



48TH ANNUAL PRESENTATION CEREMONY

LEWIS S. ROSENSTIEL
AWARD FOR DISTINGUISHED WORK
IN BASIC MEDICAL RESEARCH

MONDAY, MARCH 25, 2019

In 1971, the Lewis S. Rosenstiel Award for Distinguished Work in Basic Medical Research was established as an expression of the belief that educational institutions have an important role to play in the encouragement and development of basic science as it applies to medicine.

Since its inception, Brandeis University has placed great emphasis on basic science and its relationship to medicine. With the establishment of the Rosenstiel Basic Medical Sciences Research Center, made possible by the generosity of Lewis S. Rosenstiel in 1968, research in basic medical science at Brandeis has been expanded significantly. The Rosenstiel award provides a way to extend the center's support beyond the campus community.

The award is presented annually at Brandeis based on recommendations from a panel of outstanding scientists selected by the Rosenstiel Basic Medical Sciences Research Center. Medals are given to scientists for recent discoveries of particular originality and importance to basic medical science research. A \$25,000 prize (to be shared in the event of multiple winners) accompanies the award.

The winner of the 2018 Lewis S. Rosenstiel Award for Distinguished Work in Basic Medical Research is Stephen Harrison of the Center for Molecular and Cellular Dynamics at Harvard Medical School.

Harrison was chosen for his studies of protein structure using X-ray crystallography.

PRESENTATION CEREMONY

WELCOME

RON LIEBOWITZ

President

Brandeis University

REMARKS

JAMES E. HABER

Abraham and Etta Goodman Professor of Biology
Director, Rosenstiel Basic Medical Sciences
Research Center
Brandeis University

ADDRESS

RODERICK MACKINNON '78, H'05

John D. Rockefeller Jr. Professor
The Rockefeller University
Investigator, Howard Hughes Medical Institute
2003 NOBEL PRIZE IN CHEMISTRY

PRESENTATION OF MEDALLIONS AND AWARDS

JAMES E. HABER

RESPONSE

STEPHEN HARRISON

Giovanni Armenise-Harvard Professor of Basic Medical Sciences
Harvard Medical School
Investigator, Howard Hughes Medical Institute

2018 AWARD WINNER

STEPHEN HARRISON

Stephen Harrison is the Giovanni Armenise-Harvard Professor in Basic Medical Sciences at Harvard Medical School and Howard Hughes Medical Institute Investigator. He obtained a BA from Harvard in 1963 and a PhD in biophysics from Harvard in 1968. He has served on the Harvard faculty since 1971. Between 1972 and 1996, he was chair of the board of tutors in biochemical sciences, Harvard's undergraduate program in biochemistry; he was chair of the Department of Biochemistry and Molecular Biology (Faculty of Arts and Sciences) from 1988 to 1992. For many years, his research laboratory was linked closely with that of the late Don C. Wiley. Harrison's contributions to structural biology include determining and analyzing the structures of viruses and viral proteins, crystallographic analysis of protein/DNA complexes and structural studies of protein-kinase switching mechanisms. The initiator of high-resolution virus crystallography, he moved from early work on tomato bushy stunt virus (1978) to the study of more complex human pathogens, including the capsid of human papillomavirus, the envelope of dengue virus and several components of HIV. He has also turned some of his research attention to even more complex assemblies, such as clathrin-coated vesicles and kinetochores. Harrison is a member of the National Academy of Sciences, a fellow of the American Academy of Arts and Sciences, a member of the American Philosophical Society, a foreign member of EMBO and a foreign member of the Royal Society. He received the Louisa Gross Horwitz Prize (with Don Wiley and Michael Rossmann) in 1990, the Paul Ehrlich and Ludwig Darmstaedter Prize (with Michael Rossmann) in 2001, the Bristol-Myers Squibb Distinguished Achievement Award in Infectious Disease Research in 2005, the Royal Swedish Academy of Sciences Gregori Aminoff Prize in Crystallography in 2006, the UCSD/Merck Life Sciences Achievement Award in 2007 and the Welch Award in Chemistry in 2015.

2019 SPEAKER

RODERICK MACKINNON '78, H'05

Roderick MacKinnon's research has aimed to understand the molecular mechanisms of a class of integral membrane proteins known as ion channels. He received an undergraduate degree from Brandeis University, a medical degree from Tufts University and training in internal medicine at Beth Israel Deaconess Medical Center, Harvard Medical School. He began his scientific career studying the biophysics of potassium channels at Brandeis from 1986 to 1989 with Chris Miller, professor of biochemistry and Howard Hughes Medical Institute Investigator. He joined the faculty at Harvard Medical School as assistant professor of physiology (1989), associate professor of neurobiology (1992) and professor of neurobiology (1995). During this period, he and his laboratory characterized potassium channels — their subunit stoichiometry, pore-lining amino acids, and components of their gates — through biochemical and functional analysis. He moved to The Rockefeller University in 1996 and became a Howard Hughes Medical Institute Investigator in 1997. Over the past 20 years, his laboratory provided the first atomic structures of selective ion channels, which have revealed the chemical basis of potassium and chloride ion selectivity. They have also determined the atomic structures and discovered mechanisms of voltage-dependent, G-protein-dependent, lipid-gated and mechanosensitive ion channels, all of which underlie the complex electrical signals produced in the central nervous system.

Recent Recipients of the Lewis S. Rosenstiel Award for Distinguished Work in Basic Medical Research

2017: *For her seminal studies that solved the end-protection problem of linear chromosomes.*

Titia de Lange

Leon Hess Professor
The Rockefeller University
New York, N.Y.

2016: *In recognition of her pioneering work on the mechanisms of protein folding and the severe consequences of protein misfolding that are manifest in disease.*

Susan Lindquist (1949-2016)

Professor of Biology
Investigator, Howard Hughes Medical Institute
Massachusetts Institute of Technology
Cambridge, Mass.

2015: *For his pioneering discoveries of molecular pathways and biological functions of protein degradation by autophagy.*

Yoshinori Ohsumi

Professor
Frontier Research Center
Tokyo Institute of Technology
Tokyo, Japan

2016 NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE

2014: *For his pioneering work in elucidating the mechanisms of genome rearrangements in immune and cancer cells.*

Frederick Alt '71

Professor of Genetics and Pediatrics
Harvard Medical School
Director, Program in Cellular and Molecular Medicine
Boston Children's Hospital
Boston, Mass.

2013: *For their invention of multiphoton fluorescence microscopy and its application to illuminating the function of brain microcircuits.*

Winfried Denk

Director, Department of Biomedical Optics
Max Planck Institute for Medical Research
Professor of Physics
Heidelberg University
Heidelberg, Germany

David Tank

Henry L. Hillman Professor in Molecular Biology
Co-Director, Princeton Neuroscience Institute
Princeton University
Princeton, N.J.

Watt Webb

Samuel B. Eckert Professor of Materials Science
and Engineering Emeritus
Cornell University
Ithaca, N.Y.

2012: *For his role in explaining how eukaryotic cells sense and respond to DNA damage.*

Stephen J. Elledge

Professor of Genetics
Investigator, Howard Hughes Medical Institute
Harvard Medical School
Boston, Mass.

2011: *For his discoveries of the mechanisms by which translational control regulates gene expression and plays roles in cancer, development, memory, innate immunity and virus infections.*

Nahum Sonenberg

Professor
Department of Biochemistry
McGill University
Montreal, Quebec

2010: *For their pioneering work in molecular connections among histones, histone modifications and chromatin structure and their effects on the regulation of gene transcription.*

C. David Allis

Tri-Institutional Professor
Joy and Jack Fishman Professor
Laboratory of Chromatin Biology and Epigenetics
The Rockefeller University
New York, N.Y.

Michael Grunstein

Distinguished Professor, Biological Chemistry
Department of Biological Chemistry
University of California, Los Angeles
Los Angeles, Calif.

2009: *For their pioneering work in the field of innate immunity.*

Ruslan Medzhitov

David W. Wallace Professor of Immunobiology
Investigator, Howard Hughes Medical Institute
Yale School of Medicine
New Haven, Conn.

Jules Hoffmann

Professor and Distinguished Class Research Director
Institute of Molecular and Cellular Biology, CNRS
University Louis Pasteur
Strasbourg, France

2011 NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE

2008: *For their pioneering work in the field of stem cell research.*

John Gurdon

Professor, Department of Zoology
Gurdon Institute
University of Cambridge
Cambridge, England

2012 NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE

Irving Weissman

Professor of Pathology and Developmental Biology
Director, Stem Cell Biology and Regenerative
Medicine Institute
Stanford School of Medicine
Stanford, Calif.

Shinya Yamanaka

Professor, Kyoto University, Japan
Senior Investigator, Gladstone Institute of
Cardiovascular Disease
L.K. Whittier Foundation Investigator in Stem Cell Biology
Professor of Anatomy
University of California, San Francisco
San Francisco, Calif.

2012 NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE

2007: *For their elucidation of the molecular machinery that guides proteins into their proper functional shape, thereby preventing the accumulation of protein aggregates that underlie many diseases, such as Alzheimer's and Parkinson's.*

F. Ulrich Hartl

Director, Max Planck Institute of Biochemistry
Martinsried, Germany

Arthur L. Horwich

Sterling Professor of Genetics
Investigator, Howard Hughes Medical Institute
Yale School of Medicine
New Haven, Conn.

2006: *For their pioneering work in understanding the mechanisms of gene silencing by epigenetic chromosome modifications.*

Mary F. Lyon

Mammalian Genetics Unit
MRC Harwell
Oxfordshire, England

Davor Solter

Max Planck Institute of Immunobiology
Freiburg, Germany

Azim Surani

Gurdon Institute
University of Cambridge
Cambridge, England

*A complete list of awardees may be viewed at
brandeis.edu/rosenstiel/rosenstielaward/past.html.*