

## ■ Minorities Affairs Committee Mentoring Symposium and Poster Session

9:00 am–4:00 pm



(Preregistration Required)

Supported by an NIH NIGMS MARC Grant and The Burroughs Wellcome Fund



*Clifton Poodry*

National Institute of General Medical Sciences, NIH

9:00 am–10:15 am

Room 103

Mentoring Keynote Speaker *Clifton Poodry*, NIGMS, NIH, will focus on diversity in biomedical research and professional development.

10:30 am–12:30 pm

Room 103

“Panel on Funding Cell Biology Research: It’s Not Just the NIH Anymore” will discuss funding science research by sources other than the NIH. Co-sponsored with the ASCB Public Policy Committee, the panel will be moderated by MAC Chair *Anthony L. DePass*; speakers will include *Ray Gamble*, Director of Fellowships, National Academies; *Mel Oliver*, Program Officer, U.S. Department of Agriculture; *Donella J. Wilson*, Scientific Director, Research Promotion and Communication, American Cancer Society; and *Terry Pearl*, Director of Corporate and Foundation Relations, Mount Sinai Medical Center.

10:30 am–12:30 pm

Room 252

*Deborah Harmon Hines*, University of Massachusetts Medical School, will present “Welcome to the Land of Muckity Muckdom, or What You Don’t Know Will Hurt You!” (geared toward undergraduate and graduate students). This presentation addresses how some very talented students sabotage themselves with inappropriate behaviors. Either students don’t know what is appropriate or don’t care because they think certain behaviors don’t matter. They do!

2:00 pm–4:00 pm

Room 103

MAC Poster Session Competition and Reception

## ■ Special Interest Subgroups

12:30 pm–5:00 pm

*The following member-organized sessions were selected by the ASCB Program Committee.  
All Annual Meeting attendees are welcome to participate; Annual Meeting registration is required.*

### A. Advances in Bone Cell Molecular Biology: Genetic and Epigenetic Control (Room 224)

*Jane B. Lian*, University of Massachusetts Medical School  
*Masaki Noda*, Tokyo Medical and Dental University, Japan  
*Gary S. Stein*, University of Massachusetts Medical School

Both genetic and epigenetic control contribute to combinatorial regulation of cell growth, proliferation, and tissue-specific gene expression for skeletal development, repair, and remodeling. Epigenetic control is mediated by heritable changes in phenotype that do not result from modifications in DNA nucleotide sequences. This session will explore epigenetic lineage transmission of transcriptional competency (activation and suppression) by mechanisms that include DNA methylation, histone modifications, and mitotic

retention of transcriptional regulatory machinery at gene loci that are obligatory for cell fate determination.

Presentations:

- Vitamin D and Calcium Regulation of Genes in Keratinocytes. *Daniel D. Bikle*, University of California, San Francisco
- Epigenetic Control of Osteoblastogenesis by Hox Proteins. *Jane B. Lian*, University of Massachusetts Medical School
- Epigenetic Mechanisms that Control Gene Transcription during Osteoblast Differentiation. *Martin Montecino*, University of Concepcion, Chile
- Skeletal Consequences of G Protein Signaling in Osteoblasts. *Robert A. Nissenson*, University of California, San Francisco
- Regulation of Bone Mass by Mechanical Signaling. *Masaki Noda*, Tokyo Medical and Dental University, Japan

- Role of the Calcium-sensing Receptor in Osteoblast Differentiation and Function: Changes in Gene Expression and Bone Structure. *Dolores Shoback*, University of California, San Francisco
- Combinatorial Organization and Integration for Assembly of Genetic and Epigenetic Regulatory Machinery in Nuclear Microenvironments: Implications for Skeletal Biology and Pathology. *Gary S. Stein*, University of Massachusetts Medical School

## B. At the Limits: Optical Methods for Single Molecules, Cells, and Organisms (Room 301)

*Jason Swedlow*, University of Dundee, United Kingdom

*Jennifer Waters*, Harvard Medical School

### Supported by Optical Imaging Association

Light microscopy is a critical tool for cell biology. Its applications have extended from traditional fixed cell analysis to include the study of molecular interactions in living cells and isolated molecules. This session, sponsored by the Optical Imaging Association, will explore the latest applications of optical microscopy. The speakers are pulled from the best imaging labs in the world and will provide a broad coverage of light microscopy "at the limits."

#### Presentations:

- TBA. *Sunney Xie*, Harvard University
- PALM Imaging of Protein Distribution and Dynamics. *George Patterson*, National Institutes of Health
- Exploring Chromosome Structure with Superresolution Imaging Methods. *Pete Carlton*, University of California, San Francisco
- Fluorescence Correlation Spectroscopy in Live and Reconstituted Cellular Systems. *Petra Schwille*, Biotechnological Centre (BIOTEC), Technological University Dresden, Germany
- One in One Thousand: Capturing the Dynamics of Receptor Oligomerization by Single Molecule Tracking. *Gaudenz Danuser*, The Scripps Research Institute
- Array Tomography: A New Tool for Imaging Tissue Molecular Architecture. *Stephen Smith*, Stanford University
- Single Molecule FRET and Stepping Behavior of Motor Proteins. *Ron Vale*, University of California, San Francisco

## C. Bridging Engineering and Life Sciences: Next Generation Tools for Cell Biology (Room 274)

*Jerry S. H. Lee*, National Cancer Institute, NIH

Paradigm shifts in understanding biological processes often occur when "novel" techniques from outside fields are openly adopted by the research community. For example, combination of confocal microscopy with altered biology has resulted in several techniques, such as FRAP/FLIP, FRET, and PALM, which have propelled elucidation of biological interactions at cellular/subcellular levels with enhanced resolution. Early adopters of these new methodologies have become the pioneers in the field as new avenues to examine biological interactions are explored. This session will showcase examples of "novel" techniques that can quantify properties such as cell shape, cell density, intracellular mechanics, and cell impedance, which may provide new understandings of mechanisms underlying diseases such as cancer. Speakers will represent

a range of backgrounds to illustrate advancements made through multidisciplinary science.

#### Presentations:

- Early Adopters: Keeping Ahead of the Curve in Cell Biology. *Larry A. Nagahara*, National Cancer Institute, NIH
- Deciphering the Mechanical and Chemical Signals in Fibrillar Fibronectin Matrix. *Jean E. Schwarzbauer*, Princeton University
- Automated Detection of Cancer Cells for Intraoperative Evaluation of Surgical Margins. *Andrew C. Kummel*, University of California, San Diego
- Cells on Treadmills and Tracks: Quantifying Cell Motility in Cancer Metastasis. *Bartosz A. Gryzbowski*, Northwestern University
- Dimensions in Cell-Matrix Interactions. *Kenneth M. Yamada*, National Institute of Dental Craniofacial Research, NIH
- Measuring Changes in Biophysical Properties of Cells. *Yiider Tseng*, University of Florida
- Microdevices for Precision Measurement of Single Cell Growth. *Scott R. Manalis*, Massachusetts Institute of Technology
- Systems Biology Enabled Technologies to Diagnose Cancer Heterogeneity. *Rong Fan*, California Institute of Technology
- Perspectives on Growing Multidisciplinary R&D: Nanotechnology as a Case Study. *Travis M. Earles*, White House Office of Science & Technology Policy

## D. Building the Cell (Room 101)

*Wallace Marshall*, University of California, San Francisco

Modern cell biology has made great strides in understanding cell structure and function. As with any engineering problem, however, a third aspect besides structure and function needs to be understood: assembly. How are the complex three-dimensional structures found within the cell specified by a one-dimensional genome? This session, being held for the sixth year, will explore the mechanisms by which cellular structures are determined and regulated. Because this question lies at the interface of biology and physics, we have put together a highly interdisciplinary session with speakers whose interests range from soft matter physics and mathematical modeling to imaging and cell biology.

#### Presentations:

- Cellular Building Materials. *Rob Phillips*, California Institute of Technology
- How Proteins Shape Membrane Tubules in the Endoplasmic Reticulum. *Gia Voeltz*, University of Colorado, Boulder
- A Mechanochemical Feedback Model for Endocytic Vesicle Formation. *Jian Liu*, University of California, Berkeley
- Lipid and the Art of Nuclear Shape Maintenance. *Orna Cohen-Fix*, National Institute of Diabetes and Digestive and Kidney Diseases, NIH
- Organizing Contractility in the Early Worm Embryo. *Ed Munro*, Friday Harbor Lab, University of Washington
- Regulation of Force Transmission in Contractile F-actin Networks. *Margaret Gardel*, University of Chicago
- Cytoskeletal Architecture Regulates Motor Activity. *Jenny Ross*, University of Massachusetts, Amherst
- Roles of Membrane and Cytoskeleton in Determining Cell Shape. *Alex Mogilner*, University of California, Davis