

## **Selected Examples of Significant Awards and Honors Received by NIH-supported Researchers**

In a 1999 report, “Evaluating Federal Research Programs: Research and the Government Performance and Results Act,” the Committee on Science, Engineering, and Public Policy of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine concluded that basic research programs can be evaluated meaningfully on a regular basis through expert review. The Committee recommended that agencies measure the quality of the research, its relevance to agency mission, and leadership in the field.

The scientific narratives provided by the NIH will allow the GPRA Assessment Working Group to address the quality and relevance of the NIH research program outcomes. The following examples of significant awards and honors bestowed on NIH extramural and intramural scientists address the third component – scientific leadership and whether the research is being performed at the forefront of scientific and technological knowledge. The awards described below were selected by the NIH Institutes as evidence of external recognition of the value of the outcomes of NIH-funded research and that NIH-funded scientists are national and world leaders in a wide variety of research areas.

### **Major Awards and Honors**

- The Nation’s highest scientific honor, the **National Medal of Science**, recognizes individuals who have made outstanding contributions to knowledge in physics, biology, mathematics, engineering, or the social and behavioral sciences. It is bestowed annually by the President of the United States. The following NIH-supported researchers were awarded the 1999 Medal:

David Baltimore (California Institute of Technology) for his fundamental discoveries in virology, tumor biology and immunology, notably the discovery of how tumor-causing viruses multiply; for his devotion to building excellence in scientific institutions; and for his statesmanship in fostering communication between scientists and the general public.

Jared M. Diamond (University of California at Los Angeles) for his exceptionally creative scholarship, including seminal research in physiology, ecology, conservation biology, and history; for his outstanding role in communicating science by explaining technical advances in widely understandable terms, and for his overwhelming dedication to science’s role in building a better future.

Stuart A. Rice (U Chicago) for changing the very nature of modern physical chemistry through his research, teaching, and writing, using imaginative approaches to both experiment and theory that have inspired a new generation of scientists.

John Ross (Stanford U) for his outstanding contribution and enormous impact in physical chemistry, in particular molecular studies, the kinetics and thermodynamics of nonlinear systems, and new approaches to the determination of complex chemical and biological reaction mechanisms.

Kenneth N. Stevens (MIT) for his pioneering contributions to the theory, mathematical methods and analysis of acoustics in speech production. His theoretical work on acoustic properties of speech sounds that comprise the linguistic elements of language has led to the contemporary foundations of speech science. In addition, his theoretical work on acoustic invariance has defined unifying principles that have integrated major portions of acoustic phonetics, phonology, speech science and linguistics.

- The **Albert Lasker Awards for Basic and Clinical Medical Research**, also known as “America’s Nobels,” are among the most coveted of biomedical research awards; a number of recipients have gone on to win the Nobel Prize for their achievements. The Awards celebrate major advances in the understanding, diagnosis, prevention, treatment, and cure of disease. Three NIH-supported scientists received Lasker Awards in 2000:

Bertil Hille (U Washington) and Roderick MacKinnon (Rockefeller U) for elucidating the structures and functions of ion channel proteins.

Alexander Varshavsky (California Institute of Technology) for the discovery and the recognition of the broad significance of the ubiquitin system of regulated protein degradation, a fundamental process that influences vital cellular events, including the cell cycle, malignant transformation, and responses to inflammation and immunity.

- Election to membership in the National Academies is considered one of the highest honors that a scientist, engineer, or medical professional can receive. Members are elected in recognition of their distinguished and continuing achievements in original research. The National Academies consists of four organizations: the National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine, and the National Research Council. A number of NIH intramural and extramural scientists were elected to the **National Academy of Sciences** in 1999/2000, including:

Peter C. Agre (Johns Hopkins U), gene therapy  
Rita Colwell (NSF), microbiology

Robert J. Cousins (U Florida), nutritional sciences

Jack E. Dixon (U Michigan), biological chemistry

Stanley Fields (Howard Hughes Medical Institute, U Washington), genetics

Jean M. J. Frechet (U California, Berkeley), chemistry

Sen-Itiroh Hakomori (Pacific Northwest Research Institute, U Washington), microbiology and immunology

Charles A. Janeway (Howard Hughes Medical Institute, Yale U), microbiology and immunology

Jon H. Kaas (Vanderbilt U), sensory systems

Richard D. Kolodner (U California, San Diego), cancer genetics

Simon A. Levin (Princeton U), ecology and evolutionary biology

Roderick MacKinnon (Howard Hughes Medical Institute, Rockefeller U), molecular neurobiology and biophysics

Joan Massague (Howard Hughes Medical Institute, Memorial Sloan-Kettering Cancer Center), cellular and developmental biology

Barbara J. Meyer (Howard Hughes Medical Institute, U California, Berkeley) molecular and cell biology

William T. Newsome III (Stanford U), visual neuroscience

Peter Palese (Mt. Sinai), influenza viruses

Jeffrey D. Palmer (Indiana U), biology

Douglas C. Rees (Howard Hughes Medical Institute, CIT) chemistry

Richard H. Scheller (Howard Hughes Medical Institute, Stanford U), neurobiology

Eric M. Shooter (Stanford U), neurobiology

Joseph Schlessinger (New York U), medical genetics, hematology, and oncology

Peter J. Stang (U Utah), chemistry

Bruce W. Stillman (Foreign Associate, Australia, Cold Spring Harbor Laboratory), DNA replication

Leslie G. Ungerleider (NIH/NIMH), psychology

Kenneth Wachter (UC Berkeley), social and political sciences

Michael Welsh (U Iowa), genetics

Reed B. Wickner (NIH/NIDDK), biochemistry and genetics

· The **Presidential Early Career Award** recognizes outstanding scientists and engineers at the outset of their independent research careers. The following NIH grantees were recipients of this award in 2000:

Linda A. Barlow (U Denver) for her outstanding contributions to the field of developmental neurobiology, specifically for her innovative studies into the embryonic origins of sensory taste cells.

Annelise E. Barron (Northwestern U) for her research on novel methods for decoding DNA sequences.

Carolyn Bertozzi (U California, San Francisco) for her research on the mechanisms by which chemical transformations inside a cell engender changes in the structures and functions of cell surface carbohydrates, through which cells communicate with one another.

John Chapin (MIT) for his research on computer systems and software engineering, including operating systems design, multiprocessor memory systems, software engineering for parallel servers, and the foundations of parallel computation.

Janean Holden (U Illinois), the first nurse ever selected to receive this award, for her work on identifying points at which medications or non-pharmacological therapies like massage might reduce or block pain sensations.

Judith A. James (Oklahoma Medical Research) for her work on how a person's immune system goes awry and produces autoimmune diseases such as lupus and rheumatoid arthritis.

Richard W. Roberts (California Institute of Technology) for his contributions in using combinatorial chemistry to address questions of protein design, recognition, and catalysis.

Xiaoqin Wang (Johns Hopkins U) for his outstanding contributions to the field of auditory neurobiology and for pioneering innovative physiological and computational approaches to further the knowledge of vocal communication mechanisms.

Weidong Wang (NIH/NIA) for his innovative analysis of protein complexes and genes that regulate development and aging.

NIH grantees were the recipients of all three of the prestigious **General Motors Cancer Research Foundation Awards** in 2000. Winners receive \$250,000 and a gold medal.

The **Charles F. Kettering Prize**, recognizing the most outstanding contribution to the diagnosis or treatment of cancer, was awarded to Monroe E. Wall (Research Triangle Institute) for the discovery of two chemotherapeutic compounds – Camptothecin<sup>TM</sup> and Taxol®. The work of Dr. Wall demonstrates the importance of natural product research and its use in the development of new forms of cancer treatment.

The **Charles S. Mott Prize** honors the most outstanding recent contribution to the discovery of the cause or ultimate prevention of human cancer. Bert Vogelstein (Johns Hopkins U and Howard

Hughes Medical Institute) has been honored with the Mott Prize for his role in defining the molecular pathogenesis of colorectal cancer.

The **Alfred P. Sloan, Jr. Prize** honors the most outstanding recent basic science contribution to cancer research. Alexander J. Varshavsky (California Institute of Technology) has been awarded the Sloan Prize for the discovery of the ubiquitin system for protein degradation and the crucial functions of this system in cellular regulation. Over the last decade, the ubiquitin system has become central to the understanding of the emergence and progression of cancer.

- Frank Gertler (MIT) received the **McKnight Scholar Award** which is granted to neuroscientists who have demonstrated meritorious research in areas that may improve understanding of the basic mechanisms of and disorders affecting memory. Richard Krauzlis (Salk Institute for Biological Studies) also received this award for his research on the coordination of voluntary eye movements.
- Gina Turrigiano (Brandeis U) received The **MacArthur Fellowship**, from the John D. and Catherine T. MacArthur Foundation, which identifies, celebrates, and nurtures creativity, casting its net as broadly as possible in search of the most creative individuals. Her research has furthered our understanding of the ways in which brain cells modify their activity in response to changing conditions.
- The **Alan T. Waterman Award**, considered the National Science Foundation's most prestigious prize for young researchers, was given to Jennifer A. Doudna (Yale U) for her leading work in structural biology that has provided an answer to how RNA can act like an enzyme to catalyze specific biochemical reactions, and how polyanionic RNA forms a three-dimensional structure.
- The NIH National Library of Medicine was awarded the prestigious **Hammer Award** for a series of radical improvements in its information services, including making its popular MEDLINE database free and easier for the general public to use. The Hammer Award is from the Vice President of the United States in recognition of government teams who demonstrate major innovation.
- The **Senator Jacob Javits Neuroscience Investigator Award** is given to distinguished investigators who have a record of scientific excellence and productivity, who are actively pursuing an area of research of strategic importance, and who can be expected to continue to be highly productive for a seven-year period. Joan K. Austin (Indian U) received this award for her work on predictors of a child's adaptation to epilepsy.

- The **Arthur S. Fleming Awards** are presented by George Washington University to individuals who make outstanding contributions in the federal government. Griffin P. Rodgers (NIH/NIDDK) won the award for research and findings of genetic diseases involving hemoglobin
- The **Presidential Distinguished Executive Rank Award** was presented to Albert Z. Kapikian (NIH/NIAID) for his outstanding career contributions in the field of human virus research and leadership in the conquest of the rotavirus.
- Frederick P. Brooks (UNC, Chapel Hill) received the **1999 A.M. Turing Award** for developing advanced molecular graphics system that can significantly improve a scientist's understanding of data. The A.M. Turing Award recognizes outstanding and enduring technical contributions to the computing community and includes a prize of \$25,000. It is considered one of the most prestigious honors in computer science and engineering.
- Mark H. Tuszynski (UC, San Diego) received the **Bernard Sanberg Memorial Award for Brain Repair** for his progress in studies of gene therapy with nervous system growth factors in spinal cord injury and for developing the first gene therapy approach to reverse age-related brain damage in nonhuman primates.
- James Thomson (U Wisconsin, Madison) received three recognitions for his pioneering achievement in embryonic stem cell derivation and culture, namely the **1999 Golden Plate Award** of the American Academy of Achievement; citation by the journal *Science* for the **1999 "Scientific Breakthrough of the Year,"** and the Wisconsin Governor Tommy Thompson's **"Wisconsin Pioneer Award for 1999."**
- Rick Weindruch (U Wisconsin, Madison) received three national awards for his research on caloric intake, oxidative stress, and aging – the **Glenn Foundation Award** of the Gerontological Society of America; the **Harman Research Award** of the American Aging Association; and the **Nathan W. Shock Award** presented by the NIH's National Institute on Aging.
- The **1999 Bioscience Award** was given to Jae U. Jung (Harvard U) for applying fundamental principles and experimental methodology of molecular virology to the understanding of pathogenesis of tumor inducing herpes viruses.
- Lawrence Hunsicker (U Iowa) received the **Roche Distinguished Investigator Award** for his lifetime achievements in the area of transplantation.

- The **President's 2000 Achievement Award from the Society for Gynecologic Investigation** was given to Sarah Berga (U Pittsburg) for excellence in research; she is studying the impact of psychological and metabolic stress upon the reproductive system and the cause of infertility.
- Murray Favus (U Chicago) received the **1999 Shirley Hohl Service Award** of the American Society for Bone and Mineral Research for his clinical studies in bone and mineral metabolism.
- Samuel Refetoff (U Chicago) received the **Shizume Lecture Prize**, given annually by the Japan Thyroid Association, in recognition of his studies in the syndrome of thyroid hormone resistance.
- The American College of Cardiology's **2000 Distinguished Scientist Award** was given to James T. Willerson (U Texas, Houston) for elucidating mechanisms responsible for the conversion from stable to unstable coronary heart disease syndromes, the prevention of unstable angina and acute heart attacks, and the detection and treatment of unstable atherosclerotic plaques.
- The **Philip Levine Award** of the American Society of Clinical Pathologists, which is given annually for significant contributions in the field of molecular biology, immunohematology and immunopathology, was presented to Ernest Beutler (Scripps Research Institute).
- Eduardo Slatopolsky (Washington U) received the **Belding R. Schribner Award** of the American Society of Nephrology for research that has changed the practice of nephrology in the field of bone metabolism.
- Michael Holick (Boston U) received the **Psoriasis Research Achievement Award**, given annually by the American Skin Association, for his expertise in the field of psoriasis research.
- The **Takeru Higuchi Research Prize** for the Year 2000, presented by the American Pharmaceutical Association for major advances in studies of drug response in patients, is the highest national award in pharmaceutical science. Leslie Z. Benet (UC, San Francisco) received this award for his research on immunosuppressive agents used for transplant patients.
- Jeffrey Friedman (Rockefeller U) received several awards for his research in genetics and gene expression in obesity – the **Osborne Mendel Award** from the American Society for Nutritional Sciences; the **Endocrinology Transatlantic Medal** from the Society for Endocrinology in the United Kingdom; and the **Janssen Award for Special Achievement in Gastroenterology** from the World Health Organization.
- The **AAC Lectureship Award** of the American Association for Clinical Chemistry was given to David Ho (Rockefeller U) for his research of the pathogenesis and treatment of HIV infection.

- The **Nathan B. Eddy Memorial Award for Lifetime Excellence in Drug Abuse Research**, given by the College of Problems of Drug Dependence, was presented to Mary Jeanne Kreek (Rockefeller U).
- Reubin Andres (NIH/NIA), received the 2000 **Albert Renold Award** of the American Diabetes Association, which is given to an individual who has a career that is distinguished by outstanding achievement in the training of diabetes research scientists.
- J. Taylor Harden (NIH/NIA) was elected as a fellow in the American Academy of Nursing, an organization of distinguished leaders in nursing who have been recognized for their outstanding contributions to the profession and to health care.
- The **2000 Irving Wright Award of Distinction** of the American Federation for Aging, intended to honor individuals who have made exceptional contributions to basic or clinical research or to the encouragement of such research in the field of aging, was presented to Edward G. Lakatta (NIH/NIA).
- The **Banting Medal for Scientific Achievement**, presented by the American Diabetes Association in recognition of significant, long-term contributions to the understanding, treatment, or prevention of diabetes, was given to Michael P. Czech (U Massachusetts).
- The **American Diabetes Association Outstanding Scientific Achievement Award** was presented to Luciano Rossetti (Albert Einstein College of Medicine) for his studies of the fundamental aspects of glucose homeostasis, fuel metabolism, and the pathophysiology of type 2 diabetes.
- The **Lilly Scientific Achievement Award**, which recognizes excellence in an established research career in the field of Obesity, Nutrition, and Metabolism, and is limited to investigators who are within 15 years of their training, was given to Eric Poehlman (U Vermont) for his significant contributions in understanding the role of obesity as a risk factors in older men and women; the establishment of energy requirements in older individuals; the role of menopause transition on metabolic disease risk; and the effects of exercise as a modifier of substrate and energy metabolism in older men and women.
- Kenner Rice (NIH/NIDDK), considered among the best medicinal chemists in the world, received the **Chemical Pioneer Award**, which honors chemists or chemical engineers who have made a major impact in science and industry or on the chemical profession.

- George Bray (Louisiana State U) received the **Bristol-Myers Squibb/Mead Johnson Award for Distinguished Achievement in Nutrition Research**, given for a long standing distinguished career in research related to the nutritional sciences, including the mentoring of others.
- The **Distinguished Research Lectureship Award**, from the Western Institute of Nursing for recognition of senior investigators whose research career has made substantial and sustained contributions to nursing, was given to Virginia P. Tilden (Oregon Health Sciences U) for her research on ethical decision making and end of life care.
- John Shaw Billings (NIH/NLM) came in ninth on the **American Libraries list of the 100** most influential people in American libraries in the 20th century.
- The Library of Congress, celebrating its bicentennial in 2000, has tapped Michael DeBakey (former NIH/NLM Board Chair) as a "**Living Legend**," citing his remarkable accomplishments in cardiovascular surgery and related fields, which "have influenced our Nation and enriched our culture."
- Peng Loh (NIH/NICHHD) is to receive and give the **FASEB Excellence in Science Award and Lecture**, at the 2000 Annual Cell Biology Meeting. Dr. Loh is being honored for making significant and fundamental contributions to determining how polypeptide hormone precursors are processed to become mature hormones, are then sorted within the cell into the appropriate compartments.
- Gisela Storz (NIH/NICHHD) is being honored with the **Eli Lilly Award**, by the American Society of Microbiology for her seminal contributions to understanding the mechanisms by which cells react to oxidative stress.
- The 2000 **Distinguished Service Award** of the Society for the Study of Reproduction was given to Fuller Bazer (Texas A&M) in recognition of his exceptional service and leadership in the field of reproductive biology.
- Teresa Woodruff (Northwestern U) received the 2000 **Richard E. Weitzman Award** from the Endocrine Society, which honors outstanding research achievements in the field of endocrinology and metabolism by a young investigator.
- Matt Hardy (Center for Biomedical Research, Population Council) received the 2000 **Young Andrologist Award** from the American Society of Andrology. This award recognizes significant

research accomplishments and contributions to the field of male reproduction by a young investigator.

- Bert O'Malley (Baylor College of Medicine) was honored by the American Society of Andrology with its 2000 **Serono Lectureship**, an award to recognize a career of outstanding research contributions. Dr. O'Malley is considered a founder of the field of molecular endocrinology.
- Henri Begleiter (SUNY Health Science Center) received the 2000 **Jelinek Award** for his creative scientific contributions over a period exceeding three decades and for his outstanding use of multidisciplinary approaches to the study of neuroscience and genetic factors.
- Two NIH grantees were recipients of the **Alfred P. Sloan Research Fellowship Award in Neuroscience**. Karl Kandler (U Pittsburgh) received the award for his research how neuronal circuits are established and modified during brain development. Henrique P. Von Gersdorff (Oregon Health Sciences University) received this award and the **Pew Foundation Scholars Award in the Biomedical Sciences** for his innovative research on the mechanisms responsible for short-term synaptic plasticity in the mammalian auditory brainstem.
- Albert I. Farbman (Northwestern U) is the recipient of the **Frank Allison Linville's R.H. Wright Award in Olfactory Research**, which is given in recognition of outstanding and ongoing achievements in research in the cell biology of olfaction (sense of smell) and taste.

### INTERNATIONAL AWARDS AND HONORS

- The 1999 **Nobel Prize for Physiology or Medicine** was awarded to Günter Blobel (HHMI, Rockefeller U) for his discovery that proteins have intrinsic signals that govern their transport and localization in the cell.
- The **Keio Medical Science Prize** is given to reward outstanding achievements in the field of medical science. Elizabeth H. Blackburn (U California, San Francisco) received this award for her work in the area of telomere and telomerase research.
- The Alexander von Humboldt Foundation in the Republic of Germany annually grants up to 150 **Humboldt Research Awards** to foreign scholars whose academic qualifications enjoy international recognition. David Chandler (U California, Berkeley) was selected for this award for his research in theoretical chemistry.
- The **King Faisal International Prize for Medicine** recognizes excellence and encourages research that benefits humanity. The award, \$200,000 and a gold medal was given to Cynthia Kenyon (U California, San Francisco) for her pioneering studies of the aging process.
- Michael Marmot (University College London) was knighted by Her Majesty Queen Elizabeth II for "services to social epidemiology," as **Knight Commander of the Bath**.
- In commemoration of the United Nations' International Day for Tolerance, Michael E. DeBakey (former NIH/NLM Board Chair) was selected for a **Lifetime Achievement Award** for his "life-changing accomplishments in medicine and technology."