We are in the midst of exciting technological innovations that are fueling rapid advances in biomedical discovery, with the promise of personalized medicine in the future. This future will not become a reality without fostering a strong and robust biomedical workforce. Despite postdoctoral fellows being one of the most critical components for this workforce’s future, many of these promising young scientists are at risk of abandoning their careers in research.

Maximizing the Impact of Biomedical Research Funding

At The Medical Foundation, a division of Health Resources in Action, we provide unparalleled expertise in creating and managing biomedical research grant programs. For each grant program, we convene a distinguished Scientific Review Committee that evaluates all applications and recommends only the most talented investigators for funding. Our clients, typically foundations and bank trust departments, speed the pace of medical discoveries by supporting scientists across the United States and the world.

Once researchers have been selected for grant support, we offer several ways to maximize the long term impact of these awards. One way we do this is by convening scientific meetings that promote the exchange of the latest scientific findings and foster productive collaborations. For example, we are assisting the Hilda and Preston Davis Foundation (featured on page 13) to bring together their postdoctoral fellows in eating disorders research. The Davis Foundation Scientific Meeting will include research presentations, networking, and the opportunity for laboratory scientists to learn about experiences of patients suffering from eating disorders.

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The Medical Foundation
a division of Health Resources in Action
95 Berkeley Street, Suite 208
Boston, MA 02116
The Medical Foundation, a division of HRiA
www.tmfgrants.org

About Us

Established as a nonprofit organization in 1957, The Medical Foundation division works with foundations, bank trust departments and individuals to create and manage customized biomedical research grant programs that accelerate medical discoveries. As evidenced by the more than 135,000 visits to our website this year alone, our funding announcements reach tens of thousands of potential applicants for every grant cycle. And, by building a distinguished Scientific Review Committee for each program, we ensure critical and unbiased selection of the best minds in science. Over the past three years, we were privileged to work with many clients whose grant programs distributed more than $51 million to 206 investigators and physician-scientists across the United States and worldwide.

Services We Provide

• Creation and Oversight of biomedical research grant programs
• Life Sciences Consulting
• Grant Program Evaluation

Our Staff

Jeanne Brown
Program Officer
617.279.2240, ext. 709
JBrown@hria.org
Ms. Brown’s experience is in project management, operations management and client relations in both healthcare and academic settings. She applies her knowledge and best practices in the management of several programs. Ms. Brown specializes in building processes for the delivery of efficient and complete grantmaking services for our clients. She works with colleagues to ensure that the latest technology is used effectively and productively across programs. She brings core skills such as planning, budget management and problem solving to the team.

Linda Lam, M.B.A.
Program Officer
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LLam@hria.org
Ms. Lam is trained in business administration with experience in database development and management. In addition to managing several grant programs, she organizes both Scientific Review Committee and Award recipient scientific meetings. Ms. Lam updates the international distribution list that is used to alert institutions of funding opportunities. She also designs systems to track grant recipients throughout their funding period and works with the Finance Department to manage award payments. Ms. Lam holds an M.B.A. in Health Administration from Suffolk University.

Gay Lockwood, M.S.W.
Senior Program Officer
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GLockwood@hria.org
Ms. Lockwood manages a variety of grant programs, oversees annual scientific meetings, and works with award recipients throughout the funding cycle to monitor their research progress and fiscal obligations. She brings organizational, resource and program management skills from prior positions in both diplomatic and healthcare settings. Ms. Lockwood’s expertise in developing grant contracts, conflict of interest policies and application guidelines is informed by over 20 years of solid relationships with academic research institutions and senior scientists. She also serves on several working groups of the Health Research Alliance which develop best practices in biomedical research grantmaking.

Khaing Latt
Grants Associate
617.279.2240, ext. 320
KLatt@hria.org
Ms. Latt is instrumental in the design, operation and maintenance of the online grant application system. She is also responsible for maintaining a database of email contact information for medical research institutions in the United States and abroad. Ms. Latt provides additional support for the grant programs and performs a wide variety of administrative tasks to ensure that everyday operations run seamlessly.

Other HRiA Staff

Drawing from a talented staff of Health Resources in Action, The Medical Foundation division is assisted by Finance, Information Technology, Communications, and Operations professionals.
With scientific knowledge growing at an astronomical rate, informed funders of biomedical research want to understand how such breakthroughs can shape the direction and scope of their own funding priorities. In 2011, a Trust with an endowment of more than $140 million requested our assistance in realigning their previous grants program with special attention to research areas that, if supported, would be highly likely to lead to rapid progress in developing new therapies to treat incurable diseases.

For these consulting projects, we present analytic in-depth recommendations that identify where philanthropic dollars will have the greatest impact, taking into account extensive review of the scientific literature, N.I.H. funding gaps, and interviews with leading investigators from academia and across biotechnology and pharmaceutical industries. Our goal is to advise clients on how to maximize the effectiveness of their life sciences research funding strategies.
Maximizing the Impact of Biomedical Research Funding

For more than 50 years, The Medical Foundation division has been preparing Award Agreements that detail conditions of the grant and what is expected of Award recipients and their institutions. For example, it is critical to ensure compliance with national, state and local regulations regarding the use of human subjects, animals and radioactive hazardous materials. In addition, Award Agreements can also have an influential role in maximizing the long term impact of biomedical research funding by promoting data sharing for scientific validation and making publications available to the public.

Biomedical research is growing ever more complex and scientific results are often based upon analyses of massive amounts of data. Before these findings can be translated into clinically meaningful discoveries, analyses must be validated by other investigators. Many in the scientific community are now calling for access to full data and analytic methods of published studies so that investigators can verify results and prevent the misdirection of future research efforts.

We are following this dialogue closely and exploring ways to increase sharing of Award recipient research findings in public data repositories.

Medical breakthroughs do not happen in a vacuum. Progress depends upon international exchange of ideas. To ensure that Award recipient publications are promptly accessible without charge, we support the Health Research Alliance (see below) efforts to establish an electronic “portal.” The portal will allow Award recipients to deposit copies of their publications into PubMed Central, a governmental database where all publications are freely accessible to scientists, clinical practitioners and the public. Once the Health Research Alliance has established the portal with the National Library of Medicine, our Award Agreements will require that Award recipients deposit their publications in PubMed Central.

The Health Research Alliance

The Medical Foundation division is proud to be a member of the Health Research Alliance (HRA), an international consortium of nonprofit nongovernmental funding organizations whose members collectively provide more than $1.5 billion each year to support biomedical research and training. The Health Research Alliance brings together member organizations to foster communication and collaboration, provide comprehensive data and analysis about the funding of biomedical research and training, identify gaps in funding, facilitate innovative grantmaking and address key issues necessary to accelerate research discovery.

The upcoming 2012 HRA Member Meeting in Boston is being hosted by The Medical Foundation division, the Donaghue Foundation (Hartford, CT) and the New York Stem Cell Research Foundation. Maryrose Franko, Ph.D. from the Howard Hughes Medical Institute and Sally McNagny, M.D., M.P.H. from The Medical Foundation division are Co-Chairs of the Meeting Planning Committee.
Strengthening the Biomedical Workforce through Fellowship Support

In 2011, Dr. John Kanki joined The Medical Foundation division as Scientific Director. He met with King Trust fellows (right) to hear their views on the value of the fellowship and the current landscape for senior postdoctoral fellows attempting to enter the job market.

In the past, newly minted Ph.D. scientists would train up to three years as postdoctoral fellows prior to transitioning into faculty or industry positions. Available funding support for these initial years came from foundation and federal training grants. However, as science has become more complex, most fellows now require additional years of training to develop their own research ideas and to be more competitive in the job market. This discouraging reality forces many talented postdoctoral fellows to seek other career options, or to rely upon their faculty mentor for support that can restrict them from pursuing their own independent course of research.

The King Trust Postdoctoral Fellowship Program, managed by The Medical Foundation division, is helping to fill this funding gap in Massachusetts by supporting senior fellows who have already completed at least three years of postdoctoral research. During this period of training, senior fellows are most innovative, conducting research independently and gaining mentorship experience. Thus, funding these latter years of training allows these scientists to be better prepared to compete successfully for prestigious research positions that will lead to productive careers in scientific discovery.

A Call for Funding Senior Fellows in Massachusetts

Currently, close to 200 applicants compete each year for fewer than 15 King Trust Fellowships. Thus, many highly qualified applicants with the abilities to significantly contribute to the scientific workforce may not get the chance to continue their promising research careers. In 2012, The Medical Foundation division will make a major push to increase the number of funded fellows by identifying new support in the Boston area. To learn more about how you can help support these gifted young scientists, please contact, John Kanki, Ph.D., Scientific Director at The Medical Foundation division.

“Postdoctoral training in the life sciences has changed dramatically... Where once only a few years of training were necessary, most Fellows today will need up to 5-6 years to be competitive in securing faculty jobs. Except for the King Trust, few other fellowships support investigators beyond their third year of training, often the most productive time. I am now in the enviable position of having successfully conducted ambitious, innovative research that positions me well to apply for (increasingly scarce) faculty positions this year. The King Trust has my thanks.”

Adam Douglass, Ph.D. Department of Molecular and Cellular Biology, Harvard University, Cambridge, MA
The Edward N. and Della L. Thome Memorial Foundation was created in 2002 to advance the health of older adults through the support of direct service projects and medical research on diseases and disorders affecting older Americans. In keeping with the Foundation’s mission, the Trust supports research in age-related macular degeneration (AMD), the major cause of blindness in older adults. The goal of the Awards Program is to support translational research that will lead to improved therapies for individuals suffering from AMD.

The Scientific Review Committee is chaired by Joan Miller, M.D., the Henry Willard Williams Professor of Ophthalmology, Chief of Ophthalmology at the Massachusetts Eye and Ear Infirmary and Chair of the Department of Ophthalmology at Harvard Medical School. In 2009, the Program awarded $8.7 million to fourteen investigators working in nonprofit academic, medical, or research institutions within the United States. During 2010, Award recipients continued their research projects and their one-year Progress Reports were evaluated by the Scientific Review Committee. This year, from 120 applications, eight investigators were chosen, each to receive $750,000 over three years.

**Award Recipients**

**2011 Award Recipients**

- John Atkinson, M.D.
  Washington University School of Medicine in St. Louis
- Catherine Bowes Rickman, Ph.D.
  Duke University
- Mina Chung, M.D.
  University of Rochester
- Anne Eichmann, Ph.D.
  Yale University
- Lindsay Farrer, Ph.D.
  Boston University
- Douglas Vollrath, M.D., Ph.D.
  Stanford University
- Howard Weiner, M.D.
  Brigham and Women’s Hospital
- Donald Zack, M.D., Ph.D.
  The Wilmer Eye Institute at Johns Hopkins

“Wet” AMD is a subtype of age-related macular degeneration (AMD) characterized by abnormal blood vessel formation. It is treated with limited success by the frequent injection of vascular endothelial growth factor (VEGF) inhibitors into the eye.

Dr. Eichmann has identified several molecular pathways that inhibit blood vessel formation. Her research focuses on understanding and reinforcing these pathways in order to identify additional drug targets that can be used in conjunction with anti-VEGF therapies for improved efficacy. Dr. Eichmann is Professor of Medicine at Yale University School of Medicine. She received her Ph.D. in Molecular and Cell Biology from the Université Paris XIII and conducted her postdoctoral studies at Institut d’Embryologie, Nogent-sur-Marne, France.

The retinal pigment epithelium (RPE) is a critical layer of cells in the eye responsible for maintaining the health of the neighboring light-sensing nerves. Over time, damage to the RPE can contribute to age-related macular degeneration (AMD). Dr. Douglas Vollrath researches RPE function and has found that the RPE cells of AMD patients may degenerate because they contain damaged mitochondria. Mitochondria are inside all human cells and are responsible for producing cellular energy essential for cell survival. To identify new AMD therapeutics, he is currently testing drugs that alter the energy requirement of RPE cells to compensate for their loss of mitochondrial function and to promote their survival. Dr. Vollrath is an Associate Professor of Genetics and of Ophthalmology at Stanford University. He received his M.D. and Ph.D. degrees from Stanford and conducted his postdoctoral studies at the Whitehead Institute in Cambridge, MA.
The Medical Foundation, a division of HRiA

In addition to its Age-Related Macular Degeneration Awards Program, the Edward N. and Della L. Thome Memorial Foundation also supports Alzheimer’s disease (AD) drug discovery research. The goal of the Awards Program is to support innovative drug discovery research that will lead to improved therapies for individuals suffering from Alzheimer’s disease. As Trustee of the Thome Memorial Foundation, Bank of America works with The Medical Foundation division’s Scientific Review Committee to select the most qualified candidates. Researchers with expertise in target compound validation and small molecule therapeutics in medicinal chemistry compete for these prestigious Awards. The Scientific Review Committee is chaired by Dr. Li-Huei Tsai, Professor and Director of the Picower Institute for Learning and Memory at MIT and a Howard Hughes Medical Institute Investigator. In 2010, the first year of the Thome Memorial Foundation Awards Program in AD Drug Discovery Research, eight top-ranked applicants were awarded $6 million.

Award Recipients

Individuals with Alzheimer’s disease have high levels of brain amyloid-beta peptides and there is strong evidence to suggest that these abnormal accumulations may lead to both memory loss and the inability to form new memories. Dr. Ottavio Arancio recently found that elevated amyloid-beta may act through the inhibition of histone acetylation, a DNA modifying process critical to forming memories. He is currently designing novel activators that enhance histone acetylation, which may represent a new therapeutic strategy for improving memory in patients with Alzheimer’s disease. Dr. Arancio is Associate Professor of Pathology and Cell Biology at Columbia University. He received his M.D. in Italy from the University of Pisa and completed his Ph.D. in Neuroscience and residency training in Neurology at the University of Verona.

Alzheimer’s disease progression is likely to involve a vascular component as beta-amyloid deposits are often observed in the blood vessels of Alzheimer patients’ brains. Dr. Sidney Strickland has found that when beta-amyloid binds to fibrinogen, the primary component of blood clots, these clots become particularly resistant to degradation, which may lead to neuroinflammation and neurodegeneration. He has conducted small molecule screens and identified several potent compounds that block the fibrinogen-amyloid interaction. These compounds are currently being validated as potential therapeutic agents. Dr. Strickland is Professor and Dean of the Graduate School at The Rockefeller University. He received his Ph.D. in biochemistry from the University of Michigan and conducted postdoctoral research at The Rockefeller University.

2010 Award Recipients

Ottavio Arancio, M.D., Ph.D.
Columbia University
Luciano D’Adamio, M.D.
Albert Einstein College of Medicine
Todd Golde, M.D., Ph.D.
University of Florida
Gary Landreth, Ph.D.
Case Western Reserve University
Chien-liang Lin, Ph.D.
The Ohio State University
Joseph Ready, Ph.D.
U.T. Southwestern Medical Center
Sidney Strickland, Ph.D.
The Rockefeller University
Linda Van Eldik, Ph.D.
University of Kentucky

Program Officer
Linda Lam
LLam@hria.org

Program Eligibility
Faculty at nonprofit research institutions

Geographic Eligibility
United States

Research Focus
Innovative drug discovery research that will lead to improved therapies for individuals suffering from Alzheimer’s disease

Award
Three-year awards in the amount of $750,000

www.tmfgrants.org/ThomeAD
Brain-derived neurotrophic factor (BDNF) is a growth factor that promotes the survival, maturation and activity of neurons in specialized regions of the brain, including those controlling eating behavior. Dr. Maribel Rios found that BDNF may inhibit excessive food intake associated with binge eating, via a neural circuit that regulates reward-seeking behaviors. She will determine the underlying neural processes affected by abnormal BDNF signaling and whether the effects of food restriction, a risk factor for eating disorders, are regulated by BDNF. Dr. Rios, currently an Associate Professor in the Department of Neuroscience at Tufts University School of Medicine, obtained a Ph.D. in Cell, Molecular and Developmental Biology from Tufts University and completed postdoctoral training at the Whitehead Institute.

Previous research supported by the Klarman Family Foundation established that neurons within a specific brain region called the parabrachial nucleus (PBN), promote anorexia in mice. Dr. Richard Palmiter will use an innovative technology called optogenetics that uses light to selectively increase or decrease the activity of these neurons within the PBN to determine whether feeding behavior is respectively inhibited or stimulated. He will also clarify the neural circuitry of the PBN and how the PBN integrates sensory information, such as taste and satiety, which normally modulates feeding behavior and may be overridden in anorexia. Dr. Palmiter is Professor of Biochemistry and a Howard Hughes Medical Institute Investigator at the University of Washington in Seattle. He received a B.A. from Duke University and a Ph.D. from Stanford University.
Charles A. King Trust Postdoctoral Fellowship Program
Bank of America, N.A., Edward Dane and Lucy West, Co-Trustees

A Program sponsored by Bank of America Merrill Lynch

The Charles A. King Trust was established in 1936 to support the “investigation of diseases of human beings, and the alleviation of human suffering through the improved treatment of human diseases.” In keeping with these principles, the King Trust today supports postdoctoral fellows in the basic sciences as well as clinical and health services research. Because of the longstanding commitment of the Charles A. King Trust and other contributors, 793 scientists have received Fellowship awards.

In 2011, two scientific review committees evaluated 198 submissions. E. John Orav, Ph.D., Associate Professor of Biostatistics, Harvard School of Public Health chaired the Clinical and Health Services Research Committee and Phillip D. Zamore, Ph.D., Professor of Biomedical Sciences, University of Massachusetts Medical School and Howard Hughes Medical Institute Investigator chaired the Basic Science Committee.

The Scientific Review Committees devote considerable time to read and discuss applications prior to making their funding recommendations. The selection process is highly competitive, with only 10% of applicants winning fellowships. The Fellowship Program has a proud tradition of launching the careers of some of the best minds in science.

Award Recipients

Psoriasis is a chronic inflammatory skin condition that is caused in part by an overactive immune system. New evidence suggests that the nervous system may also modulate disease severity. Using a powerful imaging technology called multiphoton intravital microscopy, Dr. Lorena Riol-Blanco is studying how the nervous system affects the psoriatic inflammatory response in live animals. As the molecular pathways of this interaction are uncovered, new therapeutic targets to treat psoriasis may be discovered. Dr. Riol-Blanco received her B.Sc. in Biochemistry from the University of Oviedo, Spain and her M.Sc. and Ph.D. at Complutense University, Spain. She is currently a postdoctoral fellow in the Department of Microbiology and Immunobiology, Harvard Medical School.

With the passage of the Patient Protection and Affordable Care Act (ACA) in 2010, the U.S. health care system will change markedly. Because Massachusetts passed a similar health insurance reform in 2006, Dr. Peter Smulowitz will use data on emergency department (ED) visits throughout Massachusetts to determine the impact of this statewide reform. The expectation is that as more Massachusetts citizens acquire health insurance, they will be able to be seen in settings outside of the ED. His research will contribute to determining the impact of health care reform on use of the ED, particularly for ambulatory sensitive care and by underserved populations. His findings will be an important guide to policy makers at the national level. Dr. Smulowitz received his M.D. at the University of California, Irvine and completed his Emergency Medicine residency at Beth Israel Deaconess Medical Center and his M.P.H. at the Harvard School of Public Health.

Current and Former Contributors to the Fellowship Program
Alice Willard Dorr Foundation
Anonymous Donors
Bushrod H. Campbell and Adah F. Hall Charity Fund
Charles H. Hood Foundation
Eastern Associated Foundation
Ellison Foundation
General Cinema Corporation
The Harold Whitworth Pierce Charitable Trust
Humane Society of the Commonwealth of Massachusetts
Hyams Foundation
John W. Alden Trust
June Rockwell Levy Foundation
Ludick Foundation
Marion L. Decrow Memorial Foundation
Nelson E. Weeks Fund of the Permanent Charity Fund
Theodore Edson Parker Foundation
United Way of Massachusetts Bay

2011 Award Recipients
Basic Science Research
Daniel Bendor, Ph.D.
Massachusetts Institute of Technology
Brenda Bloodgood, Ph.D.
Harvard Medical School
Christoph Bock, Ph.D.
Harvard University
Stephanie Dougan, Ph.D.
Whitehead Institute for Biomedical Research
Nadine Gogolla, Ph.D.
Harvard University
Edel Hyland, Ph.D.
Harvard University
Yoh Isogai, Ph.D.
Harvard University
Shan Liao, Ph.D.
Massachusetts General Hospital
Christine Merlin, Ph.D.
University of Massachusetts Medical School
Yunsun Nam, Ph.D.
Harvard Medical School
Edward Owusu-Ansah, Ph.D.
Harvard Medical School
Bernhard Payer, Ph.D.
Massachusetts General Hospital
Lorena Riol-Blanco, Ph.D.
Harvard Medical School
Guramrit Singh, Ph.D.
University of Massachusetts Medical School

Clinical and Health Services Research
David Chan, M.D., M.Sc.
Brigham and Women’s Hospital
Peter Smulowitz, M.D., M.P.H.
Beth Israel Deaconess Medical Center

Program Officer
Linda Lam
llam@hria.org

Program Eligibility
M.D. and Ph.D. researchers who are pursuing additional training prior to their first faculty appointment

Geographic Eligibility
Massachusetts

Research Focus
Basic science, clinical and health services research

Award
Two-year fellowships ranging from $87,000–$102,000

www.tmfgrants.org/King
Hood Foundation Child Health Research Awards Program

A Program of the Charles H. Hood Foundation

The history of the Charles H. Hood Foundation demonstrates a century-long tradition of commitment to community and child health. In the late 1800’s, Charles H. Hood was a pioneer in the dairy industry. By introducing pasteurization, his company significantly improved the lives of thousands of New England children. His interest in science and the health of New England families inspired his son, Harvey P. Hood II, to incorporate the Charles H. Hood Foundation in 1942 with the mission to improve the health and quality of life for children in New England. His son, Charles H. Hood II, assumed the presidency of the Foundation in 1974 and became President Emeritus in 2009. Under the present leadership of John O. Parker, the Hood Foundation will continue the family tradition of supporting outstanding biomedical research to improve the lives of children.

As a result of strong leadership from the descendants of Charles H. Hood, the Foundation has invested more than $57 million in research by supporting 635 investigators, many of whom are leaders in pediatric research today.

An evaluation of the 1991-2000 Child Health Award recipients found that 92% credited the Hood Award for giving them the opportunity to obtain research findings crucial for securing large N.I.H. grants later in their careers. The 121 Award recipients who were supported by the Hood Foundation from 1991-2000 received more than $750 million in N.I.H. funding following their Award and have contributed groundbreaking research discoveries that are advancing child health.

Vitiligo is a disfiguring autoimmune disease where self-destructive immune cells crawl into the skin and destroy melanocytes, the pigment-making cells. Half of those afflicted develop the symptoms in childhood and are desperate for more effective treatments. Dr. John Harris has found that specific signals are present in the affected skin of vitiligo patients, and that these signals are required for the disease to occur. He will identify how these signals attract immune cells into the skin in mice with vitiligo and will test new treatments designed to block this action. Dr. Harris completed his M.D., Ph.D. at the University of Massachusetts Medical School and his dermatology residency and postdoctoral fellowship at the University of Pennsylvania.

After premature birth, infants are at risk for developing retinopathy of prematurity (ROP), a devastating disease that can lead to blindness and is characterized by inadequate normal blood vessel growth in the retina. Without a sufficient blood supply, the eye responds by growing abnormal blood vessels that bleed and damage eyesight. Using a mouse model of ROP, Dr. Jing Chen’s research team will assess how changes in a specific molecular pathway affect pathologic vessel formation in retinopathy. She will also identify ways to modulate components in this pathway to prevent and treat ROP. Dr. Chen received her Ph.D. in Biomedical Engineering from Boston University and completed her research fellowship in the Department of Ophthalmology, Children’s Hospital Boston.

Award Recipients

John Harris, M.D., Ph.D. Jing Chen, Ph.D.

2011 Award Recipients

Renee Boynton-Jarrett, M.D., Ph.D. Boston Medical Center
Jing Chen, Ph.D. Children’s Hospital Boston
Jeffrey Dvorin, M.D., Ph.D. Children’s Hospital Boston
Julie Goodwin, M.D. Yale School of Medicine
John Harris, M.D., Ph.D. University of Massachusetts Medical School
Steven Hatch, M.D. University of Massachusetts Medical School
Dimitrios Illopolos, Ph.D. Dana-Farber Cancer Institute
Rebekah Mannix, M.D., M.P.H. Children’s Hospital Boston
David Skurnik, M.D., Ph.D. Brigham and Women’s Hospital
Alexander Soukas, M.D., Ph.D. Massachusetts General Hospital
The Deborah Munroe Noonan Memorial Research Fund was established in 1947 by Frank M. Noonan in memory of his mother, to improve the lives of children who were left crippled by polio. As Trustee of the Fund, Bank of America later broadened the scope to include support of innovative clinical research or demonstration projects whose results may improve the quality of life for children with disabilities. The Noonan Fund plays a critical role in supporting an area of research where funding is scarce. From the development of better early childhood screening methods to improved approaches that help disabled adolescents transition to adulthood, the Noonan Fund has recognized and promoted important projects throughout its long history. The 148 outstanding projects supported by the Noonan Research Fund have brought much needed scientific examination of the challenges faced by children with disabilities to enhance how they live, learn and play.

In 2011, the Noonan Memorial Research Fund hosted a Research Symposium to bring together Noonan Award Recipients, potential applicants and Review Committee members and to foster cross-collaboration and mentoring. Marji Erickson Warfield, Ph.D., past Noonan Review Committee Chair described how Noonan Awards have helped to broaden investigation of innovative treatments and interventions. Noonan Awardee, Heidi Stanish, Ph.D. spoke about the positive impact Noonan Funding made on the success of her research. Following the poster session, Laurel Leslie, M.D., M.P.H., in-coming Chair of the Review Committee, offered a Grantsmanship Seminar to potential applicants.

Award Recipients

While up to 25-30% of children with Autism Spectrum Disorders (ASD) are nonverbal, there are currently very few interventions that reliably produce significant improvements in speech output in these children. Recently, Dr. Catherine Wan has developed Auditory Motor Mapping Training (AMMT), an innovative intonation-based intervention, to facilitate speech output in nonverbal children with ASD. This intervention is built upon the musical strengths observed in children with ASD and is an adaption of an intonation-based technique known as Melodic Intonation Therapy that is used to help stroke patients with aphasia to speak. Moreover, AMMT engages and potentially stimulates an auditory-motor brain network that may be dysfunctional in ASD. Dr. Wan will test the efficacy of AMMT which, if successful, will provide a cost-efficient and straightforward therapy to be implemented in autism treatment centers to help children with ASD.

Dr. Wan received her Bachelor’s and Master’s degrees in Psychology from the University of New South Wales, Australia and completed her Ph.D. in Psychology and Neuroscience at the University of Melbourne, Australia. In 2010 she was appointed Instructor in Neurology at the Beth Israel Deaconess Medical Center in Boston.
The Smith Family Foundation created the New Investigator Awards Program in 1991 to support promising junior faculty in Massachusetts who were conducting basic research. In 2008, the Program was renamed the Smith Family Awards Program for Excellence in Biomedical Research but the mission remains the same — to launch the careers of outstanding biomedical researchers with the ultimate goal of achieving medical breakthroughs. Now in its 20th year, the Program has funded 125 scientists for a total investment of $21.5 million.

The Smith Family Foundation welcomes contributing partners to support the Awards Program. The Jessie B. Cox Charitable Trust, the Dolphin Trust, the Richard Allan Barry Fund at the Boston Foundation, the Ludcke Foundation, the Nancy Lunie Marks Family Foundation, and several anonymous donors have provided past support. The Foundation hosts an annual scientific poster session during which current and former Award recipients and their postdoctoral fellows showcase their research and interact with colleagues. Local recipients of the Pew Scholars Awards and the Searle Scholars Awards are also invited to the poster session.

Tyler Jacks, Ph.D. serves as Chair of the Scientific Review Committee. Dr. Jacks is Professor of Biology, a Howard Hughes Medical Institute Investigator and Director of the David H. Koch Institute for Integrative Cancer Research at MIT. He received one of the first Smith Family Awards in 1992.

The primary cause of cancer mortality is the development of therapy resistance and subsequent metastasis of invasive cells. Cancer cells acquire both drug resistance and invasive potential when cells transform into more primitive cellular states. Understanding how cancer cells enter into these primitive states would reveal how tumors evade therapy and progress to metastasis. After developing a screening strategy to identify chemical compounds that are toxic towards invasive, drug-resistant cancer cells, Dr. Gupta was successful in discovering novel compounds with such targeted toxicity. He will use these unique molecules to probe the biology of aggressive cancer cells. His studies apply an integrative approach to uncover genetic and physical components of the cellular circuitry that underlies the aggressive nature associated with invasive and drug-resistant cancer cells. His long term goal is to develop a new line of chemotherapeutic agents. Dr. Gupta is a Member of the Whitehead Institute and Assistant Professor of Biology at MIT. He completed his B.S. in Mathematics at the University of Chicago, his Ph.D. at MIT and his postdoctoral training at the Broad Institute of MIT and Harvard.

2011 Award Recipients

Emily Balskus, Ph.D.
Harvard University

Jennifer Benanti, Ph.D.
University of Massachusetts Medical School

Piyush Gupta, Ph.D.
Whitehead Institute for Biomedical Research

Joseph Loparo, Ph.D.
Harvard Medical School

Eranthie Weerapana, Ph.D.
Boston College
The Hilda and Preston Davis Foundation was established “... to advance the development of all areas of the lives of children and young adults ... with special emphasis ... on those suffering from eating disorders.” After consultation with academic and governmental experts in eating disorders research, the Davis Foundation established the Fellowship Program to increase the number of outstanding neuroscientists who explore the biological causes of anorexia nervosa and bulimia nervosa. By attracting postdoctoral fellows to the field, the Davis Fellowship Program launches productive scientific careers in eating disorders research.

The long term goal of the program is to accelerate medical research discoveries that will lead to effective new therapies. Research areas of interest include but are not limited to neural pathways of feeding behavior in animal models; molecular genetic analysis of relevant neural circuit assembly and function; testing of new chemical compounds that might be used in animal models as experimental treatments; and brain imaging technologies that identify neurochemical pathways in patients with these disorders.

Since 2009, 20 postdoctoral investigators from across the United States have received Davis Fellowships. The Davis Foundation will host its first Scientific Meeting in 2012 to foster mentoring and collaboration among the Davis Fellows and Scientific Review Committee members. The incoming Committee Chair is Roger Cone, Ph.D., Chair of the Department of Molecular Physiology and Biophysics, Vanderbilt University.

Although serotonin is one of the brain neurotransmitters that facilitates normal nerve-nerve communication, abnormal serotonin activity can result in depression, anxiety and obsessionality. Scientists have noted that some medications acting through serotonergic receptors have a potent appetite-suppressant effect. Dr. Liu’s research involves the serotonin 2C receptor, the primary target that mediates this appetite-suppressing action. By specifically manipulating serotonin 2C receptor expression in distinct brain regions in living animals, he will explore the neuronal circuits that are responsible for serotonin-induced anorexia. These studies are expected to provide more refined pharmacological targets for the treatment of anorexia nervosa. Dr. Liu received his B.S. from East China Normal University, a Ph.D. in Neuroscience from Case Western Reserve University and is completing his postdoctoral fellowship at the University of Texas Southwestern Medical Center.

When individuals with anorexia nervosa (AN) engage in strenuous physical activity and severely restrict their diet, energy imbalance escalates and leads to life threatening weight loss. Because hypocretin (Hcrt) and leptin-receptor containing (LepRb) neurons in the lateral hypothalamus play a major role in normal maintenance of body weight, abnormal activity of these cells might trigger anorexia-based hyperactivity. Dr. Ozen will explore this hypothesis by selectively controlling the activity of Hcrt and LepRb neurons and will monitor the effects of these manipulations on food-intake, locomotion and neural activity. Her research will clarify the role of the lateral hypothalamus in AN and may provide new strategies for treatment. Dr. Ozen received her B.A. from the Bogazici University in Istanbul, her Ph.D. in Integrative Neuroscience from Rutgers University and is currently a postdoctoral fellow at Stanford University.

Award Recipients

Matthew Carter, Ph.D.
University of Washington

Yiran Guo, Ph.D.
Children’s Hospital of Philadelphia

Sylvie Landeux, D.V.M., Ph.D.
Albert Einstein College of Medicine

Byungkook Lim, Ph.D.
Stanford University

Chen Liu, Ph.D.
UT Southwestern Medical School

Simal Ozen, Ph.D.
Stanford University

2011 Award Recipients

Chen Liu, Ph.D. Simal Ozen, Ph.D.
Lymphatic Research Foundation (LRF) Postdoctoral Fellowship Awards Program
A Program of the Lymphatic Research Foundation

Wendy Chaite, Esq., established the Lymphatic Research Foundation (LRF) in 1998 to advance research discovery in the lymphatic system and to find the cause of and cure for lymphatic diseases, lymphedema, and related disorders. In only a few years, the Foundation created successful alliances with academic institutions, professional associations, industry, and the National Institutes of Health. These efforts have led to the scientific community responding with greater attention to the lymphatic system and the important role it plays in diseases afflicting millions.

Since 2005, LRF has partnered with The Medical Foundation division to create and manage the LRF Postdoctoral Fellowship Awards Program. The goal of the Program is to expand and strengthen the pool of outstanding junior investigators in the field of lymphatic research worldwide. Fellowships support researchers who have recently received their doctorates, a critical point in career development when young scientists choose their lifelong research focus. To date, all of the 2006-2008, 2008-2010 and 2010-2012 Fellows have remained in the field of lymphatic research and continue to contribute important scientific discoveries.

In 2011, LRF with the support of various sponsors hosted three fundraising walks — the “National Walk for Lymphedema and Lymphatic Diseases” — that took place in Texas, Massachusetts and New York. The walks offer the opportunity for family and friends of those suffering with lymphatic and lymphedema diseases to come together and raise funds to support research.

Award Recipients

Hélène Maby-El Hajjami, Ph.D.
University Central Hospital, Switzerland

Guy Malkinson, Ph.D.
Weizmann Institute of Science, Israel

Li-Chin Yao, Ph.D.
University of California San Francisco

Surgical procedures that disrupt the lymphatic system can lead to lymphedema, usually manifested as chronic limb swelling. To better treat this disabling condition, Dr. Hélène Maby-El Hajjami is exploring the molecular pathways regulating lymphatic vessel growth and regeneration. She is using a mouse model of the hereditary human disease lymphedema-distichiasis, in which lymphedema develops due to decreased levels of Foxc2. She is determining whether restoration of Foxc2 or other associated pathways enhance re-growth of lymphatic vessels. Her research may provide novel therapeutic targets to treat lymphedema. Dr. Maby-El Hajjami received her Ph.D. in Biology from the University of Rennes, France in 2008 and is conducting these studies as a postdoctoral fellow in the Group of Prof. Tatiana Petrova at the University of Lausanne and University Central Hospital, Switzerland.
Harold S. Geneen Charitable Trust Awards to Support Research in the Prevention and Control of Coronary Artery Disease

The Harold S. Geneen Charitable Trust engaged our life sciences consulting services to assist them in identifying worthy scientists who are conducting research in the prevention and treatment of coronary artery disease and heart failure. In 2010, the Geneen Trust supported two talented investigators who are now in their second and final year of the Geneen Award. Each Award is in the amount of $200,000. Margaret Doyle, Ph.D. is a Research Associate in the Department of Pathology at the University of Vermont College of Medicine and Bernhard Kuhn, M.D. is an Assistant Professor of Pediatrics, Harvard Medical School and Children’s Hospital Boston.

Scientists have established that inflammation in the walls of the coronary arteries results in damage to these blood vessels. This inflammatory process that can eventually lead to coronary artery blockage and heart attacks is called atherosclerosis and involves the interplay between cholesterol deposited in arterial walls and the body’s immune system. Dr. Doyle and colleagues have discovered that levels of certain types of immune cells in the blood correlate with measures of sub-clinical atherosclerosis. These assays, however, can be laborious, expensive and difficult to do in a large population. Thus, Dr. Doyle is analyzing plasma biomarkers to develop a specialized blood test that may someday improve risk prediction of coronary artery disease.

When a person suffers a heart attack, a portion of the heart muscle dies from lack of oxygen caused by a blockage in the coronary arteries. Because the human heart has little capacity for regeneration, the greater the amount of heart muscle damage, the greater the disability and risk of eventual heart failure. Dr. Kuhn’s research involves stimulating growth and regeneration of heart muscle after injury by utilizing two human proteins, neuregulin and periostin. He has demonstrated that neuregulin stimulates improvement of heart damage after heart attacks in mice. Using heart muscle samples from patients with coronary artery and other heart diseases, his team is evaluating the extent to which these two proteins can stimulate heart muscle growth and regeneration. In doing so, he may elucidate the underlying mechanisms that control heart muscle regeneration.

The Avis and Clifford Barrus Medical Foundation Award for Research on Depression in Women

The Barrus Foundation also enlisted our life sciences consulting services to identify outstanding women scientists in depression research who are currently working in U.S. nonprofit research institutions. The Foundation’s long term goal is to speed the development of effective treatments for depression suffered by adolescent and adult women. From among a select group of invited applicants, the Barrus Medical Foundation is pleased to announce their support of Tracey Petryshen, Ph.D. in the amount of $300,000 over two years. Dr. Petryshen is an Assistant Professor in the Department of Psychiatry at Massachusetts General Hospital and Harvard Medical School, and Director of the Behavioral Neurogenetics Program in the Stanley Center for Psychiatric Research at the Broad Institute.

Major depressive disorder (MDD) is a disabling mood disorder that affects millions of people. With current treatments ineffective for more than 30% of patients, there is a critical need for new treatments with different mechanisms of action that may be more therapeutic. Glycogen synthase kinase 3 (GSK3) is a protein in brain cells that may be a promising novel target for the development of new MDD treatment. Dr. Petryshen has shown that treating mice with small molecule inhibitors of GSK3 improves behaviors conventionally used to gauge antidepressant efficacy. Her team proposes to chemically modify lead GSK3 inhibitor compounds to optimize their drug-like properties, evaluate analogs in biochemical and cellular assays, and test potent and selective GSK3 inhibitors for antidepressant activity in mouse behavioral and transgenic models. By the completion of the Barrus Award, Dr. Petryshen aims to obtain compelling evidence for the significance of GSK3 in MDD treatment and to identify novel inhibitors for translation into human proof-of-concept MDD trials.
Each year, Scientific Review Committee members contribute their expertise as well as hundreds of hours to read, discuss and ultimately recommend to clients the most outstanding applicants for funding. We are grateful for their service and thank them for their commitment.