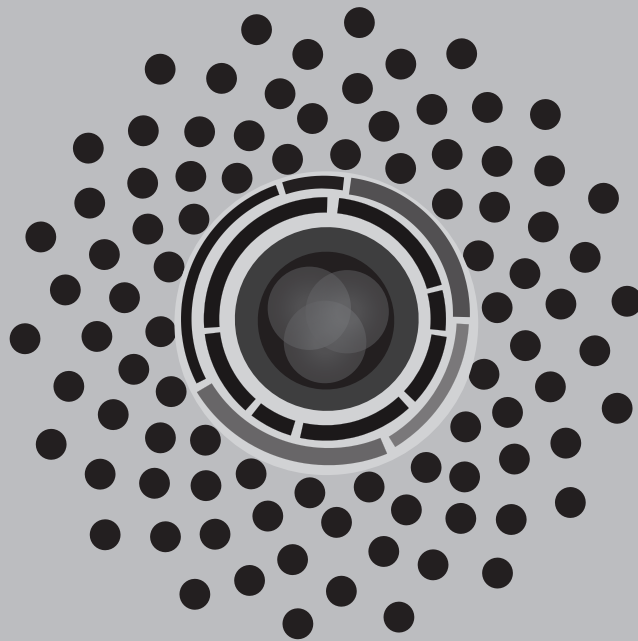


Tuesday
December 6, 2016



cell biology 2016
ascb annual meeting
san francisco, california • dec 3-7

7:30 am-6:30 pm	Registration Open	Registration Area
7:30 am-4:00 pm	Career Center	ASCB Learning Center
8:00-9:30 am	Symposium 5: Cellular Communities	Hall E
8:15-9:15 am	Exhibitor Tech Talk Leica Microsystems Inc.: Advances in Live Cell Analysis by Leica Microsystems: Guided Image Acquisition and Analysis to Take Your Research to the Next Level	Theater 1, Room 102
8:15-8:30 am	Exhibitor Tech Talk Lipotype GmbH: Lipotype Shotgun Lipidomics Technology for Quantitative High Throughput Lipid Analysis	Theater 2, Learning Center
8:30-8:45 am	Exhibitor Tech Talk MiniPCR: Personal and Portable Tools for DNA Analysis	Theater 2, Learning Center
8:45-9:00 am	Exhibitor Tech Talk Sandia Biotech: FluorAbodies: Fluorescent Labeling Simplified	Theater 2, Learning Center
9:00-10:00 am	Green Cards for Scientific Researchers: U.S. Immigration Options	Career Center Theater, Learning Center
9:00-9:45 am	Table Talk Mentoring in Teaching	Roundtable Central Section 2, Learning Center
9:30 am-4:00 pm	Exhibits Open	Learning Center
9:30-10:30 am	Exhibitor Tech Talk GORYO Chemical, Inc.: Fluorescent Probes for Chemical Biology	Theater 2, Learning Center
9:30-11:00 am	Morning Refreshment Break	Learning Center
9:45-10:45 am	Symposium 6: Logic of Signaling	Hall E
9:45-10:30 am	Table Talk Helpful Feedback from MALT and PALM Teaching Mentoring Awardees	Roundtable Central Section 2, Learning Center
10:00-10:45 am	Elevator Speech Contest Entry Point	ASCB Booth 423, Learning Center
10:00-11:00 am	Mentoring in Research	Career Center Theater, Learning Center
10:30-11:15 am	Table Talk Tips for Writing a Successful Application for a MALT Fellowship	Roundtable Central Section 2, Learning Center
10:45-11:45 am	Exhibitor Tech Talk NemaMetrix Inc.: Whole Animal Data for Cell Biologists: Extend Your Understanding of Your Genes, Proteins, and Pathways with Accessible in-vivo Research	Theater 2, Learning Center
10:45 am-12:00 pm	Women in Cell Biology (WICB) Committee Awards Presentation/Mentoring Theater	Room 120
11:00 am-12:00 pm	Science Discussion Tables	Roundtable Central Section 1, Learning Center
11:00 am-12:00pm	Your Most Important Lecture: How to Give an Efficient Chalk Talk	Career Center Theater, Learning Center
11:00 am-12:00 pm	LGBTQ Diversity Session	Room 121
11:00 am-12:06 pm	Microsymposium 13: Nuclear Structure, Function, and Movement	Microsymposia Room 1, Learning Center, Hall C
11:00 am-12:06 pm	Microsymposium 14: Trafficking Dynamics and Imaging	Microsymposia Room 2, Learning Center, Hall C

11:15 am-12:00 pm	Table Talk Tips for Writing a Successful Application for a PALM Fellowship	Roundtable Central Section 2, Learning Center
12:00-1:30 pm	Odd-Numbered Poster Presentations	Learning Center
12:00-12:45 pm	Exhibitor Tech Talk Nikon Instruments Inc.: Using the Past to Predict the Future: Applications of High Throughput Longitudinal Single Cell Analysis to Discovery	Theater 1, Room 102
12:00-12:45 pm	Exhibitor Tech Talk MilliporeSigma (formerly EMD Millipore and Sigma-Aldrich): Winning Westerns for Cell Biologists: Getting the Most – From Cells to Data	Theater 2, Learning Center
12:00-12:55 pm	2016 Celldance Premiere and 60-Second Elevator Speech Finals	Career Center Theater, Learning Center
12:25-1:31 pm	Microsymposium 15: Cell Shape and Signaling	Microsymposia Room 2, Learning Center, Hall C
12:25-1:31 pm	Microsymposium 16: Development and Invasion	Microsymposia Room 1, Learning Center, Hall C
1:00-1:45 pm	Exhibitor Tech Talk Nikon Instruments Inc.: Re-scan Confocal Microscopy (RCM): The New Confocal Microscope	Theater 1, Room 102
1:00-1:45 pm	Exhibitor Tech Talk Thermo Fisher Scientific Inc.: Verification of Antibody Performance by Protein Immunoprecipitation and Mass Spectrometry Enriches Antibody Targets and Interacting Proteins	Theater 2, Learning Center
1:00-1:30 pm	In-Booth Presentation ALVEOLE: PRIMO: New Photopatterning Technology Offering a Customized Control of the Cellular Microenvironment	Booth 1017, Learning Center
1:00-1:55 pm	Career Panel: Entrepreneurship and Consulting	Career Center Theater, Learning Center
1:30-3:30 pm	Afternoon Refreshment Break	Learning Center
1:30-3:00 pm	Even-Numbered Poster Presentations	Learning Center
1:50-2:56 pm	Microsymposium 17: Cell Division in Development and Disease	Microsymposia Room 1, Learning Center, Hall C
1:50-2:56 pm	Microsymposium 18: Signaling and Bioengineering	Microsymposia Room 2, Learning Center, Hall C
2:00-2:45 pm	Exhibitor Tech Talk Illumina, Inc.: A Scalable High-throughput Method for RNA-Seq Analysis of Thousands of Individual Cells	Theater 1, Room 102
2:00-2:45 pm	Exhibitor Tech Talk BioTek Instruments, Inc.: Automated Dynamic Cell Culture and Real-Time Analysis with Single Cell Resolution	Theater 2, Learning Center
2:00-2:55 pm	Career Panel: Science Communication	Career Center Theater, Learning Center
3:00-4:00 pm	Exhibitor Tech Talk Cytoskeleton, Inc.: Signal-Seeker™ Kits and Reagents	Theater 2, Learning Center
3:15-4:00 pm	Education Initiative Forum	Room 120
3:15-4:00 pm	E.B. Wilson Medal Presentation and Address Mina Bissell	Hall E
3:30-4:00 pm	Poster Removal	Learning Center

Daily Schedule—Tuesday, December 6

4:15-6:50 pm	Minisymposium 13: Cell Death and Genome Instability Minisymposium 14: Cell Mechanics Minisymposium 15: Cell Polarity and Morphogenesis Minisymposium 16: Dark Matters in Signaling and Differentiation Minisymposium 17: Genome Replication and Gene Regulation Minisymposium 18: Quality Control and Organelle Trafficking Minisymposium 19: Recent Developments in Autophagy and ESCRT Biology	Room 103 Room 305 Room 104 Room 301 Room 310 Room 302 Room 306
4:15-6:50 pm	Workshop: Leveraging CRISPR	Room 309

● Career Center

7:30 am–4:00 pm

ASCB 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.

National Postdoc Association Table

Representatives from the National Postdoctoral Association (NPA) will be available to discuss how they are trying to improve the postdoctoral experience. They will have resources for career planning, promoting diversity, and finding effective mentoring, including for international postdocs, postdocs with families, and senior graduate students who are planning next steps. Toolkits are available for starting a postdoc association at your institution.

12:00-4:00 pm

National Research Mentoring Network Table

Students and researchers in the biomedical, behavioral, clinical, and social sciences: You can access free virtual mentorship, grantwriting coaching groups, mentorship training and more professional development programs and resources through the National Research Mentoring Network (NRMN), funded by the NIH. Learn more by visiting MariaElena Zavala at the table. Visit NRMNet today to learn more.

● Symposium 5: Cellular Communities

8:00-9:30 am

Hall E

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

8:00 am S11

Quorum Sensing and its Control. **B. Bassler**¹; ¹Molecular Biology, Princeton and HHMI, Princeton, NJ

8:30 am S12

Modeling human brain development and disease in stem cell derived 3D organoid culture. **J.A. Knoblich**¹, **M. Lancaster**¹, **M. Renner**¹; ¹IMBA, Institute of Molecular Biotechnology, Vienna, Austria

9:00 am S13

Primary functions for “secondary” metabolites in microbial communities. **D.K. Newman**¹; ¹BBE and GPS, California Institute of Technology, Pasadena, CA

● Exhibitor Tech Talk

8:15-9:15 am

Theater 1, Room 102

Leica Microsystems Inc.

Advances in Live Cell Analysis by Leica Microsystems: Guided Image Acquisition and Analysis to Take Your Research to the Next Level

Presenter: Dr. Jennifer Horner

Level: Advanced

Multidimensional analysis of living cells requires coordination and careful execution to be successful. Leica Microsystems provides you with a powerful combination of superb optical capabilities with innovative software features that focus on usability in every aspect of the interface, functionality and workflow. Go far beyond simple image acquisition with a host of tools that enable set-up, acquisition and in-depth 2D and 3D analysis of living cell experiments. From the flexibly configurable Leica DMI8 to dedicated software modules for capturing and analyzing data, Leica solutions are an indispensable part of today's cutting edge research.

● Exhibitor Tech Talk

8:15-8:30 am

Theater 2, Learning Center

Lipotype GmbH

Lipotype Shotgun Lipidomics Technology for Quantitative High Throughput Lipid Analysis

Presenter: Christian Klose, PhD

Level: Intermediate

Lipids have been neglected in the ongoing omics revolution. One reason has been the difficulty to analyze lipid compositions of organelles, cells, tissues, or body fluids. Lipotype has introduced a mass spectrometric platform that meets these challenges by providing fully quantitative technology characterized by high precision, comprehensive lipid coverage, and unprecedented high throughput. The successful application of our technology will be exemplified by a project investigating the effect of lipid supplementation on biophysical properties of cellular membranes. The Lipotype technology paves the way for making lipidomics an accessible and indispensable tool in biological research and clinical studies.

● Exhibitor Tech Talk

8:30-8:45 am

Theater 2, Learning Center

MiniPCR

Personal and Portable Tools for DNA Analysis

Presenter: Sebastian Kraves, PhD

Level: Intermediate

miniPCR develops innovative tools to enable hands-on DNA experimentation. The DNA Discovery System is a portable biotech lab for under \$1,000 that includes a miniPCR thermal cycler, a blueGel electrophoresis system with built-in transilluminator, and a micropipette. Our tools are used by educators, DNA enthusiasts, and researchers in traditional labs and in extreme locations such as the International Space Station and the ocean floor. Learn how to incorporate these low-cost high-impact tools to your research and education activities.

● Exhibitor Tech Talk

8:45-9:00 am

Theater 2, Learning Center

Sandia Biotech

FluorAbodies: Fluorescent Labeling Simplified

Presenter: Amanda Carroll-Portillo, PhD

Level: Intermediate

Sandia Biotech Inc. is excited to introduce our newest product line, the FluorAbodies. These recombinant, inherently fluorescent antibody derivatives are much smaller than typical antibodies and offer time saving advantages for a variety of research applications. We will discuss these advantages and present, in detail, use of FluorAbodies for immunolabeling, immunohistochemistry, and flow cytometry with focus on multiplexing capabilities.

● Green Cards for Scientific Researchers: U.S. Immigration Options

9:00-10:00 am

Career Center Theater, Learning Center

Learn how to maximize your chances of qualifying for an EB-1/NIW green card from leading U.S. immigration lawyer, Brian H. Getson, Esq., author of *“Obtaining a US Visa Based on Achievement: What You Need to Know”* and a graduate of the University of Pennsylvania School of Law with 20 years of experience. The Getson Immigration Law Group is a 2016 ASCB Gold Sponsor and Exhibitor. Mr. Getson and other lawyers from his firm will also be providing free immigration consultations at Booth 818.

● Table Talk

9:00-9:45 am

Roundtable Central Section 2, Learning Center

Mentoring in Teaching

Looking for mentoring in teaching with active learning methods? Learn about the Mentoring in Active Learning & Teaching (MALT) or the NSF/ASCB Promoting Active Learning and Mentoring (PALM) Network programs

● Exhibitor Tech Talk

9:30-10:30 am

Theater 2, Learning Center

GORYO Chemical, Inc. Fluorescent Probes for Chemical Biology

Presenter: Rajendra Singh, PhD

Level: Intermediate

Fluorescent probes are an essential suite of reagents to probe and elucidate cellular biology. Probes to enable iPSC/ES differentiation (Kyoto probe-1), detect hypoxia (MAR) and gamma-glutamyl transpeptidase (ProteoGREEN) expression in cancer cells to help researchers in the field will be described. A number of unique, highly specific reactive oxygen species (ROS) probes, metallo detectors, acid sensors and enzymatic fluors for glycobiology as well as protease assays that require only a single cleavage of rhodamines will be covered through applications. A series of silicon rhodamine based fluors for super resolution live cell imaging under physiological conditions for invitro assays, as well as the corresponding highly photostable fluorescent (Stella Fluors) derivatives that have been adapted for invivo preclinical imaging will be covered in the presentation.

● Morning Refreshment Break

9:30-11:00 am

Learning Center

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

● Symposium 6: Logic of Signaling

9:45-10:45 am

Hall E

Supported by The Anatomical Record and The American Association of Anatomists

Chair: **Michael Rape**, University of California, Berkeley

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|----------|-----|---|
| 9:45 am | S14 | Dissecting regulatory circuits: from cells to tissues. A. Regev ¹ ; ¹ MIT and Broad Institute of MIT and Harvard/HHMI, Cambridge, MA |
| 10:15 am | S15 | Anastasis, recovery from the brink of apoptotic cell death, in normal development and disease. G. Sun ¹ , X.A. Ding ¹ , Y. Argaw ¹ , J.O. Wong ¹ , D. Cai ¹ , J. Mondo ¹ , J.P. Campanale ¹ , a. Mishra ¹ , C. Conner ¹ , V. Balasanyan ¹ , Y. Sallak ¹ , D.J. Montell ¹ ; ¹ MCDB, University of California, Santa Barbara, CA |

● Table Talk

9:45-10:30 am

Roundtable Central Section 2, Learning Center

Helpful Feedback from MALT and PALM Teaching Mentoring Awardees

Hear from previous participants who have been mentored in active learning for at least a semester through the ASCB MALT (Mentoring in Active Learning & Teaching) or the NSF/ASCB PALM (Promoting Active Learning and Mentoring) Network programs. How did the process work and what changes did we make in the classroom?

● Elevator Speech Contest Entry Point

10:00-10:45 am

ASCB Booth 423, 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 Drake. 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 to fill out the form linking to your uploaded video.

Don't have a phone or a camera to record your video in San Francisco? Come to the Elevator Speech Contest Entry Point at the ASCB Booth Tuesday morning where a video camera awaits to collect your 60-second pitch.

Organized by the ASCB Public Information Committee

● Mentoring in Research

10:00-11:00 am

Career Center Theater, Learning Center

Sofie Kleppner, Assistant Dean, Postdoctoral Affairs for Stanford University

Effective Mentoring in Team Science: This interactive workshop will focus on understanding your mentoring style and how to deploy your strengths to achieve the best results from your team. Good mentoring means mentoring up, down, and sideways. We will use case studies to explore how to find mentors, how to use them, and how to be one.

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

● Table Talk

10:30-11:15 am

Roundtable Central Section 2, Learning Center

Tips for Writing a Successful Application for a MALT Fellowship

Learn tips for writing a successful application for a Mentoring in Active Learning & Teaching (MALT) fellowship to be mentored in developing undergraduate course-based research experiences (CURES).

● Exhibitor Tech Talk

10:45-11:45 am

Theater 2, Learning Center

NemaMetrix Inc.

Whole Animal Data for Cell Biologists: Extend Your Understanding of Your Genes, Proteins, and Pathways with Accessible in-vivo Research

Presenter: Dr. Kathryn McCormick

Level: Introductory

Increase the impact of your cell biology data by demonstrating its physiological relevance in a live animal. Here we present a fast, straightforward, and reliable method to make models of human disease genes and biochemical pathways in *C. elegans*. We also demonstrate a method to generate quantitative phenotypic behavioral data from humanized *C. elegans* models. We specialize in making whole-animal models of biochemical disease pathways accessible to cell biology researchers so you can emphasize the physiological relevance of your pathway of interest.

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

10:45 am-12:00 pm

Room 120



Sandra K. Masur Senior Leadership Award

Susan A. Gerbi,
Brown University



WICB Junior Award for Excellence in Research

Barbara Mellone,
University of Connecticut



WICB Mid-Career Award for Excellence in Research

Tricia R. Serio,
The University of Arizona

Mentoring Theater

Same Job, Different Gender: Insights into Professional Behavior

Coordinators:

Phyllis I. Hanson, Washington University School of Medicine

Kirsten Sadler Edepli, New York University Abu Dhabi

Katherine T. Schmeidler, Irvine Valley College

Organized by the ASCB Women in Cell Biology Committee

● **Science Discussion Tables**

11:00 am-12:00 pm

Roundtable Central Section 1, 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 Moscone Center.

Table	Presenter	Topic
1	Jürgen Knoblich	3D organoid models for human tissues
2	Jeremy Reiter	Cilia
3	Antonina Roll-Mecak	Cytoskeleton
4	Robert H. Singer	Imaging approaches for single RNA molecules in living cells and tissues
5	Laura Lackner	Mitochondrial positioning
6	Sue Biggins	Mitosis
7	Dianne K. Newman	Opportunities for cell biologists in microbiology
8	Gia Voeltz	Organelle biogenesis
9	Maxence Nachury	Signaling, trafficking and primary cilia
10	John Dueber	Synthetic biology
11	Ingrid Wertz	Ubiquitin/proteasome system, protein degradation, TNF and inflammatory signaling pathways/ small molecule drug discovery
12	Kun-Liang Guan	The Hippo pathway
13	Lisa Dennison/ Liam Holt	Science sketches: how to make videos for fast, fun, and accessible communication of your research

TUESDAY

● Your Most Important Lecture: How to Give an Efficient Chalk Talk

11:00 am-12:00pm

Career Center Theater, Learning Center

Michael Rape, Professor, University of California, Berkeley

The chalk talk is the most underappreciated part of an academic job interview. Yet, both weak or strong chalk talks can have a major impact on who is going to be hired. From Michael Rape's experience as candidate, faculty, and search committee chair, he will discuss strategies for an efficient and convincing chalk talk.

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

● LGBTQ Diversity Session

11:00 am-12:00 pm

Room 121

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.

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|-------------------|---|
| 11:00-11:10 am | Introduction. Bruno da Rocha-Azevedo, University of Texas Southwestern Medical Center |
| 11:10-11:40 am | Integration of actin dynamics and adhesion in cell migration. Clare M. Waterman, National Heart, Lung and Blood Institute/NIH |
| 11:40 am-12:00 pm | Career advice and open discussion |

● Microsymposium 13: Nuclear Structure, Function, and Movement

11:00 am-12:06 pm

Microsymposia Room 1, Learning Center, Hall C

Moderators: **Theodore Ho**, University of California, San Francisco; **Chenshu Liu**, Columbia University; and **Rebecca Meseroll**, National Institute of Diabetes and Digestive and Kidney Diseases, NIH

- | | |
|---------------|--|
| 11:00 am | Introduction |
| 11:03 am E109 | Control of gene expression by nucleus centration in mouse oocytes. M. Almonacid¹ , S. El-Hayek¹ , A. Othmani² , W.W. Ahmed^{3,4,5} , P. Davidson^{3,4,5} , C. Campillo⁶ , C. Sykes^{3,4,5} , A. Genovesio² , M. Verlhac¹ ; ¹ Center for Interdisciplinary Research in Biology (CIRB), CNRS, INSERM, PSL Research University, Paris, France, College de France, Paris, France, ² Scientific Center for Computational Biology, CNRS-INSERM-ENS, PSL Research University, Institut de Biologie de l'Ecole Normale Supérieure, Paris, France, ³ CNRS-UMR168, Paris, France, ⁴ UPMC, Paris, France, ⁵ Laboratoire Physico-Chimie, Institut Curie, Centre de Recherche, Paris, France, ⁶ LAMBE, Université Evry Val d'Essonne, Evry, France |
| 11:10 am E110 | Nucleosome-nucleosome interactions via histone tails and linker DNA regulate nuclear rigidity. Y. Shimamoto^{1,2,3} , S. Tamura⁴ , K. Maeshima^{2,4} ; ¹ Center for Frontier Research, National Institute of Genetics, Shizuoka, Japan, ² Department of Genetics, Sokendai University, Shizuoka, Japan, ³ AMED-PRIME, Japan Agency for Medical Research and Development, Tokyo, Japan, ⁴ Structural Biology Center, National Institute of Genetics, Shizuoka, Japan |
| 11:17 am E111 | Nuclei migrate through constricted spaces using microtubule motors and actin networks in <i>C. elegans</i> hypodermal cells. C. Bone¹ , Y. Chang¹ , N. Cain¹ , D.A. Starr¹ , S. Murphy¹ ; ¹ Molecular and Cellular Biology, University of California, Davis, Davis, CA |
| 11:24 am E112 | Stiffness-dependent maintenance of Mkl1/SRF-signaling requires Emerin and Lamin A. M.K. Willer¹ , C.W. Carroll¹ ; ¹ Dept. of Cell Biology, Yale University, New Haven, CT |
| 11:31 am E113 | Genome variation in an osteosarcoma cell line after pore migration. J. Irianto¹ , Y. Xia¹ , C.R. Pfeifer¹ , J. Ji¹ , C.M. Alvey¹ , M. Tewari¹ , R.A. Greenberg² , D.E. Discher¹ ; ¹ School of Engineering and Applied Sciences, University of Pennsylvania, Philadelphia, PA, ² Cancer Biology, Abramson Family Cancer Research Institute, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA |
| 11:38 am E114 | Mutant lamin A causes elevated ribosome biogenesis and protein translation in Hutchinson-Gilford Progeria Syndrome. A.L. Buchwalter¹ , M.W. Hetzer¹ ; ¹ Molecular and Cell Biology Laboratory, The Salk Institute for Biological Studies, La Jolla, CA |

- 11:45 am E115 Suppressing ERK1/2 phosphorylation of TAN Line Component FHOD1 rescues defective nuclear movement in fibroblasts expressing muscular dystrophy lamin A mutants. **S. Antoku¹, W. Wu², C. Östlund², H.J. Worman², G.G. Gundersen¹**; ¹Department of Pathology and Cell Biology, Columbia University, New York, NY, ²Department of Medicine, Columbia University, New York, NY
- 11:52 am E116 Nucleus-nucleus interactions are regulated by two distinct genes linked to Emery-Dreifuss Muscular Dystrophy and Centronuclear Myopathy. **M.A. Collins¹, T.R. Mandigo¹, J.M. Camuglia¹, E.S. Folker¹**; ¹Department of Biology, Boston College, Chestnut Hill, MA
- 11:59 am E117 LINC complexes support epidermal keratinocyte adhesion and differentiation. **R.M. Stewart¹, D. Reyes Aguilar^{2,3}, V.J. Horsley^{3,4}, M.C. King^{1,3}**; ¹Cell Biology, Yale School of Medicine, New Haven, CT, ²University of Maryland, Baltimore County, Baltimore, MD, ³Sackler Institute for Biological, Physical and Engineering Sciences, New Haven, CT, ⁴Molecular, Cell and Developmental Biology, Yale University, New Haven, CT

● Microsymposium 14: Trafficking Dynamics and Imaging

11:00 am-12:06 pm

Microsymposia Room 2, Learning Center, Hall C

Moderators: **Matthew Akamatsu**, University of California, Berkeley; **Paulo Caceres**, Weill Cornell Medical College; and **Rebecca Meseroll**, National Institute of Diabetes and Digestive and Kidney Diseases, NIH

- 11:00 am Introduction
- 11:03 am E118 Cargo sorting during protein secretion. **J. Von Blume¹, B. Blank¹**; ¹Molecular Medicine, Max Planck Institute of Biochemistry, Martinsried, Germany
- 11:10 am E119 Assembly and activation of dynein–dynactin by the cargo adaptor protein Hook3. **C.M. Schroeder¹, R.D. Vale²**; ¹Division of Basic Sciences, Fred Hutchinson Cancer Research Center, Seattle, WA, ²Dept. of Cellular and Molecular Pharmacology, University of California, San Francisco, San Francisco, CA
- 11:17 am E120 SNARE proteins entropically expand membrane fusion pores. **S. Thiyagarajan¹, Z. Wu^{2,3}, O. Bello³, S. Auclair³, W. Vennekate³, S.S. Krishnakumar³, E. Karatekin^{2,3,4,5}, B. O’Shaughnessy⁶**; ¹Physics, Columbia University, New York, NY, ²Cellular and Molecular Physiology, Yale University, New Haven, CT, ³Nanobiology Institute, Yale University, West Haven, CT, ⁴Molecular Biophysics and Biochemistry, Yale University, New Haven, CT, ⁵Fondamentales et Biomédicales, Centre National de la Recherche Scientifique, Paris, France, ⁶Chemical Engineering, Columbia University, New York, NY
- 11:24 am E121 Two distinct modes of exocytosis revealed by automated computer-vision image analysis. **F.L. Urbina¹, S. Gomez², S. Gupton¹**; ¹Cell Biology and Physiology, University of North Carolina: Chapel Hill, Chapel Hill, NC, ²Biomedical Engineering, University of North Carolina: Chapel Hill, Chapel Hill, NC
- 11:31 am E122 Running against time: a kinetic study of endophilin. **K.R. Poudel¹, A. Su¹, T. Ho¹, J. Bai¹**; ¹Basic Sciences, Fred Hutchinson Cancer Research Center, Seattle, WA
- 11:38 am E123 Functional recruitment of dynamin requires multimeric interactions with SH3 domain containing proteins for efficient endocytosis. **D. Perrais¹, M. Rosendale¹, T. Van¹, D. Grillo-Bosch¹, I. Gauthereau¹, D. Choquet¹, M. Sainlos¹**; ¹Interdisciplinary Institute for Neuroscience, CNRS and University of Bordeaux, Bordeaux, France
- 11:45 am E124 The dynamics of chemokine receptor CXCR4 endocytosis. **L.K. Rosselli-Murai¹, M. DeNies², M. White³, A.P. Liu^{1,2,3}**; ¹Department of Mechanical Engineering, University of Michigan, Ann Arbor, MI, ²Department of Molecular and Cellular Biology, University of Michigan, Ann Arbor, MI, ³Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI
- 11:52 am E125 High-throughput superresolution imaging of clathrin- and actin-mediated endocytosis in yeast. **M. Mund¹, A. Picco², M. Kaksonen², J. Ries¹**; ¹Cell Biology and Biophysics, European Molecular Biology Laboratory, Heidelberg, Germany, ²Department of Biochemistry, University of Geneva, Geneva, Switzerland
- 11:59 am E126 Using quantitative super-resolution microscopy to optimize multivalent Her2-targeting ligands. **O. Golfetto¹, R. Jorand¹, S. Biswas¹, D.L. Wakefield¹, S.J. Tobin¹, K.N. Avery¹, K. Meyer¹, J.C. Williams¹, T. Jovanovic-Taliman¹**; ¹Molecular Medicine, Beckman Research Institute–City of Hope, Duarte, CA

TUESDAY

- **Table Talk**

11:15 am-12:00 pm

Roundtable Central Section 2, Learning Center

Tips for Writing a Successful Application for a PALM Fellowship

The NSF-funded Promoting Active Learning and Mentoring Network is looking for Fellows who want to receive mentoring in how to employ active learning in undergraduate classrooms. Come to this table talk to learn what characterizes a successful application for funding as a PALM Fellow.

- **Odd-Numbered Poster Presentations**

12:00-1:30 pm

Learning Center

- **Exhibitor Tech Talk**

12:00-12:45 pm

Theater 1, Room 102

Nikon Instruments Inc.

Using the Past to Predict the Future: Applications of High Throughput Longitudinal Single Cell Analysis to Discovery

Presenter: Steven Finkbeiner

Level: Advanced

Slowly unfolding, asynchronous or cell-specific biology can be hard to study. Cell-to-cell differences significantly reduce the sensitivity of approaches that rely on cross-sectional comparisons between unrelated cells. We developed high throughput longitudinal single cell imaging systems called robotic microscopes. Automated programs find cells in images and track them longitudinally. Increasingly, deep learning is used to extract image features. The approach is 2-to-3 orders of magnitude more sensitive than cross-sectional comparisons of unrelated cells. Each cell effectively serves as its own control, reducing variability, and cumulative biological measurements capture slowly unfolding, asynchronous events. The analysis produces quantitative predictive models of biology and is well-suited for screening of heterogeneous or precious cell populations, such as differentiated human induced pluripotent cell culture, organotypic tissue or even model organisms.

- **Exhibitor Tech Talk**

12:00-12:45 pm

Theater 2, Learning Center

MilliporeSigma (formerly EMD Millipore and Sigma-Aldrich)

Winning Westerns for Cell Biologists: Getting the Most – From Cells to Data

Presenter: Jun Park, PhD, Applications Lead, MilliporeSigma, the life science business of Merck KGaA, Darmstadt, Germany

Level: Intermediate

Does Western blotting give you more trouble than expected? Are your precious samples being wasted on bad Westerns? Join us and find out how you can make your Westerns “win”! You will learn general guidelines for performing and troubleshooting your Westerns, such as: Use of IR spectrometry to better understand your lysate samples; Why membrane choice matters; Parameters affecting blotting efficiency; Conditions for optimizing immunodetection; and Tips and tricks for quantitative Westerns. As the inventors of PVDF Immobilon® membranes, MilliporeSigma knows how informative a good Western can be. Bring your research questions to get the most out of this session.

- **2016 Celldance Premiere and 60-Second Elevator Speech Finals**

12:00-12:55 pm

Career Center Theater, Learning Center

Celldance is supported by Public Library of Science (PLOS)

It's Show Time in cell biology as three new “Tell Your Own Cell Story” films from Celldance 2016 premiere along with the final results of the Elevator Speech Video Contest and the winners of the COMPASS Comics Con(test).

● Microsymposium 15: Cell Shape and Signaling

12:25-1:31 pm

Microsymposia Room 2, Learning Center, Hall C

Moderators: **Matthew Akamatsu**, University of California, Berkeley; and **Courtney Schroeder**, Fred Hutchinson Cancer Research Center

- 12:25 pm Introduction
- 12:28 pm E127 Dissecting the role of RhoA, -B and -C during host-pathogen interaction. **J. Halfen¹, J. Kollasser¹, L. Gröbe², P. Hagendorff³, R. Geffers³, A. Steffen¹, C.H. Brakebusch⁴, K. Rottner⁵, T.E. Stradal¹**; ¹Cell Biology, Helmholtz Centre for Infection Research, Braunschweig, Germany, ²Flow Cytometry and Cell Sorting, Helmholtz Centre for Infection Research, Braunschweig, Germany, ³Genome Analytics, Helmholtz Centre for Infection Research, Braunschweig, Germany, ⁴Biotech Research and Innovation Centre, University of Copenhagen, Copenhagen, Denmark, ⁵Molecular Cell Biology, Technical University Braunschweig, Braunschweig, Germany
- 12:35 pm E128 Regulatory mechanism of JMY in actin-based autophagosome movement. **X. Hu¹, R. Mullins¹**; ¹Cellular and Molecular Pharmacology, University of California, San Francisco, San Francisco, CA
- 12:42 pm E129 Role of cytoskeleton in morphological changes of blood platelets. **A. Mathur¹, S. Dmitrieff¹, S. Correia¹, R. Gibeaux^{1,2}, I. Kalinina¹, T. Quidwai¹, J. Ries¹, F. Nedelec¹**; ¹Cell Biology and Biophysics, European Molecular Biology Laboratory, Heidelberg, Germany, ²Department of Molecular Cell Biology, University of California, Berkeley, CA
- 12:49 pm E130 Keratins regulate β -cell mitochondrial morphology, motility and homeostasis. **J.S. Silvander¹, S.M. Kvarnström¹, A. Kumari-Ilieva¹, C.M. Alam¹, D.M. Toivola¹**; ¹Cell Biology, Åbo Akademi University, Turku, Finland
- 12:56 pm E131 SHANK3 Structure Reveals a RAS-associated Domain Regulating Integrin Activation. **J. Lilja¹, T. Zacharchenko², M. Georgiadou¹, H. Kreienkamp³, I. Barsukov², J. Ivaska¹**; ¹Turku Centre for Biotechnology, University of Turku, Turku, Finland, ²University of Liverpool, Liverpool, United Kingdom, ³University Medical Center Hamburg-Eppendorf, Institute for Human Genetics, Hamburg, Germany
- 1:03 pm E132 β 2 integrins mediate the formation of a focal adhesion-like cytoskeleton and signaling platform during phagocytosis. **V. Jaumouillé¹, T. Liu², E. Betzig², C.M. Waterman¹**; ¹National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, MD, ²Janelia Research Campus, Howard Hughes Medical Institute, Ashburn, VA
- 1:10 pm E133 Identifying signaling connections in cancer cell motility using partial correlation analysis of simultaneously imaged Rho GTPase and RhoGEF activities. **D.J. Marston¹, M. Vilela², G. Glekas¹, G. Danuser², J. Sondel¹, K.M. Hahn¹**; ¹Dept of Pharmacology, UNC Chapel Hill, Chapel Hill, NC, ²Department of Cell Biology, University of Texas Southwestern Medical Center, Dallas, TX
- 1:17 pm E134 Single Molecule Force Measurements in Living Cells Reveal a Minimally Tensioned Integrin State. **S.J. Tan¹, A.C. Chang¹, A.H. Mekhdjian¹, A.K. Denisin², B.L. Pruitt³, A.R. Dunn¹**; ¹Chemical Engineering, Stanford University, Stanford, CA, ²Bioengineering, Stanford University, Stanford, CA, ³Mechanical Engineering, Stanford University, Stanford, CA
- 1:24 pm E135 A role for fibrosis in promoting pro-tumor immune response in breast cancer. **O. Maller¹, L. Cassereau¹, A. Drain¹, B. Ruffell², I. Acerbi¹, M. Broz³, J. Munson⁴, M. Swartz⁵, M.F. Krummel³, L.M. Coussens⁶, V.M. Weaver¹**; ¹Department of Surgery, University of California San Francisco, San Francisco, CA, ²Moffitt Cancer Center, Tampa, FL, ³Department of Pathology, University of California San Francisco, San Francisco, CA, ⁴Department of Biomedical Engineering, University of Virginia, Charlottesville, VA, ⁵Institute for Molecular Engineering, University of Chicago, Chicago, IL, ⁶Department of Cell Developmental Biology, Oregon Health Sciences University, Portland, OR

● Microsymposium 16: Development and Invasion

12:25-1:31 pm

Microsymposia Room 1, Learning Center, Hall C

Moderators: **R. Ileng Kumaran**, Cold Spring Harbor Laboratory; **Paul Mungai**, AAAS; and **Scott Wilkinson**, Emory University

- 12:25 pm Introduction
- 12:28 pm E136 Phosphorylation of the lipid droplet-associated protein Jabba by casein kinase 2 is critical for *Drosophila* oogenesis. **E.A. McMillan¹, S.M. Longo¹, M.D. Smith¹, S.A. Broskin¹, N. Singh¹, T.I. Strochlic¹**; ¹Department of Biochemistry and Molecular Biology, Drexel University College of

- Medicine, Philadelphia, PA
- 12:35 pm E137 The distal appendage protein CEP164 is critical for embryonic development and multiciliated cell differentiation. **S.S. Siller**^{1,2,3}, **H. Sharma**^{1,2,3}, **F. Li**¹, **M.J. Holtzman**⁴, **H. Colognato**^{1,2,3}, **B.C. Holdener**⁵, **K. Takemaru**^{1,2,3}; ¹Department of Pharmacological Sciences, Stony Brook University, Stony Brook, NY, ²Medical Scientist Training Program, Stony Brook University, Stony Brook, NY, ³Graduate Program in Molecular and Cellular Pharmacology, Stony Brook University, Stony Brook, NY, ⁴Department of Medicine, Washington University School of Medicine, St. Louis, MO, ⁵Department of Biochemistry and Cell Biology, Stony Brook University, Stony Brook, NY
- 12:42 pm E138 A new platform for dynamically and reversibly modulating matrix stiffness reveals YAP inhibition of β -catenin drives mechanosensitive neural stem cell differentiation during a critical time window. **S. Rammensee**^{1,2}, **M. Kang**^{1,2}, **K. Georgiou**^{1,2}, **D. Schaffer**^{1,2}, **S. Kumar**^{1,2}; ¹Bioengineering, University of California, Berkeley, Berkeley, CA, ²Bioengineering, University of California, San Francisco, San Francisco, CA
- 12:49 pm E139 Protein Kinase C signalling controls the de novo cell polarity establishment in the mammalian early embryogenesis. **M. Zhu**¹, **M. Zernicka-Goetz**¹; ¹Department of Physiology, Development and Neuroscience, University of Cambridge, Cambridge, United Kingdom
- 12:56 pm E140 Interleukin 6 directly activates pancreatic tumor cell invasion via Cdc42 signaling. **G.L. Razidlo**¹, **M.A. McNiven**¹; ¹GI Basic Research, Biochemistry & Molecular Biology, Mayo Clinic, Rochester, MN
- 1:03 pm E141 The regulation of nuclear ErbB3 by the androgen receptor in prostate cancer cells. **M.K. Jathal**^{1,2}, **T.M. Steele**^{1,2}, **S. Siddiqui**², **P.M. Ghosh**^{1,2,3}; ¹Urology, University of California Davis, Davis, CA, ²Research, Veterans Affairs Northern California Healthcare System, Mather, CA, ³Biochemistry and Molecular Medicine, University of California Davis, Davis, CA
- 1:10 pm E142 Expansions of mitotic kinase families in *Stentor coeruleus*, the model for single cell regeneration. **S.B. Reiff**¹, **W.F. Marshall**¹; ¹Biochemistry Biophysics, University of California San Francisco, San Francisco, CA
- 1:17 pm E143 Ganoderma lucidum extract significantly decreases stemness properties in Inflammatory Breast Cancer cells via STAT3 regulation. **T.J. Rios**¹, **Y. Loperena**¹, **M.Y. Lacourt**¹, **P. Lopez**², **Y. Yamamura**², **L.A. Cubano**³, **M.M. Martinez-Montemayor**¹; ¹Department of Biochemistry, Universidad Central del Caribe-School of Medicine, Bayamon, PR, ²Department of Basic Sciences (Microbiology), Ponce Health Sciences University, Ponce, PR, ³Department of Anatomy and Cell Biology, Universidad Central del Caribe-School of Medicine, Bayamon, PR
- 1:24 pm E144 YAP Promotes Myogenic Differentiation via the MEK5-ERK5 pathway. **T.H. Chen**^{1,2}, **C.H. Chang**^{2,3}, **C.P. Chu**²; ¹Department of Life Science, National Tsing Hua University, Hsin-Chu, Taiwan, ²Institute of Cellular and System Medicine, National Health Research Institutes, Zhunan, Taiwan, ³Department of Internal Medicine, Changhua Christian Hospital, Changhua, Taiwan

● Exhibitor Tech Talk

1:00-1:45 pm

Theater 1, Room 102

Nikon Instruments Inc.

Re-scan Confocal Microscopy (RCM): The New Confocal Microscope

Presenter: Erik M.M. Manders

Level: Intermediate

The RCM technology is based on conventional confocal microscopy, but behind the pinhole we have placed a second scanner that “writes” the image on a sensitive camera. This new, simple detection system has two important advantages over conventional confocal microscopy: RCM has strongly improved resolution and strongly improved sensitivity. We will show how the RCM can be used in cell biology research. Applications range from simple multi-colour imaging to FRAP and FRET measurements.

● Exhibitor Tech Talk

1:00-1:45 pm

Theater 2, Learning Center

Thermo Fisher Scientific Inc.
Verification of Antibody Performance by Protein Immunoprecipitation and Mass Spectrometry Enriches Antibody Targets and Interacting Proteins

Presenter: Gregory Potts, PhD

Level: Introductory

Antibodies have been adopted as investigative tools to enrich protein targets from complex samples in research applications. However, many commercially available antibodies are poorly characterized and thus lead to potentially flawed research conclusions. To verify antibody performance, we have created a comprehensive workflow to assess antibody specificity using immunoprecipitation coupled with mass spectrometry (IP-MS). With this approach, we utilize MS quantitation to calculate a fold-enrichment score to better visualize an antibody's selectivity for its intended target. Further, we show that IP-MS has the unique capacity to quantify interacting and non-specifically bound proteins from IP samples. Drawing from data obtained from over 650 screened antibodies, we showcase examples of antibody performance and use a subset to quantify twelve proteins in the Akt/mTOR pathway using targeted MS.

● In-Booth Presentation

1:00-1:30 pm

Booth 1017, Learning Center

ALVEOLE

PRIMO: New Photopatterning Technology Offering a Customized Control of the Cellular Microenvironment

Presenter: Erik M.M. Manders

Presenters: Romuald Vally, Matthieu Opitz

The device called PRIMO was developed to enable biologists to generate and tune any protein micropatterns, whether for studying the effect of a drug or mimicking the physiological conditions, at the level of a single cell or cell populations. Come and discover how it will facilitate your experimental manipulations.

● Career Panel: Entrepreneurship and Consulting

1:00-1:55 pm

Career Center Theater, Learning Center

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

Naresh Sunkara is the CEO of a startup company, Nosocom Solutions Inc., which develops technologies to reduce healthcare acquired infections in hospitals. He is also a Visiting Scholar and Special Advisor to the Vice Chancellor for Research (Postdoctoral Affairs) at University of California, Berkeley. In this role, he has successfully implemented several new initiatives including an internship program for graduate students and postdocs to train them in technology evaluation, and licensing & marketing them to interested companies through the IPIRA office at UC Berkeley. Previously, he was a postdoctoral scientist at UC Berkeley, developing novel technologies for delivery of RNA-based drugs for treating viral infections. During his time at Berkeley, he founded and chaired the Berkeley Postdoctoral Entrepreneurship Program (BPEP). The mission of BPEP, founded in 2010, is to educate and mentor graduate students and postdocs to bolster their entrepreneurship skills for the purpose of transforming university research into startup companies.

Gadryn Higgs completed his PhD in Mechanical Engineering at Stanford University. Since graduating, he has pursued his passion for business and entrepreneurship, including as a consultant for McKinsey & Co and the co-founder of his own company. In 2015, he joined CAN Mobilities as a Lead Research Scientist. CAN Mobilities is a small, privately held company based in San Jose that is changing the way that the mobility challenged interact with their environment. He works closely with a team of leading physicians and medical researchers to better understand users' needs. He also collaborates with human-centered design gurus to help build solutions with the end-user in mind.

David Breslauer is the Chief Scientific Officer and co-founder of Bolt Threads, an Emeryville, CA, startup committed to the idea that the combination of molecular biology and materials science can revolutionize how people think about and use natural materials. Bolt is developing the next generation in performance apparel, leveraging the latest advances in industrial biotechnology, automation, computation, and materials science. At Bolt, Breslauer guides the design, production, and testing of new silk polymers and fibers with desired performance properties. David earned his BS in Bioengineering from University of California, San Diego, and a PhD in Bioengineering from UC Berkeley and UCSF. In 2009, he and his co-founders turned their graduate work on spider silk into a vision for a protein-based materials platform that can produce engineered silk fibers combining all of the advantages of natural fibers with the ability to integrate advanced properties only currently available in synthetics. They started with spider silk—a protein-

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based fiber that is one of nature's most remarkable materials in strength and weight. They can now produce nearly any silk or protein-based material known in nature, as well as customize-designed variants. Six years in, Bolt Threads is >70 people with over \$90 million in funding for developing the technology platform and process to mass produce performance-engineered spider silk fibers and to deliver the next-generation of textile fibers and apparel functionality.

Melbs LeMieux is an expert on thin films and nanomaterials, with emphasis in polymeric, composite, textiles and electronic materials. He is also active in technology commercialization and has a strong interest in enabling the development and realization of technologies and products incorporating advanced materials for the consumer electronics, biomedical, and wearables industries. His background includes direct experience in product and technology development in applications related to display and printed electronics. Since 2013, LeMieux has been working with the Enterprise Works Chicago start-up incubator, as an Entrepreneur in Residence (EIR). Here, he works hands-on with students, postdocs, and faculty on understanding commercialization pathways for their technology. This involves technology due-diligence and commercialization road-mapping, market assessment, and intellectual property strategy with university, corporate, and private equity groups. Awarded an Intelligence Community Postdoctoral Fellowship, LeMieux spent three years at Stanford University's Chemical Engineering Department, conducting research in the areas of organic flexible electronics. In 2010, he cofounded C3Nano, Inc. out of Stanford, developing printable inks composed of carbon nanotube (CNT), metal nanowire, and graphene materials for display, touchscreen, wearables, and electronic skin/biosensing applications. He has helped guide the company in winning the MIT Clean Energy Prize, as well as over \$20M in fundraising. LeMieux received his PhD (with honors) in materials science and engineering from Iowa State University, with emphasis on polymer physics and interfaces, under the mentorship of Prof. Vladimir Tsukruk. He has co-authored over 40 publications and 10 patents.

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

● **Afternoon Refreshment Break**

1:30-3:30 pm

Learning Center

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

● **Even-Numbered Poster Presentations**

1:30-3:00 pm

Learning Center

● **Microsymposium 17: Cell Division in Development and Disease**

1:50-2:56 pm

Microsymposia Room 1, Learning Center, Hall C

Moderators: **Theodore Ho**, University of California, San Francisco; **Chenshu Liu**, Columbia University; and **Dennis Zimmermann**, University of Chicago

1:50 pm	Introduction
1:53 pm E145	Quantification of centromeric protein dynamics during early embryogenesis of <i>C. elegans</i> . L. Smith¹, C. Barnhardt², P.S. Maddox² ; ¹ Curriculum in Genetics and Molecular Biology, University of North Carolina, Chapel Hill, NC, ² Department of Biology, University of North Carolina, Chapel Hill, NC
2:00 pm E146	A Novel Mutual Protection Mechanism of Centromere Regulation and an Application for Predicting Cancer Patient Response to Adjuvant Radio- and Chemotherapy based on Centromere Misregulation. W. Zhang^{1,2}, J. Mao¹, W. Zhu³, A.K. Jain^{4,5}, K. Liu^{6,7}, J.B. Brown^{6,7,8}, A. Williamson², J. Garbe¹, M.A. LaBarge¹, M. Stampfer¹, M. Rape², G.H. Karpen^{1,2} ; ¹ Biological Systems and Engineering Division, Lawrence Berkeley National Laboratory, Berkeley, CA, ² Department of Molecule and Cell Biology, University of California, Berkeley, Berkeley, CA, ³ Department of Translational Bioinformatics, Cellular Biomedicine Group, Inc., Shanghai, China, ⁴ Department of Therapeutic Radiology, Yale School of Medicine, New Haven, CT, ⁵ Ashland Bellefonte Cancer Center, Ashland, KY, ⁶ Environmental Genomics and Systems Biology Division, Lawrence Berkeley National Laboratory, Berkeley, CA, ⁷ Department of Statistics, University of California, Berkeley, Berkeley, CA, ⁸ Environmental Bioinformatics, University of Birmingham, Birmingham, United Kingdom
2:07 pm E147	H3.3 Serine 31 phosphorylation at pericentromeric heterochromatin regulates chromosome segregation. C.A. Day¹, A.K. Langfald¹, S.R. Fadness¹, K.T. Vaughan², E.H. Hinchcliffe¹ ; ¹ Hormel Institute, University of Minnesota, Austin, MN, ² Department of Biological Sciences, University of Notre Dame, Notre Dame, IN
2:14 pm E148	Centrosome amplification drives spontaneous tumor development in mammals. M.S. Levine¹, B. Bakker², B. Boeckx³, D. Lambrechts³, F. Foijer², A.J. Holland¹ ; ¹ Molecular Biology and Genetics, Johns Hopkins University, School of Medicine, Baltimore, MD, ² European Research Institute

for the Biology of Ageing, University of Groningen, UMCG, Groningen, Netherlands, ³Oncology, Vesalius Research Center, VIB, Leuven, Belgium

- 2:21 pm E149 Zika infection disrupts centriole biogenesis. **A.T. Kodani**^{1,2}, **J.F. Reiter**¹, **K. Knopp**¹, **J. DeRisi**¹; ¹Biochemistry and Biophysics, UCSF, San Francisco, CA, ²Genetics and Genomics, Boston Children's Hospital, Boston, MA
- 2:28 pm E150 Chromatin spatially regulates cytokinesis. **D. Beaudet**¹, **T. Akhshi**², **J. Phillip**¹, **A.J. Piekny**¹; ¹Biology, Concordia University, Montreal, QC, ²Biochemistry, University of Toronto, Toronto, ON
- 2:35 pm E151 Combinatorial Drug Treatments Identify Lamin A as a Novel Aurora B Substrate Required for Nuclear Lamina Assembly During Telophase. **K.T. Vaughan**¹, **E. Hinchcliffe**², **K.L. Huegel**¹, **S. Guo**¹, **R. Hill**¹, **A. Zeleniak**¹, **M. Joyce**¹, **W. Boggess**¹, **Z. Schafer**¹, **P. Vaughan**¹, **R. Taylor**¹; ¹Biological Sciences, University of Notre Dame, Notre Dame, IN, ²Hormel Institute, University of Minnesota, Austin, MN
- 2:42 pm E152 Cell-cell cooperativity modulates proliferation and mitotic defects of phenotypically heterogeneous invading cancer cells. **E. Summerbell**^{1,2}, **J. Konen**^{1,2}, **A.I. Marcus**²; ¹Graduate Program in Cancer Biology, Emory University, Atlanta, GA, ²Hematology and Medical Oncology, Emory University, Atlanta, GA
- 2:49 pm E153 Apoptotic effects of green tea in leukemic cells from acute promyelocytic leukemia mice. **C.O. Torello**¹, **R.N. Shiraishi**¹, **F.I. Della Via**¹, **M.C. Alvarez De Prax**¹, **M.L. Queiroz**¹, **S.T. Saad**¹; ¹Hemocentro/Unicamp, University of Campinas, Campinas, Brazil

● Microsymposium 18: Signaling and Bioengineering

1:50-2:56 pm

Microsymposia Room 2, Learning Center, Hall C

Moderators: **R. Ileng Kumaran**, Cold Spring Harbor Laboratory; **Paul Mungai**, AAAS; and **Scott Wilkinson**, Emory University

- 1:50 pm Introduction
- 1:53 pm E154 Engineering phagocytosis to understand conserved mechanisms of membrane-proximal signal transduction. **A.P. Williamson**¹, **M.A. Morrissey**¹, **R.D. Vale**¹; ¹Cellular and Molecular Pharmacology, UCSF/HHMI, San Francisco, CA
- 2:00 pm E155 The Hi-HOST Phenome Project: Interpreting human genetic diversity through high-throughput cell biology. **L. Wang**¹, **M.I. Alvarez**¹, **L.C. Glover**¹, **K.J. Pittman**¹, **K.D. Gibbs**¹, **D.C. Ko**^{1,2}; ¹Department of Molecular Genetics Microbiology, Duke University, Durham, NC, ²Department of Medicine, Duke University, Durham, NC
- 2:07 pm E156 Optogenetics-based dissection of chemotactic signaling and adaptation in neutrophils. **B.R. Graziano**¹, **D. Gong**¹, **K.E. Anderson**², **A.R. Goldberg**¹, **O.D. Weiner**¹; ¹Cardiovascular Research Institute, UCSF, San Francisco, CA, ²The Babraham Institute, Cambridge, United Kingdom
- 2:14 pm E157 Systemic insulin sensitivity is regulated by GPS2 through inhibition of AKT ubiquitination and activation in adipose tissue. **C.T. Cederquist**¹, **M. Lee**¹, **C. Martinez-Calejman**², **V. Hayashi**¹, **J. Orofino**¹, **C. Lentucci**¹, **D. Guertin**², **S. Fried**³, **M.D. Cardamone**¹, **V. Perissi**¹; ¹Biochemistry, Boston University School of Medicine, Boston, MA, ²University of Massachusetts Medical School, Worcester, MA, ³Mount Sinai School of Medicine, New York, NY
- 2:21 pm E158 TGF β Regulates the Stability of Sox9. **G. Coricor**¹, **R. Serra**¹; ¹Cellular, Developmental and Integrative Biology, University of Alabama at Birmingham, Birmingham, AL
- 2:28 pm E159 TULP3 and Tubby function as general adapters for trafficking of structurally diverse integral membrane proteins to the primary cilium. **H.B. Badgandi**¹, **S. Hwang**¹, **I. Shimada**¹, **S. Mukhopadhyay**¹; ¹Cell Biology, University of Texas Southwestern Medical Center, Dallas, TX
- 2:35 pm E160 Axonal growth and guidance responses regulated by NADPH oxidase-derived reactive oxygen species. **H.S. Roeder**¹, **D.M. Suter**¹; ¹Department of Biological Sciences, Purdue University, West Lafayette, IN
- 2:42 pm E161 Modeling Glioma-Associated Genomic Rearrangements Using Somatic Genome Editing. **P.J. Cook**¹, **A. Ventura**¹, **R. Benezra**¹; ¹Cancer Biology and Genetics, Memorial Sloan Kettering Cancer Center, New York, NY
- 2:49 pm E162 The Tetraspanin CD82 Regulates Hematopoietic Stem Cell Interactions with the Bone Marrow Microenvironment. **C.A. Saito Reis**¹, **K.D. Marjon**¹, **E.M. Pascetti**¹, **K.L. Karlen**¹, **R.J. Dodd**¹, **C.M. Termini**¹, **J.M. Gillette**¹; ¹Pathology, University of New Mexico Health Science Center, Albuquerque, NM

TUESDAY

● Exhibitor Tech Talk

2:00-2:45 pm

Theater 1, Room 102

Illumina, Inc.

A scalable High-throughput Method for RNA-Seq Analysis of Thousands of Individual Cells

Presenter: Kevin L. Taylor, Ph.D.

Level: Beginner

Complex biological systems are fundamentally determined by the coordinated functions of individual cells. The transcriptional heterogeneity that drives this complexity is often masked by conventional technologies that only provide bulk transcriptome data. Here, we present the Illumina | Bio-Rad Single-Cell Sequencing Solution. This new platform pairs Bio-Rad's Droplet Digital Technology with Illumina's NGS library preparation and analysis technology to provide a comprehensive workflow for single-cell analysis. Single cells are partitioned into droplets on a disposable cartridge on the one-touch ddSEQ Single-Cell Isolator. Cell lysis and barcoding occur inside individual droplets, and single-cell-barcoded RNA-Seq libraries are prepared using Nextera Technology. This scalable, robust single-cell NGS sample prep methodology will enable more researchers to apply the sensitivity and precision of RNA-Seq to questions in single cell biology.

● Exhibitor Tech Talk

2:00-2:45 pm

Theater 2, Learning Center

BioTek Instruments, Inc.

Automated Dynamic Cell Culture and Real-Time Analysis with Single Cell Resolution

Presenters: Amedeo Cappione, PhD / Senior Scientist, MilliporeSigma & Joe Clayton, PhD / Principal Scientist, BioTek Instruments, Inc.

Level: Introductory

A newly integrated solution for long-term live cell culture with dynamic time-lapse analysis automates key experimental parameters including media perfusion, environmental control, and imaging. The platform leverages expertise from MilliporeSigma and BioTek Instruments, Inc., consisting of the CellASIC® ONIX2 System and Lionheart™ FX Automated Live Cell Imager, respectively. ONIX2 comprises a microfluidic culture plate and environmental control system; the latter regulates media exchange as well as gas and temperature control with high precision. It offers programmable hands-free control and expansive functionality in a user-friendly format. Lionheart FX is optimized for high resolution live cell microscopy (100x), with brightfield, phase contrast and multiple fluorescence channel options. Intuitive Gen5™ 3.0 Software greatly simplifies cell image capture, analysis, annotation and time lapse video production.

● Career Panel: Science Communication

2:00-2:55 pm

Career Center Theater, Learning Center

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

Gary McDowell is the Executive Director of the Future of Research and a resident at the Manylabs open science skunkworks in San Francisco, where he works to support junior scientists advocating for changes to the scientific system. Growing up in Northern Ireland and rural Scotland, he was a committed academic and studied Chemistry, after which he earned a PhD in Oncology at the University of Cambridge, UK. He did his postdoc over four and a half years at Harvard Medical School/Boston Children's Hospital and then Tufts, combining his love of chemistry and biochemistry with cell and developmental biology. Concerned at the state of the scientific enterprise, he worked with others to contribute the voice of junior scientists to the discussions about their future, focusing in particular on communicating about the issues facing junior scientists. In May 2016 he left "the pipeline" to try to improve the scientific enterprise for those looking to contribute their passion for science to society.

Mónica Feliú-Mójer grew up in rural Puerto Rico, surrounded by nature and with a cow in her backyard, which sparked her interest in all things biology. A scientist-turned-communicator, she leverages online technologies to make science and scientists accessible to all. Much of her work focuses on empowering individuals from underrepresented communities through science outreach, education, and mentoring efforts. She has a bachelor's degree in Human Biology from the University of Puerto Rico in Bayamón and a PhD in Neurobiology from Harvard University. She is the vice-director and news editor-in-chief of Ciencia Puerto Rico, a nonprofit organization using social networks to improve public understanding of science and K-12 science education and to support the career development of young scientists. She is also the Community Engagement and Outreach Manager for iBiology, a nonprofit organization that produces and distributes free online videos about research, the process of science, and professional development featuring the world's leading biologists. You can find her on Twitter @moefeliu.

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

● Exhibitor Tech Talk

3:00-4:00 pm

Theater 2, Learning Center

Cytoskeleton, Inc. Signal-Seeker™ Kits and Reagents

Presenter: Kim Middleton

Level: Introductory

All proteins are regulated by one or more post-translational modification. Signal-Seeker™ Kits allow end-users to quickly and simply assess the relevance of key PTMs such as phosphorylation, ubiquitination, acetylation and SUMOylation to any protein or pathway of interest (see www.cytoskeleton.com for the full range of kits). Kits utilize a standard western blot approach for data generation and provide a great analytical tool for non-specialists in protein modification and/or proteomics. Signal-Seeker™ reagents can also be utilized as enrichment tools for proteomic and ChIP analysis. One lysate, one day, huge insight.

● Education Initiative Forum

3:15-4:00 pm

Room 120

Assessing the Efficacy of Active Learning as a Means of Improving Critical Thinking in STEM Education



Melanie Styers

Birmingham-Southern College

Development of critical thinking skills has emerged as a critical issue in higher education, and these skills are highly valued by educators and employers alike. However, identification of pedagogical methods that specifically target these skills is challenging due to the difficulty of assessing the many dimensions of critical thinking. To address this issue, we used the NSF-supported Critical Thinking Assessment Test (CAT) to assess the impact of targeted interventions designed to increase active learning in introductory and advanced biology and chemistry courses. The talk will focus on implementation of the CAT as both an assessment instrument and a tool for faculty development, in addition to discussing active learning strategies employed in the classroom, such as 'CAT Apps' specifically designed to target critical thinking.

Organized by the ASCB Education Committee

● E.B. Wilson Medal Presentation and Address

3:15-4:00 pm

Hall E



Mina Bissell,

Lawrence Berkeley National Laboratory

A13 From Laminin to Lamin and p53: What determines the differentiated state? M.J. Bissell¹, ¹Biological Systems & Engineering, Lawrence Berkeley National Laboratory, Berkeley, CA

● 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.

● Minisymposium 13: Cell Death and Genome Instability

4:15-6:50 pm

Room 103

Co-Chairs: **Ingrid Wertz**, Genentech, Inc.; and **Junying Yuan**, Harvard Medical School

- 4:15 pm Introduction
- 4:20 pm M131 RIPK1 mediates axonal degeneration by promoting inflammation and necroptosis in ALS. **Y. Ito¹, D. Ofengeim¹, J. Yuan¹**; ¹Cell Biology, Harvard Medical School, Boston, MA
- 4:35 pm M132 *Helicobacter pylori* infection promotes genomic instability through a caspase-dependent pathway without promoting cell death. **A. Zamperone¹, D. Cohen¹, A. Muesch¹**; ¹Developmental and Molecular Biology, Albert Einstein College of Medicine, Bronx, NY
- 4:50 pm M133 Cause and mechanism of *Xenopus* hybrid unviability. **R. Gibeaux¹, R. Heald¹**; ¹Department of Molecular Cell Biology, University of California, Berkeley, CA
- 5:05 pm M134 Catastrophic Chromosome Shattering in Micronuclei Is Coupled to Inaccurate Reassembly by Canonical End Joining. **P. Ly^{1,2}, L.S. Teitz^{3,4}, D.H. Kim^{1,2}, O. Shoshani^{1,2}, H. Skaletsky^{3,5}, D. Fachinetti⁶, D.C. Page^{3,4,5}, D.W. Cleveland^{1,2}**; ¹Ludwig Institute for Cancer Research, La Jolla, CA, ²Department of Cellular and Molecular Medicine, University of California, San Diego, La Jolla, CA, ³Whitehead Institute for Biomedical Research, Cambridge, MA, ⁴Department of Biology, Massachusetts Institute of Technology, Cambridge, MA, ⁵Howard Hughes Medical Institute, Cambridge, MA, ⁶CNRS UMR144, Institut Curie, Paris, France
- 5:20 pm M135 Determining the missegregation rates of individual human chromosomes. **J.T. Worrall¹, S.E. McClelland¹**; ¹Centre for Molecular Oncology, Barts Cancer Institute, London, United Kingdom
- 5:35 pm M136 Small Molecule Antagonists of the Deubiquitinase USP7 Interfere with Ubiquitin Binding. **I.E. Wertz¹**; ¹Departments of Molecular Oncology and Early Discovery Biochemistry, Genentech, Inc., South San Francisco, CA
- 5:50 pm M137 Covalent irreversible inhibitors of USP7 as small molecule cancer immunotherapy agents. **J. Wang¹, J. Wu¹, L. Wang², I. Sokirniy¹, H. Wang¹, P. Nguyen¹, J. Weinstock¹, M. Mattern¹, W.W. Hancock², S. Kumar¹**; ¹Progenra, Malvern, PA, ²Children's Hospital of Philadelphia, Philadelphia, PA
- 6:05 pm M138 Targeting endoplasmic reticulum-resident proteins for the treatment of B cell cancer. **C.A. Tang¹, J. Del Valle², C.A. Hu¹**; ¹The Wistar Institute, Philadelphia, PA, ²Department of Chemistry, The University of South Florida, Tampa, FL
- 6:20 pm M139 Endosomal interactions with mitochondria during mitochondrial outer membrane permeabilization. **N.R. Brady¹, A. Hamacher-Brady¹**; ¹Molecular Microbiology and Immunology, Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD
- 6:35 pm M140 Genetically encoded fluorogenic protease reporters visualize spatiotemporal dynamics of apoptosis in vivo. **X. Shu¹**; ¹Cardiovascular Research Institute, Department of Pharmaceutical Chemistry, University of California, San Francisco, San Francisco, CA

● Minisymposium 14: Cell Mechanics

4:15-6:50 pm

Room 305

Supported by BMC Biology

Co-Chairs: **Edwin Munro**, University of Chicago; and **Julie Theriot**, Stanford University Medical Center

- 4:15 pm Introduction
- 4:20 pm M141 Excitable RhoA dynamics drive pulsed contractions in the early *C. elegans* embryo. **J.B. Michaux¹, F.B. Robin², W. McFadden³, E.M. Munro¹**; ¹Molecular Genetics and Cell Biology, University of Chicago, Chicago, IL, ²INSERM, Biologie du Développement Paris Seine, Paris, France, ³Biophysics Graduate Program, University of Chicago, Chicago, IL
- 4:35 pm M142 A mechanosensitive cdk1 threshold shapes cortical contractions in oocytes. **J. Bischof¹, C.A. Brand², K. Somogyi¹, U.S. Schwarz², P. Lénárt¹**; ¹Cell Biology and Biophysics, EMBL, Heidelberg, Germany, ²Institute for Theoretical Physics, University of Heidelberg, Heidelberg, Germany

- 4:50 pm M143 Propagating cortical actomyosin-generated tension to intercellular adhesion complex by myosin-1c. **V. Tang**¹; ¹Cell and Developmental Biology, University of Illinois, Urbana-Champaign, Urbana, IL
- 5:05 pm M144 Dynamic mechanosensory response of Spectrin restricts cell adhesion molecules at the fusogenic synapse during cell-cell fusion. **R. Duan**¹, **J. Kim**¹, **K. Shilagardi**¹, **E. Schiffhauer**², **S. Son**³, **T. Luo**⁴, **D.A. Fletcher**³, **D.N. Robinson**², **E.H. Chen**^{1,5}; ¹Molecular Biology and Genetics, Johns Hopkins University School of Medicine, Baltimore, MD, ²Cell Biology, Johns Hopkins University School of Medicine, Baltimore, MD, ³Bioengineering, University of California, Berkeley, Berkeley, CA, ⁴Modern Mechanics, University of Science and Technology of China, Hefei, China, ⁵Molecular Biology, UT Southwestern Medical Center, Dallas, TX
- 5:20 pm M145 Direct coupling of the actin cytoskeleton to a viral fusogen drives cell-cell fusion. **K. Chan**¹, **M.D. Vahey**², **S. Son**², **E.M. Schmid**², **D.A. Fletcher**^{1,3,4}; ¹UC Berkeley/UC San Francisco Graduate Group in Bioengineering, Berkeley, CA, ²Department of Bioengineering, University of California, Berkeley, CA, ³Department of Bioengineering Biophysics Program, University of California, Berkeley, CA, ⁴Physical Biosciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA
- 5:35 pm M146 Spatial Regulation of RhoA Reveals Zyxin-mediated Elasticity of Stress Fibers. **P.W. Oakes**^{1,2}, **E. Wagner**³, **C.A. Brand**⁴, **D. Probst**⁴, **M. Linke**⁴, **U.S. Schwarz**⁴, **M. Glotzer**³, **M.L. Gardel**²; ¹Department of Physics, University of Rochester, Rochester, NY, ²Institute for Biophysical Dynamics, James Franck Institute and Department of Physics, University of Chicago, Chicago, IL, ³Molecular Genetics and Cell Biology, University of Chicago, Chicago, IL, ⁴Institute for Theoretical Physics and BioQuant, Heidelberg University, Heidelberg, Germany
- 5:50 pm M147 Single molecular force sensitivity and threshold for the activation of B cell receptors. **W. Liu**¹, **Z. Wan**¹; ¹School of Life Sciences, Tsinghua University, Beijing, China
- 6:05 pm M148 Specialized actin architecture mechanically tunes T cell synaptic contact lifetime. **S. Kumari**¹, **Y. Poh**¹, **M. Melo**¹, **M. Mak**², **E. Vasile**¹, **R. Kamm**¹, **R. Geha**³, **D.J. Irvine**¹; ¹Massachusetts Institute of Technology, Cambridge, MA, ²Dept. of Biomedical Engineering, Yale university, New Haven, CT, ³Harvard Medical School, Cambridge, MA
- 6:20 pm M149 Ena/Vasp proteins selectively regulate activated T cell trafficking in vivo by mediating transendothelial migration. **M.L. Estin**^{1,2}, **J. Jacobelli**^{1,2}; ¹Dept. Biomedical Research, National Jewish Health, Denver, CO, ²Dept. Immunology and Microbiology, University of Colorado Denver, Denver, CO
- 6:35 pm M150 Coiled-coils as molecular motors: entropic polymer engines. **M. Jahnel**^{1,2}, **D.H. Murray**², **M. Zerial**², **S.W. Grill**^{1,2}; ¹BIOTEC, TU Dresden, Dresden, Germany, ²Max Planck Institute of Molecular Cell Biology and Genetics, Dresden, Germany

● Minisymposium 15: Cell Polarity and Morphogenesis

4:15-6:50 pm

Room 104

Co-Chairs: **Bob Goldstein**, University of North Carolina, Chapel Hill; and **Jennifer Zallen**, Sloan-Kettering Institute/HHMI

- 4:15 pm Introduction
- 4:20 pm M151 Unraveling PAR polarity protein interactions with single-cell biochemistry. **D.J. Dickinson**^{1,2}, **B. Goldstein**^{1,2}; ¹Biology, University of North Carolina, Chapel Hill, NC, ²Lineberger Comprehensive Cancer Center, University of North Carolina, Chapel Hill, NC
- 4:35 pm M152 Patterned Toll receptor expression organizes epithelial cell intercalation. **A. Paré**¹, **A. Vichas**¹, **C. Fincher**¹, **Z. Mirman**¹, **D. Farrell**¹, **A. Mainieri**¹, **J. Zallen**¹; ¹Sloan-Kettering Institute, New York, NY
- 4:50 pm M153 Biomechanical analysis of cell behaviors during neural plate convergent extension. **D.S. Vijayraghavan**¹, **J.H. Shawky**¹, **L.A. Davidson**^{1,2,3}; ¹Bioengineering, University of Pittsburgh, Pittsburgh, PA, ²Developmental Biology, University of Pittsburgh, Pittsburgh, PA, ³Computational and Systems Biology, University of Pittsburgh, Pittsburgh, PA
- 5:05 pm M154 Organ sculpting by patterned extracellular matrix elasticity. **J. Crest**¹, **A. Diz-Muñoz**², **D. Chen**¹, **D.A. Fletcher**², **D. Bilder**¹; ¹Molecular and Cell Biology, University of California, Berkeley, Berkeley, CA, ²Bioengineering Biophysics, University of California, Berkeley, Berkeley
- 5:20 pm M155 The molecular signature of loser cells reveals key signalling pathways involved in cell competition. **E. Piddini**¹; ¹The Gurdon Institute, University of Cambridge, Cambridge, United Kingdom
- 5:35 pm M156 Directional tissue migration regulation in early mouse embryo. **T.A. Omelchenko**^{1,2}, **A. Hall**², **K.V. Anderson**¹; ¹Developmental Biology Program, Memorial Sloan Kettering Cancer Center, New York, NY, ²Cell Biology Program, Memorial Sloan Kettering Cancer Center, New York, NY

- 5:50 pm M157 Genetic and infectious causes of microcephaly caused by NDE1 mutations and Zika virus. **D.J. Doobin¹, A. Rosenfeld², A. Carabalona¹, V. Racaniello², R.B. Vallee¹**; ¹Pathology and Cell Biology, Columbia University Medical Center, New York, NY, ²Microbiology and Immunology, Columbia University Medical Center, New York, NY
- 6:05 pm M158 Nanoscale architecture of cadherin-based cell adhesions. **C. Bertocchi¹, Y. Wang¹, A. Ravasio¹, Y. Hara¹, Y. Wu¹, T. Sailov², M.A. Baird³, M.W. Davidson^{4,5}, R. Zaidel-Bar^{1,6}, Y. Toyama^{1,7,8}, B. Ladoux^{1,9}, R. Mege⁹, P. Kanchanawong^{1,6}**; ¹Mechanobiology Institute, National University of Singapore, Singapore, Singapore, ²Singapore Centre on Environmental Life Sciences Engineering, Nanyang Technological University, Singapore, Singapore, ³National Heart Lung and Blood Institute, National Institutes of Health, Bethesda, MD, ⁴National High Magnetic Field Laboratory, The Florida State University, Tallahassee, FL, ⁵Department of Biological Science, The Florida State University, Tallahassee, FL, ⁶Department of Biomedical Engineering, National University of Singapore, Singapore, Singapore, ⁷Department of Biological Sciences, National University of Singapore, Singapore, Singapore, ⁸Temasek Life Sciences Laboratory, National University of Singapore, Singapore, Singapore, ⁹Institut Jacques Monod, Université Paris Diderot and CNRS, Paris, France
- 6:20 pm M159 The Mechano-Responsive E-cadherin/LGN Complex Instructs Epithelial Cell Division Orientation. **M. Gloerich¹, K.C. Hart¹, J.M. Bianchini¹, K.A. Siemers¹, D.J. Cohen¹, J. Tan², J. Sim³, B.L. Pruitt^{3,4,5}, W.J. Nelson^{1,4}**; ¹Biology, Stanford University, Stanford, CA, ²Biophysics Program, Stanford University, Stanford, CA, ³Mechanical Engineering, Stanford University, Stanford, CA, ⁴Molecular and Cellular Physiology, Stanford University, Stanford, CA, ⁵Bioengineering, Stanford University, Stanford, CA
- 6:35 pm M160 A Sterile 20 family kinase regulates oogenesis by tuning contractile ring proteins on germline intercellular bridges. **K.N. Rehain¹, A.C. Love², M. Werner², I. Macleod³, J. Yates III³, A.S. Maddox²**; ¹Curriculum in Genetics and Molecular Biology, University of North Carolina, Chapel Hill, NC, ²Biology, University of North Carolina, Chapel Hill, NC, ³Chemical Physiology, The Scripps Research Institute, La Jolla, CA

● Minisymposium 16: Dark Matters in Signaling and Differentiation

4:15-6:50 pm

Room 301

Co-Chairs: **Takanari Inoue**, Johns Hopkins University; and **Yingzi Yang**, Harvard School of Dental Medicine

- 4:15 pm Introduction
- 4:20 pm M161 Ciliary PI(4,5)P2 dictates fall of primary cilia and rise of cell cycle. **S.C. Phua¹, T. Inoue¹**; ¹Cell Biology, Johns Hopkins University, Baltimore, MD
- 4:35 pm M162 A bacterially-produced aphrodisiac regulates choanoflagellate mating. **A. Woznica¹, J.P. Gerdt², J. Clardy², N. King¹**; ¹Molecular and Cell Biology, University of California, Berkeley, Berkeley, CA, ²BCMP, Harvard Medical School, Boston, MA
- 4:50 pm M163 Autism susceptibility gene *TAOK2* mediates dendritic spine maturation through Septin7 phosphorylation. **S. Yadav^{1,2}, J.A. Oses-Prieto³, C. Peters^{1,2}, A. Burlingame³, L.Y. Jan^{1,2}, Y.N. Jan^{1,2}**; ¹Physiology, University of California, San Francisco, San Francisco, CA, ²Howard Hughes Medical Institute, San Francisco, CA, ³Pharmaceutical Chemistry, University of California, San Francisco, San Francisco, CA
- 5:05 pm M164 Actomyosin contractility modulates Wnt signaling through adherens junction stability. **E.T. Hall¹, E. Hoelsing¹, E.M. Verheyen¹**; ¹Molecular Biology and Biochemistry, Simon Fraser University, Burnaby, BC
- 5:20 pm M165 Tissue stiffness and hypoxia regulate breast cancer stem cells through ILK. **M. Pang^{1,2}, M.J. Siedlik¹, S. Han², M. Stallings-Mann³, D.C. Radisky³, C.M. Nelson³**; ¹Department of Chemical and Biological Engineering, Princeton University, Princeton, NJ, ²Department of Molecular Biology, Princeton University, Princeton, NJ, ³Department of Cancer Biology, Mayo Clinic Cancer Center, Jacksonville, FL
- 5:35 pm M166 A Novel Role of Sonic Hedgehog Signaling in Differentiated Human Airway Epithelia. **S. Mao^{1,2,3}, A. Shah⁴, L.R. Reznikov⁵, T. Moninger^{2,3}, L.S. Ostedgaard^{2,3}, M.J. Welsh^{1,2,3}**; ¹Molecular Physiology and Biophysics, University of Iowa, Iowa City, IA, ²Internal Medicine, University of Iowa Hospitals and Clinics, Iowa City, IA, ³Howard Hughes Medical Institute, Iowa City, IA, ⁴University of Chicago, Chicago, IA, ⁵Department of Physiological Sciences, University of Florida, Iowa City, IA
- 5:50 pm M167 The sperm-derived TRP family channel TRP-3 induces a calcium rise in the fertilized oocyte in *C. elegans*. **J. Takayama¹, H. Okada¹, S. Onami¹**; ¹RIKEN QBiC, Kobe, Japan
- 6:05 pm M168 Uncovering novel substrates and functions for the calcineurin phosphatase in human cells. **C.P.**

Wigington¹, N.P. Damle¹, J. Roy¹, S.E. Cho¹, N.E. Davey², Y. Ivarsson³, M.S. Cyert¹; ¹Biology, Stanford University, Stanford, CA, ²Conway Institute of Biomolecular and Biomedical Sciences, University College, Dublin, United Kingdom, ³Chemistry-BMC, Uppsala University, Uppsala, Sweden

6:20 pm M169 SPV-1, a RhoGAP with a novel F-BAR domain, regulates calcium signaling in the *C. elegans* spermatheca during ovulation events. **J. Bouffard¹, A.R. Asthagiri^{1,2}, R. Zaidel-Bar^{3,4}, E.J. Cram⁵**; ¹Bioengineering, Northeastern University, Boston, MA, ²Chemical Engineering, Northeastern University, Boston, MA, ³Biomedical Engineering, National University of Singapore, Singapore, ⁴Mechanobiology Institute, National University of Singapore, Singapore, ⁵Biology, Northeastern University, Boston, MA

6:35 pm M170 Coordination of directional outgrowth and patterning by Wnt5a and Fgf signaling interaction. **Y. Yang¹, B. Gao²**; ¹Developmental Biology, Harvard School of Dental Medicine, Boston, MA, ²Biochemistry, University of Hong Kong, Hong Kong

● Minisymposium 17: Genome Replication and Gene Regulation

4:15-6:50 pm

Room 310

Co-Chairs: **David Pellman**, Dana-Farber Cancer Institute; and **Stirling Churchman**, Harvard Medical School

4:15 pm Introduction

4:20 pm M171 Spatial organization of topologically associated domains in individual chromosomes. **S. Wang^{1,2}, J. Su^{1,3}, B.J. Beliveau⁴, B. Bintu^{1,5}, J.R. Moffitt^{1,2}, C. Wu⁴, X. Zhuang^{1,2,5}**; ¹Howard Hughes Medical Institute, Cambridge, MA, ²Department of Chemistry and Chemical Biology, Harvard University, Cambridge, MA, ³Department of Molecular and Cellular Biology, Harvard University, Cambridge, MA, ⁴Department of Genetics, Harvard Medical School, Cambridge, MA, ⁵Department of Physics, Harvard University, Cambridge, MA

4:35 pm M172 ORC is not essential for DNA replication in human cell lines, but important for repressing Rb-E2F and Polycomb group regulated genes. **E. Shibata¹, M. Kiran¹, Y. Shibata¹, S. Singh¹, S. Kiran¹, A. Dutta¹**; ¹Biochemistry and Molecular Genetics, University of Virginia, Charlottesville, VA

4:50 pm M173 The mechanism of DNA damage and chromothripsis from chromosome segregation errors. **A. Spektor^{1,2}, C. Zhang^{3,4}, N. Umbreit^{2,5}, M. Feldman^{2,5}, A. Ahsan^{2,5}, Y. Zhang⁶, D.S. Pellman^{2,5}**; ¹Radiation Oncology, Dana-Farber Cancer Institute, Boston, MA, ²Cell Biology, Harvard Medical School, Boston, MA, ³Medical Oncology, Dana-Farber Cancer Institute, Boston, MA, ⁴Biomedical Informatics, Harvard Medical School, Boston, MA, ⁵Pediatric Oncology, Dana-Farber Cancer Institute, Boston, MA, ⁶Single Cell Sequencing Program, Dana-Farber Cancer Institute, Boston, MA

5:05 pm M174 Non-coding Heterochromatic RNAs Promote Genomic Instability and Tumor Formation *in vivo*. **Q. Zhu¹, N. Hoogn¹, A.S. Aslanian^{2,3}, T. Hara¹, K.H. Miga⁴, C. Benner⁵, S. Heinz⁵, J. Yates III³, T. Hunter², I. Verma¹**; ¹Laboratory of Genetics, The Salk Institute for Biological Studies, La Jolla, CA, ²Molecular Biology Laboratory, The Salk Institute for Biological Studies, La Jolla, CA, ³Department of Chemical Physiology, The Scripps Research Institute, La Jolla, CA, ⁴Department of Bioengineering, University of California, Santa Cruz, Santa Cruz, CA, ⁵Department of Cellular and Molecular Medicine, University of California, San Diego, La Jolla, CA

5:20 pm M175 Expression of a non-canonical mRNA facilitates meiotic kinetochore remodeling. **J. Chen¹, A. Tresenrider¹, M. Chia², F. van Werven², E. Ünal¹**; ¹Molecular and Cell Biology, University of California, Berkeley, Berkeley, CA, ²The Francis Crick Institute, London, United Kingdom

5:35 pm M176 Brr6 Restricts ncRNA-Mediated Transcriptional Repression at the Nuclear Rim. **A. de Bruyn Kops¹, C. Guthrie¹**; ¹Biochemistry, UCSF, San Francisco, CA

5:50 pm M177 Evolution of promoter directionality. **S. Churchman¹**; ¹Department of Genetics, Harvard Medical School, Boston, MA

6:05 pm M178 Cryo-EM visualization of promoter binding by the human general transcription factor TFIID. **R.K. Louder¹, A. Patel¹, Y. He^{2,3}, J. Fang⁴, E. Nogales^{2,4,5,6}**; ¹Biophysics Graduate Group, University of California, Berkeley, Berkeley, CA, ²Molecular Biophysics and Integrative Bioimaging Division, Lawrence Berkeley National Laboratory, Berkeley, CA, ³Northwestern University, Department of Molecular Biosciences, Evanston, IL, ⁴Howard Hughes Medical Institute, University of California, Berkeley, Berkeley, CA, ⁵QB3 Institute, University of California, Berkeley, Berkeley, CA, ⁶Department of Molecular and Cell Biology, University of California, Berkeley, Berkeley, CA

6:20 pm M179 A polyglutamine domain enables transcriptional reprogramming in response to a transient pH change. **L.J. Holt¹, J. Gutierrez²**; ¹Institute for Systems Genetics, New York University Langone Medical Center, New York, NY, ²Molecular and Cell Biology, University of California, Berkeley,

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Berkeley, CA

- 6:35 pm M180 Regulation of estrogen-responsive genes in single human cells. **J. Rodriguez¹, C.C. Chow², D.R. Larson¹**; ¹Laboratory of Receptor Biology and Gene Expression, National Cancer Institute, Bethesda, MD, ²Laboratory of Biological Modeling, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD

● Minisymposium 18: Quality Control and Organelle Trafficking

4:15-6:50 pm

Room 302

Co-Chairs: **Julie Brill**, The Hospital for Sick Children, Toronto, Canada; and **Jared Rutter**, University of Utah/HHMI

- 4:15 pm Introduction
- 4:20 pm M181 Oxidized sterols mediate Vms1 stress-responsive translocation to mitochondria. **J. Rutter¹, J. Nielson¹**; ¹Department of Biochemistry, University of Utah/HHMI, Salt Lake City, UT
- 4:35 pm M182 Analysis of a novel phosphodegron-dependent selectivity mechanism in stationary phase mitophagy. **H. Abeliovich¹, P. Kolitsida¹, M. Rackiewicz², J. Dengjel²**; ¹Biochemistry, Food Science and Nutrition, Hebrew University of Jerusalem, Rehovot, Israel, ²Biology, University of Fribourg, Fribourg, Switzerland
- 4:50 pm M183 Energy Need-Dependent PINK1 Phosphorylates Mitofilin to Maintain Mitochondrial Crista Junctions in a Pathway Linked to Parkinson's Disease. **P. Tsai¹, C. Lin², C. Schoor³, J. Couthouis⁴, R. Wu², O. Ross⁵, A. Gitler⁴, D. Winter³, X. Wang¹**; ¹Neurosurgery, Stanford University School of Medicine, Palo Alto, CA, ²Neurology, National Taiwan University Hospital, Taipei, Taiwan, ³Biochemistry and Molecular Biology, University of Bonn, Bonn, Germany, ⁴Genetics, Stanford University School of Medicine, Palo Alto, CA, ⁵Neuroscience, Mayo Clinic, Jacksonville, FL
- 5:05 pm M184 Selective destruction of mitochondrial membrane proteins through the Mitochondrial-Derived Compartment Pathway. **A.M. Litwiller¹, C.E. Hughes¹, T.J. Campbell¹, A.L. Hughes¹**; ¹Department of Biochemistry, University of Utah School of Medicine, Salt Lake City, UT
- 5:20 pm M185 Reticulons Play Key Roles in the Endoplasmic Reticulum (ER) Stress Surveillance Pathway in a Sphingolipid-dependent Manner. **M. Niwa¹, F. Pina-Nunez¹, J.T. Chao¹, F. Yagisawa¹**; ¹Division of Biological Sciences, UCSD, La Jolla, CA
- 5:35 pm M186 BiP AMPylation by dFic is required for vision in Drosophila. **A.K. Casey¹, A. Moehلمان², J. Zhang¹, H. Kramer^{2,3}, K. Orth^{1,4}**; ¹Department of Molecular Biology, University of Texas Southwestern Medical Center, Dallas, TX, ²Department of Neuroscience, University of Texas Southwestern Medical Center, Dallas, TX, ³Department of Cell Biology, University of Texas Southwestern Medical Center, Dallas, TX, ⁴Howard Hughes Medical Institute, Dallas, TX
- 5:50 pm M187 A conformational RNA zipper promotes non-conventional *XBP1* mRNA splicing. **J. Peschek¹, D. Acosta-Alvear¹, A.S. Mendez¹, P. Walter¹**; ¹Department of Biochemistry and Biophysics, UC San Francisco/HHMI, San Francisco, CA
- 6:05 pm M188 Tetraspanins as novel regulators of secretory granule biogenesis. **C.J. Ma^{1,2}, J.A. Brill^{1,2,3}**; ¹Cell Biology Program, The Hospital for Sick Children, Toronto, ON, ²Institute of Medical Science, University of Toronto, Toronto, ON, ³Department of Molecular Genetics, University of Toronto, Toronto, ON
- 6:20 pm M189 Monoubiquitination of syntaxin 5 regulates Golgi membrane dynamics during the cell cycle. **S. Huang¹, D. Tang¹, Y. Wang¹**; ¹Molecular, Cellular, and Developmental Biology, University of Michigan, Ann Arbor, MI
- 6:35 pm M190 A STRIPAK complex mediates axonal transport of autophagosomes and dense core vesicles through PP2A regulation. **A.L. Neisch¹, T.P. Neufeld¹, T.S. Hays¹**; ¹Genetics, Cell Biology and Development, University of Minnesota, Minneapolis, MN

● Minisymposium 19: Recent Developments in Autophagy and ESCRT Biology

4:15-6:50 pm

Room 306

Co-Chairs: **Adam Frost**, University of California, San Francisco; and **Wade Harper**, Harvard Medical School

- 4:15 pm Introduction
- 4:20 pm M191 Non-Canonical ESCRT Structures and Functions. **M. Gu^{*1}, D. LaJoie^{*2}, O.S. Chen^{*1}, M.S. Ladinsky³, M.J. Redd⁴, L. Nikolova⁵, P.J. Bjorkman³, W.I. Sundquist¹, K.S. Ullman², A. Frost^{1,6}**; ¹Department of Biochemistry, University of Utah, Salt Lake City, UT, ²Department of Oncological Sciences, Huntsman Cancer Institute, University of Utah, Salt Lake City, UT, ³Cal-Tech Division of Biology

and Biological Engineering, Caltech, Pasadena, CA, ⁴HSC Imaging Core Facility, University of Utah, Salt Lake City, UT, ⁵HSC Electron Microscopy Core Facility, University of Utah, Salt Lake City, UT, ⁶Department of Biochemistry and Biophysics, University of California, San Francisco, San Francisco, CA

- 4:35 pm M192 Buckling of the cell membrane by ESCRT-III. **A. Roux**^{1,2}, **N. Chiaruttini***¹, **J. Moser von Filseck**¹, **S. Scheuring**³, **L. Redondo-Morata**³, **M. Girardin**¹, **M. Lenz**⁴; ¹Biochemistry, University of Geneva, Geneva, Switzerland, ²Chemical Biology, National Centre for Competitive Research (NCCR), Geneva, Switzerland, ³U1006, INSERM/Université Aix-Marseille, Marseille, France, ⁴LPTMS, CNRS/Université Paris-Sud, Orsay, France
- 4:50 pm M193 Antiviral factors fashioned from ESCRT functions. **D.M. Downhour**¹, **L. Rheinemann**², **G. Marcenne**², **J. McCullough**², **A.N. McKeown**¹, **W.I. Sundquist**², **N.C. Elde**¹; ¹Human Genetics, University of Utah, Salt Lake City, UT, ²Biochemistry, University of Utah, Salt Lake City, UT
- 5:05 pm M194 SMCR8 functions as negative autophagy regulator by inhibiting ULK1 kinase activity and gene expression. **C. Behrends**¹; ¹Goethe University, Institute of Biochemistry II, Medical School, Frankfurt Am Main, Germany
- 5:20 pm M195 A Membrane-Associated Autophagy Signaling Pathway for Controlling Peroxisome Fate. **V. Denic**¹; ¹Molecular and Cellular Biology, Harvard University, Cambridge, MA
- 5:35 pm M196 Role of the human Vps15 kinase in PI3K complex I mediated autophagy regulation. **G. Stjepanovic**^{1,2}, **M.G. Lin**¹, **S. Baskaran**¹, **L. Carlson**¹, **J.H. Hurley**^{1,2}; ¹MCB, UC Berkeley, Berkeley, CA, ²LBNL, Berkeley, CA
- 5:50 pm M197 Membrane recognition by the Atg4 family of proteases. **K. Kauffman**¹, **J. Jin**¹, **B. Mugo**¹, **A. Lystad**², **T.J. Melia**¹; ¹Cell Biology, Yale School of Medicine, New Haven, CT, ²Department of Molecular Medicine, University of Oslo, Oslo, Norway
- 6:05 pm M198 Dynamic regulation of autophagy in neurons during aging. **A.K. Stavoe**¹, **E.L. Holzbaur**¹; ¹Physiology, University of Pennsylvania, Philadelphia, PA
- 6:20 pm M199 Visualization of the autophagosomal maturation: The ATG-conjugation systems are important for degradation of the inner autophagosomal membrane. **I. Koyama-Honda**¹, **K. Tsuboyama**¹, **Y. Sakamaki**², **M. Koike**³, **N. Mizushima**¹; ¹Department of Biochemistry and Molecular Biology, The University of Tokyo, Graduate School and Faculty of Medicine, Tokyo, Japan, ²Research Center for Medical and Dental Sciences, Tokyo Medical and Dental University, Tokyo, Japan, ³Departments of Cell Biology and Neuroscience, Juntendo University Graduate School of Medicine, Tokyo, Japan
- 6:35 pm M200 Digitizing Ubiquitin Signaling for Mitophagy. **A. Ordureau**¹, **J.A. Paulo**¹, **S.P. Gygi**¹, **J.W. Harper**¹; ¹Cell Biology, Harvard Medical School, Boston, MA
- *These authors contributed equally to this research.

● Workshop: Leveraging CRISPR

4:15-6:50 pm

Room 309

Supported by Dharmacon, part of GE Healthcare

Leveraging CRISPR for Precision Biology

Presenters:

Jacob Corn, University of California, Berkeley

Martin Kampmann, University of California, San Francisco

CRISPR technology has transformed many areas of biology. This workshop will cover two approaches in depth: CRISPR-based genetic screens and CRISPR-based genome editing. The principles underlying these CRISPR-based strategies will be introduced and the practical considerations for applying them to important use cases will be discussed. Martin Kampmann will discuss the use of CRISPR-based approaches for genome-wide genetic screens, including loss-of-function screens (CRISPR nuclease, CRISPRi) and gain-of-function screens (CRISPRa). He will highlight key parameters for successful experimental design of such screens and present a quantitative framework and bioinformatics approaches for analysis of the screen data. Jacob Corn, Scientific Director of the Innovative Genomics Institute, will cover basic and advanced genome editing using CRISPR-based tools. He will discuss topics such as guide RNA design, evaluation of off-targets, ways to improve efficiency, and working in cells and organisms.

Notes