BRISTOL-MYERS SQUIBB
FREEDOM TO DISCOVER™

GRANTS AND AWARDS PROGRAM
FACT SHEET

Overview and Rationale

Initiated in 1977, the Bristol-Myers Squibb Freedom to Discover Grants and Awards Program currently provides unrestricted funding of cancer, nutrition, neuroscience, cardiovascular, infectious diseases, metabolic diseases and synthetic organic chemistry research. In each scientific field, the program annually presents at least one five-year, $500,000 unrestricted research grant and a distinguished achievement award of $50,000 to an individual researcher. An independent peer-review committee comprised of the principal investigators of Bristol-Myers Squibb unrestricted research grants selects the achievement award recipient in each field. To date, the company has committed more than $127 million in support of the Freedom to Discover Grants and Awards Program, through 289 grants to over 160 institutions in 23 countries.

THE UNRESTRICTED CANCER RESEARCH GRANTS PROGRAM

- Initiated in 1977.
- More than $30 million in unrestricted funding and awards committed to date.
- 59 grants given to 49 cancer centers in Belgium, Canada, Denmark, France, Israel, Italy, Japan, the Netherlands, Spain, Sweden, the United Kingdom and the United States.
- Institutions that have received cancer research grants:
  (* denotes current recipients):

  Aichi Cancer Center Research Institute, Nagoya, Japan
  Albert Einstein College of Medicine
  Arizona Cancer Center
  Baylor College of Medicine
  Cold Spring Harbor Laboratory
  Columbia-Presbyterian Cancer Center
  Duke University
  Finsen Institute / Rigshospitalet, Copenhagen, Denmark
  Foundation for Promotion of Cancer Research, Tokyo
  Fox Chase Cancer Center
  Fred Hutchinson Cancer Research Center
  Georgetown University School of Medicine
  Georgetown University / Vincent T. Lombardi Cancer Research Center
  Harvard Medical School / Dana-Farber Cancer Institute
  Indiana University Cancer Center
  Institut Jules Bordet, Brussels, Belgium*
  Institute for Cancer Research, London

Japanese Foundation for Cancer Research, Tokyo
Johns Hopkins University School of Medicine
Karolinska Institutet, Stockholm, Sweden
Massachusetts Institute of Technology
Memorial Sloan-Kettering Cancer Center
National Cancer Center Hospital, Tokyo
National Cancer Institute, Milan, Italy
Ontario Cancer Institute / Princess Margaret Hospital, Toronto
Pittsburgh Cancer Institute
Salpêtrière Hospital, Paris, France
San Antonio Cancer Institute
St. Jude Children's Research Hospital
Stanford University School of Medicine
The Broad Institute of MIT and Harvard, Cambridge, Massachusetts*
The Burnham Institute, La Jolla, California*
The David Geffen School of Medicine at UCLA*
The Netherlands Cancer Institute and Free University, Amsterdam
The Rockefeller University
The Salk Institute
The University of Texas M. D. Anderson Cancer Center*
The University of Texas Southwestern Medical Center at Dallas
University of California, Los Angeles / Jonsson Comprehensive Cancer Center
University of California, San Francisco / Comprehensive Cancer Center*
University of Chicago / Cancer Research Center
University of Chicago / Pritzker School of Medicine
University of Pennsylvania / Abramson Cancer Center*
University of Southern California / Kenneth Norris Jr. Comprehensive Cancer Center
University of Wisconsin / McArdle Laboratory for Cancer Research
Vall d'Hebron University Hospital, Barcelona, Spain*
Vanderbilt University Medical Center
Weizmann Institute of Science, Rehovot, Israel
Whitehead Institute for Biomedical Research / Massachusetts Institute of Technology
Yale University School of Medicine

2006 GRANT RECIPIENT INSTITUTIONS:

Cancer Institute of New Jersey*
The University of Tokyo*

BRISTOL-MYERS SQUIBB AWARD FOR DISTINGUISHED ACHIEVEMENT IN CANCER RESEARCH

- First presented in 1978.
- $50,000 award.
- Winners are selected by an independent peer-review selection committee whose members are grant administrators of current Bristol-Myers Squibb Unrestricted Cancer Research Grants.

- **2006 Cancer Award Selection Committee**

Chairman:
Jose Baselga, M.D.
Vall d'Hebron University Hospital
Barcelona, Spain

Todd R. Golub, M.D.
Dana-Farber Cancer Institute
The Broad Institute of Harvard and MIT
Harvard Medical School
Cambridge, Massachusetts

Waun Ki Hong, M.D.
The University of Texas
M. D. Anderson Cancer Center, Houston

Carl H. June, M.D.
University of Pennsylvania
Abramson Cancer Center, Philadelphia

Arnold J. Levine, Ph.D.
Cancer Institute of New Jersey
New Brunswick, New Jersey
Institute for Advanced Study
Princeton, New Jersey

Frank McCormick, Ph.D.
University of California, San Francisco
Comprehensive Cancer Center

Yusuke Nakamura, M.D., Ph.D.
The University of Tokyo
Tokyo, Japan

Martine J. Piccart-Gebhart, M.D., Ph.D.
Institut Jules Bordet
Canceropole de l'Université Libre de
Bruxelles, Brussels, Belgium

John C. Reed, M.D., Ph.D.
The Burnham Institute
La Jolla, California

Charles L. Sawyers, M.D.
The David Geffen School of Medicine at
UCLA

RECIPIENTS OF THE BRISTOL-MYERS SQUIBB AWARD FOR DISTINGUISHED ACHIEVEMENT IN CANCER RESEARCH

2006 – Susan Band Horwitz, Ph.D., for her pioneering research, at the molecular level, of the mechanisms of action and resistance to antitumor drugs. Her laboratory elucidated the unique antimitotic mechanism of action of paclitaxel, enabling the development of this new anticancer agent. Dr. Horwitz is at the Albert Einstein College of Medicine of Yeshiva University.

2005 – Alfred G. Knudson Jr., M.D., Ph.D., for his discovery of the "two-hit model" of tumorigenesis. The model explains how cancer develops when tumor-suppressor genes are damaged and it helped understand the role that heredity and other factors play in causing cancer. Dr. Knudson is at the Fox Chase Cancer Center in Philadelphia.

2004 – John Mendelsohn, M.D., for his pioneering work in the field of receptor targeted therapy in cancer and the development of clinically active monoclonal antibodies directed towards the epidermal growth factor receptor (EGFR). Dr. Mendelsohn demonstrated that a monoclonal antibody, C225 (cetuximab or Erbitux™) targeting the EGFR could inhibit the growth of some cancer cells. Dr. Mendelsohn is at the University of Texas M. D. Anderson Cancer Center in Houston.

2003 – Elizabeth H. Blackburn, Ph.D., for her seminal discoveries in the areas of cell growth, including the molecular structure of telomeres and the telomerase enzyme. Dr. Blackburn built

the foundation for the field of telomerase research which has revealed how cancer cells are able to multiply without limit. Dr. Blackburn is at the University of California, San Francisco.

2002 – Robert C. Young, M.D. and Robert F. Ozols, M.D., Ph.D., for contributions that profoundly influenced ovarian cancer treatment and research. Drs. Young and Ozols were the first to demonstrate that combination therapy is more effective than single alkylating agents. They developed the chemotherapy regimen of paclitaxel plus carboplatin that is now the standard of care for advanced ovarian cancer patients. Dr. Young and Dr. Ozols are at Fox Chase Cancer Center in Philadelphia.

2001 – V. Craig Jordan, Ph.D., D.Sc., for research that laid the foundation for the clinical use of antiestrogens and selective estrogen receptor modulators (SERMS--tamoxifen and raloxifene) for breast cancer. He identified the value of tamoxifen to treat patients with estrogen receptor (ER) positive breast cancer and the strategy to extend adjuvant therapy to five years. He was the first to identify SERM action in bone and breast that has resulted in raloxifene to treat osteoporosis and its testing as a preventive for breast cancer. Dr. Jordan is at the Fox Chase Cancer Center in Philadelphia.

2000 – David H. Beach, Ph.D., and Charles J. Sherr, M.D., Ph.D., for important contributions to the understanding of the molecular basis of cell cycle control and alterations in growth control mechanisms that cause cancer. Dr. Beach discovered the role of a class of proteins called cyclins in the cell division cycle and Dr. Sherr identified the mammalian G1 D-type cyclins as delayed-early response genes to growth factor stimulation. Dr. Beach is founder and director of Mitotix, Inc. in Cambridge, Massachusetts. Dr. Sherr is at St. Jude Children's Research Hospital in Memphis, Tennessee.

1999 – Isaiah J. Fidler, DVM, Ph.D., who first identified metastases and established the field of metastasis research. Dr. Fidler was the first to demonstrate that only a certain, very small percentage of tumor cells with a primary tumor have the potential to produce metastases, leading to recognition of the need for therapies that target these cells. He subsequently showed that metastases also are regulated by specialized environments created by different organs and tissues in the body. Dr. Fidler is at the University of Texas M.D. Anderson Cancer Center.

1998 - Michael B. Sporn, M.D., for his pioneering contributions in developing effective strategies for preventing human cancers. Through his outstanding basic research and innovative thinking, Dr. Sporn has fundamentally changed our concept of carcinogenesis. He has also made major contributions to our understanding of cellular regulation and clinical applications of retinoids. Dr. Sporn is at Dartmouth Medical School.

1997 - Stanley J. Korsmeyer, M.D., for his work in identifying key genetic mechanisms that govern programmed cell death and survival and defining their role in causing lymphomas and other cancers. Dr. Korsmeyer formerly at the Dana Farber Cancer Institute in Boston is deceased.

1996 - Henry T. Lynch, M.D., for his discoveries in establishing the hereditary basis of certain gastrointestinal, breast and ovarian cancers. He is also known for his discovery of an unrecognized form of colon cancer -- Hereditary Non-Polyposis Colon Cancer (HNPCC), now known as Lynch Syndrome -- and for demonstrating Mendelian patterns of inheritance for this disease in hundreds of extended families worldwide. Dr. Lynch is at the Creighton University School of Medicine in Omaha, Nebraska.

1995 - Judah Folkman, M.D., for founding the field of tumor angiogenesis, the process by which tumors stimulate the growth of new blood vessels, thus enhancing tumor growth and metastasis. His pioneering studies led to the first identification of specific factors that either stimulate or inhibit angiogenesis. Dr. Folkman is at Harvard Medical School and Children's Hospital, Boston.

1994 - Arnold J. Levine, Ph.D., for his ground breaking discoveries involving the p53 cancer gene, considered one of the most important genes in the development of human cancer. Dr. Levine is at the Institute for Advanced Studies in Princeton.

1993 - Gianni Bonadonna, M.D., for his innovative studies of breast cancer therapy, which have led to new treatments against the disease, and **Bernard Fisher, M.D.**, for his studies of the biology of breast cancer, which have led to radical improvements in its treatment. Dr. Bonadonna is at the Istituto Nazionale Tumori in Milan and Dr. Fisher resides at the University of Pittsburgh.

1992 - Thomas A. Waldmann, M.D., for his many crucial discoveries culminating in his definition of the Interleukin-2 receptor as a useful target for monoclonal antibody immunotherapy. Dr. Waldmann is at the National Cancer Institute.

1991 - Edward E. Harlow, Jr., Ph.D., for his discovery that a virus oncogene and a tumor suppressor gene can interact in a common system to turn a normal cell malignant. Dr. Harlow is at the Massachusetts General Hospital Cancer Center.

1990 - Bert Vogelstein, M.D., for his discovery of a series of genetic changes that are responsible for the formation and progression of colorectal cancer. Dr. Vogelstein is at the Johns Hopkins University School of Medicine.

1989 - Peter K. Vogt, Ph.D., for his pioneering research on retroviruses that led to the discovery of the first cancer-causing gene, the src oncogene, and his discovery of the jun oncogene. Dr. Vogt is at the University of Southern California.

1988 - George W. Santos, M.D., for his pioneering research on bone marrow transplantation. Dr. Santos is at the Johns Hopkins University School of Medicine.

1987 - Donald Metcalf, M.D., for his discoveries on growth factors responsible for the development and proliferation of blood cells. Dr. Metcalf is at the Cancer Center, Walter and Eliza Hall Institute of Medical Research, Melbourne.

1986 - Susumu Tonegawa, Ph.D., for his discoveries about the genetic basis of the immune response. Dr. Tonegawa, who received the Nobel Prize in Medicine in 1987, is at the Center for Cancer Research and Department of Biology at the Massachusetts Institute of Technology.

1985 - William S. Hayward, Ph.D., and Philip Leder, M.D., for their discoveries concerning the cellular expression of oncogenes. Dr. Hayward is at Memorial Sloan-Kettering Cancer Center. Dr. Leder is at Harvard Medical School.

1984 - Robert A. Weinberg, Ph.D., for his discovery of nonvirally-induced oncogenes and demonstration of the single genetic change that transforms a normal gene into a malignant one. Dr. Weinberg is at the Whitehead Institute of Biomedical Research and Massachusetts Institute of Technology.

1983 - Leo Sachs, Ph.D., for his discovery of how leukemia cells in culture could be changed back into normal cells and for other work on cell transformation in culture. Professor Sachs is at the Weizmann Institute of Science in Rehovot, Israel.

1982 - Denis Parsons Burkitt, M.D., for his discovery of Burkitt's lymphoma and the impact of environmental factors on its development, and **Michael Anthony Epstein, M.D., Ph.D.,** for isolating the Epstein-Barr virus, the first virus regularly associated with human cancers. Dr. Burkitt was honorary senior research fellow at St. Thomas's Hospital Medical School in London. Dr. Burkitt is deceased. Professor Epstein is at Nuffield Department of Clinical Medicine, John Radcliffe Hospital, Oxford University.

1981 - Van Rensselaer Potter, Ph.D., for his fundamental discoveries regarding the biochemistry of the cancer cell. Dr. Potter is at the University of Wisconsin.

1980 - Howard Earle Skipper, Ph.D., for his discoveries about the growth of cancer cell populations and the effect of anti-cancer drugs on them. Dr. Skipper is president emeritus of the Southern Research Institute, and formerly was director of the Kettering-Myers Laboratory in Birmingham.

1979 - Gertrude Henle, M.D., and **Warner Henle, M.D.**, for identifying the Epstein-Barr virus as the first virus regularly associated with human cancers. Dr. Gertrude Henle, now retired, was with the Joseph Stokes, Jr., Research Institute of the Children's Hospital of Philadelphia and the University of Pennsylvania School of Medicine. Dr. Werner Henle is deceased.

1978 - Elizabeth Miller, Ph.D., and James Miller, Ph.D., for their pioneering work on the biochemical mechanisms that change chemicals into carcinogens. Dr. James Miller is at the University of Wisconsin's McArdle Laboratory for Cancer Research. Dr. Elizabeth Miller is deceased.

THE UNRESTRICTED NUTRITION RESEARCH GRANTS PROGRAM

- Initiated in 1980.
- More than $18 million in unrestricted funding and awards committed to date by Bristol-Myers Squibb and its Mead Johnson Nutritional Group.
- 48 grants given to 38 nutrition research centers in Belgium, Canada, Chile, China, Finland, Germany, India, Mexico, New Zealand, the Philippines, Sweden, Thailand, the United Kingdom and the United States.
- Institutions that have received nutrition research grants:
  (*denotes current recipients):

  Baylor College of Medicine, Children's Nutrition Research Center*
  Children's Hospital of Philadelphia
  Columbia University College of Physicians & Surgeons
  Cornell University
  Dunn Nutrition Unit, Medical Research Council, Cambridge, United Kingdom

Fred Hutchinson Cancer Research Center
Harvard Medical School*
Harvard Medical School / Massachusetts General Hospital
Indiana University School of Medicine
Johns Hopkins University / School of Hygiene & Public Health Center for Human Nutrition
Karolinska Institutet, Stockholm, Sweden
London School of Hygiene & Tropical Medicine, London, United Kingdom*
National Institute on Nutrition, Mexico City
Nutrition Center of the Philippines, Manila
Ramathibodi Hospital / Mahidol University Medical Center, Bangkok, Thailand
The Chinese University of Hong Kong
The Pennsylvania State University
The University of Texas Southwestern Medical Center at Dallas / Center for Human Nutrition
Tufts University School of Nutrition Science and Policy
University of Alabama, Birmingham
University of British Columbia*
University of California, Berkeley
University of California, Davis*
University of Chicago
University of Chile / Instituto de Nutricion y Technologia de los Alimentos (INTA)
University of Cincinnati / Children's Hospital Medical Center
University of Colorado / Center for Human Nutrition
University of Illinois at Urbana-Champaign*
University of Iowa College of Medicine
University of Liège, Belgium
University of Montréal, Canada
University of Otago, Dunedin, New Zealand
University of North Carolina, Chapel Hill
University of Toronto, Canada
University of Turku, Turku, Finland*
University of Washington School of Medicine
Vanderbilt University School of Medicine

2006 GRANT RECIPIENT INSTITUTION:

Ludwig-Maximilians-University of Munich, Germany*

BRISTOL-MYERS SQUIBB/MEAD JOHNSON AWARD FOR DISTINGUISHED ACHIEVEMENT IN NUTRITION RESEARCH

- First award presented in 1981.
- $50,000 award.
- Winners are selected by an independent peer-review selection committee whose members are grant administrators of current Bristol-Myers Squibb/Mead Johnson Unrestricted Nutrition Research Grants.
- **2006 Nutrition Award Selection Committee**

Chairman:
W. Allan Walker, M.D.
Harvard Medical School

Berthold V. Koletzko, M.D., Ph.D.
Ludwig-Maximilians-University of Munich, Germany

Dennis M. Bier, M.D.
Baylor College of Medicine, Houston

Sheila M. Innis, Ph.D.
University of British Columbia, Canada

Kenneth H. Brown, M.D.
University of California, Davis

Andrew M. Prentice, Ph.D.
London School of Hygiene & Tropical Medicine

Sharon M. Donovan, Ph.D., R.D.
University of Illinois at Urbana-Champaign

Seppo Salminen, Ph.D.
The University of Turku, Finland

RECIPIENTS OF THE BRISTOL-MYERS SQUIBB/MEAD JOHNSON AWARD FOR DISTINGUISHED ACHIEVEMENT IN NUTRITION RESEARCH

2005 – Walter C. Willett, M.D., Dr.P.H., for the development of epidemiological techniques that enhanced our understanding of the relationships between nutrition and disease. Dr. Willett is at the Harvard School of Public Health and Harvard Medical School.

2004 – Jan-Åke Gustafsson, M.D., Ph.D., for his pioneering efforts in the field of molecular nutrition. He and his colleagues first characterized a nuclear receptor that has a major role in obesity and metabolic syndrome. His demonstration that fatty acids are ligands for another nuclear receptor led to the broader understanding that many nutrients regulate metabolism through theses receptors. Dr. Gustafsson is at the Karolinska Institutet in Sweden.

2003 - Robert J. Cousins, Ph.D., for his groundbreaking achievements in elucidating the role of zinc-regulated genes in zinc homeostasis and the regulation of immune function. This later research has important implications in diarrheal illnesses that affect young children, particularly in the developing world. Dr. Cousins is at the University of Florida, Gainesville.

2002 - John W. Suttie, Ph.D., for outstanding experimental work that defined vitamin K's molecular action. Dr. Suttie discovered that a vitamin K-dependent gamma-carboxylation of specific glutamyl residues in an inactive protein was required for production of the biologically-active blood coagulation factor, prothrombin. Dr. Suttie is at the University of Wisconsin.

2001 - Alfred Sommer, M.D., M.H.S., for his contributions to our understanding of the origin, magnitude and control of nutritional blindness (xerophthalmia/keratomalcia). Dr. Sommer discovered that vitamin A deficiency, which causes nutritional blindness, dramatically increases childhood morbidity and mortality from infectious diseases, particularly measles and diarrhea, and demonstrated that improvement in vitamin A status reduced measles case-fatality by half and overall childhood mortality by one-third. Dr. Sommer is at The Bloomberg School of Public Health, The Johns Hopkins University.

2000 – George A. Bray, M.D., for his extensive research endeavors in clinical and basic science that have significantly enhanced our understanding of the mechanisms that underlie the

development of obesity. His research has emphasized the neurochemical integration of the control of food intake and energy expenditure within the Central Nervous System (CNS) and he has demonstrated that there is a "receptor" system for fatty acids on the taste receptors and in the intestines. Dr. Bray is at Louisiana State University Medical Center and Pennington Biomedical Research Center in Baton Rouge, Louisiana.

1999 – Donald B. McCormick, Ph.D., for his discoveries of how vitamins are metabolized in the human body. Dr. McCormick identified enzymes that convert riboflavin and B6 into active forms and subsequently developed what is now known as "affinity chromatography," a method for purifying the enzymes used in virtually every area of medicine and basic research today. His work on how vitamins are delivered to the interior of cells demonstrated that vitamins could act as carrier molecules to deliver therapeutic drugs to targeted cells. Dr. McCormick is at Emory University School of Medicine in Atlanta.

1998 - George H. Beaton, Ph.D., for his pioneering work in establishing a sound theoretical basis for estimating and applying human nutrition requirements. Concepts emerging from his work have formed the basis for current efforts to establish nutritional guidelines in the US and Canada. Dr. Beaton is Professor Emeritus at the University of Toronto, Canada.

1997 - Scott M. Grundy, M.D., Ph.D., for his 30 years of outstanding contributions to clinical research on nutritional patterns contributing to hyperlipidemia and atherosclerosis and for the development and validation of the essential methodologies for quantifying the metabolic balance of sterols and distinguishing patterns of lipoprotein metabolism. He has built the clinical foundation for our understanding of diet and heart disease. Dr. Grundy is at the Center for Human Nutrition, at The University of Texas Southwestern Medical Center in Dallas.

1996 - Irwin H. Rosenberg, M.D., for his primary research in the field of folate absorption and metabolism, and his major contributions to the nutritional health of the elderly. Dr. Rosenberg is Dean of Nutrition at Tufts University/Jean Mayer USDA Human Nutrition Research Center on Aging in Boston, Massachusetts.

1995 - Vernon R. Young, Ph.D., D.Sc., for his pioneering studies of amino acid metabolism. He recommended new international standards for dietary amino acid intake that hold important implications for nutritional planning and agricultural research in developing nations. Dr. Young, formerly at the Massachusetts Institute of Technology and the Shriners Burns Institute in Boston, is deceased.

1994 - Doris Howes Calloway, Ph.D., for her work in energy and protein metabolism, adequacy of children's diets and the nutrition of pregnancy and exercise. Dr. Calloway, formerly of the University of California at Berkeley, is deceased.

1993 - David Mark Hegsted, Ph.D., and Ancel Keys, Ph.D., for their pioneering contributions to the understanding of the relationships between dietary fat and heart disease. Dr. Hegsted is Professor Emeritus, New England Regional Primate Research Center, Harvard Medical School, and Harvard School of Public Health. Dr. Keys is Professor Emeritus, Division of Epidemiology, School of Public Health, University of Minnesota.

1992 - Samuel J. Fomon, M.D., for his major contributions to the field of healthy full-term infant nutrition, providing scientific and clinical advances in the areas of normal infant growth, body composition, energy and protein requirements and the bioavailability of iron. Dr. Fomon

is Professor Emeritus at the Department of Pediatrics at the College of Medicine, University of Iowa.

1991 - Kurt J. Isselbacher, M.D., for his innovative laboratory studies which helped define the mechanism of intestinal nutrient transport and elucidated the basis for acquired and hereditary disorders of abnormal nutrient metabolism. Dr. Isselbacher is at Massachusetts General Hospital Cancer Center at Harvard Medical School.

1990 - Donald B. Zilversmit, Ph.D., for his discoveries that have made significant contributions to our understanding of atherosclerosis and to the development of cholesterol-lowering strategies in the management of cardiovascular disease. Dr. Zilversmit is Emeritus Professor at Cornell University.

1989 - Richard J. Havel, M.D., for his contributions to lipid and lipoprotein metabolism research. Dr. Havel is at the Cardiovascular Research Institute of the University of California, San Francisco.

1988 - Nevin S. Scrimshaw, M.D., Ph.D., M.P.H., for his pioneering work in linking malnutrition to infection, and for developing the first successful vegetable weaning food for infants. Dr. Scrimshaw is Senior Advisor of the United Nations Food and Nutrition Program.

1987 - DeWitt S. Goodman, M.D., for his research on retinoids at Columbia University College of Physicians & Surgeons. Dr. Goodman is deceased.

1986 - Arvid Wretlind, M.D., for his development of the first fat emulsion for intravenous feeding of humans. Dr. Wretlind is at the Karolinska Institutet in Stockholm.

1985 - Clement A. Finch, M.D., for his innovative studies of iron metabolism and iron deficiency. Dr. Finch is at the University of Washington.

1984 - John C. Waterlow, M.D., Ph.D., for his research on protein energy, malnutrition and metabolism. Professor Waterlow is at the University of London.

1983 - Hector F. DeLuca, Ph.D., for his work on vitamin D metabolism. Dr. DeLuca is at the University of Wisconsin.

1982 - Elsie M. Widdowson, Ph.D., D.Sc., for her studies of infant body composition and of the chemical composition of foods. Dr. Widdowson, formerly of the Addenbrooke's Hospital, Cambridge, England, is deceased.

1981 - Hamish N. Munro, M.D., D.Sc., for his breakthrough studies of protein metabolism. Dr. Munro, formerly of Tufts University, is deceased.

THE UNRESTRICTED NEUROSCIENCE RESEARCH GRANTS PROGRAM

- Initiated in 1988.
- More than $18 million in unrestricted funding and awards committed to date.
- 38 grants given to 29 neuroscience research centers in Belgium, Canada, France, Germany, Sweden, the United Kingdom and the United States.
- Institutions that have received neuroscience research grants:
  (*denotes current recipients):

  Brandeis University
  Columbia University College of Physicians & Surgeons
  Duke University Medical Center
  Emory University School of Medicine
  Flanders Interuniversity Institute for Biotechnology (VIB), Leuven, Belgium*
  Harvard Medical School / Brigham and Women's Hospital
  Harvard Medical School / Massachusetts General Hospital
  Institut Nationale de la Santé et de la Recherche Médicale (INSERM), Paris, France
  Johns Hopkins University*
  Johns Hopkins University School of Medicine
  Karolinska Institutet, Stockholm, Sweden
  Max Planck Institute for Medical Research, Heidelberg, Germany
  Max Planck Institute of Psychiatry, Munich, Germany*
  New York Hospital / Cornell University Medical Center
  Northwestern University, Evanston/Chicago
  The University of Texas Southwestern Medical Center at Dallas*
  University of British Columbia, Vancouver, Canada
  University of California, Irvine
  University of California, San Diego
  University of California, San Francisco*
  University of Manchester, United Kingdom
  University of Michigan
  University of Nice / Institut de Pharmacologie Moléculaire et Cellulaire, Valbonne, France
  University of North Carolina School of Medicine, Chapel Hill*
  University of Pennsylvania School of Medicine*
  University of Southern California
  Vanderbilt University School of Medicine
  Washington University School of Medicine, St. Louis
  Yale University School of Medicine

2006 GRANT RECIPIENT INSTITUTIONS:

University of Pittsburgh*

BRISTOL-MYERS SQUIBB AWARD

FOR DISTINGUISHED ACHIEVEMENT IN NEUROSCIENCE RESEARCH

- First award presented in 1988.
- $50,000 award.
- Winners are selected by an independent peer-review selection committee whose members are grant administrators of current Bristol-Myers Squibb Unrestricted Neuroscience Research Grants.
- **2006 Neuroscience Award Selection Committee**

Chairperson:
Virginia M.-Y. Lee, Ph.D.
University of Pennsylvania School of Medicine

Bart De Strooper, M.D., Ph.D.
Flanders Interuniversity Institute for Biotechnology (VIB), Leuven, Belgium

Michela Gallagher, Ph.D.
Johns Hopkins University

Florian Holsboer, M.D., Ph.D.
Max Planck Institute of Psychiatry
Munich, Germany

David A. Lewis, M.D.
University of Pittsburgh
Western Psychiatric Institute and Clinic of UPMC Presbyterian

Jeffrey A. Lieberman, M.D.
Columbia University College of Physicians and Surgeons
New York State Psychiatric Institute

Eric J. Nestler, M.D., Ph.D.
The University of Texas Southwestern Medical Center at Dallas

Laurence H. Tecott, M.D., Ph.D.
University of California, San Francisco

RECIPIENTS OF THE BRISTOL-MYERS SQUIBB AWARD FOR DISTINGUISHED ACHIEVEMENT IN NEUROSCIENCE RESEARCH

2005 – Christine Petit, M.D., Ph.D., for discovering the molecular basis of hearing and the genetic causes of deafness. Dr. Petit pioneered the field of human hereditary sensory defects and developed advanced tools of molecular genetics to elucidate the mechanisms of the inner ear. Her work further extended to genetic disorders affecting other senses, including the sense of smell. Dr. Petit is at the Institut Pasteur, Collège de France and Inserm, in Paris, France.

2004 - Thomas C. Südhof, M.D., for elucidating the molecular mechanisms by which neurons transmit information at synapses. His laboratory identified a synaptic vesicle protein named synaptotagmin that acts as a calcium sensor to trigger neurotransmitter release and initiate synaptic communication. Dr. Südhof is at the University of Texas Southwestern Medical Center at Dallas and the Howard Hughes Medical Institute.

2003 - William A. Catterall, Ph.D., for characterizing the sodium and calcium channel proteins and pioneering the molecular analysis of electrical signaling by which voltage-gated ion channels signal and process information in the nervous system. Dr. Catterall is at the University of Washington in Seattle.

2002 - Pasko Rakic, M.D., Ph.D., for discovering the principles and mechanistic basis of neuronal migration. Dr. Rakic's numerous original contributions have provided the framework for our current understanding of normal and pathological development of the human brain. Dr. Rakic is at Yale University School of Medicine.

2001 - H. Robert Horvitz, Ph.D., for his landmark discovery that specific genes control programmed cell death, or apoptosis. His discovery of a genetic pathway responsible for programmed cell death revealed that apoptosis is an active biological process. Scientists have since shown that this pathway is shared among organisms, including humans, and is involved in a variety of human diseases, including neurological disorders. Dr. Horvitz is at Massachusetts Institute of Technology.

2000 - Thomas M. Jessell, Ph.D., in recognition of his accomplishments in defining many of the key cellular and molecular mechanisms that control the development and functional organization of the spinal cord. Dr. Jessell is at Columbia University College of Physicians & Surgeons in New York City.

1999 - Marcus E. Raichle, M.D., for creating brain imaging strategies to identify specific brain regions as centers for complex thought processes. Dr. Raichle used positron emission tomography (PET) scanning to create the first functional images of brain metabolism and blood flow in living people. Dr. Raichle is at the Washington University School of Medicine in St. Louis.

1998 - Richard Axel, M.D., for his groundbreaking work in outlining fundamental principles of how key cells involved in perception are organized in the brain. He first described the molecular basis for mammalian sense of smell, explaining how olfactory organs are able to distinguish between thousands of different odors, and how that information is understood by higher centers in the brain. Dr. Axel is at the Columbia University College of Physicians and Surgeons.

1997 - Eric M. Shooter, M.A., Sc.D., D.Sc., F.R.S., & Hans Thoenen, M.D., for their pioneering work on the nature and function of growth factors in the nervous system. Their contributions have provided new insights into how the brain develops and novel therapeutic approaches to nervous system diseases. Dr. Shooter is at the Stanford University School of Medicine. Dr. Thoenen is at Max-Planck Institute in Martinsried, Germany.

1996 - Solomon H. Snyder, M.D., for his pioneering work in labeling of drug receptors by reversible ligand binding. More recently, his elucidation of the functions of nitric oxide as a signaling molecule has established a novel concept of synaptic transmission. These seminal contributions have had an enormous influence on the direction of neuropharmacology and neuroscience for almost three decades. Dr. Snyder is at the Johns Hopkins University School of Medicine.

1995 - Stephen F. Heinemann, Ph.D., Shigetada Nakanishi, M.D., Ph.D., & Jeffrey Clifton Watkins, Ph.D. were selected as corecipients of the 1995 award and shared the prize for their discovery of the major excitatory transmitter in the brain and molecular identifications of its receptors. This has made possible the modern study of basic communication between nerve cells implicated in a number of degenerative disease states including stroke, head trauma and certain forms of epilepsy. Dr. Heinemann is with The Salk Institute in La Jolla, California, Dr. Nakanishi is with Kyoto University Faculty of Medicine in Japan and Dr. Watkins is at The University of Bristol, United Kingdom.

1994 - Stanley B. Prusiner, M.D., for his discovery of a unique disease causing agent known as the prion which revolutionized the study of degenerative neurological disorder. Dr. Prusiner is at the University of California, San Francisco.

1993 - Sten Grillner. M.D., for his contributions to the understanding of cellular mechanisms of vertebrate locomotion. Dr. Grillner is professor and director of the Nobel Institute of Neurophysiology and chairman of the Center for Neuroscience at the Karolinska Institutet in Stockholm.

1992 - Drs. Benzer, Brenner and Capecchi were selected as co-recipients of the 1992 award and shared the prize for introducing molecular genetics to the study of the development of the nervous system and behavior.

Seymour Benzer, Ph.D., for producing single gene mutations in fruit flies which have lead to a better understanding of the molecular determinants of behavior. Dr. Benzer is at the California Institute of Technology.

Sydney Brenner, D. Phil., for being the first to diagram the entire nervous system of *C. elegans*, which established the way instructions contained by genes are passed along to dictate muscle function and behavior. Dr. Brenner is at the Salk Institute of Biological Studies.

Mario Capecchi, Ph.D., whose identification of a new technology--gene targeting--has led to important ramifications for the development of animal models of human disease. Dr. Capecchi is at the University of Utah School of Medicine, Salt Lake City, and investigator for Howard Hughes Medical Institute.

1991 - Drs. Bliss and Kandel were selected as co-recipients of the 1991 award and shared the prize for their pioneering work in developing the models of learning and memory.

Timothy V.P. Bliss, Ph.D., for his co-discovery of long-term potentiation, a phenomenon that has grown into one of the best understood models of learning and memory. Dr. Bliss is at the National Institute for Medical Research, London.

Eric R. Kandel, M.D., for his research into biological changes in the cell associated with learning and memory. Dr. Kandel is at the Center for Neurobiology and Behavior, Columbia University College of Physicians and Surgeons.

1990 - Drs. Changeux, Hille and Neher were selected as co-recipients of the 1990 award and shared the prize for their pioneering contributions to the understanding of ion channels, the protein pores through which nerve and muscle cells communicate.

Jean Pierre Changeux, Ph.D., for being the first to isolate, characterize and purify a receptor for the neurotransmitter acetylcholine -- essential to learning and memory. Dr. Changeux is at the College de France and at the Institut Pasteur in Paris Molecular Neurobiology Laboratory.

Bertil Hille, Ph.D., for his theory of ionic channels as protein pores in cell membranes. Ion malfunctions are implicated in afflictions such as Alzheimer's disease, epilepsy and cystic fibrosis. Dr. Hille is at the University of Washington School of Medicine.

Erwin Neher, Ph.D., for his development of the "patch clamp" technique, one of the premier tools for investigating ion channels. This has led to an understanding of how cells communicate with one another in the body to provide the basis of human thought, emotion and action. Professor Neher, who received the Nobel Prize in Medicine in 1991, is at the Max-Planck Institut for Biophysikalische Chemie in Gottingen, Germany.

1989 - Drs. Axelrod, Carlsson and Greengard were selected as co-recipients of the 1989 award and shared the prize for their pioneering contributions to the understanding of the molecular basis for the actions of psychoactive drugs.

Julius Axelrod, Ph.D., for describing the pathways by which catecholamines are metabolized during cell-to-cell transmission, leading to his discovery of the neuron's re-uptake mechanism. Dr. Axelrod, a Nobel laureate in Medicine, and formerly at the Laboratory of Cell Biology, National Institute of Mental Health, is deceased.

Arvid Carlsson, M.D., Ph.D., for discovering dopamine, for demonstrating the importance of the dopamine autoreceptor, and for demonstrating the therapeutic effects of drugs that block the firing cell's re-uptake and deactivation of serotonin. Dr. Carlsson is at the University of Goteborg, Sweden.
Paul Greengard, Ph.D., for identifying the phosphorylation process. Dr. Greengard is head of the Laboratory of Molecular and Cellular Neurosciences, Rockefeller University.

1988 - Drs. Hokfelt, Nauta and Powell were selected as co-recipients of the 1988 award and shared the prize for their pioneering work in charting the anatomy of the brain.

Tomas Hokfelt, M.D., Ph.D., for discovering the coexistence principle, which raised the possibility that nerve cells produce, store and release more than one messenger molecule involved in brain cell communication. Dr. Hokfelt is at the Karolinska Institutet in Stockholm.

Walle J.H. Nauta, M.D., Ph.D., for discovering a revolutionary technique to map the complex anatomic connections in the brain. Dr. Nauta, a world authority on the circuitry of the limbic system, is institute professor emeritus at the Massachusetts Institute of Technology.

T.P.S. Powell, M.D., for mapping the major connections of the cerebral cortex, basal ganglia and major sensory systems. Dr. Powell, formerly a reader in the Department of Human Anatomy at Oxford University, is deceased.

THE UNRESTRICTED CARDIOVASCULAR RESEARCH GRANTS PROGRAM

- Initiated in 1991.
- More than $15 million in unrestricted funding and awards committed to date.
- 32 grants given to 27 cardiovascular research centers in Belgium, France, Germany, Ireland, Japan, Spain, Switzerland, the United Kingdom and the United States.
- Institutions that have received cardiovascular research grants:

(*denotes current recipients)

Autonomous University of Barcelona (Institut Catala de Ciencies), Barcelona, Spain*
Baylor College of Medicine, Houston
Centre Hospitalier Universitaire Vaudois (CHUV) / University of Lausanne, Lausanne, Switzerland
Collège de France, Paris, France
Duke University Medical Center
Flanders Interuniversity Institute for Biotechnology (VIB), Leuven, Belgium*
Hammersmith Hospital / Royal Postgraduate Medical School, London, United Kingdom
Harvard Medical School / Brigham and Women's Hospital
Harvard Medical School / Joslin Diabetes Center
Indiana University School of Medicine
Kyoto University, Kyoto, Japan*
Mayo Clinic and Foundation
Mayo Clinic College of Medicine
Mount Sinai School of Medicine
Stanford University School of Medicine
Technische Universität München, Munich, Germany*
The University of Texas Southwestern Medical Center at Dallas*
University College Dublin, Ireland
University of California, Los Angeles*
University of California, San Francisco School of Medicine
University of Chicago
University of Minnesota Medical School
University of Pennsylvania School of Medicine
University of Utah
University of Washington, Seattle
Vanderbilt University School of Medicine
Yale University School of Medicine

2006 GRANT RECIPIENT INSTITUTIONS:

University of California, San Francisco*
University of Pennsylvania*

BRISTOL-MYERS SQUIBB AWARD FOR DISTINGUISHED ACHIEVEMENT IN CARDIOVASCULAR RESEARCH

- First award presented in 1991.
- $50,000 award.
- Winners are selected by an independent peer-review selection committee whose members are grant administrators of current Bristol-Myers Squibb Unrestricted Cardiovascular Research Grants.

- **2006 Cardiovascular Award Selection Committee**

Chairperson:
Lina Badimon, Ph.D.
Autonomous University of Barcelona
Barcelona, Spain

Peter Carmeliet, M.D., Ph.D.
Flanders Interuniversity Institute for Biotechnology (VIB), Leuven Belgium

Shaun R. Coughlin, M.D., Ph.D.
University of California, San Francisco

Toru Kita, M.D., Ph.D.
Kyoto University
Kyoto, Japan

A. Jake Lusis, Ph.D.
University of California, Los Angeles

Eric N. Olson, Ph.D.
The University of Texas Southwestern Medical Center at Dallas

Daniel J. Rader, M.D.
University of Pennsylvania School of Medicine

Markus Schwaiger, M.D.
Technische Universität München
Munich, Germany

Peter Tontonoz, M.D., Ph.D.
University of California, Los Angeles

RECIPIENTS OF THE BRISTOL-MYERS SQUIBB AWARD FOR DISTINGUISHED ACHIEVEMENT IN CARDIOVASCULAR RESEARCH

2005 – Mark Keating, M.D., for his discovery of genes involved in arrhythmia, a major cause of death and disability. Dr. Keating has also elucidated the role of elastin in blocking arteries and causing human cardiovascular disease and has conducted research in the fields of genetics and regeneration biology, including organ regeneration. Dr. Keating was at Harvard Medical School, Children's Hospital Boston and the Howard Hughes Medical Institute and is currently at the Novartis Institutes for BioMedical Research.

2004 – Shaun R. Coughlin, M.D., Ph.D., for his landmark discoveries of how thrombin, an enzyme that causes blood to clot, works on the cellular level. Dr. Coughlin identified a new family of receptors that are broadly involved in a number of biological processes and that have important implications for the development of novel treatments for diseases and pathologic events in which thrombosis plays an important role, including heart attacks and many strokes. Dr. Coughlin is at the University of California, San Francisco.

2003 – Masashi Yanagisawa, M.D., Ph.D., for the discovery of the endothelins, a class of hormones that has opened up the field of vascular biology, resulting in a number of new potential treatments for serious illnesses, including congestive heart failure, renal failure, pulmonary hypertension and ischemic stroke. Dr. Yanagisawa is at The University of Texas Southwestern Medical Center at Dallas and the Howard Hughes Medical Institute.

2002 – Jonathan G. Seidman, Ph.D. and Christine E. Seidman, M.D., for their contributions to cardiovascular biology and medicine through their research of inherited pathologies. The Seidmans were the first to elucidate the cause of hypertrophic cardiomyopathy (HCM) as genetic mutations in the sarcomere and subsequently demonstrated that genotype is an important factor in predicting risk of sudden death. The Seidmans are at Harvard Medical School and Brigham and Women's Hospital and the Howard Hughes Medical Institute.

2001 – Michael A. Gimbrone, Jr., M.D., for his pioneering contributions toward understanding the role of vascular endothelium in health and disease. Dr. Gimbrone opened the

modern field of vascular biology in the 1970s by culturing and functionally characterizing the primary cellular components of the human blood vessel: the endothelium (the continuous single-cell thick lining of the entire circulatory system) and smooth muscle. Dr. Gimbrone is at Harvard Medical School and Brigham and Women's Hospital in Boston.

2000 – Jan L. Breslow, M.D., in recognition of his pioneering studies on apolipoproteins and their role in lipid metabolism and atherosclerosis susceptibility. His group was the first to use recombinant DNA technology to study human apolipoprotein genes. His work on the genetic variations in apoE provided the foundation for understanding how these variations alter the susceptibility to coronary heart disease, Alzheimer's disease and human aging. Dr. Breslow is at The Rockefeller University.

1999 – Earl W. Davie, Ph.D., for proposing and substantiating the complex chain of biochemical events that result in fibrin clotting -- the central process of blood coagulation. Dr. Davie cloned and sequenced genes that code for many proteins involved in blood coagulation, work that led directly to the development of safer clotting factors that hemophiliacs can self-administer at home to control their bleeding. Dr. Davie is at the University of Washington at Seattle.

1998 - Philip W. Majerus, M.D., for his work demonstrating the critical role of platelets in thrombosis (blood clotting). Dr. Majerus first proposed and proved that low-dose aspirin could be used to treat people at risk for heart attack, stroke and other thrombotic events--a regimen that now saves hundreds of thousands of lives each year. Dr. Majerus is at the Stanford University School of Medicine.

1997 - Oliver Smithies, D.Phil., for his groundbreaking studies on how genetic factors influence high blood pressure. His work is considered critical in enabling physicians to eventually tailor treatments to patients based on their specific genetic factors. Dr. Smithies is at the University of North Carolina in Chapel Hill.

1996 - Tadashi Inagami, Ph.D. and John H. Laragh, M.D. were selected for their separate achievements in the discovery and characterization of the renin-angiotensin aldosterone system which resulted in new strategies for treating patients with hypertensive vascular disease and/or heart failure.

Tadashi Inagami, Ph.D., for his role in characterizing the molecular structure and function of major components of the renin-angiotensin system, in particular the renin molecule and the different isoforms of the angiotensin receptors. Dr. Inagami is at the Vanderbilt University School of Medicine, Nashville, Tennessee.

John H. Laragh, M.D., for his discovery and characterization of the renin-angiotensin system which is a major controller for normal regulation of blood pressure, sodium and potassium balance. He demonstrated that abnormalities of this system can cause human hypertension. Dr. Laragh is with Cornell University Medical College, New York.

1995 - Daniel Steinberg, M.D., Ph.D., for his major role in emphasizing the importance of oxidized lipoproteins in atherosclerosis and other forms of cardiovascular disease. His work demonstrated that oxidized lipoproteins can serve as the source for endothelial dysfunction that leads to atherosclerosis, and has led to investigations of the role antioxidants play in prevention and treatment of this disease. Dr. Steinberg is at the University of California, San Diego.

1994 - Drs. Collen, Marcus and Verstraete were selected for outstanding research achievements in fibrinolysis and hemostatis and platelet biology and thrombosis.

Desire Collen, M.D., Ph.D. & Marc Verstraete, M.D., Ph.D. have taken basic biochemistry, pharmacology, and cell and molecular biology and brought them to the patient, profoundly altering the treatment for acute (MI) myocardial infarction. Dr. Collen and Dr. Verstraete are at the Royal Belgian Academy of Medicine Center for Molecular and Vascular Biology, Katholieke Universiteit Leuven.

Aaron Marcus, M.D. has been responsible for major advances in understanding the role of platelets in hemostatis, coagulation, thrombosis and the inflammatory response. He was also one of the first to demonstrate that aspirin inhibits platelet reactivity during thrombus formation which has become the basis of aspirin therapy in vascular diseases. Dr. Marcus is at Cornell University Medical College.

1993 - Eugene Braunwald, M.D., for his research leading to revolutionary improvements in the treatment of myocardial infarction, and **William B. Kannel, M.D., M.P.H.**, for uncovering the modifiable risk factors to cardiovascular disease. Dr. Braunwald is from Harvard Medical School and Brigham and Women's Hospital, and Dr. Kannel is from the Boston University School of Medicine.

1992 - Robert J. Lefkowitz, M.D., whose pioneering research with crucial adrenergic receptors helped lay the foundation for modern receptor biology. Dr. Lefkowitz is at Duke University Medical Center.

1991 - Robert F. Furchgott, Ph.D. discovered the natural blood vessel relaxant, endothelium-derived relaxing factor (EDRF). Dr. Furchgott is at the State University of New York Health Science Center at Brooklyn, New York.

THE UNRESTRICTED INFECTIOUS DISEASES RESEARCH GRANTS PROGRAM

- Initiated in 1991.
- More than $17 million in unrestricted funding and awards committed to date.
- 34 grants given to 30 infectious diseases research centers in Australia, China, France, Germany, Sweden, Switzerland, the United Kingdom and the United States.
- Institutions that have received infectious diseases research grants:
  (* denotes current recipients)

  Aaron Diamond AIDS Research Center/Rockefeller University
  Brown University School of Medicine*
  Case Western Reserve University*
  Centre Hospitalier Universitaire Vaudois / University of Lausanne, Lausanne, Switzerland
  Fox Chase Cancer Center
  Harbor-UCLA Medical Center
  Harvard Medical School
  Harvard Medical School / Dana-Farber Cancer Institute*
  Institut Pasteur, Paris, France

Karolinska Institutet, Stockholm, Sweden
Lund University, Lund, Sweden
Medical College of Virginia at Virginia Commonwealth University
Mount Sinai Medical Center
Northwestern University, Evanston, Illinois
Stanford University School of Medicine
The University of Birmingham Medical School, Birmingham, United Kingdom
Universität Heidelberg, Heidelberg, Germany*
University of Alabama at Birmingham*
University of California, San Francisco
University of Chicago
University of Hong Kong, China
University of Michigan*
University of Pittsburgh Medical Center
University of Washington, Seattle
Vanderbilt University School of Medicine*
Washington University, St. Louis
Weill Medical College of Cornell University*
Whitehead Institute for Biomedical Research, Cambridge, Massachusetts

2006 GRANT RECIPIENT INSTITUTIONS:

Beth Israel Deaconess Medical Center*
Melbourne Health through the VIDRL, Australia*

BRISTOL-MYERS SQUIBB AWARD FOR DISTINGUISHED ACHIEVEMENT IN INFECTIOUS DISEASES RESEARCH

- First award presented in 1991.
- $50,000 award.
- Winners are selected by an independent peer-review selection committee whose members are grant administrators of current Bristol-Myers Squibb Unrestricted Infectious Diseases Research Grants.
- **2006 Infectious Diseases Award Selection Committee**

Chairman:
Joseph G. Sodroski, M.D.
Harvard Medical School
Dana-Farber Cancer Institute

Margaret J. Koziel, M.D.
Beth Israel Deaconess Medical Center
Harvard Medical School

Prof. Dr. Ralf F. W. Bartenschlager, Ph.D.
Universität Heidelberg, Germany

Stephen A. Locarnini, Ph.D., MBBS
Victorian Infectious Diseases Reference Laboratory, North Melbourne, Australia

Richard D'Aquila, M.D.
Vanderbilt University School of Medicine

Anna Suk-Fong Lok, M.D.
University of Michigan Medical School

Mahmoud A. Ghannoum, M.Sc., Ph.D.
Case Western Reserve University
University Hospitals of Cleveland

John P. Moore
Weill Medical College of Cornell University

Beatrice H. Hahn, M.D.
University of Alabama at Birmingham

Jack R. Wands, M.D.
Brown University School of Medicine
Rhode Island Hospital

RECIPIENTS OF THE BRISTOL-MYERS SQUIBB AWARD FOR DISTINGUISHED ACHIEVEMENT IN INFECTIOUS DISEASES RESEARCH

2005 – Stephen C. Harrison, Ph.D., for his pioneering work on virus x-ray crystallography. He determined the first three-dimensional structure of a virus and elucidated virus structures related to the human immunodeficiency virus (HIV). Dr. Harrison is at Harvard Medical School, Children's Hospital Boston and the Howard Hughes Medical Institute.

2004 - Hiroshi Nikaido, M.D., for his pioneering work on bacteria cell walls and membranes, and their role in both antibiotic action and resistance. His elegant studies on porin proteins revealed the physico-chemical limitations of uptake of antibacterials, especially β-lactams in the cell. Dr. Nikaido is at the University of California, Berkeley.

2003 - R. John Collier, Ph.D., for historic contributions to our understanding of the molecular mechanisms by which bacteria cause disease. His discoveries have influenced the design of vaccines and toxin-based anticancer agents, and are leading to novel therapeutic strategies against anthrax in the war against bioterrorism. Dr. Collier is at Harvard Medical School.

2002 - Robert G. Webster, Ph.D., for his pivotal role in our understanding of the origins, evolution, and approaches for control of epidemic influenza virus. He participated in developing and testing the first human influenza subunit vaccines and was instrumental in showing that influenza can alter by accumulation of mutations (antigenic drift) and by reassortment of gene segments (antigenic shift). Dr. Webster is at St. Jude Children's Research Hospital, Memphis, Tennessee.

2001 - Jean-Marie Ghuysen, Ph.D., for his major contributions to the elucidation of the chemistry of the bacterial cell wall. He described the wall peptidoglycan layer, which he named in 1966, and the biochemistry of the penicillin-binding proteins (PBPs), targets of antibiotics capable of destroying bacteria by inhibiting cell wall synthesis. Dr. Ghuysen, formerly at the University of Liège in Belgium, is deceased.

2000 - Bernard Moss, M.D., Ph.D., for his pioneering work in virology leading to the development of strategies for exploiting viruses as research tools and as carriers for a new generation of recombinant vaccines against a broad variety of infectious diseases. His work powerfully impacted the ability of scientists to dissect, modulate and induce host immune responses to disease-causing microbes. Dr. Moss is at the National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland.

1999 - Julian Davies, Ph.D., F.R.S., F.R.S.C., for his pioneering studies of resistance mechanisms to aminoglycosides, the class of antibiotics that includes streptomycin and gentamicin. In the mid-1960s, Dr. Davies showed that the first member of the aminoglycosides, streptomycin, works by interfering with the process of "genetic translation," or the encoding of

instructions by bacteria for the production of their proteins. Dr. Davies is at the University of British Columbia, Vancouver, Canada.

1998 - Bernard Roizman, Sc.D., for his seminal contributions to the field in understanding of the structure, replication and pathogenesis of the herpes simplex virus (HSV). Knowledge of the reverse genetics of DNA viruses also came from his laboratory. More recently, his basic discoveries allow for the use of HSV for gene therapy. Dr. Roizman is at the University of Chicago, Illinois.

1997 - Stanley Falkow, Ph.D., for devoting his entire professional career to understanding the mechanisms by which pathogenic bacteria produce disease. Dr. Falkow was also recognized for his work in sophisticated molecular genetics in identifying the bacterial genes required for disease induction and to sort out how they work. Dr. Falkow is at Stanford University School of Medicine, Stanford, California.

1996 - Louis H. Miller, M.D., for his work in identifying basic genetic mechanisms employed by malaria parasites to infect and survive in their hosts. Dr. Miller's findings have provided molecular targets that could aid both in the development of new drugs to treat malaria and the effort to neutralize mosquitoes that act as a vector for the disease. Dr. Miller is at the National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland.

1995 - Seymour J. Klebanoff, M.D., Ph.D., for his work in identifying complex oxidant systems involved in protecting the body from microbial invasion. Dr. Klebanoff is at the University of Washington in Seattle, Washington.

1994 - Harold S. Ginsberg, M.D., for his work in describing the genetic makeup of adenoviruses and their role in human respiratory disease. Dr. Ginsberg is at the National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland.

1993 - Robert M. Chanock, M.D., for his important contributions to fundamental research on human respiratory infections and for the development of vaccines to prevent diseases. Dr. Chanock is at the Laboratory of Infectious Diseases, National Institutes of Health, Bethesda, Maryland.

1992 - Bernard N. Fields, M.D., for his major contributions to the field of microbial pathogenesis. His discoveries have provided a model for the study of viral pathogenesis. Dr. Fields is at Harvard Medical School, Boston, Massachusetts.

1991 - Barry Bloom, Ph.D., for his major contributions to understanding the basic mechanisms of the immune system and its reactions to infectious agents and for his knowledge about the mechanisms of pathogenesis of diseases, specifically leprosy and tuberculosis, affecting people in developing countries. Dr. Bloom is at the Howard Hughes Medical Institute and Harvard University School of Public Health.

THE UNRESTRICTED METABOLIC DISEASES RESEARCH GRANTS PROGRAM

- Initiated in 2000.

- More than $8 million in unrestricted funding and awards committed to date.

- 16 grants given to 16 metabolic diseases research centers in Canada, France, the United Kingdom and the United States.

- Institutions that have received metabolic diseases research grants:
(*denotes current recipients)

  Columbia University College of Physicians and Surgeons
  Columbia University / Helen Hayes Hospital
  Gladstone Institute of Cardiovascular Disease*
  Harvard Medical School / Beth Israel Deaconess Medical Center*
  Louisiana State University / Pennington Biomedical Research Center
  Oregon Health and Science University*
  The Rockefeller University*
  The University of Texas Southwestern Medical Center at Dallas*
  Université de Nice, Nice, France
  University of Cambridge /Addenbrooke's Hospital, United Kingdom
  University of Pennsylvania School of Medicine*
  University of Toronto, Canada*
  University of Virginia Health System
  Yale University School of Medicine

  2006 GRANT RECIPIENT INSTITUTIONS:

  Massachusetts General Hospital*
  Duke University for the benefit of the Sarah W. Stedman Nutrition & Metabolism Center*

BRISTOL-MYERS SQUIBB AWARD FOR DISTINGUISHED ACHIEVEMENT IN METABOLIC DISEASES RESEARCH

- First award presented in 2000.

- $50,000 award.

- Winners are selected by an independent peer-review selection committee whose members are grant administrators of current Bristol-Myers Squibb Unrestricted Metabolic Diseases Research Grants.

- **2006 Metabolic Diseases Award Selection Committee**

  Chairman:
  Jeffrey S. Flier, M.D.
  Beth Israel Deaconess Medical Center
  Harvard Medical School

  Helen H. Hobbs, M.D.
  The University of Texas Southwestern Medical Center at Dallas
  Howard Hughes Medical Institute

  David M. Altshuler, M.D., Ph.D.
  Broad Institute of Harvard and MIT
  Harvard Medical School

  Mitchell A. Lazar, M.D., Ph.D.
  University of Pennsylvania School of Medicine

Massachusetts General Hospital

Roger D. Cone, Ph.D.
Oregon Health and Science University

Christopher B. Newgard, Ph.D.
Duke University

Daniel J. Drucker, M.D.
University of Toronto
Toronto General Hospital, Canada

Markus Stoffel, M.D., Ph.D.
The Rockefeller University

Robert V. Farese, Jr., M.D.
Gladstone Institute of Cardiovascular Disease
University of California, San Francisco

RECIPIENTS OF THE BRISTOL-MYERS SQUIBB AWARD FOR DISTINGUISHED ACHIEVEMENT IN METABOLIC DISEASES RESEARCH

2005 – Salih J. Wakil, Ph.D., for his contributions to understanding the biochemical basis for fatty acid synthesis and oxidation. His finding that the multifunctional enzyme, fatty acid synthase, encodes seven enzyme activities overturned the one-gene, one-enzyme hypothesis. Dr. Wakil is at Baylor College of Medicine in Houston, Texas.

2004 – C. Ronald Kahn, M.D., for his pioneering research on insulin action. His laboratory elucidated several critical aspects of insulin's action within the cell and used this information to unravel the molecular basis of insulin resistance in obesity and diabetes in both rodents and humans. Dr. Kahn is at the Joslin Diabetes Center and Harvard Medical School in Boston.

2003 – Bruce M. Spiegelman, Ph.D., for his fundamental contributions to our understanding of metabolism, especially regarding the molecular mechanisms governing the development of fat cells, insulin resistance and mitochondrial function. Dr. Spiegelman is at Harvard Medical School and the Dana-Farber Cancer Institute in Boston.

2002 – Sir Philip Cohen, F.R.S., for his elucidation of one of the major pathways by which insulin regulates metabolism: through the inhibition of glycogen synthase kinase 3 (GSK3). Sir Philip is at the University of Dundee, Dundee, United Kingdom.

2001 – Jeffrey M. Friedman, M.D., Ph.D., for his contributions to understanding the mechanisms by which body weight and fat stores are regulated in humans. Beginning with his successful effort to clone the obese gene encoding the protein hormone leptin, Dr. Friedman's work has established a molecular framework with which to understand how information concerning body fat stores and nutritional status is communicated to the satiety center in the hypothalamus. Dr. Friedman is at The Rockefeller University in New York City.

2000 – Ronald M. Evans, Ph.D., for his pioneering studies regarding the discovery and characterization of nuclear hormone receptors and the establishment of fundamental links between this class of receptors and lipid physiology, diet and disease. Dr. Evans is at The Salk Institute in La Jolla, California.

THE UNRESTRICTED SYNTHETIC ORGANIC CHEMISTRY RESEARCH GRANTS PROGRAM

- Initiated in 1998.
- More than $6.3 million in unrestricted funding and awards committed to date.
- 18 grants given to 16 chemistry research centers in the United States.
- Institutions that have received synthetic organic chemistry research grants:
  (*denotes current recipients)

  Boston University
  California Institute of Technology*
  Columbia University*
  Harvard University
  Imperial College, London
  Massachusetts Institute of Technology
  Princeton University*
  Stanford University
  University of California, Berkeley*
  University of Hong Kong
  University of Minnesota
  University of North Carolina at Chapel Hill
  University of Pittsburgh
  Yale University

  2006 GRANT RECIPIENT INSTITUTIONS:

  The Scripps Research Institute*
  University of Michigan*

BRISTOL-MYERS SQUIBB AWARD FOR DISTINGUISHED ACHIEVEMENT IN SYNTHETIC ORGANIC CHEMISTRY RESEARCH

- First award presented in 2004.
- $50,000 award.
- Winners are selected by an independent peer-review selection committee whose members are grant administrators of current Bristol-Myers Squibb Unrestricted Synthetic Organic Chemistry Research Grants.
- **2006 Synthetic Organic Chemistry Award Selection Committee**

Phil S. Baran, Ph.D.	Erik J. Sorensen, Ph.D.
The Scripps Research Institute	Princeton University

Dalibor Sames, PhD.
Columbia University

Brian Stoltz, Ph.D.
California Institute of Technology

Melanie S. Sanford, Ph.D.
University of Michigan

F. Dean Toste, Ph.D.
University of California, Berkeley

RECIPIENTS OF THE BRISTOL-MYERS SQUIBB AWARD FOR DISTINGUISHED ACHIEVEMENT IN SYNTHETIC ORGANIC CHEMISTRY RESEARCH

2006 – Samuel Danishefsky, Ph.D.,

Dr. Danishefsky is at Columbia University.

2005 – Stephen Buchwald, Ph.D.,

Dr. Buchwald is at the Massachusetts Institute of Technology in Cambridge, Massachusetts.

2004 – Robert Grubbs, Ph.D.,

Dr. Grubbs is at the California Institute of Technology in Pasadena.