



### Welcome

I am pleased to introduce the 2010 Review of Health Resources in Action's Medical Foundation division. For more than 50 years, HRiA has played a vital role in realizing the nation's most significant public health successes and in helping clients award more than \$150 million to outstanding scientists across the United States and abroad. As a nonprofit focused on the complex arenas of public health and biomedical research,



Raymond Considine  
President, HRiA

we bring not only extensive knowledge but unabashed passion to our work.

Through innovative programs and consulting services, we seek solutions to today's most fundamental public health challenges. Our highly skilled staff understands the power of individual and community attitudes about behavior and health, and the social, economic, and historical conditions that greatly affect these attitudes and behaviors.

This year's Division Review highlights each of our client's grant programs, recognizes the 2010 Award Recipients and acknowledges Scientific Review Committee members. The Review also describes our expanding Life Sciences consulting and Program Evaluation services that help clients leverage their funds for maximum impact and effectiveness.

The Medical Foundation is a cornerstone in HRiA's commitment to help people create healthier lives through a diverse portfolio of services that advance public health and medical research. Please follow our progress at [www.hria.org](http://www.hria.org).

### Creating Effective Grant Programs

At The Medical Foundation, a division of Health Resources in Action, we specialize in creating and managing effective biomedical research grant programs. Our clients, typically private foundations and bank trust departments, depend upon our ability to design grant programs, manage their implementation, and evaluate the impact of these awards in accelerating medical discoveries.

Our work often begins by identifying funding gaps. For example, the Klarman Family Foundation wanted to support research that would lead to improved treatments for eating disorders. After a thorough review of the scientific literature as well as interviews with leading investigators, we discovered that research exploring the basic biological causes of eating disorders was significantly underfunded. The Klarman Family Foundation Awards



Dr. Sally McNagy, Director, The Medical Foundation division and Dr. Maria Carrillo, Senior Director, Medical and Scientific Relations, Alzheimer's Association, at the Health Research Alliance meeting in Chicago where Dr. McNagy presented strategies for grant program evaluation.

Program (*page 8*) now supports Award recipients investigating the underlying causes of anorexia, bulimia and binge eating disorder.

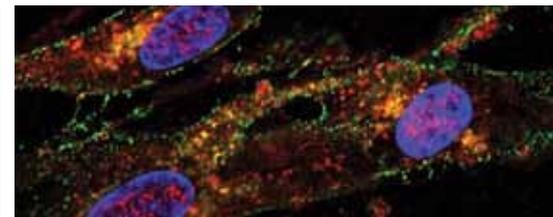
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### Outstanding Scientific Review Committee Chairs

We wish to acknowledge the critical role that our Scientific Review Committee Chairs play and thank them for their commitment (*Committee rosters on the back cover*). Although each Program is unique, our Chair selection process remains

remarkably constant – locate leading scientists who are ahead of the curve and skillful at fostering rigorous discussion among those who serve on the review committees.

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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.hria.org/tmfservices](http://www.hria.org/tmfservices)

## About Us

Foundations, bank trust departments and individuals often want their funding to make a significant difference in developing effective treatments for devastating medical conditions. Other funders may wish to advance a particular field of investigation, such as child health research, or launch the careers of promising life sciences investigators.

The Medical Foundation division is dedicated to creating customized biomedical research grant programs that encompass each client's vision. By building a unique Scientific Review Committee for each program, we ensure critical and unbiased evaluation of all applications.

In 2010, we were privileged to work with foundations and bank trust departments whose biomedical research grant programs collectively received 633 applications and awarded more than \$16 million to investigators 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



**Sally E. McNagny, M.D., M.P.H., F.A.C.P.**  
Vice President  
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Dr. McNagny oversees The Medical Foundation division, serves on the faculty at Harvard Medical

School and is a Fellow of the American College of Physicians. She received a B.S. in Biology from Stanford University, an M.D. from Harvard Medical School, an M.P.H. from the Harvard School of Public Health, and completed her medical residency in 1988 at the Brigham and Women's Hospital. She served on the faculty at Emory University School of Medicine for 12 years, where she was Principal Investigator of Emory's N.I.H. Women's Health Initiative and other clinical research trials in the field of postmenopausal hormone replacement therapy. She also conducted health services research studies in access to care, high blood pressure management and smoking cessation. Currently, Dr. McNagny is a board member of the Health Research Alliance, a membership organization of non-governmental funders of medical research and training whose members award over \$1.5 billion annually.



**Gay Lockwood, M.S.W.**  
Senior Program Officer  
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Ms. Lockwood manages a variety of grant programs, oversees annual scientific poster sessions, 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 the Grants Administration Working Group of the Health Research Alliance which develops best practices in biomedical research grantmaking.



**Jeanne Brown**  
Program Officer  
617.279.2240, ext. 709  
[JBrown@hria.org](mailto: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**  
Program Officer  
617.279.2240, ext. 710  
[LLam@hria.org](mailto: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 Scientific Review Committee meetings as well as two-day scientific meetings in Boston. 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 is currently pursuing an M.B.A. in Health Administration at Suffolk University.



**Khaing Latt**  
Grants Associate  
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Ms. Latt recently joined the division. As a new associate, she 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.

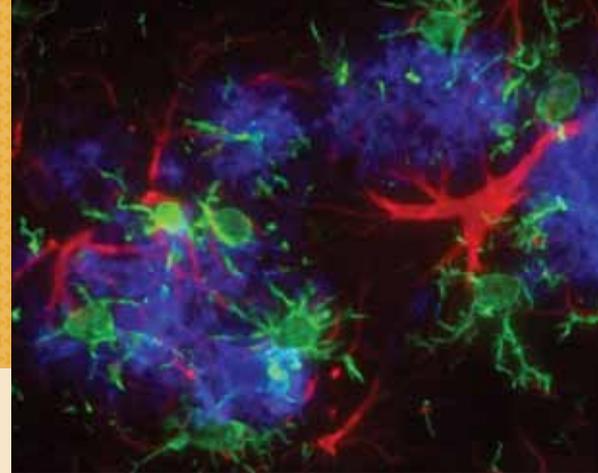
## Board of Directors Health Resources in Action

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## Other HRiA Staff

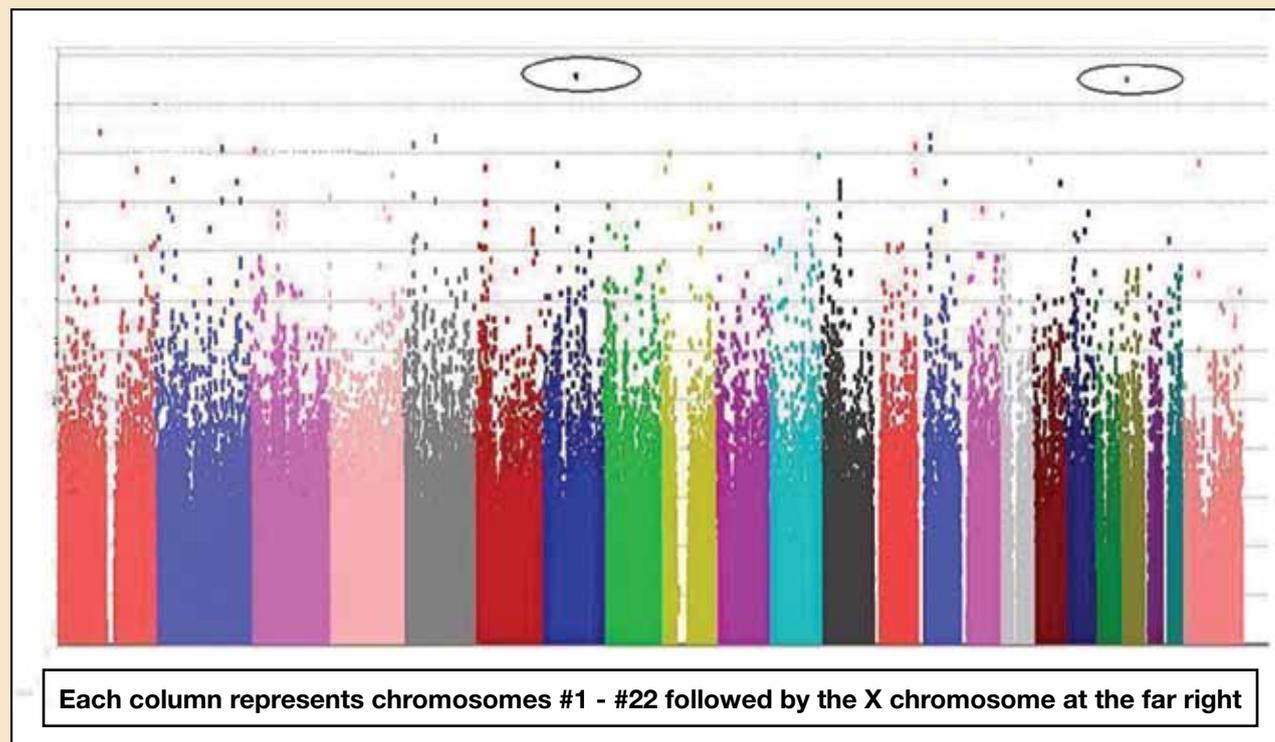
Drawing from a talented staff of Health Resources in Action, The Medical Foundation division is assisted by Finance, Information Technology, Communications, and Operations professionals.

# Life Sciences Consulting and Grant Program Evaluation



## Consultation

With scientific knowledge growing at an astronomical rate, informed funders of biomedical research want to understand how such breakthroughs should shape their own funding decisions. In 2010, a client wanted to learn whether supporting genome wide association studies (GWAS) would accelerate new treatment discoveries for a specific disease. GWAS is an approach that involves scanning more than one million markers across the complete set of DNA, or genome, of many people to find genetic variations associated with a particular disease. For these consulting projects, we review the scientific literature; interview experts across industry, the N.I.H., and academic institutions; and present analytic in-depth recommendations. Our goal is to enhance the effectiveness of clients' biomedical research funding strategies.



Manhattan plot of GWAS results. The most relevant genes are circled on the plot; these contain the markers that are significantly more common in individuals with a particular disease when compared to healthy controls.

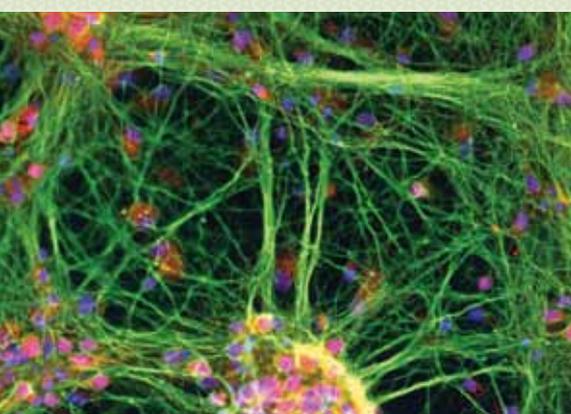
## Grant Program Evaluation

Public charities, private foundations and individuals invest in biomedical research with the ultimate goal of improving health. Although award programs vary across the continuum from launching the careers of laboratory scientists to supporting complex multi-center collaborative clinical studies, each funder wants to make every dollar count. What are the indicators of program success, how are they measured and to what are they compared? In 2010, we presented our analysis of the Hood Foundation Child Health Research Awards Program at the national Health Research Alliance meeting as a model for evaluating career development award programs. Learn more about our evaluation capabilities by contacting Sally E. McNagney, M.D., M.P.H.

# Creating and Managing Effective Grant Programs



Marc Hurlbert, Ph.D., Chair of the HRA Board and Executive Director, Avon Foundation; Kate Ahlport, M.S.P.H., Executive Director, Health Research Alliance



The Medical Foundation division is a member of The Health Research Alliance (HRA), an international consortium of nonprofit funding organizations whose 50 members provide more than \$1.5 billion each year to support biomedical research and training with the ultimate goal of improving health. HRA brings together funding organizations to foster communication, facilitate innovative grants programs and address key issues necessary to accelerate research discovery and its translation.

All funders want to support scientific progress that will lead as quickly as possible to positive health outcomes. Lack of access to scientific publications hinder such efforts. To minimize these impediments, the Medical Foundation division and other HRA member organizations are exploring ways to encourage Award recipients to send published papers to online free libraries so as to disseminate results more broadly. The Howard Hughes Medical Institute and Autism Speaks (HRA colleagues) have already taken the lead in requiring their Award recipients to send copies of their publications to NIH's internet site, PubMed Central. Making research results freely accessible to the world of scientists, patients and doctors vastly increases the utility of the scientific literature and enhances research productivity.

Effective grant programs require efficient use of a centralized database and a web-based system for announcing new programs to potential applicants, accepting applications electronically, managing the scientific review and monitoring progress reports. Having such a system in place has also allowed us to contribute to the new national database of HRA member-supported grants. Soon, this database will provide comprehensive information and analysis of more than 9,000 awards each year. With this new tool, we hope to learn what areas of research receive the most funds, where there is redundancy in scientific emphasis, and where there are funding gaps.

Once programs are designed, implementation begins with knowing how to reach potential applicants to inform them of new funding opportunities. This year, when Bank of America launched the Thome Memorial Foundation Awards Program in Alzheimer's Disease Drug Discovery Research, they turned to us to identify potential applicants throughout the United States. In addition to our database of all U.S. academic research institutions, we spoke with leading experts in this field and targeted university departments that specialize in medicinal chemistry. As queries poured in, we posted "Frequently Asked Questions" online to assist applicants in preparing their research proposals.

Ultimately, the success of any biomedical research grant program in promoting important scientific progress depends upon the talent of its Award recipients. We are grateful to our Scientific Review Committee members (listed on the back) who review all grant submissions and recommend the most promising applicants for funding. We value our relationships with these leading scientists from research institutions and biotechnology companies across the United States and Europe. Two of our Scientific Review Committee Chairs are highlighted on the next page.

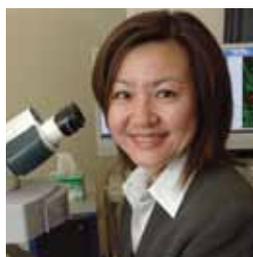
*Learn more about our clients' programs and outstanding Award Recipients in this 2010 Division Review.*



## Highlighting Two Distinguished Scientific Review Committee Chairs

We are proud of every Committee Chair's scientific accomplishments and greatly appreciate their commitment to working with us throughout each grant cycle. Among the new 2010 Scientific Review Committee Chairs, the research breakthroughs of two distinguished scientists are highlighted on this page.

### Li-Huei Tsai, Ph.D.



Li-Huei Tsai, Ph.D. is the Director of the Picower Institute for Learning and Memory; the Picower Professor of Neuroscience, Department of Brain and Cognitive Sciences; Investigator at MIT; and an Investigator for the Howard Hughes Medical Institute (HHMI). Dr. Tsai chairs the Scientific Review Committee

for the Thome Foundation Awards Program in Alzheimer's Disease Drug Discovery Research (page 6).

During her graduate school years, Dr. Tsai discovered two new proteins, Cdk5 and its regulator p35. She soon realized that these two proteins were active in neurons and set out to determine how Cdk5 and p35 function in the brain.

Exploring what role p35 and Cdk5 may play in the mature brain, she confirmed their critical function in forming nerve cell connections and circuitry underlying learning and memory. Based upon these findings, Dr. Tsai hypothesized that p35 and Cdk5 proteins may be involved in the process that causes memory loss in Alzheimer's disease (AD). Because nerve cells have the ability to degrade the p35 protein into a smaller fragment called p25, higher levels of p25 protein in nerve cells could be used as a marker for lower levels of p35 protein.

Armed with these findings, her laboratory demonstrated that p25 levels are higher in postmortem brain tissue of patients with AD than in people without the disease.

To study how accumulation of p25 affects the brain, she created a mouse that allowed her to "hyperactivate" the p25 gene. Animals exposed to high levels of p25 exhibited cognitive impairment and pathologic changes in the brain similar to what is found in Alzheimer's disease patients. Her laboratory demonstrated that treating these mice with HDAC inhibitors, compounds that inhibit gene activation, restored learning abilities and recovered long-term memory. Recently, her team identified HDAC2 as the potential target for the HDAC inhibitors that exert beneficial effects on learning and memory. These observations suggest that memory is not completely erased after neurodegeneration and provide compelling evidence for developing HDAC2 inhibitors to reverse late-stage Alzheimer's disease.

### Phillip D. Zamore, Ph.D.



Phillip D. Zamore, Ph.D. is the Gretchen Stone Cook Professor of Biomedical Sciences, Professor of Biochemistry & Molecular Pharmacology, Co-Director of the RNA Therapeutics Institute at the University of Massachusetts Medical School,

and an Investigator for the Howard Hughes Medical Institute (HHMI). Dr. Zamore chairs our largest, 25+ member Basic Science Committee for the King Trust Postdoctoral Fellowship Program (page 13).

In 1999, when Dr. Zamore was completing his postdoctoral fellowship, the results of a single experiment launched his research in a strikingly different direction. It began with discussion about a report that double-stranded RNA could shut off genes with matching sequences in flatworms, a finding that later earned the authors, Craig Mello, Ph.D. and Andrew Fire, Ph.D., the 2006 Nobel Prize in Physiology or Medicine. Dr. Zamore and his colleague Tom Tuschl, Ph.D. designed an experiment using components of fly cells to find out whether double-stranded RNA molecules could silence

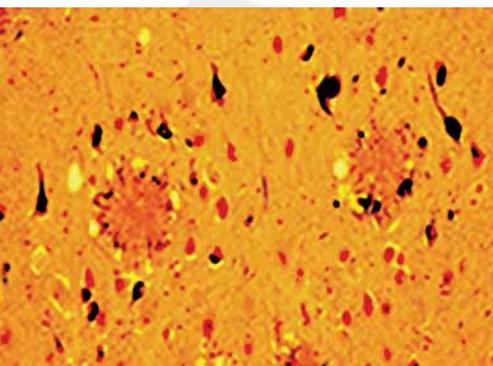
a gene in a test tube the way they did in worms and surprisingly, it worked. This process of gene silencing became known as RNA interference (RNAi).

Researchers immediately recognized the power of RNAi as a research tool. It was quickly put to use silencing genes one by one to determine the function of the proteins they produced. Throughout the world, scientists are now investigating its therapeutic use to block the action of genes that have become mutated in diseases such as macular degeneration, hepatitis and cancer.

Dr. Zamore has spent the last ten years studying the RNAi process. His team has found that small RNAs — both the small interfering RNAs (siRNAs) that trigger RNAi and another class of small RNAs called microRNAs — contain many layers of information that guide the gene-silencing process. In addition to his work in basic science, Dr. Zamore is especially interested in the application of RNAi therapy for Huntington's disease. He is targeting siRNAs to turn off the defective gene in mouse models of the disease. Dr. Zamore is also co-founder of Alnylam Pharmaceuticals, Inc., a company that seeks to develop RNAi-based therapies for patients.

# Edward N. and Della L. Thome Memorial Foundation Bank of America, N.A. Trustee, Awards Program in Alzheimer's Disease Drug Discovery Research

A Program sponsored by Bank of America Merrill Lynch



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 this population. In keeping with the Foundation's mission, in 2010 we were pleased to announce a new Awards Program in 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, N.A. works with The Medical Foundation division's Scientific Review Committee to help select the most qualified

candidates. Researchers dedicated to the validation and testing of target compounds, small molecule therapies, or similar techniques in the field of 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 inaugural Thome Memorial Foundation Awards Program in AD Drug Discovery Research awarded \$6 million to eight independent investigators working in nonprofit research institutions across the United States.

## Program Officer

Linda Lam  
LLam@hria.org

## Program Eligibility (offered alternate years, starting in 2010)

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](http://www.tmfgrants.org/ThomeAD)

## Award Recipients



Joseph Ready, Ph.D.

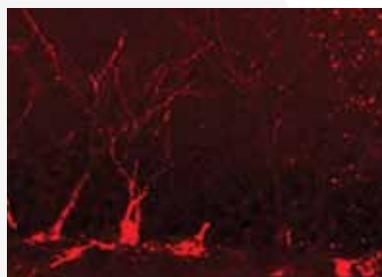
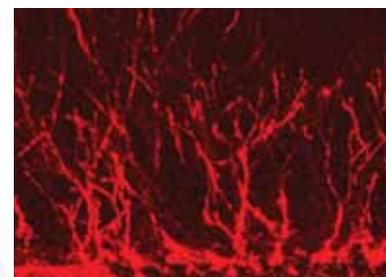


Image of an adult mouse hippocampus stained for doublecortin, a protein that is produced during new neuron creation. The right image shows an increase in doublecortin after treatment with a drug-like small molecule.



**Dr. Ready** is an Associate Professor and Director of the Medicinal Chemistry Laboratory at the University of Texas Southwestern Medical Center. He received his Ph.D. in Chemistry at Harvard University and completed his postdoctoral training at Yale University. His research interests include the synthesis of biologically active compounds and the elucidation of mechanisms by which such molecules function.

The hippocampus, a critical part of the brain involved in learning and memory, is one of the first brain regions damaged by Alzheimer's disease. As the disease progresses, more and more hippocampal neurons deteriorate and die. Dr. Ready has identified drug-like small molecules that promote the formation and survival of functional neurons within the hippocampus of mice and rats and prevent age-associated memory loss. He proposes to chemically modify these molecules to optimize their stability in the body and their potency as neuroprotective agents. His team of medicinal chemists will also work to minimize toxicity and complete animal testing to assess these compounds' capacity to improve learning and memory. By the completion of the Thome Award, Dr. Ready's objective is to identify small molecules suitable for testing in clinical trials of subjects with Alzheimer's disease.

## 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

**C. Glenn Lin, Ph.D.**  
The Ohio State University

**Joseph Ready, Ph.D.**  
UT Southwestern Medical Center

**Sidney Strickland, Ph.D.**  
The Rockefeller University

**Linda Van Eldik, Ph.D.**  
University of Kentucky

# Edward N. and Della L. Thome Memorial Foundation, Bank of America, N.A. Trustee, Awards Program in Age-Related Macular Degeneration Research

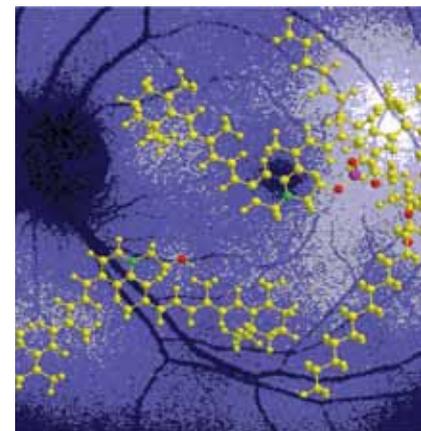
A Program sponsored by Bank of America Merrill Lynch



In addition to its Alzheimer's disease Awards Program, The Edward N. and Della L. Thome Memorial Foundation also supports research in age-related macular degeneration (AMD). In 2009, the Foundation launched the Thome Memorial Foundation Awards Program in AMD Research. 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 was chaired by Joan Miller, M.D., the Henry Willard Williams Professor of Ophthalmology and Chief and Chair, Department of Ophthalmology,

Massachusetts Eye and Ear Infirmary. The Program awarded \$8.7 million to fourteen independent 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. Because the two Thome Awards Programs alternate every year, investigators in AMD research will be eligible to apply beginning April 2011.



A stylized image of the ocular fundus with three dimensional structures of two bisretinoids. Courtesy of Dr. Sparrow

## Award Recipients

**Dr. Sparrow** is the Anthony Donn Professor in the Department of Ophthalmology and Professor in the Department of Pathology and Cell Biology at Columbia University. She received her Ph.D. in Neuroscience / Anatomy from the University of Western Ontario and completed postdoctoral training at both Cornell University and the Rockefeller University. Her research in age-related



Janet Sparrow, Ph.D.



Bryan Jones, Ph.D.

macular degeneration (AMD) explores ways to protect RPE cells, the cells in the retina that support the light-absorbing photoreceptor cells necessary for vision. In AMD, bisretinoid pigments accumulate in the RPE cells, eventually killing them and leading to visual impairment from degeneration of the light absorbing photoreceptor cells. The overall objectives of Dr. Sparrow's research are to develop therapies that would reduce the formation of these bisretinoids, destroy the already formed molecules or counter the damaging processes initiated by these pigment accumulations. Her team is investigating an approach to deliver compounds directly to the RPE cells that would safely degrade existing accumulations of bisretinoid pigments. If successful, this strategy will be evaluated in clinical trials.

**Dr. Jones** received his Ph.D. in Neurophysiology at the University of Utah and completed a postdoctoral fellowship where he studied the nature and extent of pathology seen in retinal degenerative diseases, now termed retinal remodeling. Currently an Assistant Professor at the Moran Eye Institute, he continues to examine how retinal remodeling occurs over time in an effort to determine windows of opportunity for intervention to limit or prevent its occurrence. Funded in part by the Thome Foundation Award, he will undertake a comprehensive cellular metabolic profiling of the normal aging eye with the use of an unprecedented repository of human donor eyes. The second research aim compares profiles from AMD eyes, including those with geographic atrophy and choroidal neovascularization. Defining disease and stage-specific changes in AMD is critical for highlighting cellular targets for intervention.

## 2010 Award Recipients

### Three-Year Awards

**Rajendra Apte, M.D., Ph.D.**  
Washington University  
School of Medicine

**Peter Campochiaro, M.D.**  
Johns Hopkins University  
School of Medicine

**Constance Cepko, Ph.D.**  
Harvard Medical School

**Margaret DeAngelis, Ph.D.**  
Massachusetts Eye and  
Ear Infirmary

**Albert Edwards, M.D., Ph.D.**  
University of Oregon

**Scott Fraser, Ph.D.**  
California Institute  
of Technology

**James Handa, M.D.**  
Johns Hopkins University  
School of Medicine

**Bryan Jones, Ph.D.**  
Moran Eye Center,  
University of Utah

**Patsy Nishina, Ph.D.**  
The Jackson Laboratory

**Victor Perez, M.D.**  
University of Miami

**Janet Sparrow, Ph.D.**  
Columbia University

### One-Year Awards

**Christine Curcio, Ph.D.**  
University of Alabama  
at Birmingham

**Patricia D'Amore, Ph.D.**  
Schepens Eye  
Research Institute

**Douglas Vollrath, M.D., Ph.D.**  
Stanford University  
School of Medicine

### Program Officer

Linda Lam  
LLam@hria.org

### Program Eligibility (offered alternate years, starting in 2009)

Faculty at nonprofit  
research institutions

### Geographic Eligibility

United States

### Research Focus

Translational research that will  
lead to improved therapies for  
individuals suffering from AMD

### Award

Three-year awards in the amount of  
\$750,000; One-year awards in the  
amount of \$150,000

[www.tmfgrants.org/ThomeAMD](http://www.tmfgrants.org/ThomeAMD)

# Klarman Family Foundation Grants Program in Eating Disorders Research

*A Program of The Klarman Family Foundation*



Beth and Seth Klarman



THE KLARMAN FAMILY FOUNDATION

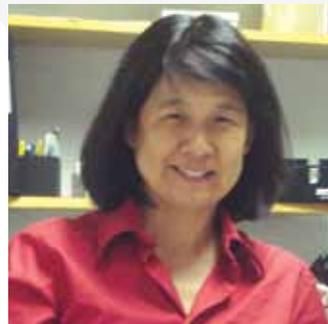
The Klarman Family Foundation is interested in providing strategic investment in translational research that will accelerate progress in developing effective treatments for anorexia nervosa, bulimia nervosa and binge eating disorder. The Program's short-term goal is to support the most outstanding science and expand the pool of investigators whose research explores the basic biology of eating disorders. The long-term goal is to improve the lives of patients suffering from these conditions.

Now entering its fourth year, 21 investigators have been supported representing 19 separate institutions throughout the United States and Canada and \$6,665,150 in research funding.

In April 2010, the 2008 and 2009 Award recipients presented their research findings at the second annual poster session and dinner in Boston. The exchange of ideas and research results was invaluable and these scientists will return in April 2011 to interact with the 2010 recipients. This year's format will include breakout sessions on specific focus areas and short talks from some of the recipients.

## Award Recipients

**Dr. Aoki** is Professor of Neural Science and Biology at New York University's Center for Neural Science. After receiving a Ph.D. in Neurobiology at the Rockefeller University, she completed postdoctoral training at Weill Cornell Medical College. Her research uses quantitative electron microscopic immunocytochemistry to



Chiye Aoki, Ph.D.



Andrew Steele, Ph.D.

identify changes in neurotransmitter receptor distributions within brain pathways during postnatal development and accompanying hormonal fluctuations and behavioral changes. She hypothesizes that vulnerability to anorexia nervosa (AN) increases among females at the onset of puberty because of an elevation of stress-induced anxiety secondary to developmental changes in a specific subtype of a neurotransmitter receptor (GABAergic receptor). Her goal is to understand the neurobiological basis for AN vulnerability, with the hope of providing the rationale for better pharmacologic treatments.

**Dr. Steele** is a Senior Research Fellow at the California Institute of Technology having completed his Ph.D. at MIT in 2008. His research seeks to understand the neuronal circuitry by which hunger leads to hyperactivity in mice. Understanding the relationship between hunger and hyperactivity may shed light on the underlying causes of the extreme over-exercising behavior seen in patients with anorexia. He will directly measure in live mice the electrical activity of the hunger sensing and reward associated brain regions. His research will also involve using mouse genetics to delete candidate genes that may be giving "go" signals to the mouse brain to drive activity. Elucidating this neuronal circuit will facilitate the understanding and treatment of anorexia nervosa by implicating both a brain region and a neurotransmitter and neuropeptide system for therapeutic targeting.

### 2010 Award Recipients

#### Two-Year Awards

**Chiye Aoki, Ph.D.**

New York University

**Jeffrey Friedman, M.D., Ph.D.**

The Rockefeller University

**Joanna Steinglass, M.D.**

Columbia University

**Andrew Steele, Ph.D.**

California Institute of Technology

**Baoji Xu, Ph.D.**

Georgetown University  
Medical Center

#### One-Year Awards

**Saleem Nicola, Ph.D.**

Albert Einstein College of Medicine

**Howard Steiger, Ph.D.**

McGill University, Canada

**Greg Suh, Ph.D.**

New York University  
Medical Center

**Lori Zeltser, Ph.D.**

Columbia University

#### Program Officer

Gay Lockwood  
GLockwood@hria.org

#### Program Eligibility

Faculty at nonprofit institutions

#### Geographic Eligibility

United States, Canada and Israel

#### Research Focus

Research with direct relevance to the basic biology of eating disorders

#### Award

Two-year awards in the amount of \$400,000; One-year pilot studies up to \$150,000

[www.tmfgrants.org/Klarman](http://www.tmfgrants.org/Klarman)



## Deborah Munroe Noonan Memorial Research Fund

Bank of America, N.A., Trustee

*A Program sponsored by Bank of America Merrill Lynch*

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.

Award recipients have pioneered interventions that have successfully increased physical activity in children with intellectual disabilities while other investigators have developed methods for more accurate early diagnosis and treatment of children with attention deficit disorders. Noonan funding has supported

researchers to obtain preliminary data needed to secure larger N.I.H. grants. Family-centered homecare for children with severe disabilities has benefited from research project findings. Noonan funding has also allowed investigators to launch pilot programs that were later replicated nationally. One recent Award recipient is studying ways to lessen debilitating fatigue in children with serious chronic illnesses. In short, the impact of the 143 outstanding research projects supported by the Noonan Research Fund has been significant in improving the lives of children with disabilities.

### Award Recipients



Yvonne Domings, Ed.M.

**Ms Domings** is an Instructional Designer and Research Associate at CAST, a nonprofit educational research and development organization pioneering Universal Design for Learning (UDL). Ms Domings has expertise in helping teachers broaden regular education curricula to encompass the academic, social and behavioral needs of students with autism spectrum disorders (ASDs), and has shared her expertise in teacher professional development programs. Children with ASDs often learn to read text at a very early age; however, the literature suggests that they have difficulty comprehending what they read. In addition, children with ASDs lack the foundational (socio-emotional and imaginative) skills for making connections and predictions – two essential strategies for effective reading comprehension. With Noonan Fund support, Ms Domings will develop, test and demonstrate a technology-based literacy approach specifically designed for children with ASDs. This project brings several large bodies of research in cognitive psychology and education together to exploit the connection between socio-emotional development and reading comprehension.

#### 2010 Award Recipients

- Carrie Barlow, B.S.**  
Franciscan Hospital for Children
- Eugenia Chan, M.D., M.P.H.**  
Children's Hospital Boston
- Yvonne Domings, Ed.M.**  
Center for Applied Special Technology (CAST)
- Inyang Isong, M.D., M.P.H.**  
Massachusetts General Hospital
- Jessica Kramer, Ph.D.**  
Boston University

#### Program Officer

Jeanne Brown  
JBrown@hria.org

#### Program Eligibility

Investigators working in non-profit organizations

#### Geographic Eligibility

Greater Boston

#### Research Focus

Clinical research or demonstration projects relevant to children with disabilities

#### Award

One-year awards in the amount of \$75,000

[www.tmfgrants.org/Noonan](http://www.tmfgrants.org/Noonan)



Charles H. Hood



Harvey P. Hood II



Charles H. Hood II



John O. Parker

# 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 new direction 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 \$53 million in research by supporting 615 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 NIH grants later in their careers. These 121 Award recipients have received more than \$750 million in NIH funding following the Hood Foundation Award and have contributed groundbreaking research discoveries that are advancing child health.

### Program Officer

Gay Lockwood  
GLockwood@hria.org

### Program Eligibility

Investigators within five years of their first faculty appointment

### Geographic Eligibility

New England

### Research Focus

Clinical, basic science, public health, health services, and epidemiology research relevant to child health

### Award

Two-year awards in the amount of \$150,000

[www.tmfgrants.org/Hood](http://www.tmfgrants.org/Hood)

## Award Recipients



Jamie Maguire, Ph.D.



Paul Lerou, M.D.

**Dr. Maguire** received a B.S. in Neuroscience from the University of Pittsburgh, a Ph.D. in Neuroscience from George Washington University and is currently an Assistant Professor in the Department of Neuroscience at Tufts University School of Medicine. Her research will offer insight into how maternal depression impacts offspring development. Her working hypothesis is that the increased stress response associated with postpartum depression may be transferred to the offspring through steroid hormones in the mother's milk. Using a mouse model which exhibits depression-like behavior in the postpartum period, her research team will measure steroid hormone levels in offspring born to normal mothers and mothers exhibiting postpartum depression. She will also investigate whether greater maternal stress is associated with increased anxiety, depression and cognitive deficits in the offspring.

**Dr. Lerou** is a neonatologist at Brigham and Women's Hospital and Children's Hospital Boston. After graduating from Jefferson Medical College, he completed the Children's Hospital pediatric residency and the Harvard Neonatal-Perinatal Medicine Fellowship. His research explores how embryonic stem cells prevent mutations from occurring in their DNA as they grow and divide. Dr. Lerou hypothesizes that p53, a protein known to prevent mutations in adult cells, plays a critical role in helping human embryonic stem cells prevent mutations. His research team has developed special microscope techniques to visualize and measure the level of p53 and related proteins in single embryonic stem cells. Because these cells reflect what happens in the early embryo, his research will contribute to a better understanding of how mutations lead to disease in children and bring the field closer to using embryonic stem cells therapeutically.

### 2010 Award Recipients

**William Anderson, Ph.D., M.D.**  
Brigham and Women's Hospital

**Abraham Brass, M.D., Ph.D.**  
Massachusetts General Hospital

**David Guertin, Ph.D.**  
University of Massachusetts  
Medical School

**Adam Lacy-Hulbert, Ph.D.**  
Massachusetts General Hospital

**Paul Lerou, M.D.**  
Brigham and Women's Hospital

**Jamie Maguire, Ph.D.**  
Tufts University  
School of Medicine

**Thomas Murray, M.D., Ph.D.**  
Yale University

**Lise Nigrovic, M.D., M.P.H.**  
Children's Hospital Boston

**In-Hyun Park, Ph.D.**  
Yale University

**Christian Schlieker, Ph.D.**  
Yale University



# Davis Foundation Postdoctoral Fellowship Program in Eating Disorders Research

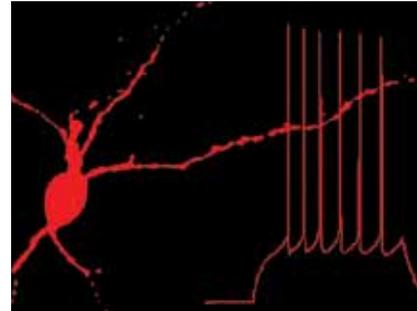
*A Program of the Hilda and Preston Davis Foundation*

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, dollars allocated to support fellows are leveraged into a lifetime career commitment to 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

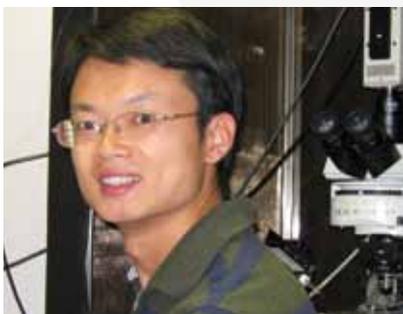
analysis of relevant neural circuit assembly and function; testing of new chemical compounds that might be used in animal models as experimental treatments; and brain imaging technologies that identify neurochemical pathways in patients with these disorders.

Since the launch of the Program in 2009, fourteen postdoctoral investigators from across the United States have received Davis Fellowships. The Davis Foundation Fellowship Scientific Review Committee is chaired by Dr. Jeffrey Friedman, Professor of Molecular Genetics at The Rockefeller University and recipient of the 2010 Albert Lasker Basic Medical Research Award.



Nerve cell in the amygdala and its action potential. Courtesy of Dr. Cai

## Award Recipients



Haijiang Cai, Ph.D.



Toni-Kim Clarke, Ph.D.

**Dr. Cai** received his B.S. from the University of Science and Technology of China and his Ph.D. from the University of Southern California. Currently a Postdoctoral Fellow at the California Institute of Technology, his recent research has suggested that a common neural circuit in the area of the brain known as the amygdala underlies both fear and eating behavior. This finding might explain the comorbidity of anorexia nervosa with emotional disorders such as depression and anxiety. The cellular complexity of the amygdala makes it difficult to investigate with traditional methods. Thus, Dr. Cai will use recently developed optogenetic technology that uses light-sensitive probes to control the activity of specific nerve cells located in the amygdala in living animals. Using this high-speed optical technology, he will study nerve cell function and the underlying neural circuitry in emotion and eating disorders.

**Dr. Clarke** received a B.Sc. in Biological Sciences at the University of Manchester Institute of Science and Technology, U.K., a Ph.D. in Psychological Medicine at King's College London and is currently a Postdoctoral Fellow at the University of Pennsylvania conducting molecular genetic studies on the genetic basis of anorexia nervosa and drug dependence. The laboratory that Dr. Clarke joined recently completed whole genome sequencing in 700 individuals with anorexia and 1,100 unaffected subjects and discovered specific genetic variations that were more likely to be found in individuals suffering from anorexia. Dr. Clarke will explore whether these identified genetic variations are also present in a different group of subjects with anorexia nervosa (AN) in order to confirm their significant association with AN.

### 2010 Award Recipients

**Haijiang Cai, Ph.D.**  
California Institute of Technology

**Toni-Kim Clarke, Ph.D.**  
University of Pennsylvania

**Penny Dacks, Ph.D.**  
Mount Sinai School of Medicine

**Jaime Maldonado-Avilés, Ph.D.**  
Yale University

### Program Officer

Jeanne Brown  
JBrown@hria.org

### Program Eligibility

Postdoctoral fellows within their first three years of training

### Geographic Eligibility

United States

### Research Focus

Basic research with direct relevance to the biological causes of eating disorders

### Award

Three-year fellowships in the amount of \$141,000 - \$177,000

[www.tmfgrants.org/Davis](http://www.tmfgrants.org/Davis)

# Smith Family Awards Program for Excellence in Biomedical Research

*A Program of the Richard and Susan Smith Family Foundation*



Richard and Susan Smith, Co-Chairs

The Smith Family Foundation created the Smith Family New Investigator Awards Program in 1991 to support promising junior faculty conducting basic research in the fields of AIDS/HIV, cancer, heart disease, diabetes or neuroscience. Three years ago, 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 19th year, the Program has funded 120 scientists for a total investment of \$20 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 Lurie Marks Family Foundation, and several anonymous donors have provided past support.

Since 2002, the Foundation has hosted an annual scientific poster session during which current and former Award recipients and their postdoctoral fellows showcase their research and interact with colleagues within the scientific community. For the first time, local recipients of the Pew Scholars Awards and the Searle Scholars Awards attended the May 2010 poster session.

Tyler Jacks, Ph.D. serves as Chair of the Scientific Review Committee. Dr. Jacks is Professor of Biology, HHMI 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.

## Program Officer

Gay Lockwood  
GLockwood@hria.org

## Program Eligibility

Investigators within two years of their first independent faculty appointment

## Geographic Eligibility

Massachusetts, Yale University and Brown University

## Research Focus

Basic biomedical science

## Award

Three-year awards in the amount of \$300,000

[www.tmfgrants.org/Smith](http://www.tmfgrants.org/Smith)

## Award Recipients



Michael Higley, M.D., Ph.D.



Two-photon imaging of a living neocortical pyramidal neuron

**Dr. Higley** received his M.D. and Ph.D. from the University of Pennsylvania and completed his postdoctoral training in the laboratory of Bernardo Sabatini, M.D., Ph.D. at Harvard Medical School. Currently, Dr. Higley is an Assistant Professor in the Neurobiology Department at Yale University School of Medicine where he is investigating the mechanisms of communication between brain cells.

Every second, millions of nerve cells in the human brain are communicating with each other via special chemical messengers called neurotransmitters. Scientists have come to appreciate that alterations in specific neurotransmitters such as dopamine and norepinephrine are implicated in schizophrenia, depression and attention deficit disorder. Until recently, it was impossible to study this cell-cell communication at sufficiently small spatial and temporal scales in living brain cells. Dr. Higley is utilizing a new technology called optogenetic manipulation that employs light to selectively stimulate targeted populations of nerve cells. He will monitor cellular release of dopamine and norepinephrine to find out how these chemicals modulate nerve activity and regulate neuronal memory. His work will help clarify the molecular links between cell-cell communication and behavior that may someday lead to improved treatment of neuropsychiatric disease.

## 2010 Award Recipients

**Sudha Biddinger, M.D., Ph.D.**

Children's Hospital Boston

**James Bradner, M.D.**

Dana-Farber Cancer Institute

**Michael Higley, M.D., Ph.D.**

Yale University School of Medicine

**Steven McCarroll, Ph.D.**

Harvard Medical School

**Matthew Vander**

**Heiden, M.D., Ph.D.**

Massachusetts

Institute of Technology

**Shobha Vasudevan, Ph.D.**

Massachusetts General Hospital

# 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. Bank of America, N.A., Edward Dane and Lucy West serve as Co-Trustees of the Charles A. King Trust. Because of the longstanding commitment of the Charles A. King Trust and other contributors, 777 scientists have received Fellowship awards.

In 2010, two scientific review committees evaluated 153 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. chaired the Basic Science Committee. Dr. Zamore’s research accomplishments are highlighted on page 5 of this Review.

With less than 10 percent of applicants securing King Fellowships, the Scientific Review Committees devote considerable time to read and discuss applications prior to making their funding recommendations. The Fellowship Program has a proud tradition of launching the careers of some of the best minds in science.

#### 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  
Ludcke Foundation  
Marion L. Decrow Memorial Foundation  
Nelson E. Weeks Fund of the  
Permanent Charity Fund  
Theodore Edson Parker Foundation  
United Way of Massachusetts Bay

## Award Recipients



Natalie Shaw, M.D.  
(Clinical Research)



Sudipta Basu, Ph.D.  
(Basic Science Research)

**Dr. Shaw** graduated summa cum laude from Cornell University, received her M.D. at SUNY Buffalo School of Medicine, completed her residency in Pediatrics at Children’s Hospital of Pittsburgh and recently finished her fellowship in Pediatric Endocrinology at Children’s Hospital Boston. Currently a Postdoctoral Fellow at MGH, Dr. Shaw’s research explores the complex relationship between pediatric sleep disorders and the nocturnal secretion of the reproductive hormones gonadotropin-releasing hormone (GnRH) and luteinizing hormone (LH) during early puberty. She hypothesizes that the hypoxic episodes and arousals which interrupt sleep in children with obstructive sleep apnea will disrupt the nocturnal GnRH/LH secretion, resulting in a greater risk of failure to progress through puberty. These studies will define this risk as well as provide greater insights into the basic physiology which ties GnRH/LH pulses to sleep.

**Dr. Basu** studied chemistry at Presidency College and Indian Institute of Technology (IIT) in Kanpur, India. After receiving his Ph.D. from the Max-Planck Institute for Molecular Physiology, Germany, he joined Brigham and Women’s Hospital in the Laboratory for Nanomedicine. His research involves targeting cancer cells by developing biocompatible nano-vehicles for safe delivery of drugs to tumors. The traditional strategy for cancer treatment has primarily been based on using highly toxic chemotherapies such as the medication cisplatin; however, such an approach often fails due to toxic side effects. Dr. Basu proposes to harness a nanotechnology-based strategy to deliver cisplatin in a way that targets tumors but not healthy cells and hence reduce its toxic side effects. His research may result in an effective and affordable new treatment for cancer patients.

#### 2010 Award Recipients

##### Basic Science Research

- Mark Andermann, Ph.D.**  
Harvard Medical School
- Sudipta Basu, Ph.D.**  
Brigham and Women’s Hospital
- Kevin Corbett, Ph.D.**  
Harvard Medical School
- Adam Douglass, Ph.D.**  
Harvard University
- Ryuya Fukunaga, Ph.D.**  
University of Massachusetts  
Medical School
- Mario Halic, Ph.D.**  
Harvard Medical School
- Ran Kafri, Ph.D.**  
Harvard Medical School
- Maria Lehtinen, Ph.D.**  
Children’s Hospital Boston
- Kunal Rai, Ph.D.**  
Dana-Farber Cancer Institute
- Manas Santra, Ph.D.**  
University of Massachusetts  
Medical School
- Asaf Spiegel, Ph.D.**  
Whitehead Institute for  
Biomedical Research
- Tim van Opijnen, Ph.D.**  
Tufts University  
School of Medicine
- Nadine Vastenhouw, Ph.D.**  
Harvard University

##### Clinical and Health Services Research

- Yee-Ming Chan, M.D., Ph.D.**  
Massachusetts General Hospital
- Natalie Shaw, M.D.**  
Massachusetts General Hospital

#### 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 \$86,000 - \$100,000

[www.tmfgrants.org/King](http://www.tmfgrants.org/King)

# Lymphatic Research Foundation (LRF) Postdoctoral Fellowship Awards Program

*A Program of the Lymphatic Research Foundation*



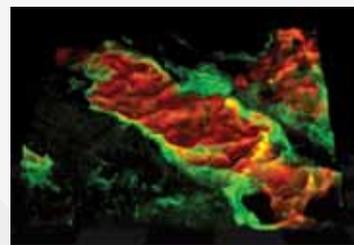
Jacqueline Reinhard,  
LRF Executive Director and  
Wendy Chaite, Esq., LRF Founder

Wendy Chaite, Esq., established the Lymphatic Research Foundation (LRF) in 1998 to advance research discoveries 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. As momentum grew, the scientific community has responded with greater attention to the lymphatic system and the key 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 and 2008 Fellows have remained in the field of lymphatic research and are making important scientific contributions.



Mihaela Skobe, Ph.D.,  
Chair, Scientific Review Committee



Metastatic cancer cells (red) in the  
lymphatic vessel (green)

Mihaela Skobe, Ph.D., Associate Professor of Oncological Services at the Mount Sinai Medical Center, studies the role of the lymphatic system in cancer metastasis and in the regulation of the immune response. The Skobe Laboratory investigates the molecular mechanisms of lymphatic metastasis, molecular control of lymphangiogenesis in normal development and in cancer, and the interplay between lymphangiogenesis

and the immune system. Her team's findings may lead to development of new approaches for predicting and treating cancer metastases and new treatment strategies for lymphedema and prevention of undesired immune reactions in cancer. As Chair of the Scientific Review Committee, Dr. Skobe has been instrumental in recommending reviewers and shaping the scientific content of the Fellowship Program.

## Program Officer

Linda Lam  
LLam@hria.org

## Program Eligibility

Postdoctoral fellows within their first three years of training

## Geographic Eligibility

Worldwide

## Research Focus

Clinical and basic science research relevant to the lymphatic system

## Award

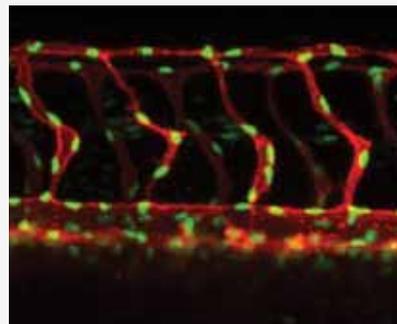
Two-year fellowships in the amount of \$81,000 - \$95,000

[www.tmfgrants.org/LRF](http://www.tmfgrants.org/LRF)

## Award Recipients



Guy Malkinson, Ph.D.



Blood and lymphatic vessels,  
highlighted with different fluorescent  
proteins in zebrafish embryos

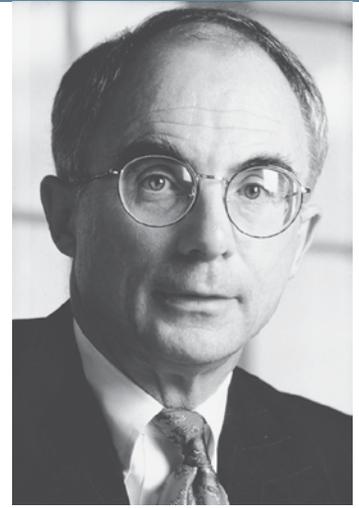
### 2010 Award Recipients

**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

**Dr. Malkinson** completed his Ph.D. in the Department of Neurobiology at the Hebrew University of Jerusalem. He is currently a Postdoctoral Fellow in the Department of Biological Regulation at the Weizmann Institute of Science, Israel. Using multiphoton time-lapse imaging of living embryos, the existence of a lymphatic vascular system in the zebrafish was recently demonstrated, establishing it as a novel experimental and genetic model organism for studying lymphangiogenesis – the formation of lymphatic vessels. With support from the LRF Fellowship, Dr. Malkinson will study a zebrafish mutant that fails to develop lymphatic vessels as a means to uncover novel genes required for their proper development in vertebrates. As most developmental processes are remarkably similar between zebrafish and mammals, these studies will reveal conserved pathways regulating the development and function of lymphatic endothelial cells in humans. His findings may provide new drug targets for the treatment of pathological lymphatic conditions that lead to inflammation, autoimmunity and cancer.



Bernard Goldhirsh, Founder

# Goldhirsh Foundation Brain Tumor Research Awards Program

*A Program of the Goldhirsh Foundation*

The Goldhirsh Foundation was established by Bernard A. Goldhirsh in 2000, shortly after he was diagnosed with brain cancer. He envisioned a grants program that would fund high-risk innovative brain tumor research. Prior to his death in 2003, he directed the Scientific Advisory Committee to identify those rare scientists who have brilliant ideas as well as a risk-taking style. Mr. Goldhirsh's own career exemplified this entrepreneurial spirit. He launched two multi-million dollar magazines – *Sail* and *Inc.*, the latter becoming one of the most successful magazines in history.

The Goldhirsh Foundation Brain Tumor Research Awards Program has awarded \$17.3 million to 63 outstanding investigators working in U.S. and Israeli research institutions. Award recipients are developing novel drug delivery systems, creating new imaging techniques and investigating mechanisms by which glioblastoma tumors invade normal tissue. Other investigators are examining the basic biology of brain tumors while three Award recipients have

launched clinical trials to assess the efficacy of new treatments. Collectively, the Goldhirsh Award recipients have advanced medical discoveries in brain tumor research.

The 2010 Grant Cycle is the final funding cycle for this Program. The Foundation wishes to acknowledge the generosity of time and the superb quality of reviews by the many distinguished investigators who served on the Scientific Advisory Committee. The Goldhirsh Foundation is continuing its commitment to brain tumor research and will be proactively pursuing innovative grant opportunities going forward.

## Award Recipients



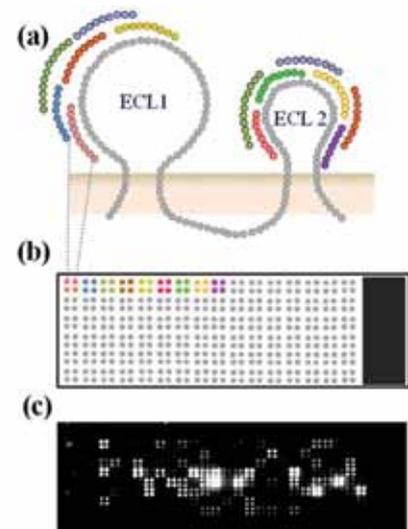
Joseph Costello, Ph.D.



Pankaj Karande, Ph.D.

**Dr. Costello** completed his training at Loyola University Medical Center and was awarded a Ph.D. in 1994. After his postdoctoral fellowship at the Ludwig Institute for Cancer Research, San Diego, he joined the faculty of UCSF in 2000. Dr. Costello is currently a Professor of Neurosurgery at UCSF and a leader in epigenome research. The epigenome consists of chemical compounds that modify, or mark by methylation, the genome in a way that controls what genes are turned on or off. Recently, his laboratory developed new methods to map the entire epigenome of glioblastoma (GBM). Because his methods are based on sequencing, this data can be used for mutation detection in every promoter in the genome. Funded in part by the Goldhirsh Award, he proposes to use this new approach to complete the first integrated epigenome map of GBM and the first comprehensive mutation analysis of promoters. This is critically needed information since mutations in promoters predispose to cancer in humans. These results will allow important new perspectives on how GBMs arise and will lead to a new and relevant type of preclinical genetic model of GBM that is driven by promoter mutations and/or epigenetic mechanisms.

**Dr. Karande** joined Rensselaer Polytechnic Institute in 2008 as an Assistant Professor in the Chemical and Biological Engineering Department. Before coming to Rensselaer, he completed his postdoctoral fellowship in Molecular Oncology at the Center for Cancer Research at MIT. He received his Ph.D. at UC Santa Barbara in the area of transdermal drug delivery. Dr. Karande's research is primarily focused in the area of developing novel drug delivery strategies to treat brain tumors. Currently, brain tumor treatments are limited in their efficacy as most drugs cannot enter the brain when administered systemically. His research team is developing new molecules that can safely and reversibly cross the blood-brain barrier, facilitating the delivery of anti-tumor therapeutics into the brain. This research is expected to provide a minimally invasive and clinically effective strategy for successfully treating brain tumors.



Screening large peptide libraries derived from (a) extracellular loops of human tight junction proteins on (b) high density peptide microarrays to (c) identify successful candidates that bind to tight junction proteins of the blood brain barrier. Courtesy of Dr. Karande

### 2010 Award Recipients

**Joseph Costello, Ph.D.**  
University of California  
San Francisco

**Pankaj Karande, Ph.D.**  
Rensselaer Polytechnic Institute

**Trudy Morrison, Ph.D.**  
University of Massachusetts  
Medical School

**Kodi Ravichandran, Ph.D.**  
University of Virginia

# 2010 Scientific Review Committees

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.



Scientific poster session participants

## Charles A. King Trust Postdoctoral Fellowship Program

(Basic Science Research)

Phillip Zamore, Ph.D. (Chair)  
Barbara Bierer, M.D.  
Myles Brown, M.D.  
Constance Cepko, Ph.D.  
Robert Desimone, Ph.D.  
Ulla Hansen, Ph.D.  
Daniel Hebert, Ph.D.  
Vijay Kuchroo, D.V.M., Ph.D.  
Nelson Lau, Ph.D.  
Melissa Moore, Ph.D.  
Marjorie Oettinger, Ph.D.  
Mary-Lou Pardue, Ph.D.  
V. Adrian Parsegian, Ph.D.  
Oliver J. Rando, M.D., Ph.D.  
Daniel Remick, M.D.  
Dagmar Ringe, Ph.D.  
Sean Ryder, Ph.D.  
Joshua Sanes, Ph.D.  
Arlene Sharpe, M.D., Ph.D.  
Vickery Trinkaus-Randall, Ph.D.  
Philip Tschlis, M.D.  
David Van Vactor, Ph.D.  
A.J. Marian Walhout, Ph.D.  
Zhipeng Weng, Ph.D.  
Gary Yellen, Ph.D.  
Leonard Zon, M.D.

## Charles A. King Trust Postdoctoral Fellowship Program

(Clinical and Health Services  
Research)

E. John Orav, Ph.D. (Chair)  
C. Robert Horsburgh, Jr., M.D.  
James Hudson, M.D., Sc.D.  
Gordon Huggins, M.D.  
David Kent, M.D., M.S.  
Bruce Landon, M.D., M.B.A., M.Sc.  
Jane Weeks, M.D., M.Sc., Sc.M.

## Charles H. Hood Foundation Child Health Research Awards Program

David R. Beier, M.D., Ph.D. (Chair)  
Howard Bauchner, M.D., F.A.A.P.  
Jonathan M. Davis, M.D.  
Marie E. Egan, M.D., F.A.A.P.  
Stella Kourembanas, M.D.  
Mary M. Lee, M.D.  
John R. Schreiber, M.D.  
Kevin Staley, M.D.  
John L. Sullivan, M.D.  
Patrick M. Vivier, M.D., Ph.D.

## Davis Foundation Postdoctoral Fellowship in Eating Disorders Research

Jeffrey Friedman, M.D., Ph.D. (Chair)  
Roger Cone, Ph.D.  
Angelo Del Parigi, M.D.  
Tamas Horvath, D.V.M., Ph.D.  
Charles V. Mobbs, Ph.D.  
Mark W. Sleeman, Ph.D.  
Matthias Tschop, M.D.

## Deborah Munroe Noonan Memorial Research Fund

Marji Erickson Warfield, Ph.D. (Chair)  
Helene Dumas, M.S., P.T.  
James Glauber, M.D., Ph.D.  
Linda Grant, M.D., M.P.H.  
Karen Kuhlthau, Ph.D.  
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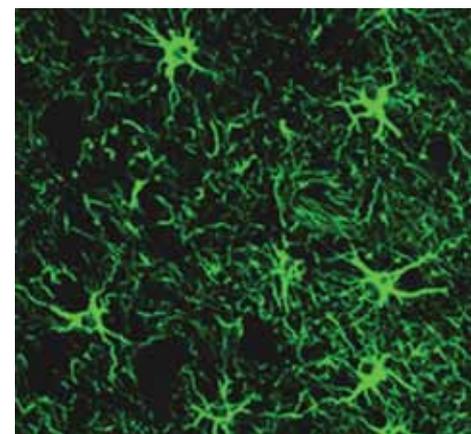
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