

predictive models of complex systems

Meeting Agenda

Saturday June 3, 2006

2:00 PM: Check-in FHL Dining Hall

5:00 PM: Reception - FHL Dining Hall

6:00 PM: Opening Banquet - FHL Dining Hall

7:15 PM: **Welcoming Remarks - *Mary E. Lidstrom, Ph.D.*, University of Washington, Vice Provost of Research**

7:30 PM: What is to be Done? *Marvin Cassman, Ph.D.*

8:00 PM: Pattern-Forming Genetic Networks Can be Robust
Accidentally *Ab Initio* ***Garrett M. Odell, Ph.D.*, Center for Cell Dynamics, Principal Investigator**

9:00 PM: Nightly Social Gathering - FHL Dining Hall

Sunday June 4, 2006

7:45 AM- 8:15 AM - Breakfast - FHL Dining Hall

8:30 AM - NOON:

MINI SYMPOSIUM 1: Genetic Networks

CHAIR and Opening Remarks:

**Andrew Murray, Ph.D., Principal Investigator
Center for Modular Biology
Bauer Center for Genomics Research
Harvard University**

8:45 AM: Network Dynamics and Cell Physiology ***John Tyson, Ph.D.***
(*Virginia Polytechnic Institute*)

9:30 AM: Dissecting and Evolving a Model Module: Mating in Budding Yeast ***Andrew Murray, Ph.D.***
(*Center for Modular Biology*)

10:15 AM: Coffee Break - FHL Dining Hall

10:30 AM: Global Patterning from Local Signals: The Planar Cell Polarity Signaling Network **Jeffrey Axelrod, Ph.D.** (Stanford University)

11:15 AM: Systems Pharmacology and the Treatment of Cancer **Peter Sorger, Ph.D.** (Cell Decision Processes Center)

Noon – Lunch – FHL Dining Hall

1:00 – 3:00 PM: **Poster session 1 (A – L)**

3:00 PM: Coffee Break – FHL Commons

3:30 – 6:00 PM: **MINI SYMPOSIUM 2 – Cytoskeletal Dynamics**

CHAIR and Opening Remarks:
Garrett Odell, Ph.D., Principal Investigator
Center for Cell Dynamics
University of Washington

3:45 PM: Dynamics and Regulation of Force Generating Microtubules **Marileen Dogterom, Ph.D.** (FOM Institute for Atomic and Molecular Physics (University of Amsterdam))

4:30 PM: The Mysterious Meanderings of Myxobacteria **George Oster, Ph.D.** (University of California at Berkeley)

5:15 PM: Mechanisms of Chromosome Alignment and Spindle Fusion: Insights from Spindle Micromanipulation **Ted Salmon, Ph.D.** (University of North Carolina)

6:00 PM – Dinner – FHL Dining Hall

7:00 – 9:30PM: **WORKSHOP – Systems Biology Tools and Educational Approaches to Teaching Systems Biology**

CHAIR: **David Botstein, Ph.D., Principal Investigator**
Center for Quantitative Biology
Lewis–Sigler Institute for Integrative Genomics
Princeton University

7:15 PM: The Virtual Cell Project **Leslie Loew, Ph.D.** (University of Connecticut Health Center)

8:00 PM: Simulations Indicate that Cell Shape is Sufficient to Initiate Polarity in Fission Yeast **Francois Nedelec, Ph.D.** (EMBL–Heidelberg)

8:45 PM: TBA **Peter Lyster, Ph.D.** (National Institute of General Medical Sciences, NIH Roadmap – National Centers for Biomedical Computing Program)

9:30 PM: Nightly Social Gathering – FHL Dining Hall

Monday June 5, 2006

7:45 AM– 8:15 AM – Breakfast – FHL Dining Hall

8:30 AM – NOON:

MINI SYMPOSIUM 3 – Meta-Systems Biology

CHAIR and Opening Remarks:

**Gerald M. Sidel, Ph.D., Principal Investigator
Center for Modeling Integrated Metabolic Systems
Case Western Reserve University**

8:45 – 9:30 AM: Parameter Estimation for Large-Scale, Under-Determined Systems with Application to Dynamic Models of Cellular Metabolism ***Daniela Calvetti, Ph.D.*** (*Center for Modeling Integrated Metabolic Systems*)

9:30 AM: Uncovering Chemotaxis: Where Are We Headed? ***Pablo Iglesias, Ph.D.*** (*Johns Hopkins University*)

10:15 AM: Coffee Break – FHL Dining Hall

10:30 AM: Dynamic Protein Clusters in Bacterial Chemotaxis ***Karen Lipkow, Ph.D.*** (*University of Cambridge*)

11:15 AM: Towards a Comprehensive Understanding of Cellular Metabolism ***Joshua Rabinowitz, Ph.D.*** (*Center for Quantitative Biology*)

Noon – Lunch – FHL Dining Hall

12:45 PM: Group Photo – FHL Commons

1:00 – 3:30 PM: ***Poster Session 2 (M– Z)***

3:30 PM Coffee Break – FHL Commons

4:00 PM: Workshop –Introduction and remarks from new NIGMS Centers for Systems Biology and other systems biology programs

CHAIR and Discussion Leader:

**Dr. Jerry Li, MD, Ph.D., Program Director, NIGMS/NIH
Center for Bioinformatics and Computational Biology**

4:10 PM Health Care of the 21st Century: Predictive, Preventive, Personalized and Participatory (P4) Medicine ***Leroy Hood, Ph.D.***** (*Center for Systems Biology, Institute for Systems Biology*)

4:55 PM Co-Adapted Alleles and the Evolution of Complex Traits
Gary Churchill, Ph.D. ** (Center for Genome Dynamics, The Jackson Laboratory)

5:40 PM The Exploratory Programs in Systems Biology **Jennie Larkin, Ph.D.** (National Heart, Lung, and Blood Institute)

6:00 PM – Dinner – FHL Dining Hall

7:00 – 9:30 PM

MINI SYMPOSIUM 4 – Union of Genetic and Cytoskeletal Networks

CHAIR and Opening Remarks:

David Botstein, Ph.D., Principal Investigator
Center for Quantitative Biology
Lewis-Sigler Institute for Integrative Genomics
Princeton University

7:15 PM: Dynamics of Cell Polarization in the Early *C. elegans* Embryo **Ed Munro, Ph.D.** (Center for Cell Dynamics)

8:00 PM: Cytoskeletal Regulation by the Adenomatous Polyposis Coli Protein in Interphase and Mitosis **Inke Näthke, Ph.D.** (University of Dundee)

8:45 PM: The Secret Life of Actin **Dyche Mullins, Ph.D.** (University of California at San Francisco)

9:30 PM: Nightly Social Gathering – FHL Dining Hall

Tuesday June 6, 2006

7:45 AM– 8:15 AM – Breakfast – FHL Dining Hall

8:30 AM – NOON

MINI SYMPOSIUM 5 – Genetic Networks (2)

CHAIR and Opening Remarks:

Peter K. Sorger, Ph.D. Principal Investigator
Cell Decision Processes Center
Massachusetts Institute of Technology

8:45 AM: Genomic Approaches To Common Chronic Disease
Charles Sing, Ph.D. (Principal Investigator, Genomic Approaches to Common Chronic Disease, University of Michigan)

9:30 AM: Noisy Cellular Decision-Making: From Temporal to Spatial Choices **Alexander van Oudenaarden, Ph.D.** (Massachusetts Institute of Technology)

10:15 AM: Dynamics of Probabilistic and Transient Differentiation
Gurol Suel, Ph.D. (*California Institute of Technology*)

Noon – Lunch – Box lunches from FHL Dining Hall

Noon – Lunch/Business meeting of the Centers for Systems Biology at the Center for Cell Dynamics (Lab 10) conference area (Center/NIH personnel attending this meeting pick-up your lunch in the dining hall).

Afternoon free for sightseeing, entertainment

6:00 PM – Closing Banquet and Social Gathering in FHL Dining Hall

Wednesday June 7, 2006

Attendees depart

7:45 AM– 8:15 AM Breakfast – FHL Dining Hall (box lunches will be available to take away for traveling)

NIGMS National Centers for Systems Biology

Center for Cell Dynamics
University of Washington
Friday Harbor, WA
Garrett Odell, Ph.D., Principal Investigator

Center for Modeling Integrated Metabolic Systems
Case Western Reserve University
Cleveland, OH
Gerald M. Sidel, Ph.D., Principal Investigator

Center for Modular Biology
Bauer Center for Genomics Research
Harvard University,
Cambridge, MA
Andrew Murray, Ph.D., Principal Investigator

Cell Decision Processes Center
Massachusetts Institute of Technology
Boston, MA
Peter K. Sorger, Ph.D., Principal Investigator

Center for Quantitative Biology
Lewis–Sigler Institute for Integrative Genomics
Princeton University
Princeton, NJ
David Botstein, Ph.D., Principal Investigator

Approaches to Common Chronic Disease
University of Michigan
Ann Arbor, MI
Charles Sing, Ph.D., Principal Investigator

**Center for Systems Biology
Institute for Systems Biology
Seattle, WA
Leroy Hood, Ph.D., Principal Investigator

**Center for Genome Dynamics
The Jackson Laboratory
Bar Harbor, ME
Gary Churchill, Ph.D., Principal Investigator

****2006 National Center Awardee**