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NIH Director Invests in Innovation, New Investigators

NIH Director Elias A. Zerhouni, M.D., is making a major investment in the future of science with five-year grants totaling more than $105 million to 41 exceptionally innovative investigators, many of whom are in the early stages of their careers.

“Novel ideas and new investigators are essential ingredients for scientific progress, and the creative scientists we recognize with NIH Director’s Pioneer Awards and NIH Director’s New Innovator Awards are well-positioned to make significant — and potentially transformative — discoveries in a variety of areas,” said Zerhouni.

“The conceptual and technological breakthroughs that are likely to emerge from their highly innovative approaches to major research challenges could speed progress toward important medical advances,” he added.

This is the first group of New Innovator Awards and the fourth group of Pioneer Awards. Both programs are part of an NIH Roadmap for Medical Research initiative that tests new approaches to supporting research.

Pioneer Awards support scientists at any career stage, while New Innovator Awards are reserved for new investigators who have not received an NIH regular research (R01) or similar grant.

“These awards complement our other special efforts to fund innovative research and support new scientists as they launch their research careers,” Zerhouni noted.

Zerhouni will announce the 2007 award recipients at the start of the NIH Director’s Pioneer Award Symposium on Wednesday, September 19. The symposium, in the Natcher Conference Center on the NIH campus, runs from 8:15 a.m. to 5:30 p.m. and is free and open to the public. The event also features research progress reports from the 2006 Pioneer Award recipients and poster presentations by a number of the past awardees.

The 12 new Pioneer Award recipients will each receive $2.5 million in direct costs over five years. The 29 New Innovator Award recipients will each receive $1.5 million in direct costs over the same period.

The names, institutions, and research plans of the 2007 NIH Director’s Pioneer Award and New Innovator

Award recipients are listed below.

NIH selected the award recipients through special application and evaluation processes that engaged 262 experts from the scientific community in identifying the most highly competitive individuals in each pool. The Advisory Committee to the Director, NIH, performed the final review and made recommendations to Zerhouni based on the evaluations by the outside experts and programmatic considerations.

“In addition to supporting outstanding research, these programs represent experiments in new ways of identifying and funding promising but unconventional ideas, especially those from new investigators,” Zerhouni noted. “The approach is part of our ongoing efforts to enhance the NIH peer review system.”

“We hope that these programs also help remind the scientific community, including its newest members, that we encourage investigators to be bold and ‘swing for the fences’ with their proposals,” said Jeremy M. Berg, Ph.D., Director of the National Institute of General Medical Sciences, which runs the Pioneer and New Innovator Award programs for NIH.

Biographical sketches of the 2007 NIH Director’s Pioneer Award recipients are at http://nihroadmap.nih.gov/pioneer/Recipients07.aspx. The symposium agenda is at http://nihroadmap.nih.gov/pioneer/symposium2007/index.aspx. More information on the Pioneer Award, including details on the 35 scientists who received awards in the first three years of the program, is at http://nihroadmap.nih.gov/pioneer.

Information on the 2007 NIH Director’s New Innovator Award is at http://grants.nih.gov/grants/new_investigators/innovator_award/index.htm.

The NIH Roadmap for Medical Research is a series of far-reaching initiatives designed to transform the nation’s medical research capabilities and speed the movement of research discoveries from the bench to the bedside. It provides a framework of the priorities the NIH must address in order to optimize its entire research portfolio and lays out a vision for a more efficient and productive system of medical research. For more information about the NIH Roadmap, please visit the Web site at http://nihroadmap.nih.gov.

The Office of the Director, the central office at NIH, is responsible for setting policy for NIH, which includes 27 Institutes and Centers. This involves planning, managing, and coordinating the programs and activities of all NIH components. The Office of the Director also includes program offices which are responsible for stimulating specific areas of research throughout NIH. Additional information is available at http://www.nih.gov/icd/od/.

The National Institutes of Health (NIH) — *The Nation's Medical Research Agency* — includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. It is the primary federal agency for conducting and supporting basic, clinical and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit www.nih.gov.

2007 NIH Director’s Pioneer Award Recipients:

Lisa Feldman Barrett, Ph.D., Boston College professor of psychology, who will study how the brain creates emotional experiences like anger and happiness.

Peter Bearman, Ph.D., Columbia University professor of social science, who will study the role of social and environmental factors in autism.

Emery N. Brown, M.D., Ph.D., Massachusetts General Hospital professor of anesthesia and Massachusetts Institute of Technology professor of computational neuroscience and health sciences and technology, who will develop a systems neuroscience approach to study how anesthetic drugs act in the brain to create the state of general anesthesia.

Thomas R. Clandinin, Ph.D., Stanford University assistant professor of neurobiology, who will pursue a genetics-based approach to understanding how the brain computes.

James J. Collins, Ph.D., Boston University professor of biomedical engineering, who will develop systems biology and synthetic biology approaches to analyze the bacterial gene regulatory networks underlying cellular responses to antibiotics.

Margaret Gardel, Ph.D., University of Chicago assistant professor of physics, who will establish new frameworks to study the physical behaviors of systems of multiprotein complexes.

Takao K. Hensch, Ph.D., Children's Hospital Boston professor of neurology, who will explore the role of noncoding RNAs in brain development and as a potential treatment for brain disorders.

Marshall S. Horwitz, M.D., Ph.D., University of Washington School of Medicine professor of medicine, pathology, and genome sciences, who will track mutations to map the fate of cells during embryonic development.

Rustem F. Ismagilov, Ph.D., University of Chicago associate professor of chemistry, who will develop and validate microfluidic technologies for quantitative studies of protein aggregation and aging.

Frances E. Jensen, M.D., Children's Hospital Boston professor of neurology, who will examine how seizures in early life alter the developing brain and lead to cognitive disorders.

Mark J. Schnitzer, Ph.D., Stanford University assistant professor of biological sciences and applied physics, who will create technology for massively parallel brain imaging to allow large-scale, systematic studies of normal and diseased neural circuits.

Gina Turrigiano, Ph.D., Brandeis University professor of biology, who will develop a very high-resolution microscope for probing the molecular structure of synapses.

2007 NIH Director's New Innovator Award Recipients

Kjersti Aagaard-Tillery, M.D., Ph.D., Baylor College of Medicine assistant professor of maternal-fetal medicine, who will study how maternal obesity programs genetic modifications and adaptations in the developing fetus that predispose it to adult diseases.

Ryan C. Bailey, Ph.D., University of Illinois at Urbana-Champaign assistant professor of chemistry, who will develop an ultrasensitive measurement technology to provide a picture of disease onset and progression at the molecular level.

Ed Boyden, Ph.D., Massachusetts Institute of Technology assistant professor of biological engineering, who will invent and study new methods of controlling the neural circuits that malfunction in neurological and psychiatric disorders.

Frances A. Champagne, Ph.D., Columbia University assistant professor of neurobiology and behavior,

who will investigate the transmission of reproductive behavior across generations through genetic modifications that do not involve DNA sequence changes.

Sean Davies, Ph.D., Vanderbilt University research assistant professor of pharmacology, who will develop genetically engineered bacteria that could be used as dietary supplements for the long-lasting drug treatment of chronic diseases.

Pedro Fernandez-Funez, Ph.D., University of Texas Medical Branch assistant professor of neurology, who will use fruit flies and mice to study the biology of prion proteins, which cause neurodegenerative disorders such as Creutzfeldt-Jakob and mad cow diseases.

Sarah Fortune, M.D., Harvard School of Public Health assistant professor of immunology and infectious diseases, who will investigate the mechanisms by which tuberculosis escapes the immune system response.

Levi A. Garraway, M.D., Ph.D., Dana-Farber Cancer Institute assistant professor of medicine, who will use a novel genetic and chemical screening approach to identify changes in malignant melanoma tumor cells that could be targets for new treatments.

Tawanda Gumbo, M.D., University of Texas Southwestern Medical Center at Dallas assistant professor of internal medicine, who will develop a treatment regimen based on blocking the mechanisms that tuberculosis bacteria use to evade killing by antibiotics.

Nir Hacohen, Ph.D., Massachusetts General Hospital assistant professor of medicine, who will use a new genetic approach to dissect immune system pathways that sense disease-causing agents.

Ekaterina Heldwein, Ph.D., Tufts University School of Medicine assistant professor of microbiology and molecular biology, who will use structural and biophysical approaches to discover, in atomic-level detail, how herpes viruses enter their host cells.

Konrad Hochedlinger, Ph.D., Harvard Stem Cell Institute assistant professor of medicine, who will study the reprogramming of adult mouse and human cells into embryonic cells by defined factors.

Kristen C. Jacobson, Ph.D., University of Chicago assistant professor of psychiatry, who will conduct a large, multiphase, multidisciplinary study of Chicago-area adolescents to determine the effects of social, biological, and environmental factors on individual differences in problem behaviors.

Joanna L. Jankowsky, Ph.D., California Institute of Technology senior research fellow in biology, who will develop a mouse model to study the function of unique brain cells that are regenerated throughout life and explore how their loss may contribute to Alzheimer's disease.

Alan Jasanoff, Ph.D., Massachusetts Institute of Technology N.C. Rasmussen Assistant Professor of Nuclear Science and Engineering, who will devise genetically controlled, noninvasive methods for measuring brain activity in animals.

Mark D. Johnson, M.D., Ph.D., Brigham and Women's Hospital assistant professor of neurosurgery, who will examine the role of decreased synthesis of microRNA, a recently discovered class of molecules, in the development and aggressiveness of human cancer.

Manuel Llinas, Ph.D., Princeton University assistant professor of molecular biology and genomics, who will define how metabolic pathways in the malaria-causing organism interact with human cell pathways, as a means of discovering new targets for treatment.

Feroz R. Papa, M.D., Ph.D., University of California, San Francisco assistant professor of medicine, who is developing new therapies for diabetes using molecular tools to prevent the buildup of malfunctioning proteins in insulin-producing beta cells of the pancreas.

Dana Pe'er, Ph.D., Columbia University assistant professor of biological sciences, who will use computational and biotechnology approaches to understand how a cell's regulatory network processes signals and how the signal processing goes wrong in cancer.

Kathrin Plath, Ph.D., University of California, Los Angeles, assistant professor of biological chemistry, who will study structural changes in chromosomes that underlie the development and differentiation of cells.

Michael Rape, Ph.D., University of California, Berkeley, assistant professor of cell and developmental biology, who will develop an integrated set of approaches to study differences in the regulation of cell division in specific tissues.

Jody Rosenblatt, Ph.D., Huntsman Cancer Institute assistant professor of oncological sciences, who will identify signals governing the process by which dying cells are squeezed out of tissues and study the role of this process in normal cellular function as well as in tumor formation and spread.

Alan Saghatelian, Ph.D., Harvard University assistant professor of chemistry and chemical biology, who will develop advanced analytical chemistry approaches to characterize biomedically important enzymes.

James Shorter, Ph.D., University of Pennsylvania School of Medicine assistant professor of biochemistry and biophysics, who will develop biochemical methods to combat diseases caused by nerve degeneration, such as Parkinson's, Alzheimer's, and Huntington's.

Dorothy A. Sipkins, M.D., Ph.D., University of Chicago assistant professor of medicine, who will use live-cell imaging and targeted nanoparticles to study stem cell and tumor microenvironments in the bone marrow.

Eva M. Szigethy, M.D., Ph.D., Children's Hospital of Pittsburgh of UPMC assistant professor of psychiatry and pediatrics, who will use inflammatory bowel disease as a model for investigating the interactions between the brain, gut, and immune system in how adolescents cope with chronic illness.

Derek Toomre, Ph.D., Yale University assistant professor of cell biology, who will develop novel microscopes to analyze trafficking and signaling at the cell cortex, a structure just inside the cell membrane that is involved in mechanical support and movement.

Jing Yang, Ph.D., University of California, San Diego, School of Medicine assistant professor of pharmacology and pediatrics, who will study how cancer cells spread to other organs, which could improve the ability to make prognoses and reveal new drug targets.

Mehmet Fatih Yanik, Ph.D., Massachusetts Institute of Technology assistant professor of electrical engineering and computer science, who will develop microchip technologies to perform extremely fast studies of gene function in small animals to rapidly identify genetic targets for new drugs.
