SINCE 2008, THE INTERNATIONAL RETINAL RESEARCH FOUNDATION HAS BEEN A SUPPORTER OF THE LASKER AWARDS GIVEN EACH YEAR BY THE ALBERT AND MARY LASKER FOUNDATION TO HONOR INDIVIDUALS WHO HAVE CONTRIBUTED TO MEDICAL INNOVATIONS THAT BENEFIT SOCIETY AS A WHOLE.

The Lasker Awards are among the most respected science prizes in the world and have become known as ‘America’s Nobels,’ since they often presage future recognition by the Nobel committee. Support for the annual awards ceremony is just one component of a 10-year agreement between the IRRF and the Lasker Foundation.

The 2012 Lasker Awards, which carry an honorarium of $250,000 for each category, were presented at a ceremony on September 21 in New York City.

**The Albert Lasker Basic Medical Research Award** honors scientists whose fundamental investigations have provided techniques, information, or concepts contributing to the elimination of major causes of disability and death. Michael Sheetz (Columbia University), James Spudich (Stanford University School of Medicine) and Ronald Vale (University of
California, San Francisco) were awarded the Basic Medical Research Award for discoveries concerning cytoskeletal motor proteins - molecules that move cargoes within cells, contract muscles, and enable cell movements. **The Lasker-DeBakey Clinical Medical Research Award** honors investigators whose contributions have improved the clinical treatment of patients. Roy Calne (Emeritus, University of Cambridge) and Thomas E. Starzl (University of Pittsburgh) were honored with the Lasker-DeBakey Clinical Medical Research Award for the development of liver transplantation, which has restored normal life to thousands of patients with end-stage liver disease. Some of Starzl’s and Calne’s early patients — originally diagnosed with untreatable and lethal diseases — are still thriving today, decades after their surgeries. **The Lasker-Koshland Special Achievement Award in Medical Science** honors scientists whose contributions to research are of unique magnitude and have immeasurably influenced the course of science, health, or medicine. For exceptional leadership and citizenship in biomedical science — exemplified by fundamental discoveries concerning the nature of genes; by selfless commitment to young scientists; and by disseminating revolutionary technologies to the scientific community, Donald D. Brown and Tom Maniatis (Photo below) were honored with the Lasker-Koshland Special Achievement Award in Medical Science.
In its second topic of focus, the Lasker/IRRF Initiative chose to explore diabetic retinopathy, one of the leading causes of visual impairment and blindness in the world. With the nation’s rapid increase in obesity and its close link to diabetes, complications of diabetes including retinopathy are likely to be even more prevalent in the future. Two workshops were held during the summer of 2011 at Woods Hole, MA followed by a plenary session in March 2012 at the Janelia Farm Research Campus of the Howard Hughes Medical Institute in Ashburn, VA. Participants identified key unsolved issues and important opportunities in diabetic retinopathy which, by using modern day investigative tools, may now be experimentally addressed.
Targeted Sessions for the Janelia Farm session included: The Role of Glucose and Oxygen; Early Signs of Diabetic Retinopathy; Genetics and Environmental Susceptibility; Present and Proposed Approaches; Pathogenesis; Diagnostic Methods; Epidemiology and Unusual Cohorts; and Vascular and Retinal Repair.

The results from the 2011 Woods Hole workshops and the 2012 Janelia Farm session were published and may be viewed in their entirety by going to www.irrfonline.org and clicking on the icon. Or, you may contact Sandra Blackwood, Executive Director, The International Retinal Research Foundation at sblackwood@irrfonline.org to request a copy of the publication. Also available online is the entire Janelia Farm brochure, which expands targeted sessions. (Lasker/IRRF brochure conceived and published by Larry Donoso, MD, PhD)

(Photol courtesy of Larry Donoso)
The Initiative’s third topic of investigation, Restoration of Vision, has been chosen and proceedings began in October 2012 with a planning session at the Institut de la Vision in Paris, a research center totally devoted to the biology of the visual system and ocular pathologies. Principal topics to be discussed further at the Woods Hole workshops scheduled for 2013 are stem cell therapy, gene replacement therapy, retinal prosthetics and optogenetics. Top scientists from the United States, United Kingdom, Germany, France, and Switzerland attended this preliminary forum.

The Institut de la Vision relies on public and private partnerships and its creation is due to an innovative financing model and to the tenacity of its founder, Pr. José-Alain Sahel, doctor, researcher and renowned specialist of the retina, assisted by a team of motivated collaborators. The building (left) has been open to research teams since March 2008, and includes a research center, a clinical investigation center, a rare disease reference center and innovative new companies. The International Retinal Research Foundation and the Lasker Foundation are most grateful for the Institut’s collaboration on this third topic for the Initiative.
Network deficiency exacerbates impairment in a mouse model of retinal degeneration


Frontiers in Systems Neuroscience (February 2012/Volume 6/ Article 8) Neural oscillations play an important role in normal brain activity, but also manifest during Parkinson’s disease, epilepsy, and other pathological conditions. The contribution of these aberrant oscillations to the function of the surviving brain remains unclear. In recording from retina in a mouse model of retinal degeneration (RD), the authors found that the incidence of oscillatory activity varied across different cell classes, evidence that some retinal networks are more affected by functional changes than others. This aberrant activity was driven by an independent inhibitory amacrine cell oscillator. By stimulating the surviving circuitry at different stages of the neurodegenerative process, the authors found that this dystrophic oscillator further compromises the function of the retina. These data reveal that retinal remodeling can exacerbate the visual deficit, and that aberrant synaptic activity could be targeted for RD treatment.

This study was conducted with IRRF support; Botir T. Sagdullaev.
Anna Polunina from the University of Basel, Switzerland, was awarded the 2012 Ramon Dacheux, II Memorial Travel Grant which allowed her to attend the annual meeting of the Association for Research in Vision and Ophthalmology (ARVO) held in Fort Lauderdale, Florida. The Dacheux Travel Award is an annual grant funded by a donation from the IRRF and presented through the ARVO Foundation that provides travel support for student researchers conducting basic science research giving them the opportunity to report their work at the annual meeting.

“I am very pleased that our research was appreciated and acknowledged through receiving the travel grant in honor of Professor Dacheux, whose work contributed to understanding the communications of the cells in the retina,” said Polunina. “The honor fell on me to be a single recipient of this grant this year and it has really motivated me to present my work at the ARVO meeting.” Polunina stated that she would like to continue her research work in the field of ocular electrophysiology and expressed her gratitude at being allowed to attend this ARVO meeting and the opportunity to share ideas and meet the scientists from all over the world.
Investigative Ophthalmology & Visual Science (IOVS), “Nerve Growth Factor Promotes Endothelial Progenitor Cell-Mediated Angiogenic Responses,” Chandrakala S. Jadhao, Ashay D. Bhatwadekar, Youde Jiang, Michael E. Boulton, Jena J. Steinle, and Maria B. Grant, Department of Pharmacology and Therapeutics, University of Florida. (April 2012, vol. 53, no. 4) To access this article: www.iovs.org/content/53/4/2030.full. Chandrakala S. Jadhao is the 2012 Charles D. Kelman, MD Postdoctoral Scholar. This study was conducted with IRRF support.

Investigative Ophthalmology & Visual Science (IOVS), “Vitreous IGFBP-3 Effects on Müller Cell Proliferation and Tractional Force Generation,” Jeffery L. King and Clyde Guidry, Department of Ophthalmology, University of Alabama School of Medicine, Birmingham, Alabama. (January 2012, Vol. 53, No.1:93-9) To read the full text of this article, go to: www.iovs.org/content/53/1/93.full. This study was conducted with IRRF support.

Investigative Ophthalmology & Visual Science (IOVS), “Effects of Proinflammatory Cytokines on the Claudin-19 Rich Tight Junctions of Human Retinal Pigment Epithelium,” Shaomin Peng, Geliang Gan, Veena S. Rao, Ron A. Adelman, and Lawrence J. Rizzolo. Department of Surgery, Yale University School of Medicine, New Haven, CT. (Geliang Gan, PhD is the 2012 Alston Callahan, MD Postdoctoral Scholar. Lawrence J. Rizzolo, PhD is an IRRF-funded scientist.) (July 2012, vol. 53, no.8) To access this article, go to: www.iovs.org/content/53/8/5016.full. This study was conducted with IRRF support.

Cell, “DICER1 Loss and Alu RNA Induce Age-Related Macular Degeneration via the NLRP3 Inflammasome and MyD88,” Judit Z. Baffi, Mark E. Kleinman, et al. Department of Ophthalmology & Visual Sciences, University of Kentucky, Lexington, Kentucky. (May 11, 2012, vol. 149) Mark E. Kleinman, 2008 Charles D. Kelman, MD Postdoctoral Scholar; Judit Baffi is an IRRF-supported scientist. To access this article, go to: www.sciencedirect.com/science/article/pii/s0092867412004679. This study was conducted with IRRF support.
Dennis Yan-Yin Tse, PhD Named the 2012 Loris and David Rich Postdoctoral Scholar:

Dennis Yan-Yin Tse, PhD, Baylor College of Medicine, Houston, Texas, was named the 2012 Loris and David Rich Postdoctoral Scholar. The Award was based on his project, *Patterns and time course of retinal ganglion cell degeneration in chronic and acute glaucoma mouse models*. Dr. Tse received his PhD education at the Hong Kong Polytechnic University and early postdoctoral training at the University of Newcastle, Australia, where he co-invented a new prophylactic treatment for myopic retinal degeneration. In 2011, he joined the Baylor College of Medicine where he pursues his research interest in retinal electrophysiology in the laboratory of Samuel M. Wu, PhD.

“It is my honor to be awarded this grant from the prominent International Retinal Research Foundation,” says Tse. “I am very grateful for the generosity of IRRF and the donors Loris and David Rich. The grant will allow me to complete my study on developing new techniques for early detection of glaucoma, new platforms to test neuro-protective drugs, and will further my transition to becoming an independent investigator.”
Chandrakala (Chandra) Jadhao, MD Named the Charles D. Kelman, MD Postdoctoral Scholar for 2012:

Chandrakala (Chandra) Jadhao, MD, University of Florida, was named the 2012 Charles D. Kelman, MD Postdoctoral Scholar in support of her project, Enhancing endothelial progenitor cells mediated vascular repair. Nominated by Maria B. Grant, MD, College of Medicine, University of Florida, Dr. Jadhao has worked in Dr. Grant’s lab since 2009 when she was recruited as a special volunteer to gain research experience in the various forms of retinopathies. Dr. Jadhao was promoted to a postdoctoral fellow and awarded a Vision Training T-32 Grant by the University of Florida in 2011 and has since initiated a project on nerve growth factor and retinopathy, which has been accepted for publication. The paper, Nerve Growth Factor Promotes Endothelial Progenitor Cell-mediated Angiogenic Responses, appeared in the April 2012 issue of Investigative Ophthalmology & Visual Science (IOVS).

Dr. Jadhao’s project as the 2012 Kelman Scholar is the first independent proposal of her career, and was conceived and prepared based on her work at the University of Florida.
Geliang Gan, PhD, Named the 2012 Alston Callahan, MD Postdoctoral Scholar:

Geliang Gan, PhD, Yale University, was named the 2012 Alston Callahan, MD Postdoctoral Scholar in support his study, *Engineering a culture model of the outer-retina using human embryonic stem cells and a biodegradable matrix*, nominated by Lawrence Rizzolo, PhD, FARVO. After graduating from Huazhong University of Science and Technology with a PhD in biophysics, Dr. Gan joined Dr. Rizzolo’s lab in 2010 to study retinal pigment epithelial (RPE) cells derived from human embryonic stem cells (hESC). (The RPE forms the outer blood-retinal barrier and is essential for the health and function of the photoreceptors).

Says Gan, “Although these important cells have a very low turnover rate, they are produced at an early embryonic stage and survive for the individual’s whole life. Many patients are suffering due to the damage or loss of the RPE monolayer and its disability to self-renew. Many labs fail to restore lost vision by transplanting only RPE. Because of the intimate relationship between RPE and other retinal layers, I believe RPE and retinal progenitor cells (RPC) can support each other and promote mutual maturation.” Dr. Gan’s goal is to construct a multilayered retinal complex from hESC and transfer them together to the patient.
Dr. Alemu Kerie Tasfaw Named 2012 Alston Callahan, MD Visiting Scholar

In October 2012, the Rotary Club Host Program, a partnership between Rotary Clubs and the American Academy of Ophthalmology (AAO), recognized the 2012 honorees at an International Welcome Luncheon held in conjunction with the AAO meeting in Chicago. Dr. Alemu Kerie Tasfaw of Ethiopia was among those recognized and was named the Alston Callahan, MD Visiting Scholar. Dr. Tasfaw was hosted by the Roanoke, Virginia Rotary Club and the International Retinal Research Foundation (IRRF) through the Alston Callahan, MD, FACS Endowment Fund, administered through the American Academy of Ophthalmology Foundation.

Dr. Tasfaw is an ophthalmologist working at Woldiya Hospital in the Secondary Eye Unit, Ethiopia. Woldiya is located North of the capital, Addis Ababa. After receiving his degree in medicine from Former Gondar College in 2000, he completed an ophthalmology residency at Addis Ababa University in 2010. Since that time, Dr. Tasfaw has practiced general ophthalmology at Woldiya Hospital, and has also worked in collaboration with The Himalayan Cataract Project.

“I thank you so much for sponsoring me on one of the great professional events. My stay in the U.S., mainly with Rotary members, and attending the AAO meeting was wonderful.” — Dr. Alemu Kerie Tasfaw
APPROXIMATELY $1.4 MILLION WAS AWARDED IN 2012 FOR THE FOLLOWING RESEARCH ACTIVITIES:

**Manuela Bartoli, PhD**, Georgia Health Sciences University, *Uric acid and diabetic retinopathy*. $100,000.

**Milam Brantley, MD, PhD**, Vanderbilt Eye Institute, *Metabolomic profiles associated with retinopathy in type 2 diabetics*. $100,000.

**Willem Dik, PhD**, University Medical Center Rotterdam, The Netherlands, *Xa and Thrombin: activators of RPE activity and therapy targets for the prevention of proliferative vitreoretinopathy*. $79,437.

**Geliang Gan, PhD**, 2012 Alston Callahan, MD Postdoctoral Scholar Award, Yale University, *Engineering a culture of the outer-retina using human embryonic stem cells and a biodegradable matrix*. $35,000.

**Clyde Guidry, PhD**, University of Alabama at Birmingham, *Müller Cell Proliferation in Proliferative Diabetic Retinopathy*, $98,756.


**Sudha Iyengar, PhD**, Case Western Reserve University, *Refining AMD Causal Variation Using Epigenetics*. $100,000.


**Anant Menon, PhD**, Weill Cornell Medical College, *Retinoid transport in Stargardt’s disease and age-related macular degeneration*. $100,000.

**Daniel Organisciak, PhD**, Wright State University, *Zinc and Oxidative Stress in an animal Model of Retinal Degeneration*. $99,750.

**Dennis Tse, PhD**, 2012 Loris & David Rich Postdoctoral Scholar Award, Baylor College of Medicine, *Patterns and time course of retinal ganglion cell (RGC) degeneration in chronic and acute glaucoma mouse models*. $35,000.

**Wenbo Zhang, PhD**, University of Texas-Medical Branch, *Interaction of Notch and Wnt pathway in diabetic retinopathy*. $100,000.
Because eye diseases affect individuals worldwide, funding internationally has always been a priority and grant recipients are a diverse group of scientists from across the United States and overseas. Also, the IRRF is committed to strengthening and expanding the national and international pool of vision scientists who possess the scientific, technical, and professional skills required to perform independent research. Therefore, grants to young investigators who may find it difficult to secure first-time funding are given special consideration.

The chart below represents the $1.4 million that was distributed in 2012.

Areas of funding not included on the break-out page: $2,000 to the United Doctors Welfare Health Organization in Pakistan; $66,974 to the Eye Clinic Kasindo-East Sarajevo; $1,000 to the Association for Research in Vision and Ophthalmology (ARVO) for the Ramon Dacheux II Memorial Travel Award; $1,000 to ARVO, Women in Eye And Vision Research (WEAVR); $1,000 to support the Birmingham VisionWalk.
BECOME A BENEFACITOR:  
How you can help…

Today’s scientists play a crucial role in the universal struggle against debilitating eye diseases, but they need financial funding to facilitate and sustain their efforts. Since 1998, the IRRF has granted more than $12.2 million in support of scientific investigations targeting all structures of the human eye, with emphasis on finding the causes, prevention and cure of degenerative diseases. If you would like to help with this challenge, please send your tax deductible contribution to:

THE INTERNATIONAL RETINAL RESEARCH FOUNDATION, INC.
1720 University Boulevard • Birmingham, Alabama 35233-1816, USA
Attn.: Sandra Blackwood, MPA, Executive Director
www.irrfonline.org