

Conference Program

Wednesday, June 27

8:00 p.m.-9:30 p.m. **Welcome Reception**

Thursday, June 28

7:00 a.m.-8:00 a.m. **Continental Breakfast**

8:00 a.m.-10:00 a.m. **Session 1: Interrogating Pathways Using Small Molecules**
Session Chairperson: Christina D. Smolke, Stanford University, Stanford, CA

Cancer dependencies defined by genomic alterations and targeted by small molecules
Stuart L. Schreiber, Broad Institute of MIT and Harvard, Cambridge, MA

Challenges in translating the cancer genome into impactful drugs
Markus Warmuth, H3 Biomedicine Inc., Cambridge, MA

Accelerating natural product discovery with multivariate image-based screening
R. Scott Lokey, University of California, Santa Cruz, CA

In silico-designed covalent peptidomimetic inhibitors (KPT-SINE) of CRM1 modulate tumor suppressor protein nuclear export and induce apoptosis in cancer cells*
William T. Senapedis, Jr., Karyopharm Therapeutics, Inc., Natick, MA

10:00 a.m.-10:30 a.m. **Break**

*Short talks from proffered papers

10:30 a.m.-12:30 p.m. Session 2: Signaling Pathways
*Session Chairperson: R. Scott Lokey, University of California,
Santa Cruz, CA*

Network biology and drug discovery
James J. Collins, Howard Hughes Medical Institute and Boston University, Boston, MA

Systems approaches to using and optimizing anticancer drugs
Michael B. Yaffe, David H. Koch Institute for Integrative Cancer Research at MIT, Cambridge, MA

Quantifying and perturbing protein dynamics in single cancer cells
Galit Lahav, Harvard Medical School, Boston, MA

A systems biology approach to elucidating the consequences of complex ternary interactions of heparin, FGF ligands, and FGF receptor on downstream signaling in NSCLC cells*
Diana H. Chai, Merrimack Pharmaceuticals, Inc., Cambridge, MA

Considering alternate signaling mechanisms models in extrinsic apoptosis using programmatic modeling approaches *
Carlos F. Lopez, Harvard Medical School, Boston, MA

12:30 p.m.-1:30 p.m. Lunch on Own

1:30 p.m.-3:30 p.m. Poster Session A

3:30 p.m.-5:30 p.m. Session 3: Synthetic Chemical Biology
*Session Chairperson: Brent R. Stockwell, Columbia University,
New York, NY*

Designing biological systems to report on disease
Pamela A. Silver, Harvard Medical School, Boston, MA

Context and engineering of gene expression in bacteria and mammalian viruses
Adam P. Arkin, University of California, Berkeley, CA

Designing synthetic regulatory RNAs: New tools for temporal and spatial control in biological systems
Christina D. Smolke, Stanford University, Stanford, CA

5:30 p.m. Evening on Own

*Short talks from proffered papers

Friday, June 29

7:00 a.m.-8:00 a.m. Continental Breakfast

8:00 a.m.-10:00 a.m. Session 4: Genome-wide sh/siRNA Screening
Session Chairperson: Andrea Califano, Columbia University, New York, NY

Genetic strategies for next generation of breast cancer therapies

Jose M. Silva, Columbia University, New York, NY

Functional genomics to identify cancer targets and resistance

William C. Hahn, Dana-Farber Cancer Institute, Boston, MA

Genetic approaches to cancer

Stephen J. Elledge, Harvard Medical School, Boston, MA

Reversal of glucocorticoid resistance by AKT inhibition in T-ALL*

Adolfo Ferrando, Columbia University, New York, NY

10:00 a.m.-10:30 a.m. Break

10:30 a.m.-12:30 p.m. Session 5: Systems Pharmacology and the LINCS Initiative
Session Chairperson: Jose M. Silva, Columbia University, New York, NY

Gene expression signatures in drug discovery

Todd R. Golub, Broad Institute of MIT and Harvard, Cambridge, MA

Interrogating gene regulatory networks to explore the boundary between chemistry and biology in cancer

Andrea Califano, Columbia University, New York, NY

Functionalization the cancer genome

Gordon B. Mills, The University of Texas MD Anderson Cancer Center, Houston, TX

The receptor tyrosine kinase layer of breast cancer cell lines is predictive of the response to therapeutic drugs*

Mario Niepel, Harvard Medical School, Boston, MA

A cooperative molecular response to combined mTOR/HDAC inhibition revealed by transcriptional co-expression analysis*

John K. Simmons, Center for Cancer Research, National Cancer Institute, Bethesda, MD

*Short talks from proffered papers

12:30 p.m.-2:00 p.m. Lunch on Own

2:00 p.m.-4:30 p.m. Session 6: Sensing and Perturbing Pathways
*Session Chairperson: Gordon B. Mills, The University of Texas
MD Anderson Cancer Center, Houston, TX*

Probing cell death with small molecules
Brent R. Stockwell, Columbia University, New York, NY

Super-resolution fluorescence microscopy of cells and tissues
Xiaowei Zhuang, Harvard University and Howard Hughes Medical Institute, Cambridge, MA

TMP-Tag: A chemical surrogate to the fluorescent proteins for live cell imaging
Virginia W. Cornish, Columbia University, New York, NY

Predicting drug sensitivity from cancer cell lines
Adam A. Margolin, Sage Bionetworks, Seattle, WA

Visualizing the dynamic and heterogeneous responses of single cells to inhibitors of the growth factor signaling network*
John Albeck, Harvard Medical School, Boston, MA

Network modeling of epithelial-to-mesenchymal transition in liver cancer metastasis*
Steven N. Steinway, Penn State College of Medicine, Hershey, PA

4:30 p.m. Evening on Own

Saturday, June 30

7:00 a.m.-8:00 a.m. Continental Breakfast

*Short talks from proffered papers

8:00 a.m.-10:00 a.m. Session 7: Chemical Biology and Cancer
*Session Chairperson: Virginia W. Cornish, Columbia University,
 New York, NY*

Chemical inhibition of bromodomains

James E. Bradner, Dana-Farber Cancer Institute, Boston, MA

Developing improved methods to measure human DNA repair capacity

Leona D. Samson, Massachusetts Institute of Technology, Cambridge, MA

A genomics approach to discover small-molecule perturbagens of cancer cells

Kimberly Stegmaier, Dana-Farber, Cancer Institute, Boston, MA

Investigating combinatorial ligand addiction provides insights into rational drug combinations in cancer therapy*

Emily A. Pace, Merrimack Pharmaceuticals, Inc., Cambridge, MA

Dissecting signaling transduction network to infer master regulators of non-small cell lung cancer*

Mukesh Bansal, Columbia University, New York, NY

10:00 a.m.-10:15 a.m. Break

10:15 a.m.-12:15 p.m. Session 8: Integrative Chemical and Systems Biology
*Session Chairperson: Kimberly Stegmaier, Dana-Farber Cancer
 Institute, Boston, MA*

Small-molecule modulators of the Hedgehog signaling pathway

James K. Chen, Stanford University School of Medicine, Stanford, CA

Proteomic and knowledge-based identification of tumor suppressors and cancer targets

Peter K. Jackson, Genentech, Inc., South San Francisco, CA

General methods to conditionally regulate protein stability

Thomas J. Wandless, Stanford University, Stanford, CA

Cells decide between quiescence and proliferation upon exit from mitosis*

Sabrina L. Spencer, Stanford University, Stanford, CA

A model of HGF and EGF dual ligand stimulation in ACHN cells constructed with the aid of a novel model merging heuristic*

Andrew L. Matteson, New York University, New York, NY

12:15 p.m.-12:30 p.m. Closing Remarks/Departure

*Short talks from proffered papers