

**2014 NIH COMMON FUND HIGH RISK-HIGH REWARD  
RESEARCH PROGRAM SYMPOSIUM  
DECEMBER 15-17 | BETHESDA, MARYLAND**

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| **DAY 1 DECEMBER 15, 2014** | |
| **8:30 am** | **Larry Tabak,** Principal Deputy Director, NIH Opening remarks and announcement of 2014 High-Risk High-Reward Awardees |
| **8:45 am** | **James Anderson,** Director, Division of Program Coordination, Planning, and Strategic Initiatives (DPCSI), Office of the Director, NIH Remarks |
| **SESSION 1:** | |
| **9:00 AM** | **Adah Almutairi** (University of California San Diego, New Innovator Awardee) Light-triggered release of drugs in vivo: amplification strategies, response to new wavelengths, and application to a clinical challenge |
| **9:20 AM** | **Jacquin Niles** (Massachusetts Institute of Technology, New Innovator Awardee) Engineering direct control of protein-RNA interactions for synthetic biology and functional genetics applications |
| **9:40 AM** | **Hidde Ploegh** (Whitehead Institute for Biomedical Research, Pioneer Awardee) Single domain antibodies as tools to perturb protein interactions |
| **10:00 AM** | **Alexander Travis** (Cornell University, Pioneer Awardee) From sperm to stroke: the science of tethering enzymes with applications from nanoscale energy production to handheld diagnostics for neural injury |
| **10:20 AM** | **BREAK** |
| **SESSION 2:** | |
| **10:40 AM** | **David Markovitz** (University of Michigan, Transformative Research Awardee) Transformative but not the way we planned: new approaches to centromere biology |
| **11:00 AM** | **Leona Samson** (Massachusetts Institute of Technology, Pioneer Awardee)  Multiplexed DNA repair assays for multiple lesions and multiple doses via transcription inhibition and transcriptional mutagene |
| **11:20 AM** | **Bo Huang** (University of California, San Francisco; New Innovator Awardee) Imaging the genome with CRISPR |
| **11:40 AM** | **Photo shoots for awardees** |
| **12:10 PM** | **LUNCH (on your own)** |
| **SESSION 3** | |
| **1:40 PM** | **Peter Margolis** (Cincinnati Children's Hospital Medical Center, Transformative Research Awardee, with **Michael Seid**, Cincinnati Children’s Hospital Medical Center) A Collaborative Chronic Care Network (C3N) is a peer produced learning health system |
| **2:00 PM** | **Lalita Ramakrishnan** (University of Washington, Pioneer Awardee) Insights into macrophage migration in tuberculosis from the zebrafish |
| **2:20 PM** | **Julia Felippe** (Cornell University, New Innovator Awardee) The identity thief: Silencing of B lymphocyte commitment gene PAX5 is coincident with gene methylation in common variable immunodeficiency |
| **2:40 PM** | **Ram Samudrala** (State University of New York at Buffalo, Pioneer Awardee) Interactomics: computational analysis of novel drug opportunities |
| **3:00 PM** | **POSTER SESSION 1** |
| **5:00 PM** | **5:00 PM** |
| **DAY 2 TUESDAY, DECEMBER 16, 2014** | |
| **SESSION 4** | |
| **8:30 AM** | **High-Risk High-Reward Program Updates**(Ravi Basavappa, Office of Strategic Coordination, DPCPSI, Office of the Director, NIH) |
| **8:40 AM** | **John Calarco** (Harvard University, Early Independence Awardee) Interrogating co- and post-transcriptional gene regulation at single neuron resolution |
| **9:00 AM** | **Josh Dubnau** (Cold Spring Harbor Laboratory, Transformative Research Awardee) The transposon storm hypothesis: collateral damage in the brain |
| **9:20 AM** | **Gabriel Kreiman** (Harvard Medical School, New Innovator Awardee) How neural circuits orchestrate the magic of human cognition |
| **9:40 AM** | **Patrick Purdon** (Massachusetts General Hospital, New Innovator Awardee) Neural systems approach to monitoring brain states during general anesthesia and sedation |
| **10:00 AM** | **BREAK** |
| **SESSION 5** | |
| **10:20 AM** | **Sanjay Jain** (Johns Hopkins University, New Innovator and Transformative Research Awardee) Developing a pipeline of bacteria-specific imaging agents |
| **10:40 AM** | **Fernando Camargo** (Boston Children's Hospital, New Innovator Awardee) Barcoding stem cells: surprises, challenges, and perspectives |
| **11:00 AM** | **Andrew Feinberg** (Johns Hopkins University, Pioneer Awardee) Epigenetic stochasticity, phenotype and the environment |
| **11:20 AM** | **Sarah Tishkoff** (University of Pennsylvania, Pioneer Awardee) Integrative genomic studies of evolution and adaptation in Africa |
| **11:40 AM** | **Ivor Benjamin** (Medical College of Wisconsin, Pioneer Awardee) The reductive stress hypothesis and the antioxidant treatment paradox |
| **12:00 pm** | **LUNCH (on your own)** |
| **SESSION 6** | |
| **1:30 PM** | **Susan Rosenberg** (Baylor College of Medicine, Pioneer Awardee) The DNA damage-control network: a new class of cancer genes discovered in bacteria |
| **1:50 PM** | **Chengkai Dai** (Jackson Laboratory, New Innovator Awardee) MEK critically regulates cellular proteome homeostasis via HSF1 |
| **2:10 PM** | **Tannishtha Reya** (University of California, San Diego; Pioneer Awardee) Imaging cancer heterogeneity and therapy resistance in real time |
| **2:30 PM** | **Dana Pe'er** (Columbia University, New Innovator and Pioneer Awardee) Computational dissection of phenotypic and functional heterogeneity in cancer |
| **2:50 PM** | **Yvonne Chen** (University of California, Los Angeles; Early Independence Awardee) Engineering smarter and stronger T cells for cancer immunotherapy |
| **3:10 PM** | **POSTER SESSION 2** |
| **5:00 PM** | **Adjourn for day** |
| **DAY 3 WEDNESDAY, DECEMBER 17, 2014** | |
| **SESSION 7** | |
| **8:30 AM** | **Jody Puglisi** (Stanford University, Transformative Research Awardee) The dynamics of translation |
| **8:50 AM** | **Randal Halfmann** (University of Texas Southwestern Medical Center, Early Independence Awardee) Detection and functional characterization of prion-like protein self-assembly |
| **9:10 AM** | **Kerwyn Huang** (Stanford University, New Innovator Awardee) Quantitative imaging of gut microbiota spatial organization |
| **9:30 AM** | **Jin Zhang** (Johns Hopkins University, Pioneer Awardee) Biochemical activity architecture in living cells |
| **9:50 AM** | **Ed Boyden** (Massachusetts Institute of Technology, Transformative Research and Pioneer Awardee) Super-resolution microscopy across arbitrary scales |
| **10:10 AM** | **BREAK** |
| **SESSION 8** | |
| **10:30 AM** | **Xiaoliang (Sunney) Xie** (Harvard University, Transformative Research and Pioneer Awardee) Single cell genomic analyses of circulating tumor cells |
| **10:50 AM** | **Ipsita Banerjee** (University of Pittsburgh, New Innovator Awardee) Systems analysis of human pluripotent stem cells during self renewal and differentiation |
| **11:10 AM** | **Bela Suki** (Boston University, Transformative Research Awardee) Regulatory roles of mechanical fluctuations in biology |
| **11:30 AM** | **Leor Weinberger** (Gladstone Institutes, New Innovator and Pioneer Awardee) Harnessing gene-expression “noise” for therapy |
| **11:50 AM** | **Closing remarks** |
| **11:55 AM** | **ADJOURN MEETING** |