Retina Service

U.S.News America's Best Hospitals 2008

The Retina Service of the Doheny Eye Medical Group consists of ophthalmologists who are leading researchers in imaging of ocular disease, age-related macular degeneration, diabetic retinopathy, and surgery for complex retinal conditions. All are faculty members at the Keck School of Medicine of USC and practice at the Doheny Eye Institute.

Retinal disease is the leading cause of blindness among adult Americans. In addition, 12 million people in the United States suffer from visual impairment. As the senior population rapidly grows and diabetes continues to spread in epidemic proportions, this number will double in the next 20 years. Better diagnoses, treatments, and prevention are necessary to manage future epidemics of retinal disease. Established at the Doheny Eye Institute to translate innovative research to clinical care, the Doheny Retina Institute is poised to revolutionize the treatment of blinding retinal diseases.

Doheny's Retina/Vitreous Service consists of comprehensive consultative, medical and surgical care. The group specializes in the repair of complex retinal detachments, offering advanced techniques such as silicone oil, perfluorocarbon liquids and SF6 and C3F8 gases. The group is particularly well equipped to repair penetrating trauma, drawing from its members' vast surgical and research experience. Laser treatment of the retina for diabetic retinopathy can be performed with the argon, krypton, diode, or double frequency YAG laser. Extensive diagnostic services are available through our ancillary services departments.

Doheny Eye Centers
A Division of Doheny Eye Medical Group, Inc.

Doheny Retina Institute

www.doheny.org

Doctors of USC

Rizwan Bhatti, MD

Dr. Bhatti completed his vitreo-retinal surgical fellowship at the Doheny Retina Institute, Keck School of Medicine, USC. He completed his residency at the Henry Ford Hospital Department of Ophthalmology, where he also served as Chief Resident. He spent a year at the National Eye Institute Laboratory of Retina Cell and Molecular Biology and was honored with the Intramural Research Training Award. His special interests include medical and surgical treatment of retina/vitreous and age-related macular degeneration, diabetic retinopathy, and complex retinal detachments. He is currently Director of the Doheny Eye Center in Rancho Mirage, CA. Dr. Bhatti serves as an investigator in the Doheny Image Reading Center. In addition, he has studied surgical instrumentation for vitreous surgery, with a special interest in the endoscopic evaluation of surgical sclerotomies.

Dean Eliott, MD

Dr. Eliott is Director of the Doheny Retina Institute and Professor of Ophthalmology at the Doheny Eye Institute and the Keck School of Medicine, USC. He completed his residency at the Wilmer Ophthalmologic Institute, Johns Hopkins Hospital, in Baltimore, MD. He received his fellowship training at the Duke Eye Center, Duke University Medical Center, in Durham, NC, and was subsequently Chief Resident and a faculty member at Duke. Dr. Eliott was Director of the Retina Service at the Kresge Eye Institute of Wayne State University in Detroit, MI, before being recruited to Doheny. He is the principal investigator for several clinical trials, and he has numerous publications in ophthalmic journals and textbooks. Dr. Eliott has a special interest in diabetic retinopathy, macular degeneration, and surgery for complex retina-vitreous disorders. Dr. Eliott was voted one of the Best Doctors in America.

Mark Humayun, MD, PhD

Dr. Humayun is a Professor of Ophthalmology, Biomedical Engineering, and Cell and Neurobiology at Doheny Eye Institute and University of Southern California. Trained at Johns Hopkins and Duke, among other institutions. Dr. Humayun has been voted one of the Best Doctors in America. He is also a leader in Biomedical Engineering and is recognized internationally as a pioneer in the field of using computer chips (Artificial Vision) to restore sight to the blind. Dr. Humayun combines his surgical and engineering knowledge to develop new biomedical therapies. His focus is on treating patients with different types of retinal disorders, such as retinitis pigmentosa, macular degeneration, diabetic retinopathy, venous occlusive diseases, macular pathology (holes and epiretinal membranes), and retinal detachments.

Doheny's mission:
"to further the conservation, improvement and restoration of human eyesight"

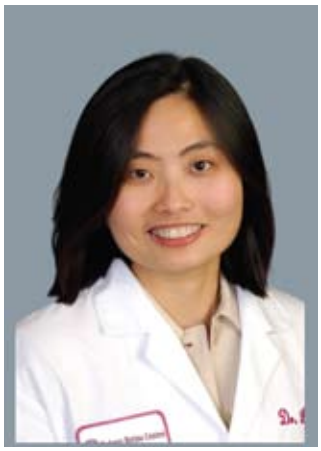
(Carrie Estelle Doheny – 1947)

Larry P. Chong, MD

Dr. Chong earned his MD from Harvard University. He completed his residency at Doheny Eye Institute at USC, and his retina-vitreous fellowship at the Duke University Eye Center. He has been on the faculty of the Department of Ophthalmology since 1987. During his over twenty year tenure at USC, he has recruited new retina faculty and developed the retina division at USC to its present leading status as one of the largest divisions in the country. For most of his tenure he has sat on the Executive Committee of the Doheny Eye Medical Group. He is the current Fellowship Director for Retina and is the principal investigator of three clinical trials involving intraocular drug delivery.

Amani A. Fawzi, MD

After completing an ophthalmology residency at Cairo University, Dr Fawzi completed two years of research fellowship at UCLA. She went on to complete another ophthalmology residency at UCLA, followed by a vitreoretinal surgical fellowship at the Doheny Eye Institute, University of Southern California. In July 2006, Dr. Fawzi was appointed to the faculty of USC, Keck School of Medicine, where she specializes in surgical and medical retinal disease. She has received several awards at UCLA and USC for her clinical work and her research. Dr. Fawzi is a member of the USC Biomimetic Microelectronic Systems-Engineering Research Center, where she collaborates on several projects. Dr. Fawzi's research interests include hyperspectral imaging modalities for retinal diseases and novel, non-invasive therapeutic approaches to retinal disease.



Linda Lam, MD

Dr. Lam attended medical school at Cornell University Medical College. During medical school, she completed a one year research fellowship investigating the protein sorting pathways in retinal pigment epithelium cells. Dr. Lam further pursued her interest in retinal research during her ophthalmology residency at Cole Eye Institute at the Cleveland Clinic Foundation. Dr. Lam then completed a two-year combined fellowship program in vitreoretinal diseases and surgery at Georgetown University Hospital, Washington Hospital Center, and Retina Group of Washington. An area of particular interest is mechanisms of retinal physiology and degeneration. Dr. Lam's primary clinical research interests are developing treatments for macular degeneration and exploring both medical and surgical modalities for the treatment of diabetic retinopathy and proliferative vitreoretinopathy. Dr. Lam serves as Medical Director at the Doheny Retina Center in Riverside.

DOHENY's Vision is to become a premier vision research, education, and tertiary patient care eye institute through the discovery of new knowledge, innovative eye care, and the education of the leaders of ophthalmology and vision science. The Doheny Eye Institute is a not-for-profit charitable enterprise dedicated to the conservation, improvement, and restoration of human eyesight. Doheny is guided by three objectives: to increase knowledge of the human eye and diseases through research, to apply this increased knowledge to patient care, and to transmit this knowledge through education, training and community service.

Thomas C. Lee, MD

Dr. Lee received his MD from Cornell University, where he graduated with Honors in Research as a Howard Hughes Scholar and completed his ophthalmology residency. He went to Harvard Medical School as a Heed Fellow to study retinal stem cells and completed his retina fellowship at Harvard's Massachusetts Eye and Ear Infirmary before returning to Cornell as a Fred Gluck Scholar. He was the Associate Director of the Robert M. Ellsworth Ocular Oncology Center at Cornell prior to arriving at Childrens Hospital Los Angeles. Dr. Lee has made several advances in our understanding of ocular tumors and pediatric retinal diseases. He has identified novel drugs that can induce both tumor and blood vessel regression and is designing new ways to enhance drug delivery into the eye. He recently received the Achievement Award from the American Academy of Ophthalmology for his contributions to the field.

Carmen A. Puliafito, MD, MBA

Dr. Puliafito is Dean of the Keck School of Medicine of USC, holder of the May S. and John Hooval Dean's Chair in Medicine, and Professor of Ophthalmology and Health Management at the Doheny Eye Institute. He started his career at the Massachusetts Eye and Ear Infirmary at Harvard Medical School, where he was founder of the Laser Research Laboratory, director of the Morse Laser Center, a member of the Retina Service and Associate Professor of Ophthalmology at Harvard Medical School. Dr. Puliafito is recognized as a co-inventor of optical coherence tomography (OCT). He was the first ophthalmologist to use OCT technology, which has revolutionized retinal practice and made a real difference for both patients and retinal specialists.

Stephen J. Ryan MD

Dr. Ryan is the President of the Doheny Eye Institute and an expert in the field of retinal diseases and ocular trauma. He has provided congressional testimony on numerous occasions in support of the NIH and the National Eye Institute and vision research. He is the author or editor of 8 books, including RETINA (4th edition), and the author of more than 270 articles in the scientific, peer-reviewed literature. He has received many awards and honors, including the Johns Hopkins University Society of Scholars Award and 2005 Distinguished Alumnus Award and the American Academy of Ophthalmology's Senior Honor Award and its Distinguished Service Award. He maintains a clinical practice with an emphasis on retina and macular diseases.

Alexander Walsh, MD

Dr. Walsh received his MD from Columbia University College of Physicians and Surgeons and completed his internship as an Osler Intern in the Department of Medicine at Johns Hopkins Hospital. Dr. Walsh also completed his ophthalmology residency at the Wilmer Eye Institute, Johns Hopkins Hospital, followed by a clinical and research fellowship in vitreoretinal surgery at the Doheny Eye Institute, Keck School of Medicine of USC. His clinical interests are the diagnosis and treatment of disorders of the retina. He is also very active in the research and development of ophthalmic imaging devices and instrumentation.

A. Linn Murphree. MD

Dr. Murphree earned an MD from Baylor College of Medicine. He completed three fellowships: one at the University of Copenhagen, another at Baylor College of Medicine, and the third at Wilmer Ophthalmological Institute, Johns Hopkins Hospital. Dr. Murphree is a Professor of Ophthalmology and Pediatrics at the Keck School of Medicine of USC and leads the development of a world-class Ocular Oncology Service at Childrens Hospital of Los Angeles and at the Doheny Eye Institute. Dr. Murphree and his colleagues also have developed new protocols for the treatment of retinoblastoma. He co-chairs the Retinoblastoma Study (RBS), an international multicenter clinical trial.

Narsing A. Rao, MD

Dr. Rao earned an MD from Osmania University. He completed two residencies, one in pathology and one in ophthalmology, at the Georgetown University Medical Center. He completed his fellowship in ophthalmic pathology at the Armed Forces Institute of Pathology. Dr. Rao is Director of the Inflammation, Uveitis, and AIDS Service and Director of the A. Ray Irvine, Jr., Ophthalmic Pathology Laboratory at Doheny, which is a cornerstone of the teaching program for the residents. Dr. Rao is involved in both the research aspects and clinical treatment of a broad range of inflammatory ocular diseases and tumors. Specialized medical and surgical clinical protocols are utilized to treat resistant cases of uveitis. The special drug regimen includes the use of cyclosporine, cytoxan and other immunosuppressives.

SriniVas Sadda, MD

Dr. Sadda is Assistant Professor of Ophthalmology at the Keck School of Medicine of USC and the Doheny Eye Institute. He is Director of the Medical Retina Unit, Ophthalmic Imaging Unit, Retinal Transplantation Laboratory, and Digital Image Reading Center. He obtained his MD from Johns Hopkins University and his Bachelor of Science (Cellular and Molecular Biology) from the University of Michigan. He served as an intern at the W. Beaumont Hospital and returned to Johns Hopkins University and the Wilmer Eye Institute for his ophthalmology residency, followed by fellowships in neuro-ophthalmology and medical retina at Wilmer. Previously, Dr. Sadda served as a faculty member at the Johns Hopkins Wilmer Eye Institute, where he was a member of the Retinal Vascular Center and co-Investigator at the Wilmer Photographic Reading Center.

USC
UNIVERSITY
OF SOUTHERN
CALIFORNIA

The Doctors of USC

Long known for extensive experience in research, medical advances, and internationally renowned specialists, The Doctors of USC can also be the medical team for your everyday health care concerns. All of our physicians are full-time faculty members at the Keck School of Medicine of the University of Southern California.

Core Values

* Respect for All Individuals
* Highest Quality Health Care
* Exceptional Customer Service
* Integrity, Ethics and Honesty
* Continuous Commitment to Improve

A Randomized, Prospective, Active Controlled, Study of the Epi-Rad90™ Ophthalmic System for the Treatment of Choroidal Neovascularizaton Associated with Wet Age-Related Macular Degeneration

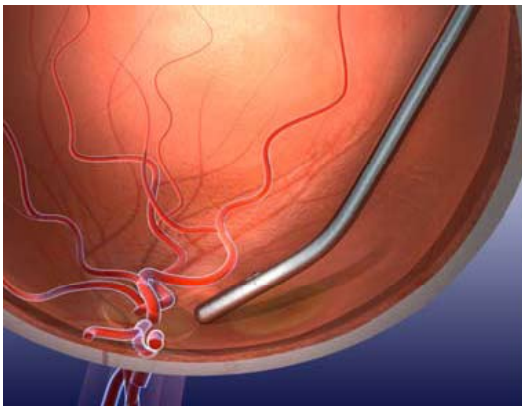
Principal Investigator: Linda Lam, MD
Study Coordinator: Rachel Mead

Device Description: The Epi-Rad90™ Ophthalmic System is an intraocular Sr90 applicator device intended to treat neovascularization of retinal tissue by means of local, directional delivery of radiation to target tissues. Using standard vitreo-retinal surgical techniques, the sealed radiation source is placed temporarily over the fovea in the vitreous cavity by means of a proprietary intraocular probe.

Clinical Experience: An initial feasibility study was conducted at Doheny Eye Institute to evaluate a subretinal approach for delivery of radiation for the treatment of CNV in ten subjects. It was determined that radiation delivered using the epiretinal approach may represent a less challenging surgical approach to radiotherapy of CNV.

The purpose of this study is to determine whether the investigational device, Epi-Rad™ Ophthalmic System for radiation delivery to the back of the eye is safe and effective in the treament of AMD. The participants who have a subfoveal CNV associated with wet AMD and confirmed by fluorescein angiography will be randomized into Epi-Rad90™ group or Lucentis® (control drug, which has been approved by FDA for the treatment of wet AMD) group with 2:1 ratio. An Authorized Radiation Oncologist will work with study staffs during the procedure. Epi-RAd90™ will be administrered at one time only, and Lucentis® will be injected monthly for the first three injections followed by quarterly for two years. Best Corrected Visual Acuity Score at 12 months will be compared to baseline, and at 36 months to follow up by masked visual acuity examiner. Changes of total lesion size and CNV size by fluorescein angiography will also be evaluated for end point analysis. This is a 3-year study with 30 scheduled visits. Particpants will be monitored evey month for 2 years and every 6 months thereafter.

Neovista brachytherapy system



Radiation Delivery probe positioned area

Study Title: The Natural History of Geographic Atrophy Progression (GAP) Secondary to Age-Related Macular Degeration

Principal Investigator: SriniVas Sadda, MD
Study Coordinator: Margaret Padilla

Age-related macular degeneration (AMD) is a medical condition associated with aging that gradually destroys sharp and central vision. There are two types of AMD: 'wet' and 'dry'. The later is much more common. Geographic atrophy (GA) is an advanced form of dry AMD caused by the breakdown of light-sensitive cells in the back of the eye. The breakdown can cause a blurred spot in the center of the vision for reading or driving. However, it is still not clear what causes dry AMD, and we want to have a better understanding of the natural history of GA.

The purpose of this study is to follow how a medical condition changes over time and to assess how qukickly the AMD is progressing. Patients who have GA secondary to AMD will be enrolled for this study. Participants will not receive any investigational or marketed drug as part of this study. Instead, particpants will have several eye examinations using photography to take a picture of the back of the eye. The primary statistical objective is to describe the growth of the lesion as assessed by fluorescence photography. This is a non-interventional natural history study and participants will have four site visits over 18 months.

Study Title: A Randomized, Multicenter, Placebo-Controlled, Doublemasked, Parallel-Group Study to Assess the Tolerability, Safety and Effecacy of 2 Weeks Oral AEB071 300 mg Twice Daily, Followed by 6 Weeks AEB071 200 mg Twice Daily in the Treatment of Macular Edema In Patients with Noninfectious Intermediate Uveitis, Posterior Uveitis, or Panuveitis.

Co-Investigator: Narsing Rao, MD
Study Coordinator: Rachel Mead

Uveitis is an inflammatory process inside the eye that requires urgent treatment. Treatment of non-infectious uveitis usually targets surpressing the inflammatory response, and corticosteroids are often used to decrease the inflammation. The inflammation is mediated by cytokines which are produced by T-cell activation. During T-cell activation, protein kinase C (PKC) is involved in the early steps of activation. ADB071 is a highly potent and selective inhibitor of the classical (α,β) and novel (δ, ε, η, θ) PKC isoforms (Ki 50 values range from 0.2 to 3.2 nM in vitro). In particular, its specificity for inhibiting the α,β and θ isoforms of PKC suggests that AEB071 inhibits T-cell activation through a PKC-mediated pathway.

Non-infectious intermediate uveitis, posterior uveitis, and panuveitis are known to be T-cell mediated, predominantly by the CD4+ subset. Treatment of non-infectious uveitis usually aims at suppresing the inflammatory response to preserve vision and prevent sight-threatening complications. Corticosteroids are currently the mainstay of therapy. Long-term use of corticosteroids, however, is poorly tolerated because of their well-known, severe adverse effects. In cases that are poorly responsive or intolerant to corticosteroids, calcineurin inhibitors (cyclosporine, tacrolimus) or mycophenolate mofetil are used. Intraocular or periocular injections of corticosterioids can also be effective. A drug-delivery device called Retisert can be surgically implanted into the vitreous cavity of the eye to release the corticosteroid fluocinolone over 30 months; while Retisert is effective as reducing the severity of uveitis, the majority of patients with the device require treatment of glaucoma and 10% of treated eyes require cataract surgery. In some cases, uveitis is treated with cytotoxic alkylating agents (cyclophosphamide) or antimetabolites (azathioprine, methotrexate).

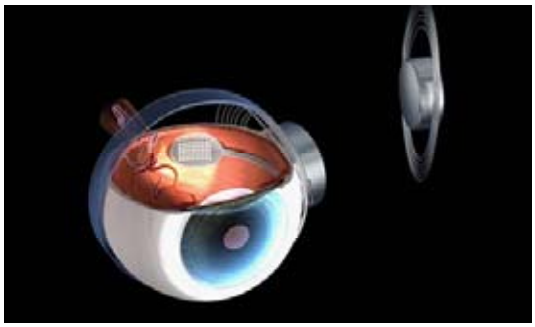
AEB071, orally administered, with more selective and safer agents targeting defined immunologic mechanisms, may be effective in suppressing or reducing the severity of uveitis. Actrivated T-cells play a crucial role in uveal tract inflammation and the subsequent macular edema in non-infectious uveitis patients. AEB071 may provide a treatment option superior to the current therapies available (i.e. corticosteroids or calcineurin inhibitors). The currently adminstered immunosuppressants are given at doses that cause Cushing syndrome (corticosteroids) or kidney or liver damage (calcineurin inhibitors, methotrexate), and it is possible that AEB071 will have fewer or less deleterious side effects.

Study Title: Argus™ II Retinal Stimulation System Feasibility Protocol

Principal Investigator: Dean Eliott, MD
Study Coordinator: Elizabeth Corona

In outer retinal degeneration such as retinitis pigmentosa (RP), the photoreceptors and their supporting retinal pigment epithelium are impaired. After the onset of RP (incidence 1:4000) a person can become legally blind after 25 years with the disease. Many RP patients over sixty years of age may retain only elementary vision with the abilty to see only gross movement or bright light and little or no appreciable peripheral vision. Eventually, even light perception may recede. Currently, there is no treatment that stops or reverses the loss of photoreceptors in retinitis pigmentosa.

The Argus™ II Chronic Retinal Stimulation System is an implantable electronic device designed to provide chronic electrical stimulation of the retina to elicit visual percepts in blind subjects with retinitis pigmentosa. The earlier generation device (Argus™ 16 Retinal Stimulation System) has been implanted in six subjects in an investigational study. The Argus™ 16 Study has demonstrated that subjects have the ability to perceive epiretinal electrical stimuli and perform simple tasks. This study will use an array with up to sixty independently controllable electrodes. The electrodes will be implanted epi-retinally to provide visual input from an external camera system. This study will evaluate the utility of the system for safety, improvement in visual acuity, activities of daily living, quality of life and mobility in subjects with advanced retinitis pigmentosa.



Doheny Eye Centers
A Division of Doheny Eye Medical Group, Inc.

For the convenience of our referring physicians and patients, the Doheny Eye Centers provide services at six locations in Southern California.

Arcadia
622 W. Duarte Road, Suite 101
Arcadia, CA 91007
626 446 2122

Los Angeles
USC Health Sciences Campus
1450 San Pablo Street
Los Angeles, CA 90033
323 442 6335

Pasadena
10 Congress Street, Suite 300
Pasadena, CA 91105
626 395 0778

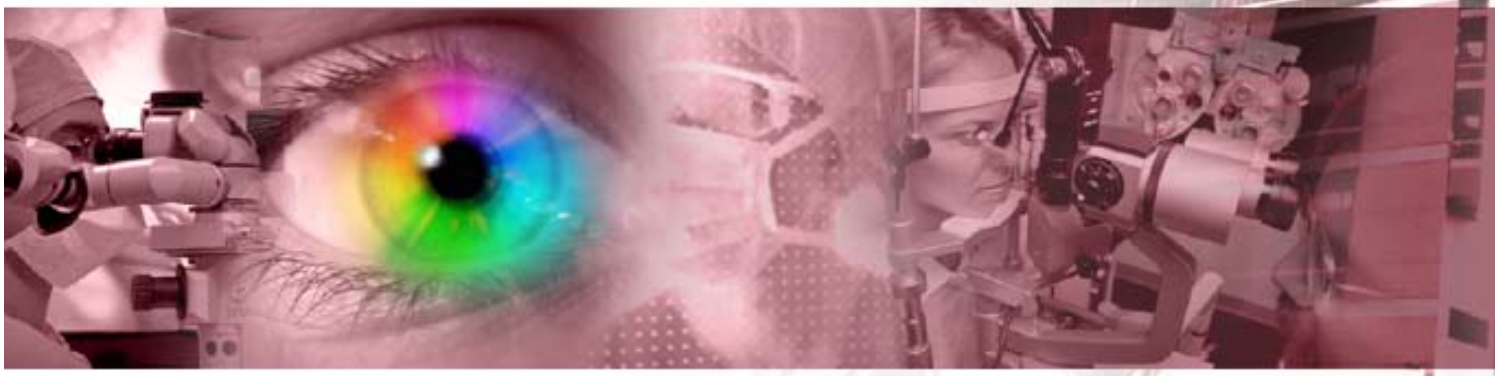
Rancho Mirage
40-055 Bob Hope Drive, Suite J
Rancho Mirage, CA 92272
760 320 2133

Riverside
4440 Brockton Avenue, Suite 330
Riverside, CA 92501
951 788 1231

Doheny Laser Vision Center
USC Health Sciences Campus
1450 San Pablo Street
Los Angeles, CA 90033
323 442 6377

RETINAL DIAGNOSTIC RESOURCES

Hi Speed OCT
3-D OCT
Fluorescein Angiography
Ultrasonography
ICG Angiography
Scanning Laser Ophthalmoscopy



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TRANSLATING RESEARCH TO PATIENT CARE