

2021 High-Risk, High-Reward Research Symposium

June 9-11, 2021
11:00 AM – 6:30 PM ET

WORKSHOP AGENDA

June 9, 2021

9:00 AM NIH Office Hours

11:00 AM **Opening Remarks**

Francis Collins, Director, National Institutes of Health

11:10 AM **Housekeeping Announcements**

Ravi Basavappa, Program Leader, Office of Strategic Coordination
National Institutes of Health

Session 1

11:20 AM **Healthy Metabolism, Healthy Aging**

Meng Wang, Baylor College of Medicine/HHMI
2016 Pioneer Award
National Institute of Diabetes and Digestive and Kidney Diseases

11:40 AM **Rethinking Epigenetics**

Keith Maggert, University of Arizona
2016 Transformative Research Award
National Institute of General Medicine Sciences

12:00 PM **Phage-Based Nanomaterials for Antibacterial Therapy**

Irene Chen, University of California, Los Angeles
2016 New Innovator Award
National Institute of General Medical Sciences

12:20 PM **Break**

Session 2

12:35 PM **Bioinspired Synthetic Nanobiomaterials for Cardiovascular Immunotherapy**

Evan Scott, Northwestern University
2015 New Innovator Award

- National Heart, Lung, and Blood Institute
- 12:55 PM **Exploration of Biological Diversity to Discover Novel Molecular Technologies**
- Feng Zhang, Broad Institute, Inc.
2015 Transformative Research Award
National Institute of Mental Health
- 1:15 PM **Biological Rhythms in Human Health and Infectious Disease**
- Micaela Martinez, Columbia University
2016 Early Independence Award
National Institute of Dental and Craniofacial Research
National Institute of Allergy and Infectious Diseases
- 1:35 PM **Lunch/Poster Session/NIH Office Hours**
- Session 3*
- 3:35 PM **Natural Display of Nuclear-Encoded RNA on the Cell Surface and Its Impact on Cell Interaction**
- Sheng Zhong, University of California, San Diego
2015 Pioneer Award
Eunice Kennedy Shriver National Institute of Child Health & Human Development
- 3:55 PM **Spinal Cord Neural Interface for Neuroprosthetics in a Primate Model**
- Abhishek Prasad, University of Miami
2015 New Innovator Award
National Institute of Biomedical Imaging and Bioengineering
- 4:15 PM **Harnessing Mindset in 21st Century Healthcare**
- Alia Crum, Stanford University
2016 New Innovator Award
National Center for Complementary and Integrative Health
- 4:35 PM **Break**
- Session 4*
- 4:50 PM **Neuromodulation of Germline and Implications for Trans-Generational Effects**
- Giovanni Bosco, Dartmouth College
2015 Pioneer Award
National Institute of Mental Health

5:10 PM **Genome Folding, Unfolding, and Refolding in Neurological Disease**

Jennifer Cremins, University of Pennsylvania
2015 New Innovator Award
National Institute of Mental Health

5:30 PM ***Networking Event on Spatial Chat***

6:30 PM ***Adjourn for Day***

[June 10, 2021](#)

9:00 AM NIH Office Hours

11:00 AM **NIH Program Update**

James Anderson, Director of the NIH Division of Program Coordination,
Planning, and Strategic Initiatives
National Institutes of Health

11:10 AM **NIH Program Update**

Ravi Basavappa, Program Leader, Office of Strategic Coordination
National Institutes of Health

Session 5

11:20 AM **Next-Generation Platforms for Antibody Discovery and Engineering**

Brandon Dekosky, University of Kansas Lawrence
2016 Early Independence Award
National Institute of Dental and Craniofacial Research
National Institute of Allergy and Infectious Diseases

11:40 AM **Frugal Science: Democratize Science, Diagnostics and Disease Surveillance**

Manu Prakash, Stanford University
2015 New Innovator Award
National Institute of Allergy and Infectious Disease

12:00 PM **Deconstructing and Reconstructing Human Tissues**

Kelly Stevens, University of Washington
2016 New Innovator Award
National Heart, Lung, and Blood Institute

12:20 PM ***Break***

Session 6

12:35 PM **Personalizing Neuromodulation for Executive Functions: Promise in Brain Networks and Society**

John Medaglia, Drexel University
2015 Early Independence Award
National Institute of Dental and Craniofacial Research
National Institute of Mental Health

12:55 PM **Imaging Cell Lineage with a Synthetic Digital Recording System**

Michael Elowitz, Long Cai, and Carlos Lois, California Institute of Technology
2017 Transformative Research Award
National Institute of Mental Health

1:15 PM **Transcriptome Analysis of Adult *Caenorhabditis elegans* Cells Reveals Tissue-Specific Gene and Isoform Expression/Horizontal and Vertical Transmission of Transgenerational Memories via the Cer1 Transposon**

Coleen Murphy, Princeton University
2015 Pioneer Award
National Institute of General Medical Sciences

1:35 PM ***Lunch/Poster Session/NIH Office Hours***

Session 7

3:35 PM **Circulating Tumor Cells Inform Mechanisms of Breast Cancer Metastasis**

Min Yu, University of Southern California
2015 New Innovator Award
National Cancer Institute

3:55 PM **Epidemiological Epididymosomal Epigenomics: The Role of the Male Reproductive Tract in Control of the Sperm Epigenome**

Oliver Rando, University of Massachusetts Medical School
2014 Pioneer Award
National Institute of Environmental Health Sciences

4:15 PM **Developing Skin Cancer Education Materials for Darker Skin Populations: Crowdsourced Design, Message Targeting, and Acral Lentiginous Melanoma**

Jakob Jensen, University of Utah
2015 New Innovator Award
National Institute of Biomedical Imaging and Bioengineering

4:35 PM

Break

Session 8

4:50 PM

Implantable Cardiac Energy Harvesting Devices Using Geometrically Structured Piezoelectric Thin Films

John Zhang, Dartmouth College
2016 Transformative Research Award
National Heart, Lung, and Blood Institute

5:10 PM

Opening Windows into the Cell: Bringing Structure to Cell Biology using Cryo-Electron Tomography

Elizabeth Villa, University of California, San Diego
2016 New Innovator Award
National Institute of General Medical Sciences

5:30 PM

Networking Event on Spatial Chat

6:30 PM

Adjourn for Day

[June 11, 2021](#)

9:00 AM

NIH Office Hours

Session 9

11:00 AM

Transcriptional Control of Brain Excitation in Neurodevelopmental Disorders

Bruce Yankner and George Church, Harvard Medical School
2016 Transformative Research Award
National Institute of Mental Health

11:20 AM

Structural Interiors of Lipid Nanoparticles Regulate RNA Delivery to Cells

Cecilia Leal, University of Illinois at Urbana Champaign
2016 New Innovator Award
National Institute of Biomedical Imaging and Bioengineering

11:40 AM

Market Area Trends in Menthol and Non-Menthol Cigarette Sales in the United States and Associations with Residential Segregation

Daniel Giovenco, Columbia University
2016 Early Independence Award
National Institute of Dental and Craniofacial Research
National Cancer Institute

12:00 PM

How to Make Microtubules and Build the Cytoskeleton

Sabine Petry, Princeton University
2016 New Innovator Award
National Institute of General Medical Sciences

12:20 PM

Break

Session 10

12:35 PM

Active Genetics Comes Alive

Ethan Bier, Stephen Hedrick, and Andanda Goldrath, University of California, San Diego
2016 Transformative Research Award
National Institute of Allergy and Infectious Diseases

12:55 PM

Phasic Activity in Serotonin Neurons and Emotional Reactivity

Melissa Warden, Cornell University
2015 New Innovator Award
National Institute of Mental Health

1:15 PM

Immunotherapy Directed Against Skin Cancer Precursors Prevents Skin Cancer

Shawn Demehri, Massachusetts General Hospital
2015 Early Independence Award
National Institute of Dental and Craniofacial Research
National Cancer Institute

1:35 PM

Lunch/Poster Session/NIH Office Hours

Session 11

3:35 PM

Synthetic Biomarkers: A 21st Century Path to Early Cancer Detection

Gabriel Kwong, Georgia Institute of Technology
2016 New Innovator Award
Eunice Kennedy Shriver National Institute of Child Health & Human Development

3:55 PM

Systemic Regulation of Brain Aging

Tony Wyss-Coray, Palo Alto Veterans Institute for Research
2015 Pioneer Award
National Institute on Aging

4:15 PM

Systemic Injury Responses in Axolotl

Jessica Whited, Harvard University
2015 New Innovator Award

Eunice Kennedy Shriver National Institute of Child Health & Human
Development

4:35 PM

Break

Session 12

4:50 PM

Regulation of Protein Function by 3'UTRs

Christine Mayr, Memorial Sloan Kettering Cancer Center
2016 Pioneer Award
National Institute of General Medical Sciences

5:10 PM

**Discovery of a New Cue Used by Mosquito Disease Vectors to Find
People**

Craig Montell, University of California, Santa Barbara
2015 Pioneer Award
National Institute of Allergy and Infectious Diseases

5:30 PM

Closing Remarks

5:35 PM

Adjourn