

Program

Engineering Cell Biology - The Cell in Context

Aug 5 - 8, 2007

Massachusetts Institute of Technology, Cambridge, MA

Conference co-chairs

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ECI

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Sunday, August 5, 2007

3:30 pm – 5:30 pm	Arrival and Registration (TING FOYER)
5:30 pm – 6:00 pm	Reception
6:00 pm – 7:30 pm	<u>Keynote Session: The Cell in Context</u> (WONG)
6:00 pm – 6:10 pm	Introductory Remarks Conference Chairs ECI Liaison
6:10 pm – 6:50 pm	Epithelial Morphogenesis <i>Fiona Watt</i> , Cancer Research UK– Cambridge Research Institute, UK
6:50 pm – 7:30 pm	Engineering Cell Motile Mechanisms <i>Michael Sheetz</i> , Columbia University, USA
7:30 pm – 9:00 pm	Buffet Dinner/Mixer (FACULTY CLUB)

Monday, August 6, 2007

- 7:45 am – 8:45 am Breakfast (FACULTY CLUB)
- 9:00 am – 11:45 am **Session 1: Parsing and engineering complex microenvironments – A**
(WONG)
Co-chairs: Linda Griffith and Valerie Weaver
- 9:00 – 9:35 **Cell Responsive 3D Environments**
Jeff Hubbell, EPFL, Switzerland
- 9:35 – 10:10 **Mechanics meets morphogenesis in mammary biology**
Val Weaver, UCSF, USA
- 10:10 – 10:30 **Mechanical mapping and modulation of cell phenotype**
Krystyn Van Vliet, MIT, USA
- 10:30 – 10:50 Coffee Break
- 10:50 – 11:10 **Engineering Integrin Ligands**
Jennifer Cochran, Stanford University, USA
- 11:10 – 11:45 **Engineering the microenvironment of immune cells in 2D and 3D**
Darrell Irvine, MIT, USA
- 11:45 pm – 1:15 pm Lunch (FACULTY CLUB)
- 1:15 pm – 3:40 pm **Session 2: Integrating signals – A (WONG)**
Co-chairs: Anand Asthagiri and Steve Wiley
- 1:15 – 1:50 **Computational Modeling of Signaling Network Information Processing Governing Cell Phenotypic Functions**
Douglas Lauffenburger, MIT, USA
- 1:50 – 2:25 **Computational and Experimental Insights into the EGFR Signaling Network**
Steve Wiley, PNNL, USA
- 2:25 – 2:45 **Systems Biology in Drug Development**
Bart Hendriks, Pfizer, USA
- 2:45 – 3:05 **Retinoic Acid and BMP Signaling Synergize to Efficiently Direct Epithelial Differentiation of Human Embryonic Stem Cells**
Christian M. Metallo, University of Wisconsin–Madison, USA
- 3:05 – 3:40 **Understanding Protein Function on a Genome–scale using Networks**
Mark Gerstein, Yale University, USA
- 3:40 – 4:00 pm Coffee Break

Monday, August 6, 2007 (continued)

- 4:00 pm – 5:00 pm **Session 3: Technological Advances A** (WONG)
Co-chairs: Jean-Luc Bodmer and Jason Burdick
- 4:00 – 4:35 **New Strategies for Cell Immortalization**
Parmjit Jat, University College, London, UK
- 4:40 – 5:00 **Synthetic Hydrogels to Control Cellular Behavior**
Jason Burdick, University of Pennsylvania, USA
- 5:00 pm – 6:00 pm Break
- 6:00 pm – 7:30 pm Dinner (FACULTY CLUB)
- 8:00 pm –11:00 pm **POSTER SESSION A** (MORSS HALL)
Presenters will be at their posters from 8:00 pm –9:30 pm
Hosted bar (beer, wine, soda), light refreshments will be served

Tuesday, August 7, 2007

- 7:45 am – 8:45 am Breakfast (FACULTY CLUB)
- 9:00 am – 11:45 am **Session 4: From stimulation to action: model systems for biological functionality – A** (WONG)
Co-chairs: Jayanta Debnath and Jeff Hubbell
- 9:00 – 9:35 **Multicellular systems analysis of microvessel patterning**
Tom Skalak, University of Virginia, USA
- 9:35 – 10:10 **From molecular networks to multicellular patterns: predicting phenotypes and transitions**
Anand Asthagiri, California Institute of Technology, USA
- 10:10 – 10:30 **Neural Stem Cells and Their Niche**
Fiona Doetsch, Columbia University, USA
- 10:30 – 10:50 Coffee Break
- 10:50 – 11:10 **Competition, cooperation, and emergence during tissue morphogenesis**
Celeste Nelson, Princeton University, USA
- 11:10 – 11:45 **Apoptosis and Autophagy in 3D Epithelial Acini**
Jay Debnath, UCSF, USA
- 11:45 am – 1:15 pm LUNCH (FACULTY CLUB)
- 1:15 pm – 4:00 pm **Session 5: Parsing and engineering complex microenvironments – B** (WONG)
Co-chairs: Linda Griffith and Valerie Weaver
- 1:15 – 1:50 **Cell Migration and Differentiation on Native 3D Fibronectin Matrix**
Jean Schwarzbauer, Princeton University, USA
- 1:50 – 2:25 **Parsing ECM Chemical and Mechanical Effects in 3d Using a Novel Biomimetic Microenvironment**
Andrew Putnam, University of California, Irvine, USA
- 2:25 – 2:45 **A Protein Engineering Approach to Biomaterials Design**
Stacey Maskarinec, California Institute of Technology, USA
- 2:45 – 3:05 **Modulation of Matrix Degradation and Repair Balance in Cartilage**
Jenny Lee, Centocor/J&J, Inc., USA
- 3:05 – 3:40 **Spatial and temporal aspects of the embryonic niche**
Peter Zandstra, University of Toronto, Canada
- 3:40 pm – 4:00 pm Coffee Break

Tuesday, August 7, 2007 (continued)

- 4:00 pm – 5:00 pm **Session 6: Technological Advances B** (WONG)
Co-chairs: Jean-Luc Bodmer and Jason Burdick
- 4:00 – 4:35 **Novel Culture Systems for Human Stem Cell Proliferation and Neuronal Differentiation**
Paula Alves, ITQB, Universidade Nova de Lisboa, Portugal
- 4:40 – 5:00 **The Digital Fish Project: In toto imaging of embryogenesis**
Sean Megason, California Institute of Technology, USA
- 5:00 pm – 6:00 pm Break
- 6:00 pm – 7:30 pm Dinner (FACULTY CLUB)
- 8:00 pm – 11:00 pm **POSTER SESSION B** (MORSS HALL)
Presenters will be at their posters from 8:00 pm–9:30 pm
Hosted bar (beer, wine, soda), light refreshments will be served.

Wednesday, August 8, 2007

- 7:45 am – 8:45 am **Breakfast (FACULTY CLUB)**
- 9:00 am – 11:45 am **Session 7: Integrating signals –B (WONG)**
Co–chairs: Anand Asthagiri and Steve Wiley
- 9:00 – 9:35 **Quantitative Analysis of the ErbB Signaling Network**
Forest White, MIT, USA
- 9:35 – 10:10 **Spatial Effects in Growth Factor Signaling**
Jason Haugh, North Carolina State University, USA
- 10:10 - 10:30 **Nanoscale Dynamics of Force Transmission by Single Filopodia**
Clarence E. Chan, University of Minnesota, USA
- 10:30 – 10:50 Coffee Break
- 10:50 – 11:10 **Multiscale Modeling of Cell-Matrix Interactions**
M. Zaman, University of Texas, Austin , USA
- 11:10 – 11:45 **Integration of Mechanical and Chemical Signals in Migration and Morphogenesis**
Melody Swartz, EPFL, Switzerland
- 11:45 am – 1:15 pm Lunch (FACULTY CLUB)
- 1:15 pm – 4:00 pm **Session 8: From stimulation to action: model systems for biological functionality – B (WONG)**
Co–chairs: Jayanta Debnath and Jeff Hubbell
- 1:15 – 1:50 **Actin–mediated Cell Motility**
Julie Theriot, Stanford University, USA
- 1:50 – 2:25 **Leukocyte docking and crawling**
Dan Hammer, University of Pennsylvania, USA
- 2:25 – 2:45 **Quantitative measurement of viral spread in cell monolayers**
Jean-Luc Bodmer, Merck, USA
- 2:45 – 3:05 Coffee Break
- 3:05 – 3:25 **The Stimulatory Potency of T Cell Antigens is Influenced by the Formation of the Immunological Synapse**
Jayajit Das, MIT, USA
- 3:25 – 4:00 **Trafficking of Immune Cells**
Gwendalyn Randolph, Mt. Sinai School of Medicine, USA
- 4:00 pm – 5:30 pm Break

Wednesday, August 8, 2007 (continued)

5:30 pm Bus pick up at MIT – The Warehouse, 224 Albany St. (transfer to Hyatt)

5:40 pm (approx.) Bus pick up at Hotel @ MIT (transfer to Hyatt)

Participants are free to walk to the Hyatt as well.

6:00 pm– 9:30 pm **Closing Banquet (Hyatt Hotel)**

Shuttle bus transportation back to MIT and Hotel @ MIT will be provided as well.