <p style="text-align: right;">Registration Area</p>
8:30-10:55 am	<p>Cytoskeleton, Motility, and Cell Mechanics  <b>Minisymposium 19: A Tribute to Alan Hall:  Rho GTPase Signaling</b>  Ballroom 20C</p> <p>Applications of Cell Biology in the Real World  <b>Minisymposium 20: Applications of Cell Biology 2</b>  Room 29C</p> <p>Cell Cycle and Cell Division  <b>Minisymposium 21: Cell Cycle Regulation</b>  Room 31B</p> <p>Signaling and Differentiation  <b>Minisymposium 22: Mammalian Cell Signaling</b>  Room 32B</p> <p>Cytoskeleton, Motility, and Cell Mechanics  <b>Minisymposium 23: Motility and Cytoskeleton of Microbes</b>  Ballroom 20D</p> <p>Membrane Organization, Dynamics, Traffic, and Regulation  <b>Minisymposium 24: New Insights Into Secretory Trafficking Mechanisms</b>  Ballroom 20A</p> <p>Organelles and Spatial Organization of the Cell  <b>Minisymposium 25: Organelle Homeostasis and Turnover</b>  Room 30C</p> <p>Multicellular Interactions, Tissues, and Development  <b>Minisymposium 26: Tissue Biology</b>  Room 28D</p>
11:15 am-12:15 pm	<p>Symposium 7</p> <p style="text-align: right;">Ballroom 20BC</p> <p>Beyond the Five Senses: Detection of Magnetic and Electric Fields</p>
12:15 pm	<p>Meeting Ends</p>

## ● Cytoskeleton, Motility, and Cell Mechanics

### Minisymposium 19: A Tribute to Alan Hall: Rho GTPase Signaling

8:30-10:55 am

Ballroom 20C

Co-Chairs: **William Brieher**, University of Illinois, Urbana-Champaign ; and **Jodi Nunnari**, University of California, Davis, and Editor-in-Chief of the *Journal for Cell Biology*

- 8:30 am Introduction and Tribute to Alan Hall. **Jodi Nunnari**, University of California, Davis, and Editor-in-Chief of the *Journal for Cell Biology*
- 8:35 am M162 P-cadherin/ $\beta$ -PIX/Cdc42 promotes collective cell migration through increase in the anisotropy and magnitude of mechanical forces. **C. Gauthier-Rouviere<sup>1</sup>**, **C. Plutoni<sup>1</sup>**, **E. Bazellieres<sup>2</sup>**, **M. Le Borgne-Rochet<sup>1</sup>**, **F. Comunale<sup>1</sup>**, **A. Brugués<sup>2</sup>**, **D. Planchon<sup>1</sup>**, **N.S. Morin<sup>1</sup>**, **S. Bodin<sup>1</sup>**, **X. Trepat<sup>2</sup>**; <sup>1</sup>CRBM, CNRS, Montpellier, France, <sup>2</sup>IBEC, Barcelona, Spain
- 8:55 am M163 The small GTPase Rac3 is essential for invadopodia maturation and function in breast cancer cells. **S.K. Donnelly<sup>1,2</sup>**, **J. Bravo Cordero<sup>1,2</sup>**, **J.S. Condeelis<sup>1,2</sup>**, **L. Hodgson<sup>1,2</sup>**; <sup>1</sup>Anatomy and Structural Biology, Albert Einstein College of Medicine, Bronx, NY, <sup>2</sup>Gruss Lipper Biophotonics Center, Albert Einstein College of Medicine, Bronx, NY
- 9:15 am M164 Patterning Rho signaling at the epithelial Zonula Adherens: a tale of feedback loops. **R. Priya<sup>1</sup>**, **G.A. Gomez<sup>1</sup>**, **S. Budnar<sup>1</sup>**, **S. Verma<sup>1</sup>**, **N.A. Hamilton<sup>1</sup>**, **A.S. Yap<sup>1</sup>**; <sup>1</sup>Division of Cell Biology and Molecular Medicine, Institute for Molecular Bioscience, The University of Queensland, Brisbane, QLD, Australia
- 9:35 am M165 Spontaneous vs. light-induced symmetry breaking – characterizing the relation of mechanical traction forces and morphological events during cell migration. **K. Hennig<sup>1</sup>**, **O. Destaing<sup>2</sup>**, **C. Albiges-Rizo<sup>2</sup>**, **M. Balland<sup>1</sup>**; <sup>1</sup>Materials, Optics and Instrumental Techniques for the Life Sciences (MOTIV), Laboratory of Interdisciplinary Physics, Grenoble, France, <sup>2</sup>Differentiation and Cell Transformation, Institute Albert Bonniot Inserm U823, Grenoble, France
- 9:55 am M166 Stress fibers store contractile energy to resist changes in cell shape. **P.W. Oakes<sup>1</sup>**, **E. Wagner<sup>2</sup>**, **C.A. Brand<sup>3</sup>**, **D. Probst<sup>3</sup>**, **M. Linke<sup>3</sup>**, **U.S. Schwarz<sup>3</sup>**, **M. Glotzer<sup>2</sup>**, **M.L. Gardel<sup>1</sup>**; <sup>1</sup>Institute for Biophysical Dynamics, James Franck Institute and Department of Physics, University of Chicago, Chicago, IL, <sup>2</sup>Department of Molecular Genetics and Cell Biology, University of Chicago, Chicago, IL, <sup>3</sup>Institute for Theoretical Physics and BioQuant, Heidelberg University, Heidelberg, Germany
- 10:15 am M167 RhoA activity cycling promotes dynamic cytoskeletal contractions during epithelial invagination. **F.M. Mason<sup>1</sup>**, **S. Xie<sup>1</sup>**, **M. Tworoger<sup>1</sup>**, **A. Martin<sup>1</sup>**; <sup>1</sup>Biology, Massachusetts Institute of Technology, Cambridge, MA
- 10:35 am M168 Roles of guanine nucleotide exchange factors in regulating collective cell migration. **A. Zaritsky<sup>1</sup>**, **Y. Tseng<sup>2</sup>**, **M.A. Rabadán<sup>2</sup>**, **M. Overholtzer<sup>2</sup>**, **G. Danuser<sup>1</sup>**, **A. Hall<sup>2</sup>**; <sup>1</sup>Department of Cell Biology, UT Southwestern Medical Center, Dallas, TX, <sup>2</sup>Cell Biology Program, Memorial Sloan-Kettering Cancer Center, New York, NY

## ● Applications of Cell Biology in the Real World

### Minisymposium 20: Applications of Cell Biology 2

8:30-10:55 am

Room 29C

Co-Chairs: **Lisa Belmont**, Genentech, Inc.; and **Craig Blackstone**, National Institute of Neurological Disorders and Stroke, NIH

- 8:30 am Introduction
- 8:35 am M169 Increased spatiotemporal resolution reveals highly dynamic, tubular lattices in the peripheral endoplasmic reticulum. **J. Nixon-Abell<sup>1,2</sup>**, **C.J. Obara<sup>3</sup>**, **A.V. Weigel<sup>3</sup>**, **D. Li<sup>4</sup>**, **W.R. Legant<sup>4</sup>**, **K. Harvey<sup>2</sup>**, **E. Betzig<sup>4</sup>**, **J. Lippincott-Schwartz<sup>3</sup>**, **C.D. Blackstone<sup>1</sup>**; <sup>1</sup>Cell Neurology Section, National Institute of Neurological Disorders and Stroke, Bethesda, MD, <sup>2</sup>Department of Pharmacology, UCL School of Pharmacy, London, UK, <sup>3</sup>Section on Organellar Biology, Eunice Kennedy Shriver National Institute of Child Health and Human Development, Bethesda, MD, <sup>4</sup>Janelia Research Campus, Howard Hughes Medical Institute, Ashburn, VA
- 8:55 am M170 Kinesin-1 defects lead to altered axonal transport in the important hippocampal to basal forebrain memory circuit in living intact mouse brain. **C.S. Medina<sup>1</sup>**, **O. Biris<sup>2</sup>**, **F. Chaves<sup>1</sup>**, **A.J. Zimmerman<sup>1</sup>**, **T. Falzone<sup>3</sup>**, **R.E. Jacobs<sup>4</sup>**, **E.L. Bearer<sup>1</sup>**; <sup>1</sup>Pathology, University of New Mexico Health Sciences

Center, Albuquerque, NM, <sup>2</sup>Division of Engineering, Brown University, Providence, RI, <sup>3</sup>IBC-  
Facultad de Medicina, Universidad de Buenos Aires, Buenos Aires, Argentina, <sup>4</sup>Beckman Institute,  
California Institute of Technology, Pasadena, CA

- 9:15 am M171 Poly(ADP-Ribosylation) regulates axon regeneration. **A.B. Byrne**<sup>1,2</sup>, **Y. Sekine**<sup>2,3</sup>, **R.D. McWhirter**<sup>4</sup>, **S.M. Strittmatter**<sup>2,3</sup>, **D.M. Miller III**<sup>4</sup>, **M. Hammarlund**<sup>1,2</sup>; <sup>1</sup>Genetics, Yale University, New Haven, CT, <sup>2</sup>CNNR, Yale University, New Haven, CT, <sup>3</sup>Neurology, Yale University, New Haven, CT, <sup>4</sup>Cell and Developmental Biology, Vanderbilt University, Nashville, TN
- 9:35 am M172 Dynamics of thrombus formation in mouse testicular surface vein by new collaborative analysis with live-imaging in vivo and following TEM observation. **A. Sawaguchi**<sup>1</sup>, **S. Nishimura**<sup>2,3,4</sup>; <sup>1</sup>Anatomy, University of Miyazaki, Miyazaki, Japan, <sup>2</sup>Cardiovascular Medicine, The University of Tokyo, Tokyo, Japan, <sup>3</sup>Translational Systems Biology and Medicine Initiative, The University of Tokyo, Tokyo, Japan, <sup>4</sup>Center for Molecular Medicine, Jichi Medical University, Tochigi, Japan
- 9:55 am M173 Microscopic detection of vulnerable sites exposed on cell-bound HIV to inform better vaccine design. **M. Mengistu**<sup>1</sup>, **G.K. Lewis**<sup>1</sup>, **A.L. DeVico**<sup>1</sup>; <sup>1</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, MD
- 10:15 am M174 Neighbor-killing via the Type-VI secretion system enables high-efficiency, cross-species acquisition of antibiotic resistance genes in competent *Acinetobacter* bacteria. **R.M. Cooper**<sup>1</sup>, **L. Tsimring**<sup>1</sup>, **J. Hasty**<sup>1</sup>; <sup>1</sup>Biocircuits Institute, UC San Diego, San Diego, CA
- 10:35 am M175 The retromer complex regulates exosomal APP at the *Drosophila* neuromuscular junction. **R.B. Walsh**<sup>1</sup>, **M.J. Zunitz**<sup>1</sup>, **A.N. Becalska**<sup>1</sup>, **J. Gittzus**<sup>1</sup>, **A.A. Rodal**<sup>1</sup>; <sup>1</sup>Department of Biology, Brandeis University, Waltham, MA
- 10:42 am M176 Gamma-secretase inhibitors (GSIs) and modulators (GSMs) induce distinct conformational changes in the active sites of gamma-secretase and signal peptide peptidase (SPP). **N. Gertsik**<sup>1</sup>, **D. Chau**<sup>2</sup>, **Y. Li**<sup>3</sup>; <sup>1</sup>Biochemistry and Structural Biology, Weill Cornell Medical College, New York, NY, <sup>2</sup>Pharmacology, Weill Cornell Medical College, New York, NY, <sup>3</sup>Pharmacology, Memorial Sloan Kettering Cancer Center, New York, NY
- 10:49 am M177 Directive nanoscale cues for regenerative neural cell systems. **V.M. Ayres**<sup>1</sup>, **V.M. Tiryaki**<sup>2</sup>, **I. Ahmed**<sup>3</sup>, **D.I. Shreiber**<sup>3</sup>; <sup>1</sup>Electronic Biological Nanostructures Laboratory, Michigan State University, East Lansing, MI, <sup>2</sup>Computer Engineering, Siirt University, Siirt, Turkey, <sup>3</sup>Biomedical Engineering, Rutgers, The State University of New Jersey, Piscataway, NJ

## ● Cell Cycle and Cell Division Minisymposium 21: Cell Cycle Regulation

8:30-10:55 am

Room 31B

Co-Chairs: **David Morgan**, University of California, San Francisco; and **Jody Rosenblatt**, University of Utah

- 8:30 am Introduction
- 8:35 am M178 Mechanisms of mitotic regulation by the APC/C. **D. Lu**<sup>1</sup>, **J.R. Girard**<sup>1</sup>, **A. Mizrak**<sup>1</sup>, **D.O. Morgan**<sup>1</sup>; <sup>1</sup>Physiology, University of California, San Francisco, San Francisco, CA
- 8:55 am M179 Mechanical stretch triggers rapid epithelial cell division through the stretch-activated channel Piezo1. **J. Lindblom**<sup>1</sup>, **P.D. Loftus**<sup>1</sup>, **K. Edes**<sup>1</sup>, **M.J. Redd**<sup>1</sup>, **J. Rosenblatt**<sup>1</sup>; <sup>1</sup>Oncological Science, Huntsman Cancer Institute, Salt Lake City, UT
- 9:15 am M180 Lattice light-sheet microscopy of dividing cells in culture and in live zebrafish embryos with high spatiotemporal resolution demonstrates similar membrane and cell volume dynamics. **S. Upadhyayula**<sup>1</sup>, **F. Aguet**<sup>1</sup>, **R. Gaudin**<sup>1</sup>, **E. Coccuci**<sup>1</sup>, **K. He**<sup>1</sup>, **B. Chen**<sup>2</sup>, **K.R. Mosaliganti**<sup>3</sup>, **W.R. Legant**<sup>2</sup>, **T. Liu**<sup>2</sup>, **E. Marino**<sup>1</sup>, **G. Danuser**<sup>4</sup>, **S.G. Megason**<sup>3</sup>, **E. Betzig**<sup>2</sup>, **T. Kirchhausen**<sup>1</sup>; <sup>1</sup>Cell Biology, Harvard Medical School, Boston, MA, <sup>2</sup>Howard Hughes Medical Institute, Janelia Research Campus, Ashburn, VA, <sup>3</sup>Systems Biology, Harvard Medical School, Boston, MA, <sup>4</sup>Cell Biology, UT Southwestern, Dallas, TX
- 9:35 am M181 Direct visualization of nuclear envelope rupture. **N. Wesolowska**<sup>1</sup>, **P. Lénárt**<sup>1</sup>, **M. Mori**<sup>2</sup>; <sup>1</sup>Cell Biology and Biophysics, European Molecular Biology Laboratory, Heidelberg, Germany, <sup>2</sup>Osaka University, Osaka, Japan
- 9:55 am M182 Sphingolipids activate an ER stress surveillance (ERSU) pathway that monitors the proper inheritance of functional endoplasmic reticulum (ER) during the yeast cell cycle. **M. Niwa**<sup>1</sup>, **F. Yagisawa**<sup>1</sup>, **F. Pina-Nunez**<sup>1</sup>, **J.T. Chao**<sup>1</sup>, **A.B. Tam**<sup>1</sup>; <sup>1</sup>Molecular Biology, UCSD, La Jolla, CA
- 10:15 am M183 Spatial regulation of Greatwall by Cdk1 and PP2A-Tws in the cell cycle. **P. Wang**<sup>1,2</sup>, **M. Larouche**<sup>1,2</sup>,

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**H. Mehsen**<sup>1,2</sup>, **K. Normandin**<sup>2</sup>, **D. Kachaner**<sup>1,2</sup>, **G. Emery**<sup>2,3</sup>, **V. Archambault**<sup>1,2</sup>; <sup>1</sup>Department of Biochemistry and Molecular Medicine, Université de Montréal, Montréal, QC, <sup>2</sup>Institute for Research in Immunology and Cancer, Montréal, QC, <sup>3</sup>Department of Pathology and Cell Biology, Université de Montréal, Montréal, QC

- 10:35 am M184 Bistability of a coupled Aurora B kinase-phosphatase system in cell division. **A.V. Zaytsev**<sup>1</sup>, **D. Segura-Pena**<sup>2</sup>, **E.R. Ballister**<sup>2</sup>, **A. Calderon**<sup>2</sup>, **A.M. Mayo**<sup>2</sup>, **R. Stamatov**<sup>2</sup>, **M. Godzi**<sup>1</sup>, **L. Peterson**<sup>3</sup>, **B.E. Black**<sup>4</sup>, **F.I. Ataullakhanov**<sup>5,6,7</sup>, **M.A. Lampson**<sup>2</sup>, **E.L. Grishchuk**<sup>1</sup>; <sup>1</sup>Department of Physiology, University of Pennsylvania, Perelman School of Medicine, Philadelphia, PA, <sup>2</sup>Department of Biology, University of Pennsylvania, Philadelphia, PA, <sup>3</sup>Department of Biology and Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA, <sup>4</sup>Department of Biochemistry and Biophysics, University of Pennsylvania, Perelman School of Medicine, Philadelphia, PA, <sup>5</sup>Department of Physics, Moscow State University, Moscow, Russia, <sup>6</sup>Center for Theoretical Problems of Physicochemical Pharmacology, Russian Academy of Sciences, Moscow, Russia, <sup>7</sup>Federal Research and Clinical Centre of Pediatric Hematology, Oncology, Moscow, Russia

## ● Signaling and Differentiation

### Minisymposium 22: Mammalian Cell Signaling

8:30-10:55 am

Room 32B

Co-Chairs: **Markus Covert**, Stanford University; and **Dana Pe'er**, Columbia University

- 8:30 am Introduction
- 8:35 am M185 High resolution ordering of single cells along developmental trajectories with branches. **D. Pe'er**<sup>1</sup>; <sup>1</sup>Dept of Biological Sciences, Columbia University, New York, NY
- 8:55 am M186 Paracrine communication maximizes cellular response fidelity in wound signaling. **L.N. Handy**<sup>1</sup>, **A. Pilko**<sup>1</sup>, **R. Wollman**<sup>1,2,3</sup>; <sup>1</sup>Chemistry and Biochemistry, University of California, San Diego, La Jolla, CA, <sup>2</sup>Cell and Developmental Biology, University of California, San Diego, La Jolla, CA, <sup>3</sup>San Diego Center for Systems Biology, La Jolla, CA
- 9:15 am M187 Causes and consequences of variation in p53 signaling dynamics in tissues and tumors. **J. Stewart-Ornstein**<sup>1</sup>, **G. Lahav**<sup>1</sup>; <sup>1</sup>Systems Biology, Harvard Medical School, Boston, MA
- 9:35 am M188 A circadian code for fat cell differentiation. **Z. Bahrami-Nejad**<sup>1</sup>, **M.L. Zhao**<sup>1</sup>, **K. Tkach**<sup>1</sup>, **S. von Schie**<sup>1</sup>, **M.N. Teruel**<sup>1</sup>; <sup>1</sup>Chemical and Systems Biology, Stanford University, Stanford, CA
- 9:55 am M189 Modulation of macrophage inflammatory NF-κB signaling by intracellular *Cryptococcus neoformans*. **J.B. Hayes**<sup>1</sup>, **L.E. Heusinkveld**<sup>1</sup>, **R. Leander**<sup>2</sup>, **W. Ding**<sup>2</sup>, **E.E. McClelland**<sup>1</sup>, **D.E. Nelson**<sup>1</sup>; <sup>1</sup>Biology, Middle Tennessee State University, Murfreesboro, TN, <sup>2</sup>Mathematics, Middle Tennessee State University, Murfreesboro, TN
- 10:15 am M190 Chromatin modifies the transmission of TNF-induced NF-κB signals in single cells. **V.C. Wong**<sup>1</sup>, **A.K. Chavali**<sup>2</sup>, **R.E. Lee**<sup>3,4,5</sup>, **W. Mothes**<sup>6</sup>, **S. Gaudet**<sup>3,4</sup>, **K. Miller-Jensen**<sup>1,2</sup>; <sup>1</sup>Department of Molecular, Cellular, and Developmental Biology, Yale University, New Haven, CT, <sup>2</sup>Department of Biomedical Engineering, Yale University, New Haven, CT, <sup>3</sup>Department of Genetics, Harvard Medical School, Boston, MA, <sup>4</sup>Department of Cancer Biology and Center for Cancer Systems Biology, Dana-Farber Cancer Institute, Boston, MA, <sup>5</sup>Department of Computational and Systems Biology, University of Pittsburgh School of Medicine, Pittsburgh, PA, <sup>6</sup>Department of Microbial Pathogenesis, Yale University School of Medicine, New Haven, CT
- 10:35 am M191 High-sensitivity measurements of multiple kinase activities in live single cells. **M. Covert**<sup>1</sup>, **S. Regot**<sup>1</sup>, **J. Hughey**<sup>1</sup>, **B. Bajar**<sup>1</sup>, **S. Carrasco**<sup>1</sup>; <sup>1</sup>Bioengineering, Stanford University, Stanford, CA

## ● Cytoskeleton, Motility, and Cell Mechanics

### Minisymposium 23: Motility and Cytoskeleton of Microbes

8:30-10:55 am

Ballroom 20D

Co-Chairs: **Guillaume Charras**, University College London; and **Makoto Miyata**, Osaka City University

- 8:30 am Introduction
- 8:35 am M192 Gliding mechanism of *Mycoplasma*, the smallest bacteria. **M. Miyata**<sup>1</sup>; <sup>1</sup>Department of Biology, Graduate School of Science, Osaka City University, Osaka, Japan
- 8:55 am M193 Mechanisms of an acid-actuated protein lancet. **J.K. Polka**<sup>1,2</sup>, **M.D. Vahey**<sup>3</sup>, **D.A. Fletcher**<sup>3</sup>, **J.M.**

9:15 am	M194	<b>Kollman<sup>4</sup>, T.J. Mitchison<sup>1</sup>, P.A. Silver<sup>1,2</sup></b> ; <sup>1</sup> Systems Biology, Harvard Medical School, Boston, MA, <sup>2</sup> Wyss Institute for Biologically Inspired Engineering, Boston, MA, <sup>3</sup> Bioengineering, University of California, Berkeley, Berkeley, CA, <sup>4</sup> Biochemistry, University of Washington, Seattle, WA Integrated systems biology underlying the final steps of bacterial cell growth. <b>E.R. Rojas<sup>1</sup>, K.C. Huang<sup>2</sup>, J.A. Theriot<sup>1</sup></b> ; <sup>1</sup> Biochemistry, Stanford University, Stanford, CA, <sup>2</sup> Bioengineering, Stanford University, Stanford, CA
9:35 am	M195	IFT-independent translocation of the +TIP protein EB1 in <i>Chlamydomonas</i> flagella. <b>J.A. Harris<sup>1</sup>, Y. Liu<sup>2</sup>, P. Yang<sup>2</sup>, P. Kner<sup>3</sup>, K.F. Lechtreck<sup>1</sup></b> ; <sup>1</sup> Cellular Biology, University of Georgia, Athens, GA, <sup>2</sup> Biological Sciences, Marquette University, Milwaukee, WI, <sup>3</sup> Engineering, University of Georgia, Athens, GA
9:55 am	M196	Evolutionary retention of two actin nucleation promoting factors, WAVE and WASP, predicts amoeboid motility in the amphibian chytrid fungus. <b>L. Fritz-Laylin<sup>1</sup>, S. Lord<sup>1</sup>, R.D. Mullins<sup>1</sup></b> ; <sup>1</sup> Cellular and Molecular Pharmacology, University of California, San Francisco, San Francisco, CA
10:15 am	M197	The torsinA homolog tsin is required for the multicellular development of <i>Dictyostelium discoideum</i> . <b>C.A. Saunders<sup>1</sup>, J.R. Erickson<sup>1</sup>, B.M. Woolums<sup>1</sup>, H. Bauer<sup>1</sup>, M.A. Titus<sup>1</sup>, G. Luxton<sup>1</sup></b> ; <sup>1</sup> Genetics, Cell Biology, and Development, University of Minnesota, Minneapolis, MN
10:22 am	M198	A Gα stimulated Ras/Rap switch regulates <i>Dictyostelium</i> chemotaxis. <b>J. Lacial<sup>1</sup>, Y. Liu<sup>2</sup>, D.M. Veltman<sup>3</sup>, I. Keizer-Gunnink<sup>2</sup>, F. Fusetti<sup>4</sup>, P.J. van Haastert<sup>2</sup>, R.A. Firtel<sup>1</sup>, A. Kortholt<sup>2</sup></b> ; <sup>1</sup> Division of Biological Sciences, University of California, San Diego, CA, <sup>2</sup> Department of Cell Biochemistry, University of Groningen, Groningen, Netherlands, <sup>3</sup> Laboratory of Molecular Biology, Medical Research Council, Cambridge, UK, <sup>4</sup> Department of Biochemistry and Netherlands Proteomics Centre, University of Groningen, Groningen, Netherlands
10:29 am	M199	Mechanism of actin filament assembly by the <i>Vibrio</i> virulence factors VopF and VopL. <b>T.A. Burke<sup>1</sup>, E. Kerkhoff<sup>2</sup>, M.K. Rosen<sup>3</sup>, R. Dominguez<sup>4</sup>, D.R. Kovar<sup>1,5</sup></b> ; <sup>1</sup> Molecular Genetics and Cell Biology, The University of Chicago, Chicago, IL, <sup>2</sup> Neurology, University Hospital Regensburg, Regensburg, Germany, <sup>3</sup> Biophysics, Biochemistry, Green Center for Systems Biology, University of Texas Southwestern Medical Center, Dallas, TX, <sup>4</sup> Physiology, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, <sup>5</sup> Biochemistry and Molecular Biology, The University of Chicago, Chicago, IL
10:35 am	M200	Latrunculin-resistant F-actin and cleavage furrows without myosin II in <i>Chlamydomonas</i> . <b>M. Onishi<sup>1</sup>, F.R. Cross<sup>2</sup>, J.R. Pringle<sup>1</sup></b> ; <sup>1</sup> Department of Genetics, Stanford University School of Medicine, Stanford, CA, <sup>2</sup> The Rockefeller University, New York, NY
10:42 am	M201	MSL8, A mechanosensitive ion channel that protects cells from developmentally imposed osmotic shock. <b>E.S. Haswell<sup>1</sup>, E.S. Hamilton<sup>1</sup>, G. Makshev<sup>1</sup>, G.S. Jensen<sup>1</sup></b> ; <sup>1</sup> Biology, Washington University in Saint Louis, Saint Louis, MO
10:49 am	M202	FtsZ minirings curvature is the opposite of tubulin rings. <b>M. Housman<sup>1</sup>, M. Osawa<sup>1</sup>, H.P. Erickson<sup>1</sup></b> ; <sup>1</sup> Cell Biology, Duke University, Durham, NC

● **Membrane Organization, Dynamics, Traffic, and Regulation**  
**Minisymposium 24: New Insights Into Secretory Trafficking Mechanisms**

8:30-10:55 am

Ballroom 20A

Co-Chairs: **Adam Linstedt**, Carnegie Mellon University; and **Xiaochen Wang**, National Institute of Biological Sciences, Beijing, China

8:30 am		Introduction
8:35 am	M203	Visualizing the large procollagen I carrying COPII vesicles by super resolution fluorescence microscopy. <b>L. Yuan<sup>1</sup>, A. Gorur<sup>1</sup>, S. Baba<sup>1</sup>, S. Kenny<sup>2</sup>, K. Xu<sup>2</sup>, R.W. Schekman<sup>1</sup></b> ; <sup>1</sup> MCB, University of California, Berkeley, Berkeley, CA, <sup>2</sup> Chemistry, University of California, Berkeley, Berkeley, CA
8:55 am	M204	Recruitment of ERGIC membranes by TANGO1 and their fusion with the endoplasmic reticulum is required for export of the bulky cargo Collagen VII. <b>I. Raote<sup>1,2</sup>, A.J. Santos<sup>1,2</sup>, M. Scarpa<sup>1,2</sup>, N. Brouwers<sup>1,2</sup>, V. Malhotra<sup>1,2</sup></b> ; <sup>1</sup> Cell and Developmental Biology, Centre for Genomic Regulation (CRG), Barcelona, Spain, <sup>2</sup> Universitat Pompeu Fabra (UPF), Barcelona, Spain
9:15 am	M205	COPI selectively drives maturation of the early Golgi. <b>E. Papanikou<sup>1</sup>, K.J. Day<sup>1</sup>, J. Austin II<sup>1</sup>, B.S. Glick<sup>1</sup></b> ; <sup>1</sup> Molecular Genetics & Cell Biology, University of Chicago, Chicago, IL
9:35 am	M206	Golgin Tether-tSNARE interaction is required for Golgi stacking. <b>I. Lee<sup>1</sup>, J.E. Rothman<sup>1</sup></b> ; <sup>1</sup> Shanghai Institute for Advanced Immunochemical Studies, ShanghaiTech University, Shanghai, China



9:55 am	M207	The molecular organization of the exocyst determined by live cell imaging. <b>A. Picco</b> <sup>1,2</sup> , <b>O. Gallego</b> <sup>3</sup> , <b>I. Irastorza</b> <sup>4</sup> , <b>T. Specht</b> <sup>2</sup> , <b>D. Devos</b> <sup>4</sup> , <b>M. Kaksonen</b> <sup>1,2</sup> ; <sup>1</sup> Department of Biochemistry, University of Geneva, Geneva, Switzerland, <sup>2</sup> Cell Biology and Biophysics, European Molecular Biology Laboratory (EMBL), Heidelberg, Germany, <sup>3</sup> Institute for Research in Biomedicine, Barcelona, Spain, <sup>4</sup> Centro Andaluz de Biología del Desarrollo, Universidad Pablo de Olavide-CSIC, Sevilla, Spain
10:15 am	M208	Functional interactions among Sec17/alpha-SNAP, SM proteins, tethers, and SNAREs in membrane fusion in vitro and in vivo. <b>A.J. Merz</b> <sup>1</sup> , <b>A. Guitierrez</b> <sup>1</sup> , <b>B. Lobingier</b> <sup>1</sup> , <b>D.P. Nickerson</b> <sup>1,2</sup> , <b>R. Plemel</b> <sup>1</sup> , <b>M.L. Schwartz</b> <sup>1</sup> , <b>M. Zick</b> <sup>3</sup> ; <sup>1</sup> Biochemistry, University of Washington, Seattle, WA, <sup>2</sup> Biology, California State University, San Bernardino, San Bernardino, CA, <sup>3</sup> Biochemistry, Geisel School of Medicine, Hanover, NH
10:35 am	M209	Fluorescence based analysis of atlastin crossover and fusion kinetics. <b>J. Winsor</b> <sup>1</sup> , <b>T.H. Lee</b> <sup>1</sup> ; <sup>1</sup> Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, PA
10:42 am	M210	A novel imaging method for quantitative localization of Golgi proteins at nanometer resolution. <b>H. Tie</b> <sup>1</sup> , <b>D. Mahajan</b> <sup>1</sup> , <b>C. Li</b> <sup>2</sup> , <b>L. Lu</b> <sup>1</sup> ; <sup>1</sup> School of Biological Sciences, Nanyang Technological University, Singapore, Singapore, <sup>2</sup> Bioinformatics Institute, Singapore, Singapore
10:49 am	M211	Quality control of GPI-anchored proteins at the plasma membrane. <b>P. Satpute-krishnan</b> <sup>1</sup> , <b>B.S. Park</b> <sup>1,2</sup> , <b>J. Lippincott-Schwartz</b> <sup>1</sup> ; <sup>1</sup> Cell Biology and Metabolism Program, NICHD, National Institutes of Health, Bethesda, MD, <sup>2</sup> Thomas Jefferson High School for Science and Technology, Alexandria, VA

- **Organelles and Spatial Organization of the Cell**  
**Minisymposium 25: Organelle Homeostasis and Turnover**

8:30-10:55 am

Room 30C

Co-Chairs: **Alexander Van Der Blik**, University of California, Los Angeles; and **Xinnan Wang**, Stanford University

8:30 am		Introduction
8:35 am	M212	Dynamic remodeling of the magnetosome membrane is triggered by the initiation of biomineralization. <b>E. Cornejo</b> <sup>1</sup> , <b>P. Subramanian</b> <sup>2</sup> , <b>G.J. Jensen</b> <sup>2</sup> , <b>A. Komeili</b> <sup>1</sup> ; <sup>1</sup> Department of Plant and Microbial Biology, University of California Berkeley, Berkeley, CA, <sup>2</sup> Department of Biology, California Institute of Technology, Pasadena, CA
8:55 am	M213	The SND proteins target SRP-independent substrates to the endoplasmic reticulum. <b>N. Aviram</b> <sup>1</sup> , <b>T. Ast</b> <sup>1</sup> , <b>S. Haßdenteufel</b> <sup>2</sup> , <b>E.A. Costa</b> <sup>3</sup> , <b>E.C. Arakel</b> <sup>4</sup> , <b>S. Schorr</b> <sup>2</sup> , <b>S.G. Chuartzman</b> <sup>1</sup> , <b>C.H. Jan</b> <sup>3</sup> , <b>B. Schwappach</b> <sup>4</sup> , <b>R. Zimmermann</b> <sup>2</sup> , <b>J.S. Weissman</b> <sup>3</sup> , <b>M. Schuldiner</b> <sup>1</sup> ; <sup>1</sup> Department of Molecular Genetics, Weizmann Institute of Science, Rehovot, Israel, <sup>2</sup> Department of Medical Biochemistry and Molecular Biology, Saarland University, Homburg, Germany, <sup>3</sup> Department of Cellular and Molecular Pharmacology, University of California, San Francisco, and Howard Hughes Medical Institute, San Francisco, CA, <sup>4</sup> Department of Molecular Biology, University Medical Center Göttingen, Göttingen, Germany
9:15 am	M214	Endogenous parkin preserves dopaminergic substantia nigral neurons following mitochondrial DNA mutagenic stress. <b>A.M. Pickrell</b> <sup>1</sup> , <b>S.R. Kennedy</b> <sup>2</sup> , <b>C. Huang</b> <sup>1</sup> , <b>A. Ordureau</b> <sup>3</sup> , <b>D.P. Sideris</b> <sup>1</sup> , <b>J. Hoekstra</b> <sup>2</sup> , <b>J.W. Harper</b> <sup>3</sup> , <b>R.J. Youle</b> <sup>1</sup> ; <sup>1</sup> National Institutes of Neurological Disorders and Stroke, National Institutes of Health, Bethesda, MD, <sup>2</sup> Department of Pathology, University of Washington, Seattle, WA, <sup>3</sup> Department of Cell Biology, Harvard Medical School, Boston, MA
9:35 am	M215	Pathogenic LRRK2 impairs miro degradation and mitochondrial transport in a pathway also present in sporadic Parkinson's. <b>C. Hsieh</b> <sup>1</sup> , <b>A. Shaltouki</b> <sup>1</sup> , <b>X. Wang</b> <sup>1</sup> ; <sup>1</sup> Neurosurgery, Stanford University, Palo Alto, CA
9:55 am	M216	Axonal autophagosomes recruit dynein for retrograde transport through fusion with late endosomes. <b>X. Cheng</b> <sup>1</sup> , <b>B. Zhou</b> <sup>1</sup> , <b>M. Lin</b> <sup>1</sup> , <b>Z. Sheng</b> <sup>1</sup> ; <sup>1</sup> NINDS, NIH, Bethesda, MD
10:15 am	M217	Role of Fis1 in mitochondrial fission and stress. <b>A.M. Van Der Blik</b> <sup>1</sup> , <b>R. Youle</b> <sup>2</sup> ; <sup>1</sup> Biological Chemistry, David Geffen School of Medicine at UCLA, Los Angeles, CA, <sup>2</sup> National Institutes of Neurological Disorders and Stroke, National Institutes of Health, Bethesda, MD
10:35 am	M218	Synchronous regulation of nuclear and mitochondrial translation during mitochondrial biogenesis. <b>M. Couvillion</b> <sup>1</sup> , <b>S. Churchman</b> <sup>1</sup> ; <sup>1</sup> Department of Genetics, Harvard Medical School, Boston, MA



- 10:42 am M219 A cellular molecular timer measures synaptic vesicle use and prevents the participation of aged vesicles in synaptic transmission. **S. Truckenbrodt<sup>1</sup>, A. Viplav<sup>2</sup>, A. Denker<sup>3</sup>, A. Vogts<sup>4</sup>, E.F. Fornasiero<sup>1</sup>, S.O. Rizzoli<sup>1</sup>**; <sup>1</sup>Department for Neuro- and Sensory Physiology, University of Göttingen Medical School, Göttingen, Germany, <sup>2</sup>Cells in Motion Cluster of Excellence, University of Münster, Münster, Germany, <sup>3</sup>Hubrecht Institute, Utrecht, Netherlands, <sup>4</sup>Leibniz-Institute for Baltic Sea Research, Rostock, Germany
- 10:49 am M220 Dissecting the mechanisms of liquid to solid phase transition of the ALS protein FUS. **A. Patel<sup>1</sup>, L. Jawerth<sup>1</sup>, T.M. Franzmann<sup>1</sup>, R. Wheeler<sup>1</sup>, A.A. Hyman<sup>1</sup>**; <sup>1</sup>Hyman Lab, Max-Planck-Institute of Cell Biology and Genetics, Dresden, Germany

● **Multicellular Interactions, Tissues, and Development**  
**Minisymposium 26: Tissue Biology**

8:30-10:55 am

Room 28D

Co-Chairs: **Iswar Hariharan**, University of California, Berkeley; and **Carien Niessen**, University of Cologne, Germany

- 8:30 am Introduction
- 8:35 am M221 Mechanisms underlying the age-related decline in the regenerative capacity of *Drosophila* imaginal discs. **R.E. Harris<sup>1</sup>, L. Setiawan<sup>1</sup>, J. Saul<sup>1</sup>, I.K. Hariharan<sup>1</sup>**; <sup>1</sup>Molecular and Cell Biology, University of California, Berkeley, Berkeley, CA
- 8:55 am M222 Polarization of junctions, cytoskeleton and signal receptors in multi-layered epithelia. **C.M. Niessen<sup>1,2,3</sup>, M. RübSam<sup>1,2,3</sup>, S. Vorhagen<sup>1,2,3</sup>, F. Tellkamp<sup>1,2,3</sup>, J. Xia<sup>1,2,3</sup>, J. Nafizi<sup>1,2,3</sup>, B. Boggetti<sup>1,2,3</sup>**; <sup>1</sup>Department of Dermatology, University of Cologne, Cologne, Germany, <sup>2</sup>Center for Molecular Medicine Cologne, University of Cologne, Cologne, Germany, <sup>3</sup>Cologne Excellence Cluster on Cellular Stress Responses in Aging-Associated Diseases (CECAD), University of Cologne, Cologne, Germany
- 9:15 am M223 \*A novel, noncanonical BMP pathway modulates synapse maturation at the *Drosophila* neuromuscular junction. **M.J. Sulkowski<sup>1</sup>, T. Han<sup>1</sup>, C.M. Ott<sup>1</sup>, E.M. Verheyen<sup>2</sup>, J. Lippincott-Schwartz<sup>1</sup>, M. Serpe<sup>1</sup>**; <sup>1</sup>NICHHD, NIH, Bethesda, MD, <sup>2</sup>Department of Molecular Biology and Biochemistry, Simon Fraser University, Burnaby, BC
- 9:35 am M224 Discovery of a hormone requirement for cell growth allows visualization of growth dynamics in a proliferating epithelial tissue explant. **N.A. Dye<sup>1</sup>, S. Eaton<sup>1</sup>**; <sup>1</sup>MPI-CBG, Dresden, Germany
- 9:55 am M225 Emergent mechanisms of collective cell durotaxis. **R. Sunyer<sup>1</sup>, V. Conte<sup>1</sup>, J. Escribano<sup>2</sup>, J.M. García Aznar<sup>2</sup>, J. Muñoz<sup>3</sup>, P. Roca-Cusachs<sup>1,4</sup>, X. Trepac<sup>1,4</sup>**; <sup>1</sup>Institute for Bioengineering of Catalonia, Barcelona, Spain, <sup>2</sup>University of Zaragoza, Zaragoza, Spain, <sup>3</sup>Polytechnic University of Catalonia, Barcelona, Spain, <sup>4</sup>University of Barcelona, Barcelona, Spain
- 10:15 am M226 A novel bidirectional signaling pathway regulates collective cell migration in the *Drosophila* egg chamber. **K. Barlan<sup>1</sup>, M. Cetera<sup>1</sup>, S. Horne-Badovinac<sup>1</sup>**; <sup>1</sup>Molecular Genetics & Cell Biology, University of Chicago, Chicago, IL
- 10:22 am M227 Vertebrate embryos in suspended animation - characterizing cellular and molecular mechanisms of diapause which put embryo development on hold to survive through adverse condition. **C. Hu<sup>1</sup>, A. Brunet<sup>1</sup>**; <sup>1</sup>Genetics, Stanford University, Stanford, CA
- 10:29 am M228 Aberrant cell segregation driven by ephrin-B1 mosaicism relies on Eph/ROCK signaling and involves changes in actin polymerization. **A.K. O'Neill<sup>1,2</sup>, A.R. Larson<sup>1,2,3</sup>, T.K. Niethamer<sup>1,2,4</sup>, J.O. Bush<sup>1,2,5</sup>**; <sup>1</sup>Program in Craniofacial Biology, University of California, San Francisco, San Francisco, CA, <sup>2</sup>Cell and Tissue Biology, University of California, San Francisco, San Francisco, CA, <sup>3</sup>School of Medicine, University of California, San Francisco, San Francisco, CA, <sup>4</sup>Biomedical Sciences Graduate Program, University of California, San Francisco, San Francisco, CA, <sup>5</sup>Institute for Human Genetics, University of California, San Francisco, San Francisco, CA
- 10:35 am M229 Planar cell polarity signaling in airway epithelial homeostasis and disease. **E.K. Vladar<sup>1</sup>, J.V. Nayak<sup>2</sup>, J.D. Axelrod<sup>1</sup>**; <sup>1</sup>Pathology, Stanford University School of Medicine, Stanford, CA, <sup>2</sup>Otolaryngology-Head and Neck Surgery, Stanford University School of Medicine, Stanford, CA
- 10:42 am M230 Asymmetric partitioning of WNT and SHH signaling regulates the specification of hair follicle stem cells. **T. Ouspenskaia<sup>1</sup>, I. Matos<sup>1</sup>, A.F. Mertz<sup>1</sup>, J. Levorse<sup>1</sup>, L. Polak<sup>1</sup>, E. Fuchs<sup>1</sup>**; <sup>1</sup>Laboratory of

10:49 am M231 Mammalian Cell Biology and Development, HHMI, Rockefeller University, New York, NY  
Niche architecture and stiffness supports satellite cell self-renewal. **R. Cheng**<sup>1,2</sup>, **H. Liu**<sup>3</sup>, **S. Davoudi**<sup>1,2</sup>, **C. Simmons**<sup>1,3</sup>, **P.M. Gilbert**<sup>1,2</sup>; <sup>1</sup>Institute of Biomaterials and Biomedical Engineering, University of Toronto, Toronto, ON, <sup>2</sup>Donnelly Centre for Cellular and Biomolecular Research, University of Toronto, Toronto, ON, <sup>3</sup>Department of Mechanical Engineering, University of Toronto, Toronto, ON

\* Miheala Serpe is the recipient of the ASCB WICB Junior Award for Excellence in Science Research.

## ● Symposium 7: Beyond the Five Senses: Detection of Magnetic and Electric Fields

11:15 am-12:15 pm

Ballroom 20BC

Chair: **Angelika Amon**, Massachusetts Institute of Technology

11:15 am S16 Cell biology of magnetic particle formation in magnetotactic bacteria. **E. Cornejo**<sup>1</sup>, **D. Hershey**<sup>1</sup>, **P. Subramanian**<sup>2</sup>, **X. Ren**<sup>3</sup>, **J. Hurley**<sup>3</sup>, **G.J. Jensen**<sup>2</sup>, **A. Komeili**<sup>1,3</sup>; <sup>1</sup>Plant and Microbial Biology, University of California, Berkeley, Berkeley, CA, <sup>2</sup>Division of Biology and Biological Engineering, California Institute of Technology, Pasadena, CA, <sup>3</sup>Molecular and Cell Biology, University of California, Berkeley, Berkeley, CA

11:45 am S17 Individual and collective cell polarization and migration in electric field. **Y. Sun**<sup>1</sup>, **K. Zhu**<sup>1</sup>, **Y. Sun**<sup>1</sup>, **B. Reid**<sup>1</sup>, **F. da Silva Ferreira**<sup>1</sup>, **Y. Li**<sup>1</sup>, **X. Gao**<sup>1</sup>, **M. Ying**<sup>1</sup>, **B.W. Draper**<sup>1</sup>, **M. Zhao**<sup>1</sup>, **A. Mogilner**<sup>2</sup>; <sup>1</sup>Medical School, University of California, Davis, CA, <sup>2</sup>Courant Institute and Department of Biology, New York University, NY