

**Tuesday**  
**December 15, 2015**



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

7:30 am-6:30 pm	Registration Open	Registration Area
7:30-8:00 pm	Career Center Open	Learning Center
8:00-9:30 am	Symposium 5: Bending Nature to Our Purposes: Engineering of Cells and Tissues	Ballroom 20BC
8:15-9:15 am	Exhibitor Tech Talk Sciencell Research Laboratories: Maximize your cell culture: technical tips for primary cells, pluripotent stem cells, and cell analyses	Theater 1, Learning Center
9:30-4:30 pm	ASCB Learning Center (Exhibit Hall) Open	Learning Center
9:30-11:30 am	Morning Refreshment Break	Learning Center
9:30-10:30 am	Exhibitor Tech Talk Reveal Biosciences: Quantitative multiplexed in situ hybridization (ISH) in tissue and cell-based assays One World Lab: New technologies to assess quality and compatibility of commercial antibodies from multiple vendors EditBIOMED: What can a scientific editing service do for you?	Theater 2, Learning Center
9:45-10:45 am	Symposium 6: Going the Distance: Determining Size and Spacing of Biological Structures	Ballroom 20BC
10:00 am-12:00 pm	One-Minute, All-Video Elevator Speech Contest	ASCB Booth (721), Learning Center
10:00-11:00 am	Table Talk Transitioning to a Postdoc Position	Roundtable Central Section 1, Learning Center
10:30 am-12:30pm	Building a Successful Research Program with Undergraduates—A Roadmap	Career Center Theater, Learning Center
10:45-11:45 am	Exhibitor Tech Talk Wiley: Want people to read your paper? Here's how to optimize your chances...	Theater 1, Learning Center
10:45-11:45 am	Exhibitor Tech Talk Tecan: Rapid generation of compound serial dilutions for cell assays using an inkjet based dispensing technology	Theater 2, Learning Center
10:45 am-12:00 pm	Women in Cell Biology (WICB) Committee Awards Presentation and Mentoring Theater: Who Me? I'm Not Biased. Embracing Diversity to Improve Creativity	Room 32B
10:45 am-12:00 pm	Morning with the Editors: An Open Discussion with Journal Editors	Room 29C
11:00 am-12:00 pm	Advocacy Toolbox: How to Start and Sustain a Policy Advocacy Group	Room 24A
11:00 am-12:00 pm	LGBTQ Diversity Session	Room 24B
11:00 am-12:00 pm	Brazil: Opportunities for the Young: Fellowships, Resources, and Interactions	Room 23B
11:00 am-12:00 pm	Table Talk Bringing Research into the Undergraduate Curriculum	Roundtable Central Section 3, Learning Center
11:30 am-12:30 pm	Table Talk Developing Case Studies in Cell Biology	Roundtable Central Section 1, Learning Center
12:00-12:45 pm	Exhibitor Tech Talk EMD Millipore: New advances in microfluidic control of cellular microenvironment with uninterrupted imaging allows for highly controllable, long-term, more in vivo-like cell culture studies	Theater 2, Learning Center
12:00-1:30 pm	Odd-Numbered Poster Presentations	Learning Center
12:00-1:10 pm	Microsymposium 13: Morphology of the Cytoskeleton Leading to Morphology in Development	Microsymposia Room 1, Learning Center
12:00-1:10 pm	Microsymposium 14: Actin Cytoskeleton Dynamics	Microsymposia Room 2, Learning Center
12:00 pm	Exhibitor In-Booth Presentation Abcam, Inc: Immunostaining: From sample prep through troubleshooting and beyond	Booth 934
12:00-4:00 pm	Afternoon Refreshment Break	Learning Center

12:00-12:45 pm	Exhibitor Tech Talk GE Healthcare: Quantitative Western blotting: improving your data quality and reproducibility	Theater 1, Learning Center
1:00-1:55 pm	Navigating the New NIH Biosketch	Career Center Theater, Learning Center
1:00-1:45 pm	Exhibitor Tech Talk Beckman Coulter Life Sciences: Extracellular vesicle isolation by flow cytometric sorting and characterization by analytical ultra-centrifugation and dynamic light scatter	Theater 1, Learning Center
1:00-1:45 pm	Exhibitor Tech Talk Andor: Fast and sensitive camera technologies for microscopy	Theater 2, Learning Center
1:00-2:00 pm	Exhibitor In-Booth Presentation National Institutes of Health (NIH): National Institute of General Medical Sciences (NIGMS) and Center for Scientific Review (CSR)	Booth 1235/1237
1:25-2:35 pm	Microsymposium 15: Membrane Regulation and Signaling	Microsymposia Room 1, Learning Center
1:25-2:35 pm	Microsymposium 16: Cell Biology of Genetic Information	Microsymposia Room 2, Learning Center
1:30-2:30 pm	Table Talk Crafting a Research Statement That Is Undergraduate Research Friendly	Roundtable Central Section 1, Learning Center
1:30 pm-3:00 pm	Even-Numbered Poster Presentations	Learning Center
2:00-2:55 pm	Career Panel: Industry and Sales	Career Center Theater, Learning Center
2:00-2:45 pm	Exhibitor Tech Talk Thermo Fisher Scientific: Automated protein detection - the future of Westerns	Theater 1, Learning Center
2:00-2:45 pm	Exhibitor Tech Talk Essential Pharmaceuticals: Variables in FBS impact cell performance, reproducibility, and relevant experimental results	Theater 2, Learning Center
2:50-4:00 pm	Microsymposium 17: Spindle Assembly and Chromosome Dynamics	Microsymposia Room 1, Learning Center
2:50-4:00 pm	Microsymposium 18: Cell Mechanics and Adhesion	Microsymposia Room 2, Learning Center
3:00-4:00 pm	CellDance Videos, Elevator Speech Contest Finals, and Comic Contest Awards	Theater 1, Learning Center
3:00-4:00 pm	Exhibitor Tech Talk Essen BioScience: Novel kinetic live cell imaging assays for T cell killing of tumor cells	Theater 2, Learning Center
3:00-4:00 pm	Research in Cell Biology in France: Opportunities and Tips	Room 23B
3:00-4:00 pm	Career Panel: Research Development and Grant Administration	Career Center Theater, Learning Center
3:00-3:50 pm	Science Discussion Tables	Roundtable Central Section 3, Learning Center
3:00-4:00 pm	ASCB Business Meeting	ASCB Booth (721) Theater, Learning Center
3:00-4:00 pm	Exhibitor In-Booth Presentation National Institutes of Health (NIH): National Institute of General Medical Sciences (NIGMS) and Center for Scientific Review (CSR)	Booth 1235/1237
3:00-6:25 pm	Large-Scale Data Workshop: Image Analysis in Quantitative Microscopy	Room 31B
3:00-6:30 pm	Subgroup P: The Cellular and Molecular Basis of Invasive Metastatic Cancer	Room 32B
3:15-3:45 pm	Education Initiative Forum Using Visual Networks to Map the Systems Thinking Literature	Room 24B
3:30 pm-4:00 pm	Poster Removal	Learning Center

**Daily Schedule—Tuesday, December 15**

<p>4:00-6:25 pm</p>	<p>Applications of Cell Biology in the Real World Minisymposium 13: Applications of Cell Biology 1</p> <p>Cell Cycle and Cell Division Minisymposium 14: Cytokinesis</p> <p>Membrane Organization, Dynamics, Traffic, and Regulation Minisymposium 15: Endo-Lysosome Trafficking in Development and Disease</p> <p>Multicellular Interactions, Tissues, and Development Minisymposium 16: Morphogenesis</p> <p>Organelles and Spatial Organization of the Cell Minisymposium 17: New Technologies and Their Application to Probe the Spatial Organization of the Cell</p> <p>Cytoskeleton, Motility, and Cell Mechanics Minisymposium 18: Regulation and Integrated Functions of Actin Cytoskeleton</p>	<p>Room 29C</p> <p>Ballroom 20D</p> <p>Ballroom 20A</p> <p>Room 28D</p> <p>Room 30C</p> <p>Ballroom 20C</p>
<p>6:45-8:00 pm</p>	<p>ASCB-Gibco Emerging Leader Prize Presentation and E.B. Wilson Medal Presentation and Address by Elaine Fuchs</p>	<p>Ballroom 20BC</p>

## ● Career Center

7:30 am-8:00 pm

Learning Center

Stop by any time to check out the job postings.

9:00 am-4:00 pm

### One-on-One CV Review

Drop in and have an experienced ASCB member help you hone the perfect CV.

### Personalized Career Coaching

Drop by to talk one-on-one with life sciences career experts about your personal career trajectory.

### Immigration Consultation

Stop by for a free individual immigration consultation from experts from Getson & Schatz.

## ● Symposium 5: Bending Nature to Our Purposes: Engineering of Cells and Tissues

8:00-9:30 am

Ballroom 20BC

### Supported by SGI-DNA, A Synthetic Genomics, Inc. Company

Chair: **Julie Theriot**, Stanford University Medical Center

8:00 am	S11	CRISPR-Cas genome surveillance: from basic biology to transformative technology. <b>J.A. Doudna</b> <sup>1</sup> ; <sup>1</sup> Molecular & Cell Biology and Chemistry, Howard Hughes Medical Institute, Berkeley, CA
8:30 am	S12	Giving new life to materials for energy, the environment and medicine. <b>A. Belcher</b> <sup>1</sup> ; <sup>1</sup> Biological Engineering, MIT, Cambridge, MA
9:00 am	S13	Hydrogels as synthetic extracellular matrices: from tissue engineering to 4D cell biology. <b>K. Anseth</b> <sup>1</sup> ; <sup>1</sup> Chemical and Biological Engineering, University of Colorado and HHMI, Boulder, CO

## ● Exhibitor Tech Talk

8:15-9:15 am

Theater 1, Learning Center

### Sciencell Research Laboratories: Maximize your cell culture: technical tips for primary cells, pluripotent stem cells, and cell analyses

Presenter: Jennifer Welser-Alves

Level: Intermediate

For over a decade, Sciencell Research Laboratories has helped researchers with their cell culture experiments by providing expert advice. We will discuss primary cell culture optimization techniques and why primary cells are necessary for validation of cell line studies and in vivo experiments. In addition, we will examine the importance of selecting the appropriate pluripotent stem cell expansion and differentiation media and illustrate the advantages of using pluripotent stem cells for your research. Lastly, learn how to advance your primary cell research by using our new GeneQuery™ qPCR Arrays kits for gene expression profiling.

## ● ASCB Learning Center (Exhibit Hall) Open

7:30 am-8:00 pm

Exhibits open 9:30 am-4:00 pm.

## ● Morning Refreshment Break

9:30-11:30 am

Join us for complimentary coffee and tea while visiting exhibitors and viewing posters.

## ● Exhibitor Tech Talk

9:30-10:30 am

Theater 2, Learning Center

### 9:30-9:50 am, Reveal Biosciences: Quantitative multiplexed in situ hybridization (ISH) in tissue and cell-based assays

Presenter: Claire Weston, PhD

Level: Intermediate

In this presentation we will describe a highly sensitive multiplex technique to visualize mRNA and miRNA in tissue sections and cultured cells. The beautiful images that result from this approach can be quantified using ImageDx, our proprietary image analysis software, to provide quantitative data at the single copy level. Learn how we can accelerate your research using a highly sensitive assay to visualize and quantify mRNA and miRNA in your biological samples.

### 9:50-10:10 am, One World Lab: New technologies to assess quality and compatibility of commercial antibodies from multiple vendors

Presenter: Mike Simson

Level: Intermediate

Many of the antibodies published in biomedical research suffer from the lack of properly controlled studies into their reliability and reproducibility against specific antigens. Issues with improperly characterized antibodies prevented the replication of data in 47 of 53 preclinical studies. It is estimated that the resulting waste in labor and consumable costs are \$350 million annually just for U.S. researchers. To address this crisis, two complimentary technologies have been developed that will create a more structured, accurate antibody system of validation. Bio-Layer Interferometry will be shown to determine Ab concentration, structural integrity, relative KD measurements, and epitope binning. Size exclusion chromatography multi-analyte platform will be shown to determine Ab off-site binding, specific binding, binding to protein complexes, and monomeric forms of proteins.

### 10:10-10:30 am, EditBIOMED: What can a scientific editing service do for you?

Presenter: Melanie Styers

Level: Introductory

Today's scientific research is a global endeavor. Groundbreaking research is conducted in all parts of the world and by scientists of all nationalities. However, English remains the language of science, and the vast majority of scientific and medical journals are published in English. Thus, a lack of proficiency in English presents a significant barrier for acceptance of publications in these journals. EditBIOMED provides affordable scientific editing and proofreading services to help scientists publish their work in English-language journals. Our highly trained editors understand the complexities of the science, and also have an outstanding command of the English language. We correct the English, with an eye for the science, in order to help you publish your research.

## ● Symposium 6: Going the Distance: Determining Size and Spacing of Biological Structures

9:45-10:45 am

Ballroom 20BC

Chair: **Shirley Tilghman**, Princeton University

9:45 am	S14	Mechanisms of mitosis and size control in <i>Xenopus</i> . <b>M. Strzelecka</b> <sup>1</sup> , <b>R. Heald</b> <sup>1</sup> ; <sup>1</sup> Molecular and Cell Biology, University of California, Berkeley, Berkeley, CA
10:15 am	S15	Turing pattern formation without diffusion. <b>S. Kondo</b> <sup>1</sup> ; <sup>1</sup> Frontier Bioscience, Osaka University, Osaka, Japan

## ● One-Minute, All-Video Elevator Speech Contest

10:00 am-12:00 pm

ASCB Booth (721), Learning Center

The premise of the One Minute Elevator Speech Contest is simple: The elevator door closes and you've got a trapped audience—a U.S. Senator, your dean, or Taylor Swift. Go for it! Sell your science in 60 seconds!

To enter the all-video One-Minute Elevator Speech Contest, make a selfie video of your speech, upload it to YouTube or Vimeo, and then go to [www.ascb.org/elevatorspeech](http://www.ascb.org/elevatorspeech) to fill out the form linking to your uploaded video.

Don't have a phone or a camera to record your video in San Diego? Come to the Elevator Speech Contest Entry Point at the ASCB Booth Tuesday morning where a camera awaits you.

## ● Table Talk

10:00-11:00 am

Roundtable Central Section 1, Learning Center

### Transitioning to a Postdoc Position

Tracie Gibson, University of Missouri, Columbia

## ● Building a Successful Research Program with Undergraduates—A Roadmap

10:30 am-12:30pm

Career Center Theater, Learning Center

Joyce Fernandes, Professor, Miami University

This discussion will engage participants in the logistics of beginning and developing a research program, while having simultaneous responsibilities in teaching and service. Choosing projects, recruiting and training students, grant writing, integrating research into teaching labs, are some of the topics that will be explored.

## ● Exhibitor Tech Talk

10:45-11:45 am

Theater 1, Learning Center

### Wiley: Want people to read your paper? Here's how to optimize your chances...

Presenter: Andrew Moore, Editor-in-Chief

Level: Intermediate

Many people click on but don't fully read an article; others don't even find it. Many sound articles don't even get to peer review. Which factors influence the success of your manuscript, and at which stage, from submission to publication and final readership recognition? What are editors and reviewers looking for? Did you know that you're addressing different readerships at different stages of your manuscript's progress? How do search engines work, and how do editors work with authors to "optimize" their articles for findability and general "noticeability"? How has online reading psychology changed the game for authors? Learn more about these topics and how to write well. Visit the Wiley booth after the session to ask an editor about writing an editorial.

## ● Exhibitor Tech Talk

10:45-11:45 am

Theater 2, Learning Center

### Tecan: Rapid generation of compound serial dilutions for cell assays using an inkjet based dispensing technology

Presenter: Simon Fogarty, Director of Application Sciences

Level: Introductory

The Tecan D300e Digital Dispenser offers a simple method for rapidly generating compound serial dilutions, and compound combination or synergy experiments while minimizing DMSO concentration in the assay. Using HP's Direct Digital Dispensing technology, it provides picoliter to microliter non-contact dispensing of liquids directly into the cell plates, saving time, minimizing consumption of valuable samples, and accelerating research. From small molecules in DMSO to biomolecules in surfactant-containing aqueous solutions, this convenient bench-top solution allows rapid delivery of any dose to any well. Requiring almost no set-up time, it uses disposable Dispense heads to minimize dead volumes and virtually eliminates the risk of cross-contamination, offering high quality, low volume dispensing for a wide range of applications

● **Women in Cell Biology (WICB) Committee Awards Presentation/Mentoring Theater**

10:45 am-12:00 pm

Room 32B

**WICB Junior Award for  
Excellence in Research**



**Mihaela (Ela) Serpe**  
Eunice Kennedy Shriver National  
Institute of Child Health and  
Human Development, NIH

**WICB Mid-Career Award for  
Excellence in Research**



**Amy S. Gladfelter**  
Dartmouth College

**Sandra K. Masur Senior  
Leadership Award**



**Angelika Amon**  
Koch Institute for Integrative Cancer  
Research, Massachusetts Institute of  
Technology

**Mentoring Theater: Who Me? I'm Not Biased. Embracing Diversity to Improve Creativity**

Coordinators:

**Angela Wandinger-Ness**, University of New Mexico, **Paula Bubulya**, Wright State University, and **MariaElena Zavala**, California State University, Northridge

*Organized by the ASCB Women in Cell Biology Committee*

● **Morning with the Editors: An Open Discussion with Journal Editors**

10:45 am-12:00 pm

Room 29C

**Supported by Cell Biology International, through the International Federation for Cell Biology**

Moderator: **Bruce Alberts**, University of California, San Francisco, and former Editor-in-Chief of *Science*

Panelists:

**David Drubin**, University of California, Berkeley, and Editor-in-Chief, *Molecular Biology of the Cell*

**George Santangelo**, Office of Portfolio Analysis, NIH

**Sergio Schenkman**, Universidade Federal de São Paulo, Brazil, and Editor-in-Chief, *Cell Biology International*

**Ron Vale**, University of California, San Francisco/HHMI

**Mark Winey**, University of Colorado, Boulder, and Chair, ASCB Data Reproducibility Task Force

Following from the very successful interactive session, "An Afternoon with the Editors" that was held during last year's meeting, this panel discussion with audience input aims to address the following three hot topics associated with the publication of research:

1. Update on The San Francisco Declaration on Research Assessment (DORA).
2. Reproducibility of results.
3. The future of publishing, technology and what scholarly publishing will look like 10 years from now.

Panel members will address questions and comments from the audience.



## ● **Advocacy Toolbox: How to Start and Sustain a Policy Advocacy Group**

11:00 am-12:00 pm

Room 24A

Science policy advocacy isn't limited to Washington, DC. Science policy advocacy groups are starting up at institutions all across the United States. Come hear from leaders of these groups and learn how they started their groups. Learn about the do's and don'ts and get tips on how you can start your own student group.



**Kellyann Jones-Jamtgaard**

University of Kansas  
School of Medicine



**Anthony J. Koleske**

Yale University



**Julia Omotade**

Emory University



**Thomas D. Pollard**

Yale University



**Charles Easley**

Emory University

*Organized by the ASCB Public Policy Committee*

## ● **LGBTQ Diversity Session**

11:00 am-12:00 pm

Room 24B

**Chair: Bruno da Rocha-Azevedo**, Federal University of Rio de Janeiro, Brazil

All ASCB members are welcome to join us for one hour of scientific knowledge and career advice / networking for Lesbian, Gay, Bisexual, Transsexual, Queer Cell Biologists and diversity allies. The session includes a scientific presentation of an accomplished LGBTQ scientist and a career conversation between the speaker and the public.

11:00-11:10 am	Introduction. <b>Bruno da Rocha-Azevedo</b> , Federal University of Rio de Janeiro, Brazil
11:10-11:40 am	Mobilization of the actin cytoskeleton by microbial pathogens. <b>Matthew Welch</b> , University of California, Berkeley, Berkeley, CA
11:40 am-12:00 pm	Career advice and open discussion

## ● **Brazil: Opportunities for the Young: Fellowships, Resources, and Interactions**

11:00 am-12:00 pm

Room 23B

Coordinator: **Celia R.S. Garcia**, University of São Paulo, Brazil

Cell biology research in Brazil: Opportunities for young and senior scientists, Celia R.S. Garcia – University of Sao Paulo, Brazil

Support for Young Scientists in the State of Rio de Janeiro, **Jerson Lima Silva**, Director of Rio de Janeiro State Research Foundation FAPERJ

This session will highlight the fast growth of cell biology research in Brazil. The Rio de Janeiro State Research Foundation (FAPERJ) has a variety of programs that support postdoctoral fellows, young and senior investigators, and visiting researchers wishing to spend research time in Brazil. The agencies CNPq, CAPES, and FAPESP also have programs supporting cell biology research internships for Brazilian students in excellent research labs abroad.

*Organized by the ASCB International Affairs Committee*

TUESDAY

## ● Table Talk

11:00 am-12:00 pm

Roundtable Central Section 3, Learning Center

### Bringing Research into the Undergraduate Curriculum

Sarah Elgin, University of Washington in St. Louis

## ● Table Talk

11:30 am-12:30 pm

Roundtable Central Section 1, Learning Center

### Developing Case Studies in Cell Biology

Merri Lynn Casem, California State University

## ● Exhibitor Tech Talk

12:00-12:45 pm

Theater 2, Learning Center

### EMD Millipore: New advances in microfluidic control of cellular microenvironment with uninterrupted imaging allows for highly controllable, long-term, more in vivo-like cell culture studies

Presenters: Paul Hung and Kurt Thorn

Level: Intermediate

A major technical challenge for long-term analysis of cell behavior during in vitro culture is controlling and manipulating microenvironment parameters (temperature, gases, etc.) without moving the culture or impeding visualization. In this workshop, microfluidic design engineer Dr. Paul Hung (EMD Millipore) and video microscopy center Director Prof. Kurt Thorn (UCSF) discuss in detail the latest advancements in microfluidically controlled cell culture and live cell microscopy. The speakers will discuss cell culture considerations, microfluidic design and fabrication requirements, and integrating microfluidic systems with microscopy. The presenters then discuss a range of applications from bacterial biofilm dynamics to tumor metastasis to demonstrate cell shape analysis, individual cell tracking, and manipulation of the microenvironment followed by open discussion and a first look at “next generation” platforms.

## ● Odd-Numbered Poster Presentations

12:00-1:30 pm

Learning Center

## ● Microsymposium 13: Morphology of the Cytoskeleton Leading to Morphology in Development

12:00-1:10 pm

Microsymposia Room 1, Learning Center

Moderators: **Alana Gray**, Louisiana State University Health - Shreveport; **Gary McDowell**, Tufts University; and **Swaran Nandini**, University of Central Florida

12:00 pm		Introduction
12:05 pm	E85	Association of the RNAi machinery with the zonula adherens regulates growth-related signaling. <b>A. Kourtidis<sup>1</sup>, J.M. Carr<sup>1</sup>, I.K. Yan<sup>1</sup>, T. Patel<sup>1</sup>, E.A. Thompson<sup>1</sup>, P.Z. Anastasiadis<sup>1</sup></b> ; <sup>1</sup> Department of Cancer Biology, Mayo Clinic, Jacksonville, FL
12:10 pm	E86	Cell shape changes required for brain morphogenesis are mediated by calcium signaling and non-muscle myosin II. <b>S.U. Sahu<sup>1</sup>, C. Kwas<sup>1</sup>, M.R. Visetsouk<sup>1</sup>, R.J. Garde<sup>1</sup>, J.H. Gutzman<sup>1</sup></b> ; <sup>1</sup> Biological Sciences, University of Wisconsin-Milwaukee, Milwaukee, WI
12:15 pm	E87	Epithelial cell migration in the intestinal villi depends on actin-driven cell protrusions and mitotic pressure in the crypts. <b>D. Krndija<sup>1</sup>, E. Hannezo<sup>2</sup>, S. Richon<sup>1</sup>, A. Simon<sup>1</sup>, D.M. Vignjevic<sup>1</sup></b> ; <sup>1</sup> UMR 144, Institut Curie, Paris, France, <sup>2</sup> Cavendish Laboratory, University of Cambridge, Cambridge, UK
12:20 pm	E88	Muscle-specific ribosome synthesis coordinates overall body growth and development in <i>Drosophila</i> by regulating systemic insulin signaling. <b>S.S. Grewal<sup>1</sup>, A. Ghosh<sup>1</sup></b> ; <sup>1</sup> Biochemistry and Molecular Biology, University of Calgary, Calgary, AB
12:25 pm	E89	Mechanics serves as an instructional cue driving heart progenitor cells to undergo a mesenchymal-to-epithelial transition during early heart morphogenesis. <b>T.R. Jackson<sup>1</sup>, H. Kim<sup>1</sup></b> ,

- L.A. Davidson**<sup>1,2,3</sup>; <sup>1</sup>Department of Bioengineering, University of Pittsburgh, Pittsburgh, PA, <sup>2</sup>Department of Developmental Biology, University of Pittsburgh, Pittsburgh, PA, <sup>3</sup>Department of Computational and Systems Biology, University of Pittsburgh, Pittsburgh, PA
- 12:30 pm E90 Mechanical strain guides the formation of global planar axis in ciliated epithelia. **Y. Chien**<sup>1</sup>, **R. Keller**<sup>2</sup>, **C. Kintner**<sup>1</sup>, **D. Shook**<sup>2</sup>; <sup>1</sup>Molecular Neurobiology Laboratory, Salk Institute for Biological Studies, La Jolla, CA, <sup>2</sup>Department of Biology, University of Virginia, Charlottesville, VA
- 12:35 pm E91 Gut on the chip: extracellular matrix composition and crypt-villus topography dictate the growth and maintenance of intestinal epithelium. **M. Verhulsel**<sup>1</sup>, **A. Simon**<sup>2</sup>, **D. Ferraro**<sup>1</sup>, **C. Bureau**<sup>1</sup>, **J. Viovy**<sup>1</sup>, **S. Descroix**<sup>1</sup>, **D.M. Vignjevic**<sup>2</sup>; <sup>1</sup>UMR 168, Institut Curie, Paris, France, <sup>2</sup>UMR 144, Institut Curie, Paris, France

## ● Microsymposium 14: Actin Cytoskeleton Dynamics

12:00-1:10 pm

Microsymposia Room 2, Learning Center

Moderators: **Pinar Gurel**, National Heart, Blood, and Lung Institute, NIH; and **Scott Wilkinson**, Emory University

- 12:00 pm Introduction
- 12:05 pm E92 Sharpin is a novel activator of the Arp2/3 complex. **M.H. Khan**<sup>1,2</sup>, **S. Salomaa**<sup>1</sup>, **A. Augenlicht**<sup>1</sup>, **T. Deguchi**<sup>3</sup>, **G. Jacquemet**<sup>4</sup>, **E. Kremneva**<sup>5</sup>, **A. Byron**<sup>4</sup>, **M.J. Humphries**<sup>4</sup>, **P. Hänninen**<sup>3</sup>, **P. Lappalainen**<sup>5</sup>, **J. Pouwels**<sup>1</sup>; <sup>1</sup>Centre for Biotechnology, University of Turku, Turku, Finland, <sup>2</sup>Turku Doctoral Programme of Molecular Medicine, University of Turku, Turku, Finland, <sup>3</sup>Laboratory of Biophysics, University of Turku, Turku, Finland, <sup>4</sup>Faculty of Life Sciences, University of Manchester, Manchester, UK, <sup>5</sup>Institute of Biotechnology, University of Helsinki, Helsinki, Finland
- 12:10 pm E93 Nuclear actin interactome reveals new functions for actin in the nucleus. **T. Viita**<sup>1</sup>, **G. Huet**<sup>1</sup>, **H. Asan-Liski**<sup>1</sup>, **A. Hyrskyluoto**<sup>1</sup>, **J. Virtanen**<sup>1</sup>, **M. Varjosalo**<sup>1</sup>, **M.K. Vartiainen**<sup>1</sup>; <sup>1</sup>Institute of Biotechnology, University of Helsinki, Helsinki, Finland
- 12:15 pm E94 Palladin promotes actin polymerization at pointed ends. **R. Gurung**<sup>1</sup>, **R. Yadav**<sup>1</sup>, **M.R. Beck**<sup>1</sup>; <sup>1</sup>Chemistry, Wichita State University, Wichita, KS
- 12:20 pm E95 Identification of the possible states of organisation of the actin cytoskeleton using high content image screening of a high diversity chemical library. **N.S. Bryce**<sup>1</sup>, **A. De Laurentis**<sup>1,2</sup>, **T. Failes**<sup>3</sup>, **G.M. Arndt**<sup>3</sup>, **J.R. Stehn**<sup>1</sup>, **E.C. Hardeman**<sup>1</sup>, **P.W. Gunning**<sup>1</sup>; <sup>1</sup>School of Medical Sciences, UNSW Australia, Sydney, Australia, <sup>2</sup>Department of Clinical and Experimental Medicine, University Magna Graecia of Catanzaro, Catanzaro, Italy, <sup>3</sup>ACRF Drug Discovery Centre for Childhood Cancer, Children's Cancer Institute Australia, Lowy Cancer Research Centre, UNSW Australia, Sydney, Australia
- 12:25 pm E96 EB1, CLIP-170, and mDia1 trigger ultrafast actin filament polymerization from microtubule plus ends. **J.L. Henty-Ridilla**<sup>1</sup>, **A. Rankova**<sup>1</sup>, **J. Eskin**<sup>1</sup>, **B.L. Goode**<sup>1</sup>; <sup>1</sup>Biology, Brandeis University, Waltham, MA
- 12:30 pm E97 Myosin VIII links actin to microtubules during polarized growth. **S. Wu**<sup>1</sup>, **M. Bezanilla**<sup>1</sup>; <sup>1</sup>Biology, University of Massachusetts Amherst, Amherst, MA
- 12:35 pm E98 Molecular mechanisms of force transmission through linkers of the nucleoskeleton and cytoskeleton. **Z. Jahed**<sup>1</sup>, **M. Mofrad**<sup>1</sup>, **H. Shams**<sup>1</sup>; <sup>1</sup>Bioengineering, University of California, Berkeley, CA

TUESDAY

## ● Exhibitor In-Booth Presentation

12:00 pm

Booth 934

**Abcam, Inc: Immunostaining: From sample prep through troubleshooting and beyond**

Presenter: Thomas Novak, Abcam Scientific Support Specialist

## ● Afternoon Refreshment Break

12:00-4:00 pm

Join us for ice tea and snacks while visiting exhibitors and viewing posters.

## ● Exhibitor Tech Talk

12:00-12:45 pm

Theater 1, Learning Center

### **GE Healthcare: Quantitative Western blotting: improving your data quality and reproducibility**

Presenter: Viola Ruddat, Imaging Sales Specialist

Level: Intermediate

Western blots have been around for over 30 years and are used in practically every life science laboratory. Equally well known, but often not satisfactorily addressed, are the challenges of reproducibility and the difficulty in obtaining accurate quantitative data and reliable results from Western blot experiments. This talk will describe the new Amersham WB system for SDS PAGE and Western blotting. Detection is based on fluorescence and the methods are standardized with built-in evaluation software. The issues of reproducibility will be explored in more depth and how to obtain higher quality data will be discussed, with a focus on those key factors necessary to create consistent, quantifiable results.

## ● Navigating the New NIH Biosketch

1:00-1:55 pm

Career Center Theater, Learning Center

**Sue Biggins**, Fred Hutchinson Cancer Research Center; **Rebecca Heald**, University of California, Berkeley; **Sandra Masur**, Icahn School of Medicine at Mount Sinai Hospital; and **Claire Walczak**, Indiana University

This workshop will discuss the mandatory changes that the NIH made to the biosketch format. Learn how to most effectively highlight your work in the new “impact” section and obtain additional tips about tools available to streamline the process. You are welcome to bring your biosketch for feedback from the organizers.

## ● Exhibitor Tech Talk

1:00-1:45 pm

Theater 1, Learning Center

### **Beckman Coulter Life Sciences: Extracellular vesicle isolation by flow cytometric sorting and characterization by analytical ultra-centrifugation and dynamic light scatter**

Presenters: Carley Ross and Thomas Ramin

Level: Intermediate

The extracellular vesicle (EV) research field has dramatically increased in the last five years. Using a high-speed flow cytometric sorter, EVs may be isolated at high rates such that researchers can differentially separate, isolate, and characterize the EVs for downstream analysis. EVs contaminated with proteins, dye, or antibody aggregates of the same size, but different mass, can be characterized based on these physical properties in the analytical ultra-centrifuge. We demonstrate that the XLA/I Analytical Ultracentrifuge (AUC) effectively separated particles on their sedimentation velocity and clarified issues with dye aggregation vs EV staining. Additionally, the DelsaMax Particle Characterizer allowed for quick analysis of post-sorted populations. The Astrios EQ Cell Sorter was able to sort EVs and AUC provided additional analysis for exosome purity.

## ● Exhibitor Tech Talk

1:00-1:45 pm

Theater 2, Learning Center

### Andor: Fast and sensitive camera technologies for microscopy

Presenter: Colin Coates

Level: Intermediate

We will discuss state-of-the-art, ultrasensitive, high speed camera technology applications such as dynamic live cell imaging, single molecule detection, and super-resolution microscopy. sCMOS is a new high-performance imaging technology that can be considered progressive in its ability to simultaneously offer extremely low noise, rapid frame rates, wide dynamic range, high resolution and a large field of view, overcoming many performance trade-offs that are commonly associated with CCD detectors. EMCCDs however, retain the advantage of single photon sensitivity and often remain the best choice for extremely low light imaging. This workshop will discuss and clarify the key sensor characteristics for consideration when selecting the optimum solution for your low light fluorescence microscopy application.

## ● Exhibitor In-Booth Presentation

1:00-2:00 pm

Booth 1235/1237

### National Institutes of Health (NIH): National Institute of General Medical Sciences (NIGMS) and Center for Scientific Review (CSR)

Presenters: NIGMS Program Directors and CSR Scientific Review Officers

Maximizing Investigators' Research Award (MIRA)

## ● Microsymposium 15: Membrane Regulation and Signaling

1:25-2:35 pm

Microsymposia Room 1, Learning Center

Moderators: **Brooke Gardner**, University of California, Berkeley; and **Courtney Schroeder**, University of California, San Francisco

1:25 pm		Introduction
1:30 pm	E99	A tale of deception told in 3D: Golgi modifications by an alphavirus to engineer its exit-pod. <b>R. Sengupta</b> <sup>1</sup> , <b>E. Mihelc</b> <sup>1</sup> , <b>S. Angel</b> <sup>1</sup> , <b>R.J. Kuhn</b> <sup>1</sup> , <b>J.K. Lanman</b> <sup>1</sup> ; <sup>1</sup> Biological Sciences, Purdue University, West Lafayette, IN
1:35 pm	E100	Identification of a novel negative regulator of lipophagy and its role in macrophage foam cell formation. <b>T.Y. Nazarko</b> <sup>1</sup> , <b>S.H. Choi</b> <sup>2</sup> , <b>A. Glieder</b> <sup>3</sup> , <b>Y.I. Miller</b> <sup>2</sup> , <b>S. Subramani</b> <sup>1</sup> ; <sup>1</sup> Section of Molecular Biology, UC San Diego, La Jolla, CA, <sup>2</sup> Department of Medicine, UC San Diego, La Jolla, CA, <sup>3</sup> Institute of Molecular Biotechnology, Graz University of Technology, Graz, Austria
1:40 pm	E101	Activated GPCRs exit cilia through ectosome release or BBSome-mediated retrieval. <b>A.R. Nager</b> <sup>1</sup> , <b>F. Ye</b> <sup>1</sup> , <b>V. Herranz-Pérez</b> <sup>2</sup> , <b>J.S. Lee</b> <sup>1</sup> , <b>J. Manuel Garcia-Verdugo</b> <sup>2</sup> , <b>M.V. Nachury</b> <sup>1</sup> ; <sup>1</sup> Department of Molecular and Cellular Physiology, Stanford University School of Medicine, Stanford, CA, <sup>2</sup> Laboratorio de Neurobiología Comparada, Instituto Cavanilles, Universitat de València, Valencia, Spain
1:45 pm	E102	Intercellular communication pathways are hijacked by bacterial pathogens during cell-to-cell spread. <b>R. Lamason</b> <sup>1</sup> , <b>M.D. Welch</b> <sup>1</sup> ; <sup>1</sup> MCB, UC Berkeley, Berkeley, CA
1:50 pm	E103	Endocytic membrane-associated septins are required for macropinosome maturation and fusion with lysosomes. <b>L. Dolat</b> <sup>1</sup> , <b>E.T. Spiliotis</b> <sup>1</sup> ; <sup>1</sup> Biology, Drexel University, Philadelphia, PA
1:55 pm	E104	$\beta$ -arrestin drives MAP kinase signaling after dissociating from its activating GPCR through kinetic arrest of clathrin-mediated endocytosis. <b>K. Eichel</b> <sup>1</sup> , <b>D. Jullié</b> <sup>1</sup> , <b>M.E. Von Zastrow</b> <sup>1,2</sup> ; <sup>1</sup> Psychiatry, University of California, San Francisco, San Francisco, CA, <sup>2</sup> Cellular Molecular Pharmacology, University of California, San Francisco, San Francisco, CA
2:00 pm	E105	Autophagy preserves the functional capacity of hematopoietic stem cells during aging. <b>T.T. Ho</b> <sup>1</sup> , <b>M.R. Warr</b> <sup>1</sup> , <b>J. Debnath</b> <sup>2</sup> , <b>E. Passegue</b> <sup>1</sup> ; <sup>1</sup> Department of Medicine, University of California, San Francisco, San Francisco, CA, <sup>2</sup> Department of Pathology, University of California, San Francisco, San Francisco, CA

TUESDAY

## ● Microsymposium 16: Cell Biology of Genetic Information

1:25-2:35 pm

Microsymposia Room 2, Learning Center

Moderators: **Abigail Buchwalter**, Salk Institute of Biological Studies; and **Melissa Pamula**, Rockefeller University

1:25 pm		Introduction
1:30 pm	E106	Cell-to-cell transfer of mRNA via membrane nanotubes. <b>G. Haimovich</b> <sup>1</sup> , <b>J.E. Gerst</b> <sup>1</sup> , <b>R.H. Singer</b> <sup>2,3</sup> ; <sup>1</sup> Molecular Genetics, Weizmann Institute of Science, Rehovot, Israel, <sup>2</sup> Anatomy Structural Biology, Albert Einstein College of Medicine, Bronx, New York, NY, <sup>3</sup> Dominick P. Purpura Department of Neuroscience, Albert Einstein College of Medicine, Bronx, New York, NY
1:35 pm	E107	Association of heterochromatin with the nuclear envelope drives nuclear stiffness. <b>S.M. Schreiner</b> <sup>1</sup> , <b>Y. Zhao</b> <sup>2</sup> , <b>P. Koo</b> <sup>2</sup> , <b>S. Mochrie</b> <sup>2,3</sup> , <b>M.C. King</b> <sup>1</sup> ; <sup>1</sup> Cell Biology, Yale School of Medicine, New Haven, CT, <sup>2</sup> Physics, Yale University, New Haven, CT, <sup>3</sup> Applied Physics, Yale University, New Haven, CT
1:40 pm	E108	Constricted cell migration drives lamin segregation, repair factor demixing, and DNA damage. <b>J. Irianto</b> <sup>1</sup> , <b>C.R. Pfeifer</b> <sup>1</sup> , <b>A. Athirasala</b> <sup>1</sup> , <b>I.L. Ivanovska</b> <sup>1</sup> , <b>R.A. Greenberg</b> <sup>2</sup> , <b>D.E. Discher</b> <sup>1</sup> ; <sup>1</sup> Biophysical Engineering Labs, University of Pennsylvania, Philadelphia, PA, <sup>2</sup> Department of Cancer Biology, Abramson Family Cancer Research Institute, University of Pennsylvania School of Medicine, Philadelphia, PA
1:45 pm	E109	Structural insights into the recognition of the histone tails by karyopherins. <b>M. Soniat</b> <sup>1,2</sup> , <b>Y. Choock</b> <sup>1,2</sup> ; <sup>1</sup> Pharmacology, University of Texas Southwestern, Dallas, TX, <sup>2</sup> Biophysics, University of Texas Southwestern, Dallas, TX
1:50 pm	E110	Protein turnover and dynamics spanning seconds to months in non-dividing cells. <b>B.H. Toyama</b> <sup>1</sup> , <b>M.W. Hetzer</b> <sup>1</sup> ; <sup>1</sup> Molecular and Cell Biology Laboratory, The Salk Institute for Biological Studies, La Jolla, CA
1:55 pm	E111	Slicing activity of the Argonaute CSR-1 tunes expression of germline genes to control embryonic cell division and germline development. <b>A. Gerson-Gurwitz</b> <sup>1</sup> , <b>S. Wang</b> <sup>1</sup> , <b>R.A. Green</b> <sup>1</sup> , <b>K. Oegema</b> <sup>1</sup> , <b>A.B. Desai</b> <sup>1</sup> ; <sup>1</sup> Dep. of Cellular Molecular Medicine, Ludwig Cancer Research, San Diego, CA
2:00 pm	E112	NuMA regulates the mobility of 53BP1 in the cell nucleus and its accumulation at DNA damage sites. <b>P. Vidi</b> <sup>1</sup> , <b>J. Liu</b> <sup>2</sup> , <b>M. Gray</b> <sup>3</sup> , <b>L. Parker</b> <sup>4</sup> , <b>J. Irudayaraj</b> <sup>2</sup> , <b>S.A. Lelievre</b> <sup>3</sup> ; <sup>1</sup> Cancer Biology, Wake Forest School of Medicine, Winston-Salem, NC, <sup>2</sup> Agricultural and Biological Engineering, Purdue University, West Lafayette, IN, <sup>3</sup> Basic Medical Sciences, Purdue University, West Lafayette, IN, <sup>4</sup> Biochemistry, Molecular Biology and Biophysics, University of Minnesota, Saint Paul, MN

## ● Table Talk

1:30-2:30 pm

Roundtable Central Section 1, Learning Center

### Crafting a Research Statement That Is Undergraduate Research Friendly

**Karen Resendes**, Westminster University; and **Michael Palladino**, Monmouth University

## ● Even-Numbered Poster Presentations

1:30-3:00 pm

Learning Center

## ● Career Panel: Industry and Sales

2:00-2:55 pm

Career Center Theater, Learning Center

These panelists will give a short talk about their career experiences and then will address individual questions from the audience.

**Di Mo**, PhD, is a Global Channel Partner Sales Specialist with Illumina. She obtained a PhD in Integrative Molecular Biology from the University of Pittsburgh School of Medicine in 2012. After her graduate training, she completed a postdoctoral fellowship at the National Institutes of Health in Bethesda, MD. Mo developed an interest in sales and marketing and subsequently accepted a position as a marketing manager at a biotech company based in Baltimore, MD. She moved to San Diego with her husband to join Illumina as an Inside Sales Representative in 2013. While at Illumina, she supported several districts with consistent track records of exceeding territory sales objectives by generating new business and growing existing accounts. In 2015, she transitioned to Global Channel Partner team as a Sales Specialist within Illumina to support distributors in APAC and China. She manages channel partner trainings, compliance programs, business reviews, and creates sales programs/activities to help drive sales in global distributor regions.

**Jonah Cool**, PhD, is a Scientist in the Therapeutics group of Organovo, Inc. His primary roles focus on the development of regenerative medicine applications using Organovo's proprietary bioprinting platform. Prior to Organovo, his training was completed at Duke University Medical Center and the Salk Institute for Biological Science. His work examined the role of remodeling vasculature on organ formation and progenitor cell differentiation.

**Prithwish Pal**, PhD, Senior Product Manager, joined Illumina in 2014, after stints both in academia and industry, which provided him with a unique perspective on research and driving products toward success. As part of his PhD in Biophysics, he studied structural mechanisms of membrane protein function using fluorescence-based techniques, which he followed up with a postdoc at Klaus Hahn's lab at University of North Carolina, Chapel Hill, developing tools for spatio-temporal imaging in live cells. Subsequently, he transitioned to the industry, initially as a scientist developing nanopore-based DNA sequencing technologies, followed by various commercial roles, including business development for an ion-channel recording device, marketing for cancer diagnostic kits, business analysis for a personalized cancer therapy center, and market development for a lab-sharing marketplace startup. In his latest role as Senior Product Manager at Illumina, he manages product development and marketing for a cloud-based platform for storage, analysis, and sharing of genomics data.

*Organized by the Committee for Postdocs and Students (COMPASS)*

## ● Exhibitor Tech Talk

2:00-2:45 pm

Theater 1, Learning Center

### **Thermo Fisher Scientific: Automated protein detection - the future of Westerns**

Presenter: Kevin Lowitz, Senior Product Manager, Protein & Cellular Analysis

Level: Intermediate

Western blotting remains one of the most ubiquitous techniques used by life science researchers around the world to advance their understanding of various disease areas such as cancer and immunology. Learn how new product innovations are providing more flexibility and better results than ever before to address a time-consuming and error-prone method for protein analysis.

We will discuss the new iBind™ Flex Western System to highlight:

- Sequential lateral flow technology for hands-free immunodetection
- Optimized platform for improved performance and potential cost savings
- Broad compatibility across the entire Western workflow

## ● Exhibitor Tech Talk

2:00-2:45 pm

Theater 2, Learning Center

### **Essential Pharmaceuticals: Variables in FBS impact cell performance, reproducibility, and relevant experimental results**

Presenter: Adam Elhofy, PhD, CSO

Level: Introductory

Fetal bovine serum (FBS) has been used in cell culture for decades. Even though it introduces the greatest variability into cell culture,

surprisingly FBS is not intensely scrutinized as a reagent. The use of FBS in cell culture applications will be examined, as its use may go against the basic principles of scientific experimentation in that the variables are not controlled for, it contains unknowns, and results from experiments using FBS in cell culture potentially cannot be replicated.

## ● **Microsymposium 17: Spindle Assembly and Chromosome Dynamics**

2:50-4:00 pm

Microsymposia Room 1, Learning Center

Moderators: **Christopher Maxwell**, University of British Columbia, Canada; and **Melissa Pamula**, Rockefeller University

2:50 pm		Introduction
2:55 pm	E113	DNA replication-timing maps reveal dynamic chromatin domains in the developing zebrafish embryo. <b>J.C. Siefert</b> <sup>1,2</sup> , <b>C.L. Sansam</b> <sup>1,2</sup> , <b>A. Koren</b> <sup>3</sup> ; <sup>1</sup> Cell Cycle & Cancer Biology Research Program, Oklahoma Medical Research Foundation, Oklahoma City, OK, <sup>2</sup> Department of Cell Biology, University of Oklahoma Health Science Center, Oklahoma City, OK, <sup>3</sup> Department of Molecular Biology and Genetics, Cornell University, Ithaca, NY
3:00 pm	E114	Altered epidermal development and growth control, without perturbed homeostasis or tumorigenesis, in the presence of centrosome amplification. <b>A. Kulukian</b> <sup>1</sup> , <b>A. Holland</b> <sup>2</sup> , <b>B.D. Vitre</b> <sup>2</sup> , <b>D.W. Cleveland</b> <sup>2</sup> , <b>E. Fuchs</b> <sup>1</sup> ; <sup>1</sup> Mammalian Cell Biology and Development, Rockefeller University, New York, NY, <sup>2</sup> Ludwig Institute for Cancer Research; Dept of Cellular and Molecular Medicine, University of California San Diego, La Jolla, CA
3:05 pm	E115	Operational characteristics of the kinetochore-based signaling reactions of the spindle assembly checkpoint. <b>P. Aravamudhan</b> <sup>1</sup> , <b>R. Chen</b> <sup>2</sup> , <b>J.H. Sim</b> <sup>2</sup> , <b>A.P. Joglekar</b> <sup>2</sup> ; <sup>1</sup> Biophysics, University of Michigan, Ann Arbor, MI, <sup>2</sup> Cell and Developmental Biology, University of Michigan, Ann Arbor, MI
3:10 pm	E116	Probing the physical inputs controlling the spindle assembly checkpoint. <b>J.A. Kuhn</b> <sup>1,2</sup> , <b>S. Dumont</b> <sup>1,3</sup> ; <sup>1</sup> Cell and Tissue Biology, University of California, San Francisco, San Francisco, CA, <sup>2</sup> Tetrad Graduate Program, University of California, San Francisco, San Francisco, CA, <sup>3</sup> Cellular and Molecular Pharmacology, University of California, San Francisco, San Francisco, CA
3:15 pm	E117	Differential chromatin states can regulate chromosome length scaling. <b>A. Ladouceur</b> <sup>1</sup> , <b>L. Smith</b> <sup>1</sup> , <b>J.G. Lawrimore</b> <sup>1</sup> , <b>K.S. Bloom</b> <sup>1</sup> , <b>P.S. Maddox</b> <sup>1</sup> ; <sup>1</sup> Biology, University of North Carolina, Chapel Hill, NC
3:20 pm	E118	Cooperation between kinesin motors promotes spindle symmetry and chromosome organization in oocytes. <b>S.J. Radford</b> <sup>1</sup> , <b>A.M. Go</b> <sup>1,2</sup> , <b>K.S. McKim</b> <sup>1,2</sup> ; <sup>1</sup> Waksman Institute, Rutgers University, Piscataway, NJ, <sup>2</sup> Department of Genetics, Rutgers University, Piscataway, NJ
3:25 pm	E119	Timing and pattern of release of chromosome cohesion differs between species with monocentric and holocentric chromosomes. <b>K.D. Felt</b> <sup>1</sup> , <b>S. Thibault</b> <sup>1</sup> , <b>A.M. Martens</b> <sup>1</sup> , <b>L.V. Paliulis</b> <sup>1</sup> ; <sup>1</sup> Biology Department, Bucknell University, Lewisburg, PA

## ● **Microsymposium 18: Cell Mechanics and Adhesion**

2:50-4:00 pm

Microsymposia Room 2, Learning Center

Moderators: **Bruno Da Rocha-Azevedo**, Federal University of Rio de Janeiro; and **Cristian Suarez**, University of Chicago

2:50 pm		Introduction
2:55 pm	E120	AMPK: A novel link between E-cadherin force transmission and cell metabolism. <b>J.L. Bays</b> <sup>1</sup> , <b>C. Heidema</b> <sup>1</sup> , <b>W. Hacker</b> <sup>1</sup> , <b>K.A. DeMali</b> <sup>1</sup> ; <sup>1</sup> Department of Biochemistry, University of Iowa, Iowa City, IA
3:00 pm	E121	Force regulation of talin unfolding by a molecular clutch defines cell rigidity sensing and transduction. <b>A. Elosegui-Artola</b> <sup>1</sup> , <b>R. Oria</b> <sup>1,2</sup> , <b>Y. Chen</b> <sup>3,4</sup> , <b>A. Kosmalska</b> <sup>1,2</sup> , <b>C. Pérez-González</b> <sup>1,2</sup> , <b>N. Castro</b> <sup>1</sup> , <b>C. Zhu</b> <sup>3,4,5</sup> , <b>X. Trepate</b> <sup>1,2,6</sup> , <b>P. Roca-Cusachs</b> <sup>1,2</sup> ; <sup>1</sup> Institute for Bioengineering of Catalonia, Barcelona, Spain, <sup>2</sup> University of Barcelona, Barcelona, Spain, <sup>3</sup> Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, <sup>4</sup> Parker H. Petit Institute for Bioengineering and Bioscience, Georgia Institute of Technology, Atlanta, GA, <sup>5</sup> Coulter Department of Biomedical Engineering, Georgia Institute of Technology, Atlanta, GA, <sup>6</sup> Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain
3:05 pm	E122	T cell membrane adhesion and organization on engineered surrogate antigen presenting cells.



		<b>P. Dillard</b> <sup>1,2</sup> , <b>F. Pi</b> <sup>1</sup> , <b>L. Limozin</b> <sup>2</sup> , <b>K. Sengupta</b> <sup>1</sup> ; <sup>1</sup> AMU-CNRS UMR 7325, CINaM, Marseille, France, <sup>2</sup> INSERM UMR 1067 AMU-CNRS UMR 7333, LAI, Marseille, France
3:10 pm	E123	Mechano-sensitivity of nascent adhesions on soft substrates revealed by fluorescence fluctuation analysis and traction microscopy. <b>S.J. Han</b> <sup>1</sup> , <b>A. Bachir</b> <sup>2</sup> , <b>A.R. Horwitz</b> <sup>2</sup> , <b>G. Danuser</b> <sup>1</sup> ; <sup>1</sup> Department of Cell Biology, University of Texas Southwestern Medical Center, Dallas, TX, <sup>2</sup> Department of Cell Biology, University of Virginia, Charlottesville, VA
3:15 pm	E124	Protein tyrosine kinases control local pinching involved in adhesion-dependent mechanosensing. <b>B. Yang</b> <sup>1</sup> , <b>Z. Lieu</b> <sup>1</sup> , <b>H. Wolfenson</b> <sup>2</sup> , <b>F.M. Hameed</b> <sup>1</sup> , <b>A.D. Bershadsky</b> <sup>1,3</sup> , <b>M.P. Sheetz</b> <sup>1,2</sup> ; <sup>1</sup> Mechanobiology Institute, National University of Singapore, Singapore, <sup>2</sup> Columbia University, Department of Biological Sciences, New York, NY, <sup>3</sup> Weizmann Institute of Science, Department of Molecular Cell Biology, Rehovot, Israel
3:20 pm	E125	Catch-bond adhesion of filopodia: involvement of myosin II and formins. <b>N.O. Alieva</b> <sup>1</sup> , <b>A.K. Efremov</b> <sup>1</sup> , <b>S. Hu</b> <sup>1</sup> , <b>M. Natarajan</b> <sup>1</sup> , <b>A.D. Bershadsky</b> <sup>1,2</sup> ; <sup>1</sup> National University of Singapore, Mechanobiology Institute, Singapore, <sup>2</sup> Weizmann Institute of Science, Rehovot, Israel
3:25 pm	E126	Targeting adhesive molecules to prevent protective cancer cell niches. <b>J.L. Young</b> <sup>1</sup> , <b>S. Klar</b> <sup>2</sup> , <b>J.P. Spatz</b> <sup>1,3</sup> ; <sup>1</sup> New Materials and Biosystems, Max Planck Institute for Intelligent Systems, Stuttgart, Germany, <sup>2</sup> Biomedical Sciences, Reutlingen University, Reutlingen, Germany, <sup>3</sup> Biophysical Chemistry, Heidelberg University, Heidelberg, Germany

## ● Celldance Videos, Elevator Speech Contest Finals, and Comic Contest Awards

3:00-4:00 pm

Theater 1, Learning Center

Celldance Studios (a.k.a. the ASCB Public Information Committee) has once again bankrolled three ASCB member labs with \$1,000 each to make a “Tell Your Own Cell Story” video, featuring live cell imaging and aimed at biology educators, the news media, and the general public. NIH Director Francis Collins called last year’s Celldance videos “microscopic blockbusters.” Come see this year’s biggest little pictures and meet the filmmakers.

We will also announce the winners of the One-Minute All-Video Elevator Speech Contest, which takes the video selfie, ASCB members, and public outreach to new heights.

The winners of the Comic Contest run by ASCB’s Committee for Postdocs and Graduate Students (COMPASS) will also be revealed.

## ● Exhibitor Tech Talk

3:00-4:00 pm

Theater 2, Learning Center

### Essen BioScience: Novel kinetic live cell imaging assays for T cell killing of tumor cells

Presenter: Daniel Appledorn

Level: Advanced

Cancer immunotherapy offers the potential for eradication of tumor cells and the prevention of cancer recurrence. In this study, we describe live cell imaging assays designed to quantify T cell killing of tumor cells in co-culture. PBMCs or isolated CD8+ T cells were added to tumor cells in combination with activators and a non-perturbing caspase-3/7 reagent in 96 or 384-well plates. Phase and 2-color images were captured using IncuCyte ZOOM™. Tumor cells and apoptotic cells were quantified using image analysis. These data demonstrate that a live cell imaging approach can discern the full time course and specificity of T cell killing, without lifting cells, using Ab labels or radioisotopes. HD images and time-lapse movies facilitate a clear understanding and compelling verification of the underlying biology.

## ● Research in Cell Biology in France: Opportunities and Tips

3:00-4:00 pm

Room 23B

Presenters: **Thierry Galli**, Deputy Director of Multi-Organization-Thematic-Institute of Cell Biology, Development and Evolution and **Corinne Albiges-Rizo**, President, French Society for Cell Biology

This session will highlight current cell biology research, education, and scientific publication activities in France. It will also discuss the potential opportunities for career development, particularly for young researchers, and for international collaboration on fundamental and translational research. The event is specifically designed for those who plan to explore employment opportunities (PhD theses, postdoc, researcher position, and young group leaders, sabbatical) and/or establish collaborative efforts in France.

*Organized by the ASCB International Affairs Committee*

## ● Career Panel: Research Development and Grant Administration

3:00-4:00 pm

Career Center Theater, Learning Center

These panelists will give a short talk about their career experiences and then will address individual questions from the audience.

**Alexandra Ainsztein**, PhD, is a Program Director in the Division of Cell Biology and Biophysics, National Institute of General Medical Sciences, NIH. She manages research grants related to membrane trafficking, the molecular mechanisms and dynamics of the secretory pathway and organelle biogenesis, as well as all aspects of the cell biology of the nucleus. Before joining the Institute, she served as a scientific review officer in the NIH Center for Scientific Review. Ainsztein earned a BA in biochemistry from Brandeis University, a PhD in biochemistry and molecular biology from the University of Florida, and then did postdoctoral research in cell biology at Johns Hopkins University, the University of Edinburgh, and NIH's National Institute of Child Health and Human Development.

**Sharon E.R. Franks**, PhD, is Director of the Research Proposal Development Service (RPDS) at University of California, San Diego, where she works with faculty throughout campus to facilitate the development of major interdisciplinary funding proposals. Since the establishment of RPDS in 2009, Sharon has provided guidance, coordination, and in-depth support for more than 80 research proposals to federal, state, and private sponsors including NSF, NIH, DOE, DoD, USDA, CIRM, and the Packard, Moore, and Sloan Foundations, among others. The majority of these proposals were multimillion-dollar, multi-investigator, multi-institution, interdisciplinary proposals with budgets totaling more than \$900 million. Among her other responsibilities are management of the campus' limited submissions process, implementation of professional development programs for early career investigators, strategic planning for the identification and dissemination of funding opportunities, and coordination of a \$2 million California neurotechnology seed grant program. Prior to launching RPDS, Frankis created and led institutionalization of a proposal development initiative that helped faculty and other researchers at UC San Diego's Scripps Institution of Oceanography address NSF's broader impacts review criterion. Sharon earned a BA in Earth Sciences from Dartmouth College and a PhD in Oceanography from Oregon State University.

*Organized by the ASCB Committee for Postdocs and Students (COMPASS)*

## ● Science Discussion Tables

3:00-3:50 pm

Roundtable Central Section 3, Learning Center

Whether you're a student, postdoc, or PI, ASCB will again offer special networking opportunities with senior scientists and peers. Select your interest area and bring your questions to the ASCB Learning Center in the San Diego Convention Center.

Table No.	Presenter	Topic
1	<b>Mina Bissell</b>	What regulates P53 activity in physiological conditions. Minain normal breast?
2	<b>Daniela Cimini</b>	Aneuploidy
3	<b>Elizabeth Marincola</b>	Open Access
4	<b>Kathleen Green</b>	Cell adhesion and signaling
5	<b>Rebecca Heald</b>	Cell division and biological size control
6	<b>Denise Montell</b>	Cell adhesion, cell migration, cell survival

7	<b>Samara Reck-Peterson</b>	Cytoskeletal molecular motors
8	<b>Forest Rohwer</b>	Microbiomes and Holobionts
9	<b>Gia Voeltz</b>	Organelle biogenesis

## ● ASCB Business Meeting

3:00-4:00 pm

ASCB Booth (721) Theater, Learning Center

Join leaders of the ASCB to learn about the state of the Society and the passing of the gavel from Shirley Tilghman to Peter Walter.

## ● Large-Scale Data Workshop: Image Analysis in Quantitative Microscopy

3:00-6:25 pm

Room 31B

### Supported by Hamamatsu Corporation

Presenters: **Mark Bray** and **Anne E. Carpenter**, Broad Institute of Harvard and MIT



**Mark Bray**

Broad Institute of Harvard and MIT



**Anne E. Carpenter**

Broad Institute of Harvard and MIT

The overview is open to all attendees. Preregistration is required for the hands-on portion of the workshop.

3:00-4:00 pm Didactic Overview. Open to all ASCB attendees.

4:00-6:25pm Hands-on workshop. **Limited to preregistered 40 participants.**

Image-based experiments in cultured cells are powerful, generating information-rich, high-content data for diverse biological applications.

The didactic overview will introduce biologists to the sorts of phenotypes that can be quantified in images and basic concepts of image analysis.

The hands-on workshop will instruct biologists in the use of CellProfiler, an open-source, freely downloadable software package designed for automated phenotypic image analysis, at both large- and small-scale. We will also demonstrate CellProfiler Analyst, which uses machine learning to score phenotypes where phenotypic differences between samples are subtle or even invisible by eye.

Preregistered participants are encouraged to submit sample images from their assays as part of the demonstration (contact [mbray@broadinstitute.org](mailto:mbray@broadinstitute.org) for details).

**If you are registered for the hands-on workshop, be sure to remember to bring your laptop with the following software downloaded prior to the session:**

CellProfiler: Available from <http://cellprofiler.org/download.shtml>

CellProfiler Analyst: Available from <http://cellprofiler.org/downloadCPA.shtml>

A folder of translocation assay images: Available from [http://cellprofiler.org/linked\\_files/TranslocationData.zip](http://cellprofiler.org/linked_files/TranslocationData.zip). Open the zip file and place the folder "TranslocationData" in a location with read/write access (e.g., your desktop).

Make sure that Java is installed for your OS: <http://java.com/en/download/manual.jsp>

If this session is full but people do not show up, we will let people in at the door on a first-come, first-served basis.

## ● Exhibitor In-Booth Presentation

3:00-4:00 pm

Booth 1235/1237

### National Institutes of Health (NIH): National Institute of General Medical Sciences (NIGMS) and Center for Scientific Review (CSR)

Presenters: **Michael Sesma**, Chief, Postdoctoral Training Branch, Division of Training, Workforce Development, and Diversity, NIGMS, and **Robert Horowitz**, Scientific Review Officer, NIGMS  
NIH Postdoctoral Fellowships and K99 Awards

## ● Subgroup P: The Cellular and Molecular Basis of Invasive Metastatic Cancer

3:00-6:30 pm

Room 32B

Organizers: **Mark A. McNiven**, Mayo Clinic; **Laura M. Machesky**, Beatson Institute, Cancer Research UK; and **Alissa M. Weaver**, Vanderbilt University

This subgroup will focus on understanding the important and widespread process of how tumor cells actively interact with and remodel the surrounding microenvironment through a combination of migration, matrix degradation, physical forces, and signal transduction during the metastatic process. The program will feature experts in matrix biology, tumor microenvironment, cytoskeletal and organelle dynamics, in situ live cell imaging, mouse and other genetic model systems, and human pathology to provide a state-of-the-art update on new findings and technologies to both understand and curtail metastatic disease.

### Presentations:

- 3:00–3:10 pm Introduction. **Alissa M. Weaver**, Vanderbilt University; **Mark A. McNiven**, Mayo Clinic; **Laura Machesky**, Beatson Institute, Glasgow, UK
- 3:10–3:35 pm Actin cytoskeletal control of migration and metastasis of pancreatic cancer. **Laura Machesky** and **Amelie Juin**, Beatson Institute, Glasgow, UK
- 3:35–4:00 pm Mechanical and structural cues within the 3D microenvironment in metastatic cell migration. **Cynthia Reinhart-King**, Cornell University
- 4:00–4:25 pm The role of the physical microenvironment in cancer cell invasion. **Denis Wirtz**, Johns Hopkins University
- 4:25–4:50 pm When cells collide: contact inhibition as a migratory cue. **Brian Stramer**, King's College London, UK
- 4:50–5:15 pm Stromal-tumor cell interactions in matrix remodeling. **Gina L. Razidlo** and **Mark A. McNiven**, Mayo Clinic
- 5:15–5:40 pm Localized energy sensing through LKB1 and AMPK recruits mitochondria to the leading edge. **Alan Howe**, University of Vermont
- 5:40–6:05 pm Wnt5a regulates protein depalmitoylation to promote polarized cell movement. **Eric Witze**, University of Pennsylvania
- 6:05–6:30 pm Stromal regulation of tumor aggressiveness. **Erik Sahai**, Francis Crick Institute, London, UK

## ● Education Initiative Forum

3:15-3:45 pm

Room 24B

### Using Visual Networks to Map the Systems Thinking Literature



**Tammy M. Long**  
Michigan State University

So, what exactly, *is* systems thinking? And, how can I know if my students are using it? National reports have advocated inclusion of systems learning at all levels in STEM education, but characterizing what it means to be a “systems thinker” has proven difficult. As an alternative to the standard literature review, our team has adapted an Information Sciences approach that harnesses the power of large bibliographic databases to identify and visualize key communities, publications, and themes that will inform the development of a systems thinking framework for teaching and learning in undergraduate biology.

## ● Poster Removal

3:30-4:00 pm

Learning Center

All posters must be removed from the ASCB Learning Center before it closes permanently at 4:00 pm. No access to the ASCB Learning Center will be permitted after 4:00 pm due to safety concerns. No exceptions.

## ● Applications of Cell Biology in the Real World Minisymposium 13: Applications of Cell Biology 1

4:00-6:25 pm

Room 29C

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

4:00 pm		Introduction
4:05 pm	M110	*A synthetic transcriptional program for preventing proteostasis collapse derived from the ancient function of Heat Shock Factor 1. <b>V. Denic</b> <sup>1</sup> ; <sup>1</sup> Molecular and Cellular Biology, Harvard University, Cambridge, MA
4:25 pm	M111	Strategies for targeting SMARCA4 mutant cancer. <b>L.D. Belmont</b> <sup>1</sup> ; <sup>1</sup> Discovery Oncology, Genentech, Inc., South San Francisco, CA
4:45 pm	M112	Mining cellular heterogeneity for mechanistic insights in phenotypic profiling and drug discovery. <b>A.H. Gough</b> <sup>1,2</sup> , <b>T. Shun</b> <sup>2</sup> , <b>D.L. Taylor</b> <sup>1,2,3</sup> , <b>M. Schurdak</b> <sup>1,2,3</sup> ; <sup>1</sup> Computational and Systems Biology, University of Pittsburgh, Pittsburgh, PA, <sup>2</sup> Drug Discovery Institute, University of Pittsburgh, Pittsburgh, PA, <sup>3</sup> Cancer Institute, University of Pittsburgh, Pittsburgh, PA
5:05 pm	M113	Development of cellular morphology-based separation system for three-dimensional culture. <b>H. Matsui</b> <sup>1</sup> , <b>M. Tamura</b> <sup>2</sup> , <b>S. Sugiura</b> <sup>2</sup> , <b>R. Kato</b> <sup>3</sup> , <b>M. Yanagisawa</b> <sup>4</sup> , <b>T. Kanamori</b> <sup>2</sup> ; <sup>1</sup> Faculty of Medical Sciences, University of Tsukuba, Tsukuba, Japan, <sup>2</sup> National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan, <sup>3</sup> Nagoya University, Nagoya, Japan, <sup>4</sup> Engineering System Co., Ltd., Matsumoto, Japan
5:25 pm	M114	Applying m'TORC'1 to prolong vision in Retinitis pigmentosa. <b>A. Venkatesh</b> <sup>1</sup> , <b>S. Ma</b> <sup>1</sup> , <b>C. Punzo</b> <sup>1</sup> ; <sup>1</sup> Ophthalmology and Gene Therapy Center, University of Massachusetts Medical School, Worcester, MA
5:45 pm	M115	Using tardigrades to investigate mechanisms and applications of desiccation tolerance. <b>T.C.</b>

**Boothby<sup>1</sup>, H. Tapia<sup>2</sup>, A.H. Brozena<sup>3</sup>, D.E. Koshland<sup>2</sup>, B. Goldstein<sup>1</sup>**; <sup>1</sup>Department of Biology, University of North Carolina, Chapel Hill, NC, <sup>2</sup>Department of Molecular & Cell Biology, University of California, Berkeley, Berkeley, CA, <sup>3</sup>Department of Chemical and Biomolecular Engineering, North Carolina State University, Raleigh, NC

- 6:05 pm M116 Leveraging the cell biology of metabolic enzymes to uncover new insights into orphan genetic diseases. **R.M. Broyer<sup>1</sup>, C. Noree<sup>1</sup>, E. Monfort<sup>1</sup>, J.E. Wilhelm<sup>1</sup>**; <sup>1</sup>Cell and Developmental Biology, UC San Diego, La Jolla, CA
- 6:12 pm M117 Reconstituting chemically induced dimerization system as a potential artificial chemoattractant sensing mechanism in giant liposomes. **S. Razavi<sup>1,2</sup>, L. Tianzhi<sup>2</sup>, D.N. Robinson<sup>2,3</sup>, T. Inoue<sup>1,2,4</sup>**; <sup>1</sup>Biomedical Engineering, Johns Hopkins University School of Medicine, Baltimore, MD, <sup>2</sup>Cell Biology, Center for Cell Dynamics, Johns Hopkins School of Medicine, Baltimore, MD, <sup>3</sup>Chemical and Biomolecular Engineering, Whiting School of Engineering, Johns Hopkins University, Baltimore, MD, <sup>4</sup>Precursory Research for Embryonic Science and Technology Investigator, Tokyo, Japan
- 6:19 pm M118 Cardiac-inducing RNAs direct the differentiation of stem cells into cardiomyocytes for heart repair. **A. Kochegarov<sup>1</sup>, M.S. Neal<sup>1</sup>, A. Davis<sup>1</sup>, L. Mitchell<sup>1</sup>, N. Scarcelli<sup>1</sup>, G. Vaughn<sup>1</sup>, L.F. Lemanski<sup>1</sup>, H. Fetters<sup>1</sup>**; <sup>1</sup>Biological and Environmental Sciences, Texas AM University, Commerce, TX

\*Vlad Denic is the recipient of the Early Career Life Scientist Award.

## ● Cell Cycle and Cell Division Minisymposium 14: Cytokinesis

4:00-6:25 pm

Ballroom 20D

Co-Chairs: **Michael Glotzer**, University of Chicago; **David Morgan**, University of California, San Francisco; and **Jody Rosenblatt**, University of Utah, Huntsman Cancer Institute

- 4:00 pm Introduction
- 4:05 pm M119 Nanoscale architecture of the actomyosin cortex during cell division. **B. Truong Quang<sup>1,2</sup>, P. Chugh<sup>1,2</sup>, M. Smith<sup>1,2</sup>, G. Salbreux<sup>3</sup>, E.K. Paluch<sup>1,2</sup>**; <sup>1</sup>UCL, MRC Laboratory for Molecular Cell Biology, London, UK, <sup>2</sup>UCL, Institute for the Physics of Living Systems, London, UK, <sup>3</sup>44 Lincoln's Inn Fields, The Francis Crick Institute, London, UK
- 4:25 pm M120 RhoA activation is sufficient to induce cleavage furrow formation in metaphase and anaphase: an optogenetic analysis of cytokinesis. **E. Wagner<sup>1</sup>, M. Glotzer<sup>1</sup>**; <sup>1</sup>Department of Molecular Genetics and Cell Biology, The University of Chicago, Chicago, IL
- 4:45 pm M121 The cell cortex is an excitable medium. **W.M. Bement<sup>1</sup>, A.L. Miller<sup>2</sup>, M. Leda<sup>3</sup>, A. Goryachev<sup>3</sup>, G. von Dassow<sup>4</sup>**; <sup>1</sup>Laboratory of Cell and Molecular Biology, University of Wisconsin-Madison, Madison, WI, <sup>2</sup>Department of Molecular, Cellular and Developmental Biology, University of Michigan, Ann Arbor, MI, <sup>3</sup>Centre for Synthetic and Systems Biology, University of Edinburgh, Edinburgh, UK, <sup>4</sup>Oregon Institute for Marine Biology, Charleston, OR
- 5:05 pm M122 A dynamic steady state within ESCRT-III polymers at the cytokinetic abscission site. **B. Mierzwa<sup>\*1,2</sup>, N. Chiaruttini<sup>\*3</sup>, J. König<sup>2,4</sup>, I. Poser<sup>5</sup>, A.A. Hyman<sup>5</sup>, T. Müller-Reichert<sup>2,4</sup>, A. Roux<sup>3</sup>, D.W. Gerlich<sup>1,2</sup>**; <sup>1</sup>Institute of Molecular Biotechnology of the Austrian Academy of Sciences (IMBA), Vienna, Austria, <sup>2</sup>Marine Biological Laboratory, Woods Hole, MA, <sup>3</sup>Department of Biochemistry, University of Geneva, Geneva, Switzerland, <sup>4</sup>Medical Theoretical Center, Dresden University of Technology, Dresden, Germany, <sup>5</sup>Max Planck Institute for Molecular Cell Biology and Genetics, Dresden, Germany
- \*Co-first authors
- 5:25 pm M123 Fak-Src signaling pathway controls the timing of abscission by decelerating Plk1 degradation and subsequent recruitment of Cep55 at mid-body. **S.A. Kamranvar<sup>1</sup>, D.K. Gupta<sup>1</sup>, S. Johansson<sup>1</sup>**; <sup>1</sup>Department of Medical Biochemistry and Microbiology, Biomedical Center, Uppsala University, Uppsala, Sweden
- 5:45 pm M124 Loss of p120-catenin induces cancer multinucleation and polyploidy through cytokinesis failure. **R. van de Ven<sup>1</sup>, J. de Groot<sup>1</sup>, D. Park<sup>2</sup>, R. van Domselaar<sup>1</sup>, D. de Jong<sup>3</sup>, K. Suzhai<sup>3</sup>, E. Sahai<sup>2</sup>, P.J. van Diest<sup>1</sup>, M.W. Hetzer<sup>4</sup>, P.W. Derksen<sup>1</sup>, E. van der Wall<sup>5</sup>**; <sup>1</sup>Pathology, UMC Utrecht, Utrecht, Netherlands, <sup>2</sup>Tumour Cell Biology Laboratory, Cancer Research UK London Research Institute,

London, UK, <sup>3</sup>Molecular Cell Biology, Leiden University Medical Center, Leiden, Netherlands, <sup>4</sup>Molecular and Cell Biology Laboratory, Salk Institute for Biological Studies, La Jolla, CA, <sup>5</sup>Internal Medicine, UMC Utrecht, Utrecht, Netherlands  
 6:05 pm M125 Tension generated by cytokinesis remodels cell-cell junctions and recruits Anillin. **T.R. Arnold<sup>1</sup>, T. Higashi<sup>1</sup>, K.M. Dinshaw<sup>1</sup>, R.E. Stephenson<sup>1</sup>, A.L. Miller<sup>1</sup>**; <sup>1</sup>Molecular Cellular and Developmental Biology, University of Michigan, Ann Arbor, MI

● **Membrane Organization, Dynamics, Traffic, and Regulation**  
**Minisymposium 15: Endo-Lysosome Trafficking in Development and Disease**

4:00-6:25 pm

Ballroom 20A

**Supported by *Traffic*, Wiley**

Co-Chairs: **Satyajit Mayor**, National Centre for Biological Sciences, Tata Institute of Fundamental Research, Bangalore, India; and **Xiaochen Wang**, National Institute of Biological Sciences, Beijing, China

- 4:00 pm Introduction
- 4:05 pm M126 The protein architecture of the yeast endocytic machinery analyzed by FRET. **M. Skruzny<sup>1,2</sup>, G. Malengo<sup>1,2</sup>, V. Sourjik<sup>1,2</sup>**; <sup>1</sup>Max Planck Institute for Terrestrial Microbiology, Marburg, Germany, <sup>2</sup>LOEWE Center for Synthetic Microbiology (SYNMIKRO), Marburg, Germany
- 4:25 pm M127 Mechanisms of endocytosis: shape and size dependence. **M.S. Magon<sup>1,2,3</sup>, G. Battaglia<sup>2,3</sup>**; <sup>1</sup>BBSRC London Interdisciplinary Biosciences DTP, University College London, London, UK, <sup>2</sup>Department of Chemistry, University College London, London, UK, <sup>3</sup>MRC/UCL Centre for Medical Molecular Virology, University College London, London, UK
- 4:45 pm M128 Differential control of death-receptor endocytosis and apoptosis by dynamins. **C.R. Reis<sup>1</sup>, S.L. Schmid<sup>1</sup>**; <sup>1</sup>Cell Biology, UT Southwestern Medical Center, Dallas, TX
- 5:05 pm M129 Polarized endosome dynamics by spindle asymmetry during asymmetric cell division. **E. Derivery<sup>1</sup>, C. Seum<sup>1</sup>, A. Daeden<sup>1</sup>, S. Loubéry<sup>1</sup>, L. Holtzer<sup>1</sup>, F. Julicher<sup>2</sup>, M. Gonzalez-Gaitan<sup>1</sup>**; <sup>1</sup>Biochemistry, University of Geneva, Geneva, Switzerland, <sup>2</sup>Max Planck Institute for the Physics of Complex Systems, Dresden, Germany
- 5:25 pm M130 LMA-1 maintains lysosome integrity and normal adult life span in *C. elegans*. **Y. Li<sup>1</sup>, W. Zou<sup>1</sup>, B. Chen<sup>1</sup>, X. Wang<sup>2</sup>, Y. Sun<sup>1</sup>, C. Yang<sup>2</sup>, X. Wang<sup>1</sup>**; <sup>1</sup>National Institute of Biological Sciences, Beijing, China, <sup>2</sup>State Key Laboratory of Molecular Developmental Biology, Institute of Genetics and Developmental Biology, Chinese Academy of Science, Beijing, China
- 5:45 pm M131 Mechanisms of mTORC1-independent lysosome biogenesis. **Y. Li<sup>1</sup>, M. Xu<sup>1</sup>, X. Ding<sup>2</sup>, Z. Song<sup>3</sup>, X. Huang<sup>1</sup>, Y. Jian<sup>1</sup>, G. Tang<sup>2</sup>, C. Yang<sup>3</sup>, Y. Di<sup>1</sup>, X. Liu<sup>1</sup>, K. Liu<sup>1</sup>, T. Li<sup>1</sup>, Y. Wang<sup>1</sup>, X. Hao<sup>2,3</sup>, C. Yang<sup>1</sup>**; <sup>1</sup>Center for Developmental Biology, Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, Beijing, China, <sup>2</sup>Kunming Institute of Botany, Chinese Academy of Sciences, Kunming, China, <sup>3</sup>The Key Laboratory of Chemistry for Natural Product of Guizhou Province and CAS, Guiyang, China
- 6:05 pm M132 Real time analysis of Clathrin and Dynamin-independent endocytic vesicle formation: Role of actin nucleators and BAR domain proteins. **M. Sathe<sup>1</sup>, G. Muthukrishnan<sup>1</sup>, M. Thattai<sup>1</sup>, S. Mayor<sup>1</sup>**; <sup>1</sup>National Center for Biological Sciences, Bangalore, India
- 6:12 pm M133 Mdm1/Snx13 is a novel inter-organelle membrane contact site tethering protein. **M. Henne<sup>1</sup>, L. Zhu<sup>2</sup>, Z. Balogi<sup>2</sup>, C. Stefan<sup>2</sup>, J. Pleiss<sup>2</sup>, S. Emr<sup>2</sup>**; <sup>1</sup>Cell Biology, UT Southwestern, Dallas, TX, <sup>2</sup>Weill Institute, Cornell University, Ithaca, NY
- 6:19 pm M134 Lysophagy: novel selective autophagy eliminating damaged organelles and suppressing diseases. **M. Hamasaki<sup>1</sup>, H. Teranishi<sup>1</sup>, I. Maejima<sup>1</sup>, T. Yoshimori<sup>1</sup>**; <sup>1</sup>Department of Genetics Graduate School of Medicine, Osaka University, Osaka, Japan

TUESDAY

● **Multicellular Interactions, Tissues, and Development**  
**Minisymposium 16: Morphogenesis**

4:00-6:25 pm

Room 28D

Co-Chairs: **Carl-Philipp Heisenberg**, Institute of Science and Technology Austria (IST Austria); and **Sean Megason**, Harvard Medical School

- 4:00 pm Introduction
- 4:05 pm M135 Surface cell expansion triggers radial cell intercalations in zebrafish gastrulation. **C. Heisenberg**<sup>1</sup>; <sup>1</sup>IST Austria, Klosterneuburg, Austria
- 4:25 pm M136 Local and tissue scale forces drive oriented junction growth during tissue extension. **C. Collinet**<sup>1</sup>, **M. Rauzi**<sup>1</sup>, **P. Lenne**<sup>1</sup>, **T. Lecuit**<sup>1</sup>; <sup>1</sup>CNRS, IBDM Institute de Biologie du Développement de Marseille, Marseille, France
- 4:45 pm M137 Compliance sensing by actomyosin self-organization coordinates epithelial tension and tissue shape. **S. Chanet**<sup>1</sup>, **C. Miller**<sup>2</sup>, **C. Vasquez**<sup>1</sup>, **B. Ermentrout**<sup>3</sup>, **L.A. Davidson**<sup>2</sup>, **A. Martin**<sup>1</sup>; <sup>1</sup>Biology, MIT, Cambridge, MA, <sup>2</sup>Bioengineering, Pittsburgh University, Pittsburgh, PA, <sup>3</sup>Mathematics, Pittsburgh University, Pittsburgh, PA
- 5:05 pm M138 Pressure in developmental size control. **I.A. Swinburne**<sup>1</sup>, **K.R. Mosaliganti**<sup>1</sup>, **A. Green**<sup>1</sup>, **T. Hiscock**<sup>1</sup>, **L. Mahadevan**<sup>2,3</sup>, **S.G. Megason**<sup>1</sup>; <sup>1</sup>Department of Systems Biology, Harvard University, Boston, MA, <sup>2</sup>Department of Physics, Harvard University, Cambridge, MA, <sup>3</sup>School of Engineering and Applied Science, Harvard University, Cambridge, MA
- 5:25 pm M139 Stochastic fluctuations in oxidative stress signaling induce anisotropies in adhesion and cytoskeletal organization to influence cell behavior and spatial patterning in a *Drosophila* epithelium. **M. Narasimha**<sup>1</sup>, **S. Mulyil**<sup>1,2</sup>, **S. Saravanan**<sup>1</sup>; <sup>1</sup>Department of Biological Sciences, Tata Institute of Fundamental Research, Mumbai, India, <sup>2</sup>Sir William Dunn School of Pathology, University of Oxford, Oxford, UK
- 5:45 pm M140 aMOTIV microscopy: mechanical characterization of the in vitro and in vivo tissue microenvironment. **J.R. Staunton**<sup>1</sup>, **B.H. Blehm**<sup>1</sup>, **A. Devine**<sup>1</sup>, **K. Tanner**<sup>1</sup>; <sup>1</sup>National Cancer Institute, National Institutes of Health, Bethesda, MD
- 6:05 pm M141 Actomyosin force generation directs hydra regeneration. **K. Keren**<sup>1</sup>, **A. Livshitz**<sup>1</sup>, **L. Zerbib**<sup>1</sup>, **E. Braun**<sup>1</sup>; <sup>1</sup>Physics, Technion- Israel Institute of Technology, Haifa, Israel
- 6:12 pm M142 Conserved roles for cytoskeletal components in determining laterality. **G.S. McDowell**<sup>1,2</sup>, **J. Lemire**<sup>1,2</sup>, **J. Pare**<sup>1,2</sup>, **M. Levin**<sup>1,2</sup>; <sup>1</sup>Biology Department, Tufts University, Medford, MA, <sup>2</sup>Center for Regenerative and Developmental Biology, Tufts University, Medford, MA
- 6:19 pm M143 Development plain and simple: using cartography to analyze forces driving morphogenesis. **S.J. Streichan**<sup>1</sup>, **I. Heemskerk**<sup>1</sup>, **M.F. Lefebvre**<sup>2</sup>, **E. Wieschaus**<sup>2</sup>, **B. Shraiman**<sup>1</sup>; <sup>1</sup>Kavli Institute for Theoretical Physics, University of California Santa Barbara, Santa Barbara, CA, <sup>2</sup>Molecular Biology, Princeton University, Princeton, NJ

● **Organelles and Spatial Organization of the Cell**

**Minisymposium 17: New Technologies and Their Application to Probe the Spatial Organization of the Cell**

4:00-6:25 pm

Room 30C

Co-Chairs: **Kathryn Lilley**, University of Cambridge, UK; and **Alice Ting**, Massachusetts Institute of Technology

- 4:00 pm Introduction
- 4:05 pm M144 Mapping the subcellular proteome and determining dynamic subcellular rearrangements using quantitative mass spectrometry. **K.S. Lilley**<sup>1</sup>, **A. Christoforou**<sup>1</sup>, **C.M. Mulvey**<sup>1</sup>, **L.M. Breckels**<sup>1</sup>, **L. Gatto**<sup>1</sup>, **A. Geladaki**<sup>1</sup>, **T. Hurrell**<sup>1</sup>, **D.J. Nightingale**<sup>1</sup>, **H. Zhou**<sup>1</sup>, **A. Martinez-Arias**<sup>2</sup>; Department of Biochemistry, University of Cambridge, Cambridge, UK, <sup>2</sup>Department of Genetics, University of Cambridge, Cambridge, UK
- 4:25 pm M145 Discovery and characterization of novel synaptic and mitochondrial proteins via peroxidase-mediated live cell proteomic mapping. **A.Y. Ting**<sup>1</sup>; <sup>1</sup>Chemistry, Massachusetts Institute of Technology, Cambridge, MA
- 4:45 pm M146 Spectrally resolved super-resolution microscopy. **Z. Zhang**<sup>1,2</sup>, **S. Kenny**<sup>1</sup>, **M. Hauser**<sup>1</sup>, **W. Li**<sup>1</sup>, **K. Xu**<sup>1,2</sup>; <sup>1</sup>Department of Chemistry, University of California, Berkeley, CA, <sup>2</sup>Life Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA



5:05 pm	M147	Exploring the native molecular architecture of organelles with in situ cryo-electron tomography. <b>B.D. Engel<sup>1</sup>, M. Schaffer<sup>1</sup>, S. Albert<sup>1</sup>, S. Asano<sup>1</sup>, L. Kuhn Cuellar<sup>1</sup>, S. Pfeffer<sup>1</sup>, J.M. Plitzko<sup>1</sup>, W. Baumeister<sup>1</sup></b> ; <sup>1</sup> Molecular Structural Biology, Max Planck Institute of Biochemistry, Martinsried, Germany
5:25 pm	M148	The Balbiani body in <i>Xenopus</i> forms by amyloid-like aggregation. <b>E. Boke<sup>1</sup>, R. Lemaitre<sup>2</sup>, S. Alberti<sup>2</sup>, A.A. Hyman<sup>2</sup>, D.N. Drechsel<sup>2</sup>, T.J. Mitchison<sup>1</sup></b> ; <sup>1</sup> Department of Systems Biology, Harvard Medical School, Boston, MA, <sup>2</sup> Max Planck Institute for Molecular Cell Biology and Genetics, Dresden, Germany
5:45 pm	M149	The nucleolus as an active multiphase droplet. <b>M. Feric<sup>1</sup>, N. Vaidya<sup>1</sup>, T.M. Richardson<sup>1</sup>, C.P. Brangwynne<sup>1</sup></b> ; <sup>1</sup> Department of Chemical & Biological Engineering, Princeton University, Princeton, NJ
6:05 pm	M150	Genetically encoded nanoparticles reveal mechanisms that control cellular biophysics. <b>K.J. Kennedy<sup>1</sup>, J. Guttierrez<sup>1</sup>, I.V. Surovtsev<sup>2</sup>, C. Renou<sup>1</sup>, C. Jacobs-Wagner<sup>2</sup>, L.J. Holt<sup>1</sup></b> ; <sup>1</sup> Molecular and Cell Biology, University of California Berkeley, Berkeley, CA, <sup>2</sup> Department of Molecular, Cellular, and Developmental Biology, Yale University, New Haven, CT
6:12 pm	M151	Proteomic clues to cell organization. <b>M. Wühr<sup>1,2</sup>, T. Güttler<sup>2</sup>, L. Peshkin<sup>1</sup>, G.C. McAlister<sup>2</sup>, M. Sonnett<sup>1,2</sup>, K. Ishihara<sup>1</sup>, A.C. Groen<sup>1</sup>, M. Presler<sup>1</sup>, B.K. Erickson<sup>2</sup>, T.J. Mitchison<sup>1</sup>, S.P. Gygi<sup>2</sup>, M.W. Kirschner<sup>1</sup></b> ; <sup>1</sup> Department of Systems Biology, Harvard Medical School, Boston, MA, <sup>2</sup> Department of Cell Biology, Harvard Medical School, Boston, MA
6:19 pm	M152	Optogenetic control of molecular motors and organelle distributions in cells. <b>L. Duan<sup>1</sup>, D. Che<sup>1</sup>, K. Zhang<sup>2</sup>, Q. Ong<sup>1</sup>, S. Guo<sup>1</sup>, B. Cui<sup>1</sup></b> ; <sup>1</sup> Chemistry, Stanford University, Stanford, CA, <sup>2</sup> Biochemistry, University of Illinois Urbana-Champaign, Champaign, IL

## ● Cytoskeleton, Motility, and Cell Mechanics

### Minisymposium 18: Regulation and Integrated Functions of Actin Cytoskeleton

4:00-6:25 pm

Ballroom 20C

Co-Chairs: **William Brieher**, University of Illinois, Urbana-Champaign; and **Guillaume Charras**, University College London

4:00 pm		Introduction
4:05 pm	M153	Structural investigation of cooperative actin disassembly. <b>V. Tang<sup>1</sup>, A. Nadkarni<sup>1</sup>, W.M. Brieher<sup>1</sup></b> ; <sup>1</sup> Cell and Developmental Biology, University of Illinois, Urbana-Champaign, Urbana, IL
4:25 pm	M154	apCAM adhesion sites are mechanically isolated from retrograde actin flow by local Arp 2/3 complex-dependent actin assembly during neurite growth. <b>K.B. Buck<sup>1</sup>, A.W. Schaefer<sup>1</sup>, V.T. Schoonderwoert<sup>1</sup>, M.S. Creamer<sup>1</sup>, E.R. Dufresne<sup>2</sup>, P. Forscher<sup>1</sup></b> ; <sup>1</sup> Molecular Cell and Developmental Biology, Yale University, New Haven, CT, <sup>2</sup> Mechanical Engineering, Yale University, New Haven, CT
4:45 pm	M155	Cellular control of cortical actin nucleation. <b>M. Bovellan<sup>1</sup>, A. Yonis<sup>1</sup>, Y. Romeo<sup>2</sup>, M. Biro<sup>3</sup>, A. Boden<sup>4</sup>, P. Chugh<sup>4,5</sup>, M. Vaghela<sup>1</sup>, M. Fritzsche<sup>1</sup>, D. Moulding<sup>6</sup>, A. Jegou<sup>7</sup>, A.J. Thrasher<sup>6</sup>, G. Romet-Lemonne<sup>7</sup>, E.K. Paluch<sup>4,5</sup>, P.P. Roux<sup>2</sup>, G. Charras<sup>1</sup></b> ; <sup>1</sup> London Centre for Nanotechnology, University College London, London, UK, <sup>2</sup> IRIC, Université de Montréal, Montréal, Canada, <sup>3</sup> Centenary Institute of Cancer Medicine and Cell Biology, University of Sydney, Sydney, Australia, <sup>4</sup> Molecular Cell Biology and Genetics, Max Planck Institute, Dresden, Germany, <sup>5</sup> MRC-LMCB, University College London, London, UK, <sup>6</sup> Institute of Child Health, University College London, London, UK, <sup>7</sup> LEBS, CNRS, Gif sur Yvette, France
5:05 pm	M156	Chromosome transport during starfish oocyte meiosis: a model for 3D contraction generated by actin filament dynamics. <b>P. Bun<sup>1</sup>, S. Dmitrieff<sup>1</sup>, M. Mori<sup>2</sup>, F. Nedelec<sup>1</sup>, P. Lénárt<sup>1</sup></b> ; <sup>1</sup> Cell Biology and Biophysics Unit, European Molecular Biology Laboratory, Heidelberg, Germany, <sup>2</sup> Genome Information Research Center, Osaka University, Osaka, Japan
5:25 pm	M157	Pulsatile contractions are an intrinsic property of myosin IIa in adherent cells. <b>M.A. Baird<sup>1</sup>, R.S. Fischer<sup>1</sup>, A. Wang<sup>1</sup>, R.S. Adelstein<sup>1</sup>, C.M. Waterman<sup>1</sup></b> ; <sup>1</sup> NHLBI, National Institutes of Health, Bethesda, MD
5:45 pm	M158	From molecules to meshes: generating tension in an actin cortex. <b>M.B. Smith<sup>1</sup>, P. Chugh<sup>1</sup>, D. Cassani<sup>1</sup>, G. Salbreux<sup>2</sup>, E.K. Paluch<sup>1</sup></b> ; <sup>1</sup> LMCB, UCL, London, England, <sup>2</sup> Theoretical Physics of Biology, The Francis Crick Institute, London, England
6:05 pm	M159	Protrusive waves guide 3D cell migration along nanofibers. <b>C. Guetta-Terrier<sup>1</sup>, H. Long<sup>2,3</sup>, P. Monzo<sup>1</sup>, J. Zhu<sup>4</sup>, Z. Yue<sup>5,6</sup>, P. Wang<sup>5,6</sup>, S.Y. Chew<sup>2,3</sup>, A. Mogilner<sup>7</sup>, B. Ladoux<sup>1,8</sup>, N.C. Gauthier<sup>1</sup></b> ; <sup>1</sup> Mechanobiology Institute, National University of Singapore, Singapore, <sup>2</sup> School of Chemical &

TUESDAY

Biomedical Engineering, Nanyang Technological University, Singapore, <sup>3</sup>Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore, <sup>4</sup>Cellular and Molecular Physiology, Yale University, New Haven, CT, <sup>5</sup>Cardiovascular Research Institute, National University Health System, Singapore, <sup>6</sup>Department of Medicine, Yong Loo Lin School of Medicine, National University of Singapore, Singapore, <sup>7</sup>Courant Institute and Department of Biology, New York University, New York, NY, <sup>8</sup>Institut Jacques Monod, CNRS UMR 7592 Université Paris Diderot, Paris, France

6:12 pm M160

Emergence of an apical epithelial cell surface in vivo. **J. Sedzinski<sup>1</sup>, E. Hannezo<sup>2</sup>, F. Tu<sup>1</sup>, M. Biro<sup>3</sup>, J.B. Wallingford<sup>1</sup>**; <sup>1</sup>Molecular Biosciences, University of Texas, Austin TX, <sup>2</sup>Cavendish Laboratory, Department of Physics, University of Cambridge, Cambridge, UK, <sup>3</sup>University of Sydney, Sydney, Australia

6:19 pm M161

Filament spacing in actin bundles is an architectural feature that drives protein sorting. **J.D. Winkelman<sup>1</sup>, C. Suarez<sup>1</sup>, A.J. Harker<sup>2</sup>, G.M. Hocky<sup>3</sup>, J.R. Christensen<sup>1</sup>, A.N. Morgenthaler<sup>1</sup>, J.R. Bartles<sup>4</sup>, D.R. Kovar<sup>1</sup>**; <sup>1</sup>Molecular Genetics and Cell Biology, University of Chicago, Chicago, IL, <sup>2</sup>Biochemistry and Molecular Biology, University of Chicago, Chicago, IL, <sup>3</sup>Chemistry, University of Chicago, Chicago, IL, <sup>4</sup>Feinberg School of Medicine, Northwestern University, Chicago, IL

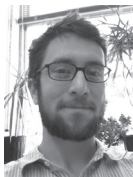
● **ASCB-Gibco Emerging Leader Prize Presentation and E.B. Wilson Medal Presentation and Address**

6:45-8:00 pm

Ballroom 20BC

**ASCB-Gibco Emerging Leader Prize supported by Thermo Fisher**

Cash prizes of \$5,000 will be presented to the top three of 10 finalists for excellence in independent research.



**Clifford Brangwynne**

Assistant Professor,  
Princeton University



**Ahmet Yildiz**

Assistant Professor, University of  
California, Berkeley



**Meng Wang**

Assistant Professor, Baylor College  
of Medicine

Finalists:

**Nels Elde**, Assistant Professor, University of Utah

**Melissa Gardner**, Assistant Professor, University of Minnesota

**Dmitri Kudryashov**, Assistant Professor, Ohio State University

**Kelly Monk**, Assistant Professor, Washington University

**Guangshuo Ou**, Associate Professor, Tsinghua University

**Antonina Roll-Mecak**, Investigator, NIH National  
Institute of Neurological Disorders and Stroke

**Hari Shroff**, Chief, NIH National Institute of Biomedical  
Imaging and Bioengineering

**E.B. Wilson Medal Presentation and Address**



**Elaine Fuchs**

The Rockefeller University

A12

Skin stem cells: where they come from, how they make tissues and who controls their decisions. **E. Fuchs<sup>1,2</sup>**; <sup>1</sup>Mammalian Cell Biology & Development, The Rockefeller University, New York, NY, <sup>2</sup>Howard Hughes Medical Institute