

2013 NIH Common Fund High Risk-High Reward

RESEARCH PROGRAM SYMPOSIUM

November 18–20 | Bethesda, Maryland

Agenda

DAY 1		
NOVEMBER 18, 2013		
8:30 am	Jim Anderson Director <i>Division of Program Coordination, Planning and Strategic Initiatives (DPCPSI)</i> <i>Office of the Director</i> <i>National Institutes of Health</i>	Welcome Remarks Announcement of 2013 Awardees
SESSION 1		
8:45 am	Charles Lieber <i>Harvard University</i> <i>Pioneer Awardee</i>	Nanoelectronics Meets Biology
9:05 am	Teri Odom <i>Northwestern University</i> <i>Pioneer Awardee</i>	Designing Plasmonic Lenses and Nanostructures for Bioimaging
9:25 am	Aydogan Ozcan <i>University of California, Los Angeles</i> <i>New Innovator Awardee</i>	Giga-pixel Nanoscopy on a Chip: A Computational Wide-field Look at the Nano-scale Without the Use of Lenses
9:45 am	Hongkun Park <i>Harvard University</i> <i>Pioneer Awardee</i>	Nano-Bio Interfacing and Single- Cell Profiling: New Tools for Immunology and Neurobiology
10:05 am	BREAK	
SESSION 2		
10:25 am	Florian Engert <i>Harvard University</i> <i>Pioneer Awardee</i>	Neural Circuits underlying Operant Learning in Larval Zebrafish
10:45 am	Aravinthan Samuel <i>Harvard University</i> <i>Pioneer Awardee</i>	Complete Circuits for Understanding Complex Behavior: The Drosophila Larva
11:05 am	Jin Hyung Lee <i>Stanford University</i> <i>New Innovator Awardee</i>	Direct in Vivo Assessment of Human Stem Cell Graft-Host Neural Circuits

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11:25 am	Partha Mitra <i>Cold Spring Harbor Laboratory</i> <i>Transformative Research Awardee</i>	How the Mouse Brain is Wired: Connectivity Mapping in the Whole Mouse Brain
11:45 am	Xiaowei Zhuang <i>Harvard University</i> <i>Transformative Research Awardee</i> <i>(With Sunney Xie, Harvard University)</i>	Novel Neuronal Structures Revealed by Super-Resolution Fluorescence Imaging
12:05 pm	LUNCH	
SESSION 3		
1:15 pm	Lara Mahal <i>New York University</i> <i>New Innovator Awardee</i>	Sweet Patterns: Revelations from Systems-Based Glycan Analysis
1:35 pm	Aviv Regev <i>Massachusetts Institute of Technology</i> <i>Broad Institute, HHMI</i> <i>Pioneer Awardee</i>	Reconstructing Regulatory Circuits: Lessons From Immune Cells
1:55 pm	Joshua M. Epstein <i>Johns Hopkins University</i> <i>Pioneer Awardee</i>	Agent_Zero: Toward Neurocognitive Foundations for Generative Social Science
2:15 pm	Saeed Tavazoie <i>Columbia University</i> <i>Pioneer Awardee</i>	A Cognitive Framework for Understanding Cellular Behavior
2:35 pm	Markus Covert <i>Stanford University</i> <i>Pioneer Awardee</i>	Accelerated Discovery via a Whole-Cell Model
2:55 pm	Zemer Gitai <i>Princeton University</i> <i>New Innovator Awardee</i>	Feel the (Tiny) Force: Mechanical Regulation of Bacterial Pathogenesis
3:15 pm	POSTER SESSIONS	
5:30 pm	ADJOURN DAY 1	

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DAY 2

NOVEMBER 19, 2013

SESSION 4

8:30 am	Gábor Balázsi <i>The University of Texas MD Anderson Cancer Center New Innovator Awardee</i>	Mammalian Synthetic Gene Circuits: New Research Tools in Cancer Biology
8:50 am	Conor Evans <i>Wellman Center for Photomedicine Harvard Medical School Massachusetts General Hospital New Innovator Awardee</i>	Visualizing Oxygen Tension on the Microscale in 3D in vitro Models of Cancer
9:10 am	Sunil Singhal <i>University of Pennsylvania Transformative Research Awardee (With Shuming Nie, Emory University)</i>	Contrast-Enhanced and Image-Guided Surgery of Lung Cancer
9:30 am	Julie Dunning Hotopp <i>University of Maryland, Baltimore New Innovator Awardee</i>	Bacteria-Human Somatic Cell Lateral Gene Transfer Is Enriched in Cancer Samples

9:50 am

BREAK

SESSION 5

10:20 am	Zev Bryant <i>Stanford University New Innovator Awardee</i>	Remote Control of Biomolecular Motors using Light-Activated Gearshifting
10:40 am	Richard Honkanen <i>University of South Alabama Transformative Research Awardee</i>	Enabling Cholesterol Catabolism in Human Cells
11:00 am	James Eberwine <i>University of Pennsylvania Pioneer Awardee</i>	RNA, Memory, Cellular Phenotype and the Microenvironment
11:20 am	Charles Gersbach <i>Duke University New Innovator Awardee</i>	Custom Redesign of the Human Genome with Engineered DNA-Binding Proteins

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DAY 2 **NOVEMBER 19, 2013**

11:40 am **INTRODUCTION AND KEY NOTE ADDRESS**

Dr. Arathi Prabhakar, Director
*Defense Advanced Projects Research Agency
(DARPA)*
(includes Question and Answer Session)

12:30 pm **LUNCH**

SESSION 6

1:40 pm	Andrea Kasko <i>University of California Los Angeles New Innovator Awardee</i>	Phototunable Biomaterials to Engineer Complex 3D Cell Microenvironments
2:00 pm	Tony Huang <i>Pennsylvania State University New Innovator Awardee</i>	Acoustic Tweezers: Manipulating Particles, Cells, and Organisms using Standing Surface Acoustic Waves (SSAW)
2:20 pm	Natalie Wisniewski <i>PROFUSA, Inc. Transformative Research Awardee (With Mike McShane, Texas A&M University)</i>	Implantable Multi-Analyte Sensors for the Continuous Monitoring of Body Chemistries
2:40 pm	Peng Yin <i>Harvard University Medical School New Innovator, Transformative Research Awardee</i>	Programming Nucleic Acids Self-Assembly
3:00 pm	Timothy Cardozo <i>New York University School of Medicine New Innovator Awardee</i>	Chemistry-Based Molecular Signature for Central Nervous Sub-System Activity Underlying the Atypia of Clozapine

3:20 pm **POSTER SESSIONS**

5:30 pm **ADJOURN DAY 2**

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DAY 3 NOVEMBER 20, 2013

8:30 am **Francis Collins**
Director
National Institutes of Health **Remarks**

SESSION 7

8:45 am **Kim Lewis**
Northeastern University
Transformative Research Awardee **Eradicating Chronic Infections**

9:05 am **David Weiner**
University of Pennsylvania
Transformative Research Awardee **Protective Immunity to Diverse Influenza Viruses elicited by Synthetic DNA Vaccines Targeting the Globular Head**

9:25 am **Michael Fischbach**
University of California, San Francisco
New Innovator Awardee **Production of Drug-Like Molecules by Human-Associated Bacteria**

9:45 am **BREAK**

SESSION 8

10:20 am **Mark Zylka**
University of North Carolina Chapel Hill
Transformative Research, Pioneer Awardee **Gene Length Matters in Autism**

10:40 am **Tom Maniatis**
Columbia University
Pioneer Awardee **A Systems Approach to Identifying ALS Disease Mechanisms**

11:00 am **Anna Penn**
Children's Research Institute at Children's National Medical Center
New Innovator Awardee **Fetal Brain Damage: A Placental Disorder**

11:20 am **Chun-Li Zhang**
University of Texas
Southwestern Medical Center
New Innovator Awardee **In Vivo Reprogramming of Astrocytes to Neuronal Precursors and Functional Neurons in the Adult Brain**

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DAY 3 **NOVEMBER 20, 2013**

11:40 pm **LUNCH**

SESSION 9

1:00 pm	Miguel Ramalho-Santos <i>University of California San Francisco</i> <i>New Innovator Awardee</i>	Regulation of Open Chromatin in Stem Cells and Development: the Case of Vitamin C in DNA Demethylation
1:20 pm	Pinchas Cohen <i>University of Southern California</i> <i>Transformative Research Awardee</i>	Novel Mitochondrially derived Peptides and Their Role in Health and Disease
1:40 pm	Brenda Bass <i>University of Utah</i> <i>Pioneer Awardee</i>	Defining RNA Ligands that Activate PKR during Metabolic Stress
2:00 pm	Maria Barna <i>Stanford University</i> <i>New Innovator Awardee</i>	Specialized Ribosomes: A New Frontier in Gene Expression and Organismal Biology
2:20 pm	Alexander Dunn <i>Stanford University</i> <i>New Innovator Awardee</i>	Cellular Mechanotransduction at the Molecular Level
2:40 pm		Concluding Remarks

2:45 pm **ADJOURN DAY 3**