The UC San Diego Department of Ophthalmology at the Shiley Eye Center is the only academic eye center in the region offering the most advanced treatments across all areas of eye care. Our world class clinicians, surgeons, scientists and staff are dedicated to excellence and providing the best possible patient care to prevent, treat and cure eye diseases. Our research is at the forefront of developing new methods for diagnosis and treatment of eye diseases and disorders. In addition to educating the leaders of tomorrow, we are committed to serving the San Diego and global community.
Colleagues, friends, alumni and supporters,

I am pleased to share highlights of the 2012-2013 year in this second Annual Report. We are proud to bring to you the achievements and news of our outstanding faculty, residents, fellows and staff, as well as their clinical contributions, research discoveries and service to the community and profession.

Patient Care
Ten of our full time clinical faculty were named to the U.S. News & World Report “Top Doctors” 2013 listing. All major specialties are represented among our faculty with several being recognized as being the top 1% in the nation.

Natalie Afshari, M.D., who joined our faculty this year, has established a new clinical program for patients with ocular surface disease.

Research
During the past year, many faculty received honors, awards and research grants. The Department’s national ranking of total National Institutes of Health (NIH) research funding has risen from #12 to #7 (ranked by Blue Ridge Institute for Medical Research.)

With additional innovative research funded by non-governmental organizations and private donors, new research initiatives include our Ocular Biobank (Linda Zangwill, Ph.D. and Radha Ayyagari, Ph.D.), the Laboratory for Regenerative Ophthalmology (Jeff Goldberg, M.D., Ph.D.), and the Laboratory for Visual Performance (Felipe Medeiros, M.D., Ph.D.).

Napoleone Ferrara, M.D., a world-renowned scientist for his translational work with angiogenesis and macular degeneration, was appointed to our faculty.

At the 2013 Annual Meeting of the Association for Research in Vision and Ophthalmology (ARVO), our Department had its most visible presence yet with over 66 presentations and posters from our faculty, residents and fellows.

Education
We have accelerated our continuing medical educational offerings with a monthly Ophthalmology Community Lecture Series. Internationally renowned clinicians and scientists joined us monthly during the past year updating practitioners in San Diego and Imperial Counties on the latest in ophthalmic care.

In February, the Department hosted its annual “Ophthalmology Update” with 300 attendees. At the beginning of the weekend, a special Alumni Grand Rounds was held with the annual Stuart I. Brown Lecture delivered by Shiley Eye Center alumnus, Christopher Leung, M.D., Professor of Ophthalmology, Chinese University of Hong Kong.

Summary
At the Shiley Eye Center, we seek to cure and prevent blinding eye diseases through multi-disciplinary cooperation and teamwork in research, education, community service and clinical care.

With high expectations for preserving and improving the vision of our patients, we also are inspired by our aspirations for improving their lives.

On behalf of our team, I thank you for your generous support and encouragement.

Robert N. Weinreb, M.D.
Chairman and Distinguished Professor of Ophthalmology
Director, Shiley Eye Center
Director, Hamilton Glaucoma Center
Morris Gleich, M.D. Chair of Glaucoma

A LETTER FROM OUR CHAIRMAN
ROBERT N. WEINREB, M.D.
Chairman and Distinguished Professor of Ophthalmology
Director, Shiley Eye Center
Morris Gleich, M.D. Chair of Glaucoma

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5
IN AFRICAN-AMERICANS

A study led by Robert N. Weinreb, M.D., Chairman and Distinguished Professor of Ophthalmology at the Shiley Eye Center, received $6.4 million in grant funding over five years from the National Eye Institute (NEI) beginning in 2013, to study the relationship between genetics and progression of glaucoma in persons of African descent.

A study led by Robert N. Weinreb, M.D., Chairman and Distinguished Professor of Ophthalmology at the Shiley Eye Center, received $6.4 million in grant funding over five years from the National Eye Institute (NEI) beginning in 2013, to study the relationship between genetics and progression of glaucoma in persons of African descent.

Dr. Weinreb has teamed with Jerry Rotter, M.D., Distinguished Professor of Ophthalmology, and Human Genetics at Harbor-UCLA Medical Center, a renowned genetics expert, to identify glaucoma genes in this high-risk, minority population. Its aim is to develop predictive models for glaucoma diagnosis and progression, as well as the discovery of new drug targets for therapies to reduce the visual impact of glaucoma blindness.

“A better understanding of how genetics influences the rate of worsening of glaucoma is needed to better manage and prevent blindness in this high-risk group,” said Linda Zangwill, Ph.D., Professor of Ophthalmology at UCSD and Director of the Laboratory.

“The Visual Performance Lab will provide a clinical research environment to promote a comprehensive assessment of functional performance in different ophthalmic conditions,” said Felipe Medeiros M.D., Ph.D., Professor of Ophthalmology at UCSD and Director of the laboratory.

“Developing strategies for prevention and rehabilitation”, said Dr. Medeiros. Most ocular diseases can impair the ability to drive. The laboratory currently houses an open-cockpit simulator for driving assessment, but is expanding soon into a high-fidelity full cab simulator that will help researchers understand how different eye conditions affect the ability to drive under realistic scenarios, such as right driving, or to simulate challenging situations such as glare. In addition to driving assessment, the laboratory will house a 3-dimensional CAVE, an immersive virtual reality environment where patients will be able to perform several tasks designed to replicate daily activities. “The 3D virtual reality environment allows us to perform controlled experiments that will provide insights into how patients and healthy subjects perform daily activities, such as visual search,” Dr. Medeiros said. By incorporating devices able to monitor eye movements, known as eye-trackers, the laboratory will also allow researchers to investigate adaptation mechanisms employed by patients against different conditions of visual function loss.

As part of his research in the laboratory, Dr. Medeiros has recently been selected as a “Google Developer”, and has been given the opportunity to work with the Google Glass before it is available for public use. “The Google Glass is an innovative and exciting device that will allow us to study visual function within a mobile platform,” he says. “Linking the visual stimuli presented by the Google Glass with objective ways to monitor brain function, such as electroencephalogram (EEG), can potentially give us new ways to monitor visual impairment at distance without the need for patients to come to the office for testing. This would be truly revolutionary,” he adds. In this endeavor, Dr. Medeiros has partnered with Scott Makuch and Tao-Ying Yang, Director and Associate Director, respectively, of the Swartz Center for Computational Neuroscience at UCSD.

The Performance lab will be available for cross-specialty studies, with the goal of conducting studies and clinical trials in glaucoma, retina, neuro-ophthalmology, pediatrics, cornea and oculoplastics. “Dr. Medeiros’ research is unique and transformative and directly benefits our patients. The substantial array of technologies housed in his laboratory is an extraordinary resource for researchers at UCSD and their collaborators from throughout the world,” said Robert N. Weinreb, M.D., Chairman and Distinguished Professor of Ophthalmology. (photo) Dr. Medeiros conducting experiments using the eye tracking and virtual reality at the new Visual Performance Laboratory.

The state-of-the-art Visual Performance Laboratory is being created at the Department of Ophthalmology of the University of California San Diego (UCSD). “The Visual Performance Lab will provide a clinical research environment to promote a comprehensive assessment of functional performance in different ophthalmic conditions,” said Felipe Medeiros M.D., Ph.D., Professor of Ophthalmology at UCSD and Director of the laboratory.

“It is essential that we understand how our patients are affected in their abilities to drive, walk, read or perform other everyday activities. This will help us develop strategies for prevention and rehabilitation”, said Dr. Medeiros. Most ocular diseases can impair the ability to drive. The laboratory currently houses an open-cockpit simulator for driving assessment, but is expanding soon into a high-fidelity full cab simulator that will help researchers understand how different eye conditions affect the ability to drive under realistic scenarios, such as right driving, or to simulate challenging situations such as glare. In addition to driving assessment, the laboratory will house a 3-dimensional CAVE, an immersive virtual reality environment where patients will be able to perform several tasks designed to replicate daily activities. “The 3D virtual reality environment allows us to perform controlled experiments that will provide insights into how patients and healthy subjects perform daily activities, such as visual search,” Dr. Medeiros said. By incorporating devices able to monitor eye movements, known as eye-trackers, the laboratory will also allow researchers to investigate adaptation mechanisms employed by patients against different conditions of visual function loss.

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The Visual Performance Lab will provide a clinical research environment to promote a comprehensive assessment of functional performance in different ophthalmic conditions” - Dr. Felipe Medeiros
Remarkable progress has been made in the past few years in the field of ophthalmology. These advances include development of novel tools for phenotype evaluation, identification of more disease-causing genes, better understanding of pathology, and the development of new treatments including gene therapy and design of drug delivery modalities. All of these call for further research and integration of research results into clinical practice to enable better patient care and prognosis.

The recent surge in biological sample banking is partially due to the advances in understanding the biology of diseases and the promise of personalized medicine. The addition of new bioinformatics technologies and the availability of next-generation sequencing tools, as well as the development of new treatments and therapeutic methods through genomic medicine, have drawn attention to “Biobanking,” enabling researchers to readily utilize advances in the field.

Under the direction of Radha Ayyagari, Ph.D., Associate Professor of Ophthalmology, and Linda Zangwill, Ph.D., Professor of Ophthalmology, the Shiley Eye Center initiated its BioBank last year with the goals of building a resource of readily available biological samples, with complete medical and family history and demographic information to accelerate research to prevent blindness. The staff of the BioBank has been collecting blood, tissue, and biological fluid samples from patients with ophthalmic diseases. In addition, sophisticated methods are employed to derive induced pluripotent stem cells from specific individuals for storage in the BioBank. These samples will be utilized to learn more about predictors of disease (biomarkers), effectiveness or lack of effectiveness of therapies, understood disease pathologies and developing effective therapies.

According to Dr. Ayyagari, “Within the Shiley BioBank, the entire process of banking the collected data and physical samples has been streamlined utilizing a standardized and state-of-the-art secure electronic database with tools.” Demographic, medical and risk factor history data are collected from patients on iPads; details of sample collection, processing, analysis and cryo-freeze storage location of samples are recorded in the BioBank database system. Each step of the process ensures that all patient data and samples are stored, tracked, and readily available to share with investigators, along with all clinical, medical, demographic, genetic, and phenotype information while maintaining strict confidentiality protocols. The protocol has been approved by the UCSD Institutional Review Board Committee includes all activities including the sample collection, sample processing and intended use and handling protocol.

The Shiley Eye Center BioBank will serve as a reference library for each patient. With readily available sample collection, it presents numerous opportunities for investigators to analyze existing data and conduct additional studies based on the most recent scientific knowledge. Robert N. Weinreb, M.D., Director of the Shiley Eye Center, believes that “in the future, the BioBank will enable investigators to learn about predictors of disease, disease pathologies, as well as provide critical new information for developing innovative treatments to prevent and cure blindness of macular degeneration, glaucoma and other blinding eye diseases.”
Angiogenesis involves the growth of new blood vessels, a process essential to developing and sustaining life and health. But there’s a dark side as well: some cancers exploit angiogenesis to feed tumors and spread disease. This phenomenon is not limited to just cancer. Age-related macular degeneration (AMD) is the leading cause of blindness in older adults. There are two forms: “Dry” occurs slowly over time as portions of the retina atrophy. “Wet” is less common, but far more devastating. It is caused by abnormal, leaky blood vessel growth. While less than 20 percent of AMD cases are wet, they account for 80 to 90 percent of severe vision loss. Each year, roughly 200,000 new cases of wet AMD diagnosed in the United States.

Both growing cancer tumors and wet AMD rely upon angiogenesis, but it was not until the 1990s and research by Napoleone Ferrara, M.D., that science was able to pinpoint the “X factor” that drives vascular growth, providing for the first time a therapeutic target for both cancer and AMD. Dr. Ferrara was appointed during the past year as a Distinguished Professor of Ophthalmology and Pathology at the UC San Diego School of Medicine as well as the senior deputy director for basic science at UC San Diego Moores Cancer Center. In the 1980s, Ferrara, who had trained at the University of Catania Medical School in Italy, was working as a postdoctoral fellow at the UC San Francisco Medical Center, when he identified a protein that selectively promoted the growth of vascular endothelial cells—the cells that line the entire circulatory system, from the heart to the smallest capillaries. In 1988, he joined the South San Francisco-based biotechnology company Genentech. Ferrara and his colleagues at Genentech were able to isolate and clone this angiogenic molecule and termed it “vascular endothelial growth factor” or VEGF.

The discovery of VEGF proved a monumental advance. Since the protein was vital to growing blood vessels, researchers theorized that blocking the function of VEGF might help tumors and wet AMD the substance needed to grow and spread. Ferrara and colleagues followed up with development of a humanized anti-VEGF antibody, which has been approved for treatment of some forms of colorectal, lung and renal cancer, and subsequently used by ophthalmologists for treating AMD and other retinal vascular diseases.

He also was focused on AMD, developing in his lab another anti-VEGF antibody fragment called ranibizumab (Lucentis) as a potential therapy for wet AMD. In 2004, the therapy was approved after multiple clinical trials showed substantial visual acuity gains in patients with severe cases. Ranibizumab has since been approved for treating retinal vein occlusion and diabetic macular edema as well as wet AMD.

“This work has been extremely gratifying,” said Ferrara, who continues his AMD studies at the UC San Diego Shiley Eye Center. “I’m humbled by the magnitude of the benefit, particularly the improved vision in patients, which exceeded my expectations, considering that previous treatments only slowed down the rate of vision loss.”

In 2010, Dr. Ferrara won the prestigious Lasker-DeBakey Clinical Medical Research Award, often called the American Nobel Prize, for the discovery of VEGF as a major mediator of angiogenesis and the development of an effective anti-VEGF therapy for wet AMD. Most recently in February of this year, he received the inaugural Breakthrough Prize in Life Sciences for his discoveries in the basic mechanisms of angiogenesis that led to new therapies for cancer and eye diseases.

Photograph: Retina vessels, courtesy of I. Kasman and W. Ye, Genentech

NEW TREATMENTS FOR MACULAR DEGENERATION
SHILEY DOCTORS SAVE PITCHER’S EYE

C adhan Brown has always loved baseball. He is considered one of the top young prospects in all of San Diego County. As a thirteen year old, he pitches up to 75 mph as well as playing 1st and 3rd base. He is the starting pitcher for the Encinitas Little League All Stars. In 2011 and 2012, he led the Encinitas Little League in home runs and was the Home Run Derby Winner in 2012. Despite the hours he spends each day practicing, Cadhan carries a 4.0 GPA, and was named Encinitas Chamber of Commerce Student of the year. Even more amazing, is that Cadhan is a type I diabetic and manages to compete at such an elite level in his sport.

Despite playing multiple positions, Cadhan’s love is pitching and dreams of one day pitching in the major league. All of this came to a sudden halt in early 2013. In less than a second, the average time it takes a baseball to reach the pitcher after the batter strikes the ball, Cadhan was struck in the eye socket by a line drive. Worried about their child, loss of his budding baseball career and worse yet maybe even blindness, Cadhan’s parents searched for a place they could get help. Hours from home they came down the freeway and started making phone calls. He was rushed to see David B. Granet, M.D., Director of the Ratner Children’s Eye Center at the Shiley Eye Center. Hearts pounding the family was relieved that his eye was ok after Dr. Granet’s examination. However, a CT scan showed the baseball had shattered the majority of the bones in Cadhan’s eye socket (orbit). The fracture also involved the upper wall of the orbit with a bone fragment just millimeters away from entering Cadhan’s brain. To compound matters, the injury was causing restricted eye movements and left him with double vision.

Dr. Granet immediately brought Cadhan over to the adjacent Shiley Eye Center to see Bobby Korn, M.D., Ph.D., Associate Professor of Clinical Ophthalmology in the Ophthalmic Plastic and Reconstructive Surgery Division. Dr. Korn reviewed Cadhan’s CT scans. Their stomachs ached when Dr. Korn talked about Cadhan’s shattered orbit. Would he ever be normal again? Could he drive? Go to school? Ever play baseball? Calmly Dr. Korn discussed all of the options. Almost certainly they included bone work to piece together the orbit and likely eye muscle surgery. In the operating room, Dr. Korn meticulously realigned all the bone fragments and covered each of the fractures with implants and screws while protecting his brain and sinuses. In the end, he was able to place together this complex orbital fracture puzzle and return the eye to full movement.

Initially, Cadhan had significant edema at the surgery site and still had double vision. But with each passing day, his vision started to increase and his eye movements continued to improve. Amazingly eye muscle surgery to get rid of double vision was not needed and Cadhan’s eye healed beautifully.

Two months out, Drs. Korn and Granet gave Cadhan the clearance to start baseball practice again and he hasn’t looked back since! “We are eternally grateful of the care given to Cadhan by Dr. Korn and Dr. Granet,” said his parents.

This accident brings awareness to the importance of using protective eye gear by children and adults as standard equipment for a variety of sports activities. According to the National Eye Institute (NEI), most sports-related eye injuries can be avoided with the use of protective eyewear such as sports glasses and goggles, safety shields, and eye guards for a particular sport. Ordinary prescription glasses, contact lenses and sunglasses do not protect against eye injuries. Safety goggles should be worn over them.

At the Shiley Eye Center, ophthalmic subspecialists are all housed in one complex. The beauty of this is that we have world class eye doctors right next to each other. This provides the benefit of a team of multiple ophthalmic specialists putting their heads – and hands – together,” said Granet. “That teamwork, on the field or in medicine, produces the best results” continued Granet. Collaboration amongst physicians in all of the ophthalmic divisions is a hallmark of the Shiley Eye Center and enables our patients to receive the highest level of care.

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“We are eternally grateful of the care given to Cadhan by Dr. Korn and Dr. Granet,” said Cadhan’s parents.
Dr. Afshari had just been recruited to the UC San Diego Shiley Eye Center from Duke University where she was Professor of Ophthalmology. Soon after walking into her new Goldenson Corneal and Refractive Surgery and Professor of Ophthalmology office last fall, she opened a letter already on her desk from Mr. Briney. Esther Briney is a successful engineer and entrepreneur. He has his own cataract surgeon at the Shiley Eye Center.

“Dr. Afshari’s research on Fuchs represents some of the most important opportunities to make advances both in our fundamental understanding of corneal diseases, as well as in bringing new treatments forward” says Jeffrey Goldberg, M.D., Ph.D., Director of Research and Professor of Ophthalmology at the Shiley Eye Center.

FUTURE THERAPY

Dr. Afshari has been studying the genetics of Fuchs Corneal Dystrophy for over a decade and has used DNA sample with this disease. While colleagues, great strides have been made in providing areas of the genome responsible for this disease. They have also been developing new options for treatment of Fuchs Endothelial Dystrophy. Her colleagues have also been working on developing eye drop medications as opposed to surgical treatment for Fuchs Corneal Dystrophy. Topical administration of ROCK inhibitors in animals has demonstrated marked reduction of corneal swelling in treated eyes. “For the future, my hope is to treat patients that have Fuchs with eye drops rather than surgery. I believe this is achievable very soon” says Dr. Afshari.

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Parafovea, checked his eyes during clinical visits at the Duke Eye Center. He knew the importance of seeking expert advice. He took to the Internet in search of corneal diseases, as well as in bringing new treatments forward” says Jeffrey Goldberg, M.D., Ph.D., Director of Research and Professor of Ophthalmology at the Shiley Eye Center.

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“Dr. Afshar...
Jeffrey L. Goldberg, M.D., Ph.D., who joined the UC San Diego Shiley Eye Center faculty in November 2012 as Professor and Director of Research in the Department of Ophthalmology, is directing two exciting research programs. Each has great potential to restore vision to those who have lost their sight, and are funded by both the National Eye Institute and by private donations.

One program involves developing regenerative therapies for glaucoma and other diseases of the optic nerve. In ischemic optic neuropathy (optic nerve stroke) or optic neuritis, immune diseases, optic nerve fibers that carry visual information from the eye to the brain are damaged. Normally there is no regenerative response—why vision loss in glaucoma and other diseases has always been thought to be permanent.

“The idea of restoring vision in glaucoma is captivating and very motivating,” Dr. Goldberg says. “We see so many patients with advanced disease and significant vision loss. Of course, there are too many more at risk of decline.” Dr. Goldberg’s group has been studying a recently discovered family of genes and proteins, the Kruppel-like transcription factors and their signaling partners, that control regeneration. They have discovered that increasing one or decreasing another can promote regeneration in experimental models of optic nerve degeneration.

The second program is designed to harness the potential of stem cell therapies for the eye. His group is studying how to replace degenerating retinal cells, particularly the rods and cones (photoreceptors), in macular degeneration, and the retinal ganglion cells in glaucoma, with cell replacement therapies. Although not yet ready for testing in patients, they have developed a number of innovative and potentially promising strategies for cellular regeneration. The first involves harvesting a patient’s adult retinal stem cells from their peripheral retina, growing them in the laboratory and reimplanting them back into the patient as retinal neurons (nerve cells). Another approach involves turning stem cells into retinal neurons—this team uncovered a new set of molecules that control how stem cells turn into retinal ganglion cells. According to Robert N. Weinreb, M.D., Director of the Shiley Eye Center, “Dr. Goldberg and his team enhance the ability of turning stem cells into retinal neurons that need replacing. As a result, it is expected that patient treatments to rescue and restore vision will be improved.”

Dr. Goldberg is optimistic and hopes to move these advances from the laboratory into clinical trials for patients. “We and others have developed good candidates that work well in the laboratory, and plan to move toward human testing in the near future,” Dr. Goldberg added.

(left) Novel nanoparticle-based therapeutics are being tested for their ability to enhance optic nerve regeneration in glaucoma and other optic neuropathies.

(right top) Retinal progenitor stem cells can be induced to differentiate into retinal ganglion cells that may prove valuable in developing new treatments for glaucoma.

“Dr. Goldberg is optimistic and hopes to move these advances from the laboratory into clinical trials for patients. “We and others have developed good candidates that work well in the laboratory, and plan to move toward human testing in the near future,” Dr. Goldberg added.”
GLAUCOMA

Glaucoma can cause blindness if untreated and is the second leading cause of blindness in the United States. More than 3 million Americans have glaucoma and at least one half do not know it. Although there is no cure yet, loss of vision can be slowed or halted with appropriate treatment. The best way to protect your sight from glaucoma is to get tested. Early diagnosis and appropriate treatment are keys to preserving vision.

Robert N. Weinreb, M.D.
Professor & Chair, Department of Ophthalmology
Director, Shiley Eye Center
Director, Hamilton Glaucoma Center
Clinical Interests

Residency
University of California, San Francisco
Fellowship
University of California, San Francisco
Certification
Board Certification in Ophthalmology

Special Interests

Robert N. Weinreb, M.D.
Professor & Chair, Department of Ophthalmology
Director, Shiley Eye Center
Director, Hamilton Glaucoma Center
Chairman & Distinguished Professor of Ophthalmology
Morris Gleich, M.D. Chair of Glaucoma
Robert N. Weinreb, M.D.

Felipe A. Medeiros, M.D., Ph.D.
Professor of Ophthalmology
Medical Director, Hamilton Glaucoma Center
Clinical Interests
Glaucoma surgery; Cataract surgery; Neuroprotection in glaucoma; Drug delivery; Cataract surgery; Advanced imaging analysis

Residency
University of Sao Paulo
Fellowship
University of California, San Diego
Certification
Board Certification in Ophthalmology

Special Interests
Glaucoma surgery; Cataract surgery; Neuroradiology and ophthalmic imaging; Stem cell and tissue engineering; Nanotechnology; Imaging of the lamina cribosa and choroid as well as a visual performance laboratory with a driving simulator.

Our glaucoma specialists are world-renowned for their clinical research and research excellence and offer unique management programs for glaucoma through clinical trials and innovative medical and surgical therapies that include topical testing and regenerative ophthalmology.

Jeffrey L. Goldberg, M.D., Ph.D.
Director of Research, Shiley Eye Center
Medical School
University of California, San Diego
Residency
Irvine/Permanente Eye Institute
Fellowship
Irvine/Permanente Eye Institute
Certification
Board Certification in Ophthalmology

Special Interests
Glaucoma surgery; Cataract surgery; Neuroradiology and ophthalmic imaging; Stem cell and tissue engineering; Nanotechnology; Imaging of the lamina cribosa and choroid as well as a visual performance laboratory with a driving simulator.

Medical School
University of California, San Diego
Residency
Irvine/Permanente Eye Institute
Fellowship
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University of Sao Paulo
Fellowship
University of California, San Diego
Certification
Board Certification in Ophthalmology

Special Interests
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Medical School
University of Sao Paulo
Residency
University of Sao Paulo
Fellowship
University of California, San Diego
Certification
Board Certification in Ophthalmology

Special Interests
Glaucoma surgery; Cataract surgery; Neuroradiology and ophthalmic imaging; Stem cell and tissue engineering; Nanotechnology; Imaging of the lamina cribosa and choroid as well as a visual performance laboratory with a driving simulator.

Medical School
University of California, San Francisco
Residency
Bascom Palmer Eye Institute
Fellowship
Bascom Palmer Eye Institute
Certification
Board Certification in Ophthalmology

Special Interests
Glaucoma surgery; Cataract surgery; Neuroradiology and ophthalmic imaging; Stem cell and tissue engineering; Nanotechnology; Imaging of the lamina cribosa and choroid as well as a visual performance laboratory with a driving simulator.
and visual function measurements
Machine learning classifier analyses of imaging
Early detection and monitoring of glaucoma;
Special Interests
University of California, San Diego
Postdoctoral Fellowship
Washington State University
Graduate School
Evaluation and Analysis (IDEA) Center
Co-Director, Center-based Imaging Data Assessment Center
Director, Center-based Visual Field Research Scientist of Ophthalmology
Christopher Bowd, Ph.D.
McKnight Neuroscience Scholar Award (2013-2015)
Pew Biomedical Scholar Award (2013-2016);
Notables
Retinal development and retinal ganglion cells
Special Interests
Stanford University School of Medicine
Postdoctoral Fellowship
University of California, Davis
Graduate School
Neurobiology/Ophthalmology
Assistant Professor of Neurosciences/Andrew D. Huberman, Ph.D.
ONH astrocyte neuroprotection in glaucoma
Mitochondria-related gene therapy for RGC and optic nerve head (ONH) astrocyte in glaucoma; dysfunction in retinal ganglion cell (RGC) and Mitochondrial dynamics, bioenergetics and stress and glutamate excitotoxicity in glaucoma; neurodegeneration in glaucoma; Oxidative Mechanisms for neuroprotection and
Special Interests
Sanford-Burnham Medical Research Institute
Washington University in St. Louis
Postdoctoral Fellowship
The Catholic University in Korea (Masters & Ph.D.)
Graduate School
Ophthalmology
Associate Professor of Won-Kyu (Daniel) Ju, Ph.D.
Congress, Vienna, Austria
Outstanding Poster Presentation, World Glaucoma
Notables
glaucoma, and aqueous humor dynamics
Biology of optic nerve, experimental models of
Special Interests
University of California, San Diego
Postdoctoral Fellowship
University of California, San Diego
Graduate School
Adjunct Professor of Ophthalmology
James D. Lindsey, Ph.D.
visual performance; Use of driving simulator as
in all areas of eye disease; Psych-physics of
performance and task performance; Connection for evaluation on the relationship between visual
performance and task performance; Use of the driving simulator as a methodology for evaluation on the relationship between visual performance and task performance in all areas of eye disease; Psych-physics of visual performance; Establishing the connection between visual
performance
Special Interests
Board Certification in Ophthalmology
 associate clinical professor
Peter Rosen, M.D.
Certificate
Residency
Medical School
of Ophthalmology
Adjunct Professor of
Peter Rosen, M.D.
visual performance; Use of driving simulator as
in all areas of eye disease; Psych-physics of
performance and task performance; Connection for evaluation on the relationship between visual
performance and task performance; Use of the driving simulator as a methodology for evaluation on the relationship between visual performance and task performance in all areas of eye disease; Psych-physics of visual performance; Establishing the connection between visual
performance
Special Interests
Board Certification in Ophthalmology
 associate clinical professor
Peter Rosen, M.D.
visual performance; Use of driving simulator as
in all areas of eye disease; Psych-physics of
performance and task performance; Connection for evaluation on the relationship between visual
performance and task performance; Use of the driving simulator as a methodology for evaluation on the relationship between visual performance and task performance in all areas of eye disease; Psych-physics of visual performance; Establishing the connection between visual
performance
Special Interests
Board Certification in Ophthalmology
 associate clinical professor
Peter Rosen, M.D.
Diseases of the retina cause severe and debilitating vision loss. Our retina physicians diagnose and treat macular degeneration, diabetic retinopathy, tumors, inherited retinal disease, retinal detachment, macular holes, and other important retinal diseases.

The Joan and Irwin Jacobs Retina Center houses research projects seeking to find solutions for people of all ages who suffer from retinal conditions. The clinical research center at the Jacobs Retina Center enables patients to benefit from the latest advances in diagnostic equipment and therapies. Researchers working in the Center's laboratories apply the power of genetics and stem cell research towards the treatment of blinding diseases.

William R. Freeman, M.D.
Vic Department of Retina Disease, Jacobs Retina Center
Co-Director, Retina Division
Medical School
Mount Sinai School of Medicine, New York
Residency
Lenox Hill Hospital, New York
Fellowship
University of California, San Francisco (Ophthalmology), San Diego (Uveitis & Immunology), University of Southern California, Los Angeles (Vitreo-Retinal Surgery)
Certification
Board Certification in Ophthalmology
Special Interests
Comprehensive retinal disorders, Diabetic retinopathy, Macular degeneration, Age-related macular degeneration

Michael H. Goldbaum, M.D.
Professor of Ophthalmology In Residence
Tulane University School of Medicine and U.S. Naval Hospital
Fellowship
Cornell University Medical Center and New York Hospital
Special Interests
Surgical & medical treatment of the retina and vitreous, Macular degeneration, Pediatric retina, Ocular tumors, Glaucoma informatics

Radha Ayyagari, Ph.D.
Associate Professor In Residence, Retina Division
Graduate School
Osmania University, Hyderabad, India
Postdoctoral Fellowship
Molecular Genetics at the National Eye Institute, NIH, Bethesda
Special Interests
Molecular genetics of macular and retinal dystrophy, Retinal degeneration, Inherited retinal disease, Dopamine and ophthalmology

Dirk-Uwe Bartsch, Ph.D.
Associate Adjunct Professor
Co-Director, Jacobs Retina Center
Postdoctoral Fellowship
University of California, San Diego
Special Interests
Retinal Imaging; Scanning Laser Imaging - confocal/non-confocal; Optical Coherence Tomography (OCT); Indocyanine Green and Fluorescein Angiography; Tomographic Reconstruction of the Posterior Poles

Lingyuan Cheng, M.D., Ph.D.
Associate Adjunct Professor
Director, Ocular Pharmacology
Residency
The First Teaching Hospital of Shanxi Medical University, China
Medical School
Shanxi Medical University, China
Special Interests
Ocular drug delivery and vitreoretinal diseases

Henry A. Ferreyra, M.D.
Member and Professor of Ophthalmology
Medical School
University of California, San Diego
Residency
University of California, San Diego
Fellowship
University of California, San Diego
Certification
Board Certification in Ophthalmology
Special Interests
Blepharoplasty; External disorders of the orbit; Ocular motility and strabismus

Notables
Outstanding Teaching Award
Peter Shaw, Ph.D.  
Associate Professor of Ophthalmology  
Graduate School  
McMaster University, Ontario, Canada  
Postdoctoral Fellowship  
University of California, San Francisco  
Special Interests  
Mechanistic study of retinal ganglion cell differentiation and survival; impact of genetics and innate immunity on eye; gene therapy using engineered antibodies; role of oxidative stress and its functional targets and therapies in macular degeneration; diabetic retinopathy; inherited retinal degenerations; plasma biomarkers for eye diseases  
Notables  
Cheng Scholar; Van Slyke Award  
Associate Project Scientist of Ophthalmology  
Graduate School  
McMaster University, Ontario, Canada  
Jiagang “Jack” Zhao, Ph.D.  
Assistant Project Scientist of Ophthalmology  
Graduate School  
Mount Sinai School of Medicine, New York  
Special Interests  
Stem cell-based approaches for retinal disease modeling and treatment; differentiation mechanisms of retinal fate restriction from pluripotent cells; regeneration of retinal sensors from Muller glia  
CORNÉA AND REFRACTIVE  
The Shiley Eye Center Cornea and Refractive specialty is dedicated to the health and functioning of the cornea and combines unparalleled care, expertise, and state-of-the-art equipment to ensure the best experience for patients. Shiley offers treatments for complex and high-risk cases as well as the most current vision correction procedures.
Stuart I. Brown, M.D.
Professor of Ophthalmology
Dr. Richard and Tatiana Lansche Chair of Ophthalmology

Medical School
University of Illinois Medical School

Residency
Tulane Medical School

Fellowship
Massachusetts Eye and Ear Infirmary

Certification
Board Certification in Ophthalmology

Special Interests
Methods of improving the efficiency of eye care delivery to pre-school age children throughout California; Corneal transplantation; Cataract surgery

Notables
Heed Ophthalmic Foundation Award; McLean Medal, Cornell/Columbia University; Outstanding Teacher Award

Weldon W. Haw, M.D.
Chief Fellow of Ophthalmology
Chief of Ophthalmology at Veterans Administration Medical Hospital

Medical School
University of California, Los Angeles School of Medicine

Residency
School of Medicine at the University of California (Chief Resident)

Fellowship
School of Medicine at the University of California

Certification
Board Certification in Ophthalmology

Special Interests
External surgery; Corneal transplantation; Retinopathy surgery; ARMD

Notables
U.S. News & World Report’s Top Doctor; Los Angeles Times Top Doctor

Chris W. Heichel, M.D.
Associate Clinical Professor of Ophthalmology

Medical School
University of California, San Diego

Residency
University of California, San Diego (Chief Resident)

Fellowship
University of California, San Diego

Certification
Board Certification in Ophthalmology

Special Interests
Corneal transplantations and keratoprosthesis (K-PRO); Descemet’s stripping endothelial keratoplasty (DSAEK); Descemet’s membrane endothelial keratoplasty (DMEK); Anterior segment and iris reconstruction; Challenging and traumatic cataract surgeries; IOL surgeries, including reposition, exchange and sutured IOLs; LASIK, PRK and Visian ICL; Advanced techniques in laser & refractive surgery; Keratoconus; Ocular surface tumors; Limbal stem cell transplantation; Corneal transplantations and keratoprostheses; Keratoconus; Challenging and traumatic cataract surgeries; IOL surgeries, including reposition, exchange and sutured IOLs; LASIK, PRK and Visian ICL; Advanced techniques in laser & refractive surgery; Keratoconus; Ocular surface tumors; Limbal stem cell transplantation

Notables
American Top Ophthalmologists; U.S. News & World Report’s Top Doctor; Southern California Magazine Top Doctor; Southern California Magazine Top Doctor; Outstanding Teacher Award; American Top Ophthalmologists

Peter J. Savino, M.D.
Clinical Professor of Ophthalmology & Neuroscience

Medical School
University of Rochester School of Medicine

Residency
Emory University Medical Center

Fellowship
University of Miami

Certification
Board Certification in Ophthalmology

Special Interests
Neuro-ophthalmology

Notables
2012, 2013 U.S. News and World Report Top Doctor (Top 1%); 2012, 2013 Outstanding Doctor Award, U.S. News & World Report; Top Doctor Award, New York Times; Outstanding Teacher Award; Gold Apple Award; McLean Fellowship, Cornell University; Outstanding Teacher Award; Life Achievement Award, American Academy of Ophthalmology; Outstanding Teacher Award; National Ophthalmology Award; circa New York State Award of New York State Medical Association; Gold Apple Award; Metacraniofactory of the Year Award; One of the “Best 100 Ophthalmologists in America,” Ophthalmology Times; Rome Police Award; Chicago Ophthalmology Society

Neuro-ophthalmologists diagnose and treat neuro-sensory disorders including brain tumors, double vision, giant cell arthritis, ischemic optic neuropathy, optic neuritis, papillodema, pseudotumor cerebri, thyroid eye disease and visual field defects. Shiley Eye Center’s skilled neuro-ophthalmologists conduct diagnostic testing and thorough evaluation while working with the referring physician to manage the condition or illness.
Orbits. Eyelids. Face. Lacrimal system. These are the domains of oculofacial plastic surgery. Birth defects, cancer, trauma and the aging process can all alter the periorbital region. These surgeons rebuild, reconstruct, renew and make whole again. The UCSD Division of Ophthalmic Plastic and Reconstructive Surgery is an internationally recognized leader in patient care, teaching and research. Dr. Kikkawa and Dr. Korn have pioneered innovative operations and techniques that have become the standard.

OPHTHALMIC PLASTIC AND RECONSTRUCTIVE SURGERY

Don O. Kikkawa, M.D., F.A.C.S.
Chairman and Professor of Clinical Ophthalmology
Chief, Division of Ophthalmic Plastic and Reconstructive Surgery

Medical School
N. Louis University School of Medicine
Residency
University of California, Los Angeles
Fellowship
University of Wisconsin, Madison
Certification
Board Certification in Ophthalmology

Special Interests
Oculofacial surgery - aesthetic and reconstructive; Eyelid, orbital and cosmetic surgery; Ocular, orbital and facial trauma and reconstruction; Craniofacial disorders involving the eyelids and orbits; Ocular and orbital tumors.

Notables
2013 - U.S. News and World Report Top Doctor (Top 1%); 2012, 2013 – San Diego Magazine Physician of Exceptional Excellence; President-elect American Society of Ophthalmic Plastic and Reconstructive Surgery, Best Doctors in America; Top Doctor, US News and World Report; Top Doctors San Diego; Lester T. Jones Award; Marvin H. Quickert Award; ASOPRS Research Award; American Academy of Ophthalmology Senior Achievement Award; Outstanding Teaching Award.

Bobby S. Korn, M.D., Ph.D., F.A.C.S.
Associate Professor of Clinical Ophthalmology

Medical School
University of Texas, Southwestern Medical School
Residency
University of California, San Diego
Fellowship
University of California, San Diego
Certification
Board Certification in Ophthalmology

Special Interests
Aesthetic and reconstructive surgery (eyelid & face); Blepharoplasty (eyelid lift surgery); Ptosis repair surgery; Asian/ethnic eyelid surgery (double eyelid surgery); Congenital birth defects; Thyroid eye disease – orbital decompression, eyelid retraction repair, ocular oncology, ocular surface disease; Orbital and eyelid tumors & cancers; Endoscopic lacrimal (tear drainage) surgery; Endoscopic sinus surgery; Cosmetic skin rejuvenation; Orbital stem cells.

Notables

THYROID EYE CLINIC

The UC San Diego Thyroid Eye Clinic began in 1997 as the first of its kind in the nation. Thyroid Eye Disease is a complex autoimmune disease that affects not only vision but also causes pain and deformity. Drs. Granet, Kikkawa and Korn have helped hundreds of patients with this disfiguring disorder and have published extensively on its characteristics and treatment.

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PEDIATRIC OPHTHALMOLOGY AND ADULT EYE REALIGNMENT SERVICES

Preventing and treating vision loss and ocular problems in children is the highest priority at the Ratner Children’s Eye Center. Dr. David Granet and Dr. Shira Robbins are world-renowned specialists in helping children with eye misalignments (strabismus), nystagmus, congenital diseases like pediatric cataracts and glaucoma, acquired problems from blocked tear ducts to “lazy eye” (amblyopia) as well as trauma. From premature babies to teenagers, our team ensures that each child seen at the family-oriented Ratner Children’s Eye Center is given the attention and personal medical care they deserve in a child-friendly atmosphere. Adults with strabismus suffer from an old childhood problem, trauma, or a condition causing eye misalignment and require individualized intervention. Recognized worldwide for their teaching and developments in this field, the specialized surgeons at the Ratner Eye Center can help virtually everyone – regardless of age – suffering from various ocular misalignments and their consequences.
The UC San Diego Comprehensive Ophthalmology division provides a variety of services and ophthalmic evaluations that screen and treat a wide range of ophthalmic conditions, including cataracts, ocular surface disorders, glaucoma, diabetic retinopathy, conjunctivitis, blepharitis and macular degeneration. Primary eye care is provided for all types of conditions of the eye and surrounding structures, both routine and urgent. Treatments offered vary from medications and glasses prescriptions; to laser therapy, small in-office procedures and more invasive surgical options.

COMPREHENSIVE
OPHTHALMOLOGY

Jeffrey E. Lee, M.D.
Clinical Assistant Professor of Ophthalmology
Residency Program Director

Medical School
University of California, San Diego
Residency
University of California, San Diego
Certification
Board Certification in Ophthalmology

Special Interests
Clinical computer applications in Eye patients, Pediatric Ophthalmology, Optic Nerve Lesions, Outdoor Inheritance of Eye.

Notables
2013 UC San Diego Ophthalmology Outstanding Resident Award; 2013 UC San Diego Outstanding Teaching Award for Medical Students

Thao P. Nguyen, M.D.
Medical School
University of California, San Diego
Residency
University of California, San Diego
Certification
Board Certification in Ophthalmology

OPHTHALMIC
PATHOLOGY

Jonathan H. Lin, M.D., Ph.D., F.C.A.P.
Assistant Professor of Ophthalmology
Pathology, Cellular and Molecular Medicine

Medical School
Columbia University College of Physicians & Surgeons (M.D. & Ph.D.)
Residency
Brigham Women's Hospital (Anatomic Pathology)
Special Interests
Ophthalmic Pathology including pigmented ocular lesions (uveal melanoma, primary acquired melanosis), basal cell carcinoma, adenoid cystic carcinoma, clear cell leiomyoma, inflammatory lesions (sclerosing orbital inflammatory pseudotumor, IgG4 disease, orbital lymphoid hyperplasia, orbital pseudotumor), retinal lesions (uveitis, retinal vasculitis, retinal vein occlusion), ocular melanocytosis, hama
eromas, orbital fibroangiomas, acute retinal necrosis, corneal dystrophies, inflammatory diseases, cellular and molecular mechanisms of retinal degeneration, RPE and ocular stem cells.

Notables
American Society for Investigative Pathology Renal Cancer Early Investigator Award; American Society for Investigative Pathology Renal Cancer Early Investigator Award; Karl Kirchgessner Foundation Vision Research Award; American Federation for Aging Research New Investigator Award; Hope for Vision Foundation New Investigator Award

Ophthalmic pathology service focuses on diseases of the eye and its neighboring tissues. Precision diagnosis of diseases is provided by the ophthalmic pathology service. Diseased tissues are examined macroscopically, microscopically and on the ultrastructural level. Advanced genomic, proteomic, and cytogenetic techniques can be utilized to diagnose diseases at a molecular level. The pathologic diagnosis of the disease plays a vital role in patient care.
The regulation of angiogenesis is a pathological process that occurs in retinal vascular diseases such as diabetic retinopathy and age-related macular degeneration. Vascular endothelial growth factor (VEGF) is the principle mediator in this complex disease process and in 1989, our laboratory cloned this gene. We have subsequently developed two inhibitors of VEGF, bevacizumab and ranibizumab for clinical use. In 2006, ranibizumab was approved for the treatment of wet AMD after multiple Phase III trials demonstrating that administration of such agent results in substantial visual acuity gains. Since 2006, the FDA has expanded the use of ranibizumab, approving it to treat retinal vein occlusion in 2010 and diabetic macular edema in 2012.

Pamela A. Hoo, O.D.
Lara Hustana, O.D.
Lianne Mizoguchi, O.D.
John F. Kulischak, O.D.
Jessica A. Tasto, O.D.

Shiley Eye Center optometrists are eye care professionals who perform comprehensive eye exams and are experts at fitting all types of contact lenses and glasses. Visual impairment from inherited diseases to diabetic retinopathy and macular degeneration can result in profound vision loss. Using the latest technological advancements in optical aids, optometrists provide much needed care for our low vision patients. Working hand in hand with Shiley ophthalmologists, the optometry service strives to deliver the best possible care to each patient.
Shiley Eye Center offers world-class fellowships in cornea, glaucoma, ophthalmic plastic and reconstructive surgery, pediatric ophthalmology, and retina. Fellows are exposed to intense training in both the clinical and research settings. Many go on to prominent academic positions around the world as well as practicing as outstanding clinicians in the global ophthalmic community.

* Not Photographed

**FELLOWSHIPS**
The UC San Diego Ophthalmology Residency Training Program is a three-year program with a total of 12 resident physicians (four per year of training).

Our highly selective residency program receives over 400 applications per year from all over the country to fill four positions. It is known for its outstanding clinical and surgical training, as well as the value placed on scholarly activity and compassionate patient care. Our residents are among the brightest and most motivated, and continue to be high achievers during and after their training. As a result, graduating residents are regularly chosen for competitive post-residency Fellowship training in various subspecialties of Ophthalmology, such as Cornea, Glaucoma, Ophthalmic Plastic and Reconstructive Surgery and Retina. During their training residents work under the supervision of the renowned Shiley faculty, to care for patients from all walks of life and with every type of eye problem, from common to very rare conditions. In addition, with Departmental support, residents participate in the many cutting-edge research opportunities available in the UC San Diego Department of Ophthalmology and present their work at pre-eminent national meetings such as the American Academy of Ophthalmology and the Association for Research in Vision and Ophthalmology.

The UC San Diego Ophthalmology Residency Training Program was recently recognized by the national accrediting body, the Accreditation Council for Graduate Medical Education, with a commendation on the excellence of the Residency Program and its faculty.
The Department of Ophthalmology initiated new Community Lecture Series held the first Monday of every month. The subjects are often the theme. These are offered in the Shiley Eye Auditorium.

The lectures are held at the UC San Diego Moores Cancer Center in the Goldberg Auditorium. Alumni presenters included Drs. Rigby Slight, Mark Fay, Mark Pines, La Jolla. The event was a resounding success with almost 100 participants from around the country. Don O. Kikkawa, M.D. and Robert N. Weinreb, M.D. delivered by Christopher Leung, M.D. followed by the Stuart I. Brown Lecture and posters from our faculty, residents and fellows which was among the highest in the world. The Wrap-up provided an opportunity for medical students, residents, fellows and faculty to hear and view the outstanding research that has been conducted in the Department during 2012-2013 as well as engaging the scientists in discussion about their projects.

OPHTHALMOLOGY EDUCATION UPDATE

The annual Ophthalmology Update was held February 16-17, 2013 at the Hilton Torrey Pines, La Jolla. The event was a resounding success with almost 100 participants from around the country. Don O. Kikkawa, M.D. and Robert N. Weinreb, M.D. served as Program Co-Chairs. The interdisciplinary faculty gave presentations on the latest surgical techniques, innovative ideas and research in ophthalmology. The keynote speakers, Napoleone Ferrara, M.D., joined the UC San Diego faculty this year. He updated the attendees on his transformative research on VEGF and its applications in age-related macular degeneration.

To kick off the Ophthalmology Update 2013, a special ‘ Warren Grand Rounds’ was held at the UC San Diego Moores Cancer Center in the Goldberg Auditorium. Warren presenters included Drs. Rigby Slight, Mark Fay, Ray Gariano and Torrey Koch. This was followed by the Stear-Brown Lecture delivered by Christopher Leung, M.D. Professor of Ophthalmology, Chinese University of Hong Kong (“The Continuum of Age-Related Macular Degeneration”).

ARVO WRAP UP

After the May 5-6 2013 Annual Meeting of the Association for Research in Vision and Ophthalmology (ARVO) in Seattle, Washington, the Department of Ophthalmology held an ARVO Wrap up in the Shiley Eye Center Conference Room. The Department had its most visible faculty presented over 66 presentations and posters from our faculty, residents and fellows which was among the highest in the world. The Wrap-up provided an opportunity for medical students, residents, fellows and faculty to hear and view the outstanding research that has been conducted in the Department during 2012-2013 as well as engaging the scientists in discussion about their projects.
Several Members of the Department of Ophthalmology have recently published textbooks that serve as standard references for ophthalmologists. Some have also been translated into multiple languages establishing Shiley's global reach.

- **PUBLICATIONS**

**B**

- **B**
- **D**
- **C**
- **B**
- **A**

- *“Video Atlas of Oculofacial Plastic and Reconstructive Surgery”. 2 Volume Set”.*
- *“A Qualitative Investigation of Visual Tasks and Their Relationship to Vision.”* Quality of Life Research, March 2013.

- *“A Qualitative Investigation of Visual Tasks and Their Relationship to Vision.”* Quality of Life Research, March 2013.

**CORNEA**

- **M**
- **D**
- **B**
- **C**
- **A**

- *“A Qualitative Investigation of Visual Tasks and Their Relationship to Vision.”* Quality of Life Research, March 2013.

- *“A Qualitative Investigation of Visual Tasks and Their Relationship to Vision.”* Quality of Life Research, March 2013.
of corneal intraepithelial dyskeratosis.

F, Young TL. Whole exome sequencing
Cassagne M, Arné JL, Rozen SG, Malecaze
Hawthorne F, Suarez C, Kantelip B, Afshari
Fournié PR, Guillaud C, Maurer-Stroh S,
Limviphuvadh V, Klemm TP, St Germain E,
Rosado-Adames N, Afshari NA. Corneal
insurance, race, gender and how they relate
Oboite M, Stinnett S, Carlson, A, Afshari NA.
Supplements Before and After Photorefractive
Isidro MA, Bottos KM, Heichel CW, Schanzlin
Khor WB, Afshari NA. The more things change,
Khor WB, Afshari NA. The role of presbyopia-
presented at the 63rd American Society of
Balasubramanian M, Medeiros FA, Zangwill
Lemmon VP, Bixby JL. KLF7 engineered for
Zhang YP, Shields C, Lee JK, Goldberg JL,
Blackmore MG, Wang Z, Lerch J, Motti D,
Heidelberg J. Localized glaucomatous change detection
Apara A, Blackmore M, Wang Y, Bhattacharya
Kang MJ, Park KH, Kim SH, Kim DM. Three-
Lee EJ, Kim TW, Weinreb RN. Reversal
Kim TW, Kim M, Weinreb RN, Woo SJ,
Valenzuela D, Dykxhoorn D, LeFebvre V,
Hertz J, Jin X, Li J, Russano K, DeRosa B,
S, Goldberg JL. Protein-protein interactions
Uddin M, Corneo B, Temple S, Dykxhoorn D,
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Advancing in the Structural Evaluation of Glaucoma Outcomes: A Prospective Longitudinal Study

Progression is a major challenge in the treatment of glaucoma, and understanding the factors that influence the progression of glaucomatous optic nerve damage is crucial. Several risk factors have been identified, including age, genetic factors, intraocular pressure, and optic nerve head parameters. In this study, we aimed to evaluate the impact of these factors on the progression of glaucomatous optic neuropathy.

Methods:
We conducted a prospective longitudinal study of patients with open-angle glaucoma. The participants were followed for a minimum of 2 years, and the progression of glaucomatous optic neuropathy was assessed using optical coherence tomography (OCT) and fundus photography. The primary outcomes were the changes in optic disc area, cup-disc ratio, and visual field sensitivity.

Results:
A total of 100 patients with open-angle glaucoma were included in the study. The mean follow-up period was 36 months. The mean age of the participants was 65 years, and the mean cup-disc ratio was 0.5. At baseline, 40 patients (40%) had visual field loss.

The progression of glaucomatous optic neuropathy was significantly associated with age (p = 0.03), baseline cup-disc ratio (p = 0.02), and visual field loss (p = 0.01). The odds ratio for the progression of glaucomatous optic neuropathy was 1.75 for each year of age increase, 2.17 for a 0.1 increase in the cup-disc ratio, and 3.12 for the presence of visual field loss.

Conclusion:
Our study suggests that age, baseline cup-disc ratio, and visual field loss are important risk factors for the progression of glaucomatous optic neuropathy. These findings highlight the need for targeted interventions to slow the progression of glaucoma.

References:


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"Ordering "Corrective Measures for Ophthalmic Problems", Beijing Tongren Hospital, Beijing, China, December 1, 2013.


"Ophthalmic Topography for the Internist Part II", UCSD Internal Medicine Residency, San Diego, CA, November 9, 2013.


"New Resident Orientation", UCSD School of Medicine, San Diego, CA, September 26, 2013.


"Clinical Course", COMS West Coast Eye Training Course, COMS, March 19-22, 2013.

"Management of Lacrimal and Orbital Disease", UCSD School of Medicine, San Diego, CA, March 19-22, 2013.


"Sequencing Treatment Strategies in Ocular Surface Disease", The University of Texas Health Science Center, San Antonio, TX, January 22, 2013.

"Corneal and Cataract Disease Treatment", The University of Texas Health Science Center, San Antonio, TX, January 22, 2013.


"Recent Trends in Ophthalmology", University of Texas Medical Branch, Galveston, TX, January 24, 2013.

"Recent Developments in Ophthalmology", University of Texas Medical Branch, Galveston, TX, January 24, 2013.

"New Resident Orientation", UCSD School of Medicine, San Diego, CA, May 2013.


"Ophthalmic Pathology and Principles" UCSD Internal Medicine Residency, San Diego, CA, January 22, 2013.


CLINICAL TRIALS

Comparative Study of the Nidek PCO Laser Optical Coherence Tomography System and the Measurements of Retinal and RNFL Thickness Using OCT-2 Comparable Imaging System.

PI: Robert N. Weinreb, M.D.


PI: Felipe Medeiros, M.D., Ph.D.

A Randomized, Single-Center, Open-Label, Cross-Over Study Comparing the Efficiency of 24-Hour Intraocular Pressure Pre and Post Topical Ocular Hypotensive Treatment in Glaucoma Patients Using the Ocular Response Analyzer (ORA), Dynamic Contour Tomography (DCT) and Hypotensive Treatment in Glaucoma Patients Secondary to Branch Retinal Vein Occlusion.

PI: John H.K. Liu, Ph.D.

A Multicenter, Patient-Masked, Safety and Tolerability of Intravitreal Administration of VEGF Trap-Eye in Patients with Diabetic Macular Edema. PI: William R. Freeman, M.D.

A Double-Masked, Randomized, Double-Blind, Placebo-Controlled, Parallel-Group Study to Investigate the Safety, Efficacy, Pharmacokinetics and Pharmacodynamics of BOL-303259-X 0.024% (Stage 2), 24-Month Study of Safety and Efficacy of Bimatoprost 0.01% in Subjects with Open-Angle Glaucoma or Ocular Hypertension.

PI: Felipe Medeiros, M.D., Ph.D.

An Open-Label (Stage 3) Randomized (Withdrawal) Study of the Efficacy of Bimatoprost 0.01% in Patients with Open-Angle Glaucoma or Ocular Hypertension.

PI: John H.K. Liu, Ph.D.

A Phase 1, Multicenter, Randomized, Double-Blind, Placebo-Controlled, Parallel-Group Study for the Acquisition of Arterial Images of the Posterior Chamber: Agreement and Precision Study.

PI: Kang Zhang, M.D., Ph.D.

A Randomized, Multicenter, Double-Blind, Multi-center Completion Study for the Evaluation of Intravitreal Administration of VEGF Trap-Eye (Intravitreal Aflibercept) and Treatment with Ranibizumab (COMPASS).

PI: William R. Freeman, M.D.

A Multicenter, Multicenter, Randomized, Double-Blind, Multi-center Study for the Assessment of Intravitreal Administration of VEGF Trap-Eye in Neovascular Age-Related Macular Degeneration.

PI: William R. Freeman, M.D.

A Multicenter, Randomized, Active-Controlled, Phase II Study of the Efficiency, Safety and Tolerability of Intravitreal Administration of VEGF Trap-Eye in Neovascular Age-Related Macular Degeneration.

PI: William R. Freeman, M.D.

A Double-Masked, Randomized, Active-Controlled, Phase III Study of the Efficiency, Safety and Tolerability of Intravitreal Administration of Anti-VEGF Treatment for Geographic Atrophy in Age-Related Macular Degeneration.

PI: Kang Zhang, M.D., Ph.D.

A Multicenter, Randomized, Double-Blind, Multi-center Study for the Assessment of Intravitreal Administration of VEGF Trap-Eye in Neovascular Age-Related Macular Degeneration.

PI: William R. Freeman, M.D.

A Multicenter, Multicenter, Randomized, Double-Blind, Multi-center Study for the Assessment of Intravitreal Administration of VEGF Trap-Eye in Macular Edema.

PI: William R. Freeman, M.D.

A Multicenter, Multicenter, Randomized, Double-Blind, Multi-center Study for the Assessment of Intravitreal Administration of VEGF Trap-Eye in Neovascular Age-Related Macular Degeneration.

PI: William R. Freeman, M.D.

A Multicenter, Multicenter, Randomized, Double-Blind, Multi-center Study for the Assessment of Intravitreal Administration of VEGF Trap-Eye in Macular Edema.

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A Multicenter, Multicenter, Randomized, Double-Blind, Multi-center Study for the Assessment of Intravitreal Administration of VEGF Trap-Eye in Neovascular Age-Related Macular Degeneration.

PI: William R. Freeman, M.D.

A Multicenter, Multicenter, Randomized, Double-Blind, Multi-center Study for the Assessment of Intravitreal Administration of VEGF Trap-Eye in Macular Edema.

PI: William R. Freeman, M.D.

A Multicenter, Multicenter, Randomized, Double-Blind, Multi-center Study for the Assessment of Intravitreal Administration of VEGF Trap-Eye in Neovascular Age-Related Macular Degeneration.
Prospective Case Crossover Study to Assess Whether PDE5 Inhibitor Exposure in Men with Erectile Dysfunction Increases the Risk for the Development of Non-Arteritic Anterior Ischemic Optic Neuropathy (NAION).

PI: Kang Zhang, M.D., Ph.D.

A Phase II, Double-Blind, Multicenter, Randomized, Active Treatment – Controlled Study of the Efficacy and Safety of 0.5 mg and 2.0 mg Ranibizumab Administered Monthly or on an As-needed Basis (PRN) in Patients with Subfoveal Neovascular Age-Related Macular Degeneration.

PI: Kang Zhang, M.D., Ph.D.

Ranibizumab (Lucentis) for Treating Submacular Vascularized PED.

PI: Kang Zhang, M.D., Ph.D.

Seven Year Observational Update of Macular Degeneration.

PI: Kang Zhang, M.D., Ph.D.

Seven Year Observational Update of Macular Degeneration Patients Post Marina/Anchor Trials (Seven UP Study).

PI: Kang Zhang, M.D., Ph.D.

PEDIATRIC OPHTHALMOLOGY

Retinopathy of Prematurity Education to Families of Neonates.

PI: Shira L. Robbins, M.D.

Visual Function in Preterm Infants with Reverted Retinopathy of Prematurity.

PI: Shira L. Robbins, M.D.

Vision Screening of Pre-Schoolers in the San Diego Community.

Consultant: Shira L. Robbins, M.D.

NEURO-OPHTHALMOLOGY

Functional-Structural Correlations in Eyes with Non-Glaucomatous Optic Neuropathies.

PI: Peter J. Savino, M.D.

OPHTHALMOLOGIC PLASTIC AND RECONSTRUCTIVE SURGERY

Loteprednol Etabonate Ophthalmic Ointment vs. Soothe Night Time Ointment for Inflammation.  PI: Bobby S. Korn, M.D., Ph.D.

In July 2012, $500,000 in annual funding was secured from the National Eye Institute (NEI) for the “P30- Center Core Grant for Vision Research”. The core grant provides shared resources to enhance and accelerate the productivity of the vision research community at UC San Diego (UCSD). It will leverage the expertise of the 25 funded Eye Research Units (ERU) to advance discoveries from the 26 NIH-funded major studies.

The core grant also facilitates and enhances multidisciplinary collaboration among UCSD vision researchers and provides resources that are invaluable to investigators for individual projects. Moreover, this core grant will leverage the 20 National Eye Institute funded UCSD investigators to advance discoveries from the 26 NIH-funded major studies.

The core grant also facilitates and enhances multidisciplinary collaboration among UCSD vision researchers and provides services that are unavailable or too expensive for individual investigators. Moreover, this core grant will leverage the expertise of the 20 National Eye Institute funded UCSD investigators to advance discoveries from the 26 NIH-funded major studies.

Important new resources and services are provided in four distinct substantive areas:  1) Vision Biostatistics, 2) Animal Structure and Function, 3) Computational Ophthalmology, 4) Tissue Processing and Confocal Microscopy.  Module Directors include Felipe Medeiros, M.D., Ph.D., Kang Zhang, M.D., Ph.D., William Freeman, M.D., LIngyun Chen, M.D., Linda Zangwill, Ph.D. and Sonia Jain, Ph.D.

The Vision Biostatistics Module provides integrated statistical services to vision researchers.  The biostatistician, familiar with the statistical issues related to the analysis of vision research data will ensure quicker and more efficient analyses that will greatly enhance the productivity of the investigators.

The Animal Structure and Function Module provides two key resources to the vision research community – centralized animal structure and function imaging and a trained technician with experience in handling these devices.  Cross-disciplinary interactions will build on these important components.

The Computational Ophthalmology Module supports computationally intensive analysis of structural imaging and functional data.  The shared computational resources will support and thus accelerate discoveries in various vision research areas.

The Tissue Processing and Confocal Microscopy Module provides shared resources and services that are unavailable or too expensive for individual investigators. Moreover, this core grant will leverage the expertise of the 20 National Eye Institute funded UCSD investigators to advance discoveries from the 26 NIH-funded major studies.

Through the resources provided in this NIH Core Grant for Vision Research, new and established scientists at UCSD will take their internationally recognized vision research program to the next level of innovation and distinction.
GIVING OPPORTUNITIES

OUTRIGHT GIFTS
Immediate Impact
Outright gifts of all sizes made with cash, credit card, savings bonds, marketable securities or property provide immediate impact to our faculty and facility.

ANNUAL GIFTS
Circle of Sight
Founded in 1996, the Circle of Sight is the Shiley Eye Center’s recognition program that acknowledges donors who make annual gifts of $250 or more to support the greatest needs of the Department. Several times a year, the Shiley Eye Center’s Circle of Sight members are invited to attend Vision Research Lectures and receptions where members get to personally know our faculty. The members are also ambassadors for the Shiley Eye Center within the San Diego community. The Circle of Sight group is the backbone of many of our successful initiatives.

PLANNED GIFTS
Your Vision for Tomorrow
Please consider a charitable bequest in your will, which benefits the future and directly supports the Department of Ophthalmology while saving your family estate tax dollars. We would be pleased to provide you, your attorney and your accountant or tax advisor, with specific bequest language for inclusion in your will or trust.

TRIBUTE GIFTS
Acknowledge Someone Special
Contributions can be made in memory, honor or celebration of a loved one or to commemorate a special occasion. Gifts can be made to honor a special physician, for example, who has played a significant role in your eye health. Such a gift creates a legacy and memorializes the person by providing direct support to the Department.

FOR ALMOST 30 YEARS, the philanthropic support from generous individuals, foundations and corporations has provided the Department of Ophthalmology with valuable resources for patient care, research, education and community service. The state of California provides less than 4% of our budget and therefore, we must rely on private gifts. As a friend of the Department of Ophthalmology, there are several giving options for those who wish to contribute to our tradition of excellence.

EVERY DONATION MAKES AN IMPACT ON OUR PATIENTS, FACULTY AND STAFF, AS WELL AS THE FIELDS OF OPHTHALMOLOGY. WE WISH TO THANK OUR GENEROUS SUPPORTERS WHO HAVE DEVELOPED STRONG RELATIONSHIPS WITH US AND OUR COMMUNITY. WE WOULD LIKE TO EXPRESS OUR APPRECIATION FOR YOUR CONTINUED SUPPORT OF OUR MISSION TO IMPROVE THE QUALITY OF LIFE FOR OUR PATIENTS THROUGH CLINICAL CARE, RESEARCH AND EDUCATION.

SUPPORTING THE DEPARTMENT OF OPHTHALMOLOGY

For questions or more information, please contact:
Karen Anisko Ryan
Phone: 858-534-8017
Email: kanisko@ucsd.edu
As a retired physician, Trude Kahn Hollander, M.D. understands the importance of meticulous attention to detail. She wanted to ensure that her assets would be utilized in a meaningful way after her passing. Dr. Hollander decided to generously make arrangements in her estate plan to benefit the UC San Diego Department of Ophthalmology and Shiley Eye Center by funding the Dr. Trude K. Hollander Endowed Chair in the Division of Ophthalmic Plastic and Reconstructive Surgery.

Dr. Weinreb stated, “We appreciate Dr. Hollander’s generosity for choosing the UC San Diego Shiley Eye Center to leave her lasting legacy towards our future growth, innovation and success.”

Trude K. Hollander, M.D. was born in 1910 in Offenburg, Germany and grew up along the Rhine River and Black Forrest. She completed her medical degree in Bonn and was one of four women to graduate in a class of 120. Dr. Hollander left Germany before World War II to complete her internship at Mount Zion Hospital in San Francisco. She then moved to Massachusetts and became board certified in gynecology. She practiced in Springfield where she met her husband Alfred, a prominent dermatologist. Dr. Hollander had a successful career for 45 years before retiring with her husband to San Diego in 1979. Her beloved Alfred passed away in 1987.

Trude stays active and vibrant by having many friends, exercising daily, traveling, reading, doing crossword puzzles and attending the San Diego Symphony among other social events and concerts.

Trude first came to know Don O. Kikkawa, M.D. as a patient at the UC San Diego Shiley Eye Center in the late 1980s and they have remained close friends ever since. She regularly comes to see Dr. Kikkawa and over time has developed a special relationship with his family as well. Dr. Kikkawa said, “Dr. Trude Hollander is in and always has been the perfect example of a true physician who makes a difference. Her is not only equipped with an extraordinary pair of hands and eyes which bring healing for the most complicated and rare eye conditions. He has been my idol from the moment I met him. I soon recognized her as a model husband and father.”

“Trude is an extraordinary person. Her grace, beauty and generosity are unparalleled. I have been extremely blessed to be her friend and am so touched and grateful for her kindness”, said Dr. Kikkawa.

Dr. Hollander’s generosity for choosing the UC San Diego Shiley Eye Center to leave her lasting legacy towards our future growth, innovation and success.”

At UC San Diego, endowed chairs honor exceptional faculty members for their contributions to academia and support their current work. They are also essential for attracting and retaining star faculty to the department. The Department of Ophthalmology at the Shiley Eye Center possesses five endowed chairs and with Dr. Hollander’s gift, the future is promising as ever. If you are interested in making an estate gift, please contact Karen Anisko Ryan at 858-534-8017 or kanisko@ucsd.edu.

Dr. Don O. Kikkawa and his children Claire, Jason and Alina with Dr. Trude Hollander

PHYSICIAN THINKS OF SHILEY’S FUTURE
Dr. Robert N. Weinreb, M.D., Director of the Shiley Eye Center and Anne Ratner Chair in Pediatric Ophthalmology, David B. Granet, M.D. brought the crowd to tears with his heartfelt reflection on the memory and generosity of Anne Ratner as well as her daughter Pauline Foster. “Few of us even get to live a life that impacts others. Anne & Pauline as well as the entire family have permanently altered the care of children once again. On behalf of the children of San Diego, the Southwest, the entire US and the world I am honored to be the one who says Thank You!”

Preventing and treating vision loss and scarring problems in children is the highest priority in the Division of Pediatric Ophthalmology at the Anne F. and Abraham Ratner Children’s Eye Center which originally opened in 1996. The Ratner Chair Fund, David G. Granet, M.D. and Stina L. Robbins, M.D. spent over 5,000 adult and child patients annually.

Right; m. Dr. David Granet, Pauline Foster and Dr. Shira Robbins

On behalf of the children of San Diego, the Southwest, the entire US and the world I am honored to be the one who says Thank You!”

“We are honored that Pauline Foster is continuing her family legacy in supporting the renovations of the Ratner Children’s Eye Center” - Dr. Weinreb
The Honor Roll for the Department of Ophthalmology gratefully acknowledges donations from June 1, 2012 to November 30, 2013. Thank you to all of the individuals, foundations and corporations listed below.

Gifts of $500,000 & Above
Hildyard Family Trust
Mr. T. Dudley Hoadley
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Members of the Visionary Circle are cumulative lifetime contributors of one million dollars or more to the Department of Ophthalmology. We applaud their generosity.

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72

73
Research to Prevent Blindness is the world’s leading voluntary organization supporting eye research. RPB has provided grants totaling over $3 million to the Shiley Eye Center and the Department of Ophthalmology since our inception. “We are extremely grateful to RPB for their generous and ongoing support of our scientific discoveries and translational research,” said Robert N. Weinreb, M.D., Chairman and Distinguished Professor.

The Department of Ophthalmology sadly acknowledges friends and key supporters who have passed away during the past year. They remain in our thoughts.

Mr. William Field
Mr. C. H. Friedman
Mrs. Yvonne G. Gibb
Mrs. Enid P. Gleich
Mrs. Frances Hart
Mrs. Sarah Heyden
Mr. Charles J. Kubes
Mr. Martin Lynn
Mr. Forrest N. Shumway
Dr. Faustina F. Solis
Ms. Marjorie E. Van Dyke
Mr. Rex W. Warden
Mr. A. Nash Williams
Col. Allen Wissinger, USA, Ret.

* Deceased

This is a partial list. We have made every effort to be accurate in our listing and apologize if any mistake or omission has been made. Should you find an error or want to change your listing, please contact us at 858-534-4981.