

FOR SIGHT

Annual Report 2016



SHILEY EYE INSTITUTE
UC SAN DIEGO

Simply World Class

The UC San Diego Department of Ophthalmology at the Shiley Eye Institute offers 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.

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Pradeep K. Khosla, PhD
CHANCELLOR, UC SAN DIEGO

David Brenner, MD
VICE CHANCELLOR, UC SAN DIEGO HEALTH SCIENCES
DEAN, UC SAN DIEGO SCHOOL OF MEDICINE

Patty Maysent, MPH, MBA
CEO, UC SAN DIEGO HEALTH

Robert N. Weinreb, MD
DIRECTOR, SHILEY EYE INSTITUTE
CHAIR, DEPARTMENT OF OPHTHALMOLOGY

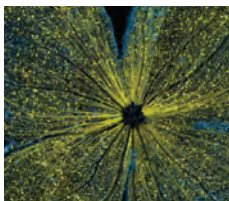
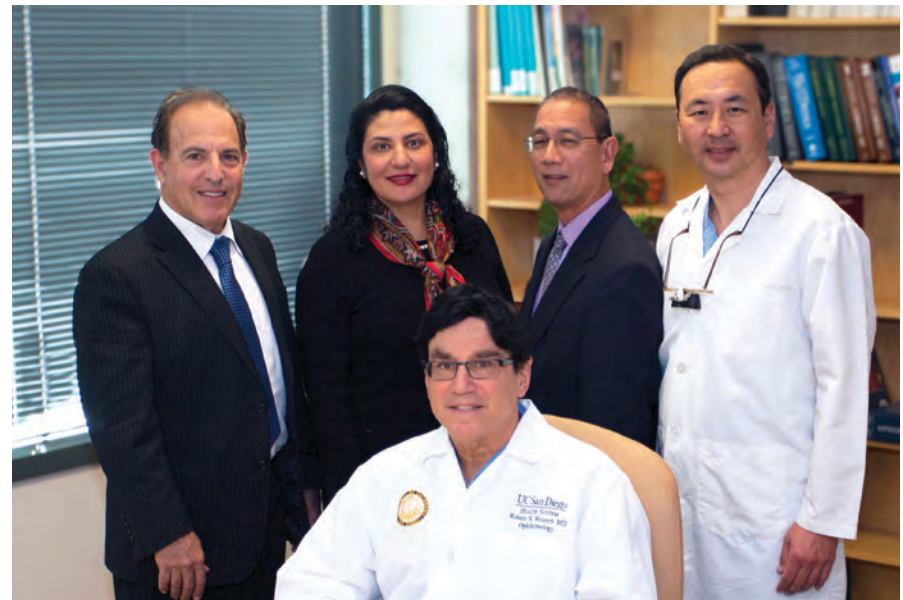
Don O. Kikkawa, MD
VICE CHAIR - CLINICAL AFFAIRS, DEPARTMENT OF OPHTHALMOLOGY

William R. Freeman, MD
VICE CHAIR, DEPARTMENT OF OPHTHALMOLOGY

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ADMINISTRATIVE VICE CHAIR, DEPARTMENT OF OPHTHALMOLOGY

Shiley Eye Institute Leadership



On the cover: NIH award winning confocal microscope image of a mouse retina sparkling with fluorescent molecules. See article on page 13.

The Shiley Eye Institute is dedicated to clinical care excellence of patients with eye disorders, cutting edge research on surgical techniques and treatments of eye diseases, ophthalmic education and innovative outreach to the community.



OUR CHAIRMAN

ROBERT N. WEINREB, MD



Dear Colleagues, Alumni and Friends,

After 25 years, our dedicated Shiley Eye Institute and Department of Ophthalmology team of clinicians, scientists and staff are poised for still more discoveries for our patients. Our vision researchers collaborate throughout the UC San Diego School of Medicine and general campus, as well as nationally and internationally, to identify and validate transformative disease therapies and cures for eye diseases.

This annual report features Shiley Eye Institute physicians and scientists whose landmark discoveries this year include lens regeneration for the treatment of cataracts, a new drug for lowering eye pressure in glaucoma and improved therapy for macular degeneration. We also had two new outstanding clinician scientists join our team.

The Shiley Eye Institute team is translating everyday these discoveries and others into improved eyesight and treatments for our patients. We are also educating the future leaders in ophthalmology and serving the community. Our highest priority is patient care excellence.

It continues to be an honor to lead the Shiley Eye Institute and I am exceptionally proud of the work being done here. After 25 years, our entire Shiley team is excited that the pace of discovery here is accelerating. This impacts those in our community as well as millions of individuals worldwide with blinding eye diseases.

I know that the best is yet to come.

Sincerely,

A handwritten signature in black ink, reading "Robert N. Weinreb". The signature is written in a cursive, flowing style.

Robert N. Weinreb, MD

Chairman and Distinguished Professor of Ophthalmology
Director, Shiley Eye Institute
Director, Hamilton Glaucoma Center
Morris Gleich, MD Chair in Glaucoma

CHANCELLOR
PRADEEP K. KHOSLA



The Shiley Eye Institute is a vital part of UC San Diego Health and the only academic institution in the region offering the most advanced treatments across all areas of eye care. Our faculty and staff are world leaders in translational vision research and education. They train the next-generation of leaders in ophthalmology, lead innovative investigations, and bring new discoveries into the clinic to benefit UC San Diego patients. Serving infants to centenarians, the institute is committed to providing the best possible patient care to prevent, treat and cure eye diseases.

This excellence of care benefits the citizens of our region, our global community, and UC San Diego's mission and standing. UC San Diego is ranked the number one public university in the nation based on our research, service and social mobility, for the seventh consecutive year, as well as the 14th best university in the world.

UC San Diego's Department of Ophthalmology ranks in the top 20 nationwide for funding received by the National Institutes of Health. These rankings are a reflection of our talented campus members and generous supporters. It is because of you that UC San Diego and the Shiley Eye Institute have grown and flourished over the decades.

By supporting UC San Diego and the Shiley Eye Institute, you are championing life-changing research and advanced patient care that transforms the quality of life of people every day. Thank you for your support and all you do for the university.

A handwritten signature in black ink, reading "Pradeep Khosla", with a long horizontal line extending from the end of the signature.

Pradeep K. Khosla
Chancellor, UC San Diego



DEAN

DAVID BRENNER, MD

Dear Friends of the Shiley Eye Institute,

I am delighted to take note of another outstanding year with faculty and staff of the Department of Ophthalmology and Shiley Eye Institute. As always, 2016 has been a time of high achievement and service in the name of science, education and, of course, the thousands of patients who visit Shiley every year.

Perception is reality. Shiley continues to be an undisputed leader in vision research, its doctors and staff seeing further and more clearly, leveraging the latest advances in areas like stem cells and genetics to reduce and cure the diseases and conditions that impair and reduce vision.

For example, Shiley physician-scientists reported a dramatic eye drop-based treatment for cataracts, a leading cause of vision loss and blindness that affects more than 20 million Americans. This team has also reported the first successful cases of congenital cataract surgeries in infants that permit the patients' own stem cells to regrow functional lenses.

The power and potential of regeneration are underscored in the Richard C. Atkinson Regenerative Ophthalmology Laboratory, where scientists are growing mini-retinas that someday might be used to treat the widespread scourges of glaucoma and macular degeneration.

The future of translational research at Shiley has never looked brighter. Ophthalmology clinical trials and research grants are at all-time highs. Shiley scientists and physicians are collaborating with colleagues across campus and beyond in areas like bioengineering, nano-engineering and neuroscience.

This past year is one to celebrate; the next will be too. My congratulations to all faculty and staff for their enduring hard work, their dedication to patients and to making Shiley Eye Institute one of the great eye care and research facilities in the world.

Sincerely,

David Brenner, MD

Vice Chancellor, UC San Diego Health Sciences
Dean, UC San Diego School of Medicine



CEO

PATTY MAYSENT, MPH, MBA

Dear Friends of the Shiley Eye Institute,

UC San Diego Health is the San Diego region's sole academic medical center, and our mission — to deliver outstanding patient care through a commitment to groundbreaking research and inspired teaching — is carried out every day at the Shiley Eye Institute. In fact, for many of our patients, Shiley represents their first experience with UC San Diego Health.

With a focus on world class clinical care and innovative research aimed at treating the most difficult eye conditions, the Shiley Eye Institute attracts patients from around the region and the world, from newborns to seniors as old as 106. The center's stellar reputation has also recently led to nearly double-digit growth in visit and surgical volumes, and nationally recognized physician scientists continue to be recruited and join the Shiley Eye Institute faculty, where they find unparalleled scientific and clinical collaboration opportunities.

These collaborations, across the full spectrum of specialties and subspecialties, inform and enhance research and the quality of care our patients receive. Still, the exceptional physicians and staff at Shiley remain as dedicated to the community as they are to their patients. Through the Shiley Eye Mobile, the center provides essential vision screenings and care to underserved children across San Diego.

I am incredibly proud of the extraordinary work being done at the Shiley Eye Institute as we continue to recruit world-class physicians and researchers and explore ways to grow and meet patient demand for ophthalmology services.

Sincerely,

Patty Maysent, MPH, MBA
CEO, UC San Diego Health

2016 In Review

The infographic features a central network of white circles connected by thin white lines on a blue background. The circles contain text about various achievements. The largest circle at the top left is dark blue with white text. Other circles are white with blue text. The connections form a web-like structure.

115,075
PATIENT
VISITS

261
PEER-
REVIEWED
PUBLICATIONS

69
GRANTS

293
LECTURES

56
CLINICAL
TRIALS

4,830
SURGERIES
PERFORMED

TOP 25
DOXIMITY:
SHILEY
RESIDENCY

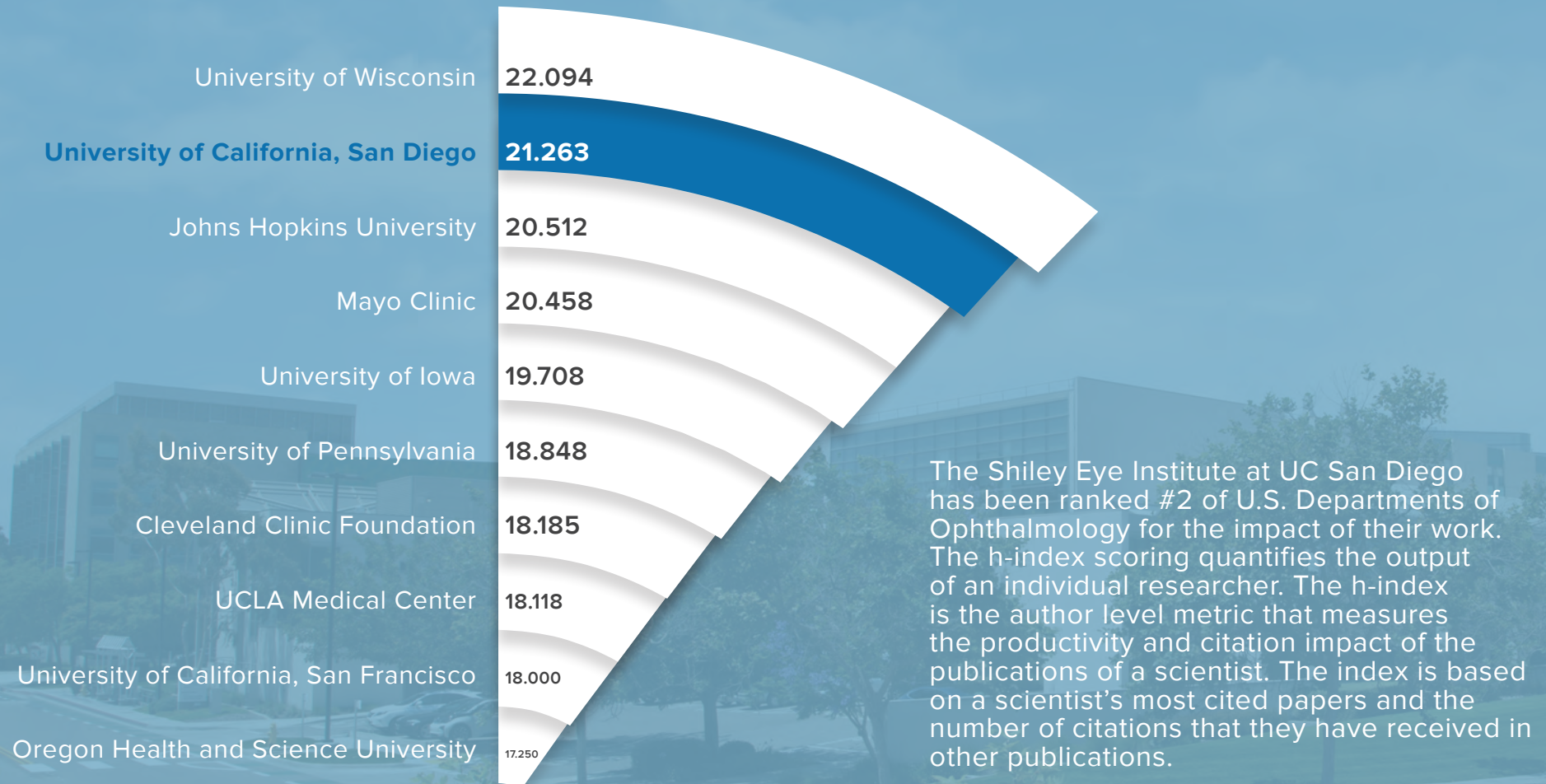
430*
RESIDENTS &
FELLOWS
TRAINED

* since 1974

TOP 25
US NEWS
& WORLD
REPORT

Shiley Tops in “H-Index Scores”

TOP 10 INSTITUTIONS (MEAN H - INDEX SCORES)



Source: Thiessen CR, Venable GT, Ridenhour NC, Kerr NC. Publication productivity for academic ophthalmologists and academic ophthalmology departments in the United States: an analytical report. J Clin Acad Ophthalmol. 2016;8:e19.

24 HOURS @ SHILEY



CLINIC PREPARATION

5 AM

6 AM

PATIENT EARLY ARRIVAL



7 AM



SURGERY

8 AM

SHILEY CLINIC OPENS



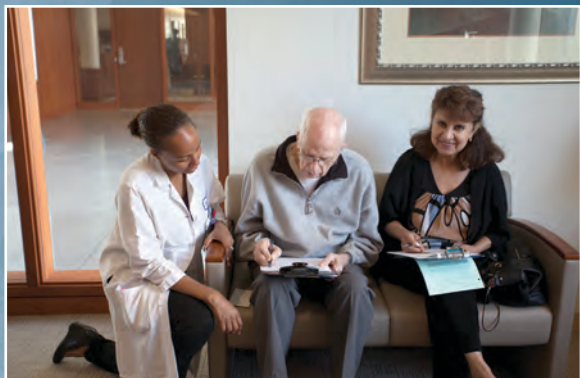
TECHNICIAN EDUCATION

9 AM

EYE EXAM



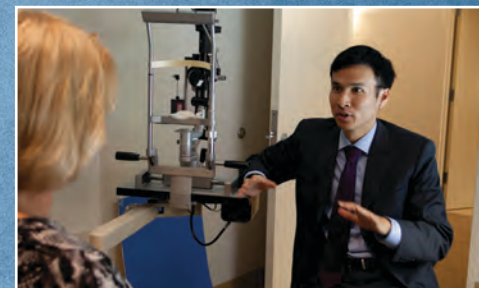
10 AM



CLINICAL TRIALS



PEDIATRIC OPHTHALMOLOGY CLINIC



PATIENT CONSULTATION

TESTING WITH DRIVING SIMULATOR



BIOBANK ANALYSIS



TEAR FILM ASSESSMENT

11 AM

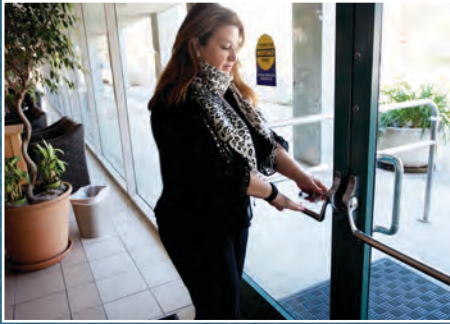
12 PM

1 PM

2 PM

3 PM

4 PM



5 PM

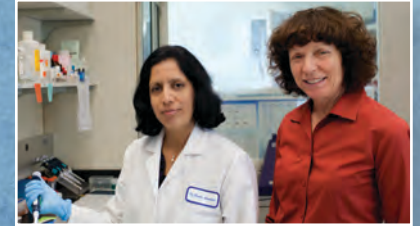
SHILEY DAY CLINIC CLOSES



SURGERY PICK-UP



MEDICAL EDUCATION



BIOBANK RESEARCH

6 PM

RICHARD C. ATKINSON
LABORATORY -
REGENERATIVE
OPHTHALMOLOGY

7 PM

END OF SURGERY DAY

8 PM



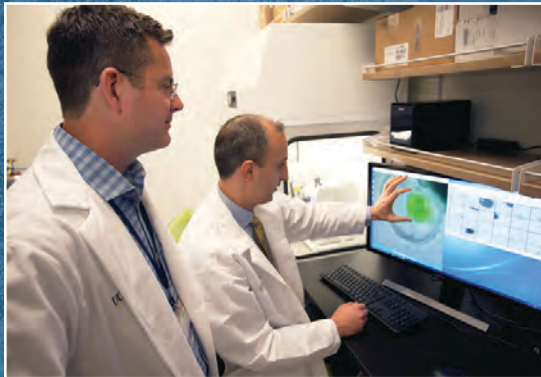
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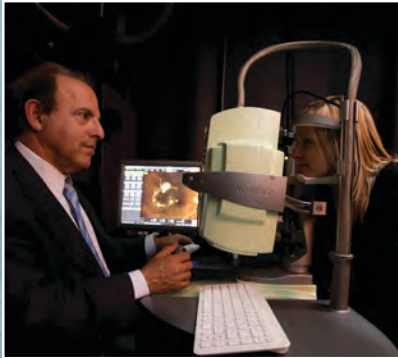
EVENING CLINIC

10 PM



24 HOURS
@ SHILEY

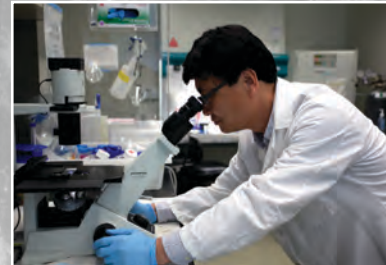




RETINA RESEARCH



TRAUMA TREATMENT

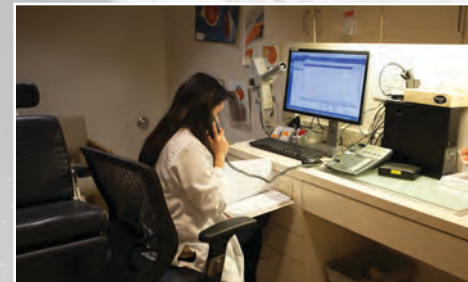


CORNEA RESEARCH



SURGERY SUITE

ON-CALL TRIAGE



LOBBY - AWAITING THE NEXT DAY



11 PM

12 AM

1 AM

2 AM

3 AM

4 AM

EMERGENCY CALL



EMERGENCY SURGERY



Restoring Vision

Stem Cells Regenerate Human Lens After Cataract Surgery

Approach may have broad therapeutic implications on tissue and organ repair

Congenital cataracts – lens clouding that occurs at birth or shortly thereafter – is a significant cause of blindness in children. The clouded lens obstructs the passage of light to the retina and visual information to the brain, resulting in significant visual impairment. Current treatment is limited by the age of the patient and related complications. Most pediatric patients require corrective eyewear after cataract surgery.

Kang Zhang, MD, PhD, Professor at the Shiley Eye Institute and Chief of Ophthalmic Genetics, and his team of researchers at UC San Diego School of Medicine, with colleagues in China, have developed a new, regenerative medicine approach to remove congenital cataracts in infants, permitting remaining stem cells to regrow functional lenses.

The treatment, which has been tested in animals and in a small, human clinical trial, produced much fewer surgical complications than the current standard-of-care and resulted in regenerated lenses with superior visual function

in all 12 of the pediatric cataract patients who received the new surgery.

“An ultimate goal of stem cell research is to turn on the regenerative potential of one’s own stem cells for tissue and organ repair and disease therapy,” said Dr. Zhang.

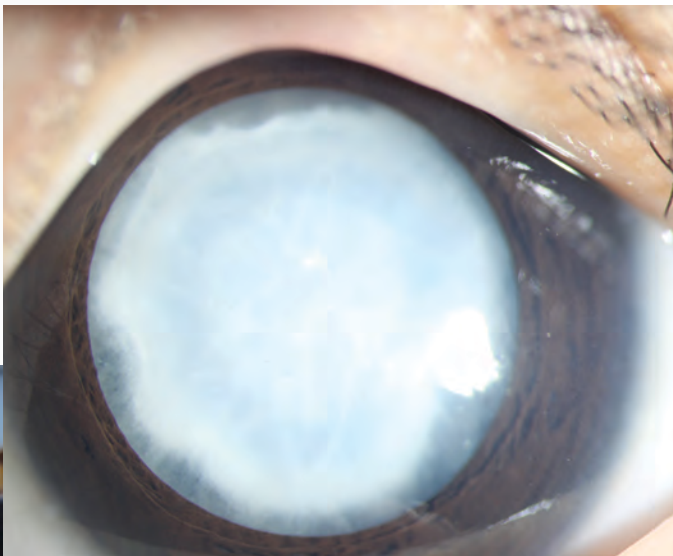
In the new research, Zhang and colleagues relied upon the regenerative potential of endogenous stem cells. Unlike other stem cell approaches that involve creating stem cells in the lab and introducing them back into the patient, with potential hurdles like pathogen transmission and immune rejection, endogenous stem cells are stem cells already naturally in place at the site of the injury or problem. In the case of the human eye, lens epithelial stem cells or LECs generate replacement lens cells throughout a person’s life, though production declines with age.

Current cataract surgeries largely remove LECs within the lens; the lingering cells generate



Kang Zhang MD, PhD

disorganized regrowth in infants and no useful vision. After confirming the regenerative potential of LECs in animal models, the researchers developed a novel minimally invasive surgery method that preserves the integrity of the lens capsule – a membrane that helps give the lens its required shape to function – and a way to stimulate LECs to grow and form a new lens with vision.



An eye with a congenital cataract

In subsequent tests in animals with cataracts and in a small human trial, they found the new surgical technique allowed pre-existing LECs to regenerate functional lenses. In particular, the human trial involved 12 infants under the age of 2 treated with the new method and 25 similar infants receiving current standard surgical care. The latter control group experienced a higher incidence of post-surgery inflammation, early-onset ocular hypertension and increased lens clouding.

The scientists reported fewer complications and faster healing among the 12 infants who underwent the new procedure and, after three months, a clear, regenerated biconvex lens in all of the patients' eyes.

"The success of this work represents a new approach in how new human tissue or organs can be regenerated and human disease can be treated, and may have a broad impact on regenerative therapies by harnessing the regenerative power of our own body," said Zhang.

Zhang said he and colleagues are now looking to expand their work to treating age-related cataracts. Age-related cataracts are the leading cause of blindness in the world. According to the National Eye Institute, more than 24 million Americans suffer from cataracts and by 2050 the number is projected to be 50 million.

Despite technical advances, a large portion of patients undergoing surgery are left with suboptimal vision post-surgery and are dependent upon corrective eyewear for driving a car and/or reading a book. "We believe that our new approach will result in a paradigm shift in cataract surgery and may offer patients a safer and better treatment option in the future."

Published in the journal *Nature* (March 2016; 531 [7594]: 323-8), co-authors from the Shiley Eye Institute and Department of Ophthalmology at UC San Diego included: David B. Granet, MD, Christopher W. Heichel, MD, and Dorota Skowronska-Krawczyk, PhD.



Stuart I. Brown, MD, Darlene Shiley, Robert N. Weinreb, MD

2016 MARKS 25 YEARS OF INNOVATION

It has been a quarter century since a gift from Donald and Darlene Shiley marked the beginning of San Diego's first comprehensive eye care facility. Today, the Donald P. and Darlene V. Shiley Eye Institute at UC San Diego Health is a recognized leader with world-renowned clinicians and scientists.

"Shiley has emerged as a hub for clinical care excellence, outstanding vision research and broad-based eye health education," said **Robert N. Weinreb, MD**, Chair and Distinguished Professor of Ophthalmology at UC San Diego School of Medicine and Director of the Shiley Eye Institute.

The Shiley Eye Institute celebrated its 25th anniversary at an event with patients, donors, staff and faculty showcasing the years of major ophthalmologic contributions made by the doctors and researchers.

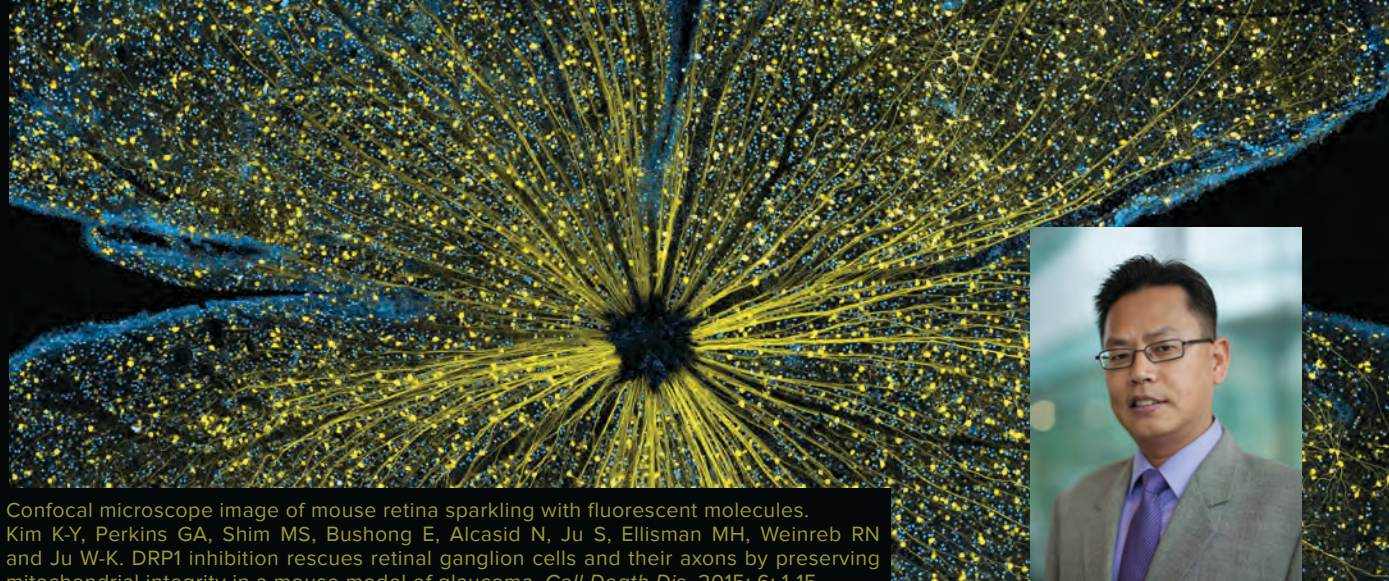
"Successful past, bright future – how lucky we all are to have such dedicated physicians, researchers, staff and eager volunteers," said Darlene Shiley, who has remained a staunch supporter over the years.

Promise of Gene Therapy for Glaucoma Shines Bright in Award-Winning Image

Whether you see the gossamer wings of a butterfly or the delicate opened petals of a flower, there is beauty in the eye of the beholder — a mouse retina described and visually captured by scientists at the National Center for Microscopy and Imaging Research (NCMIR) at University of California San Diego School of Medicine and Shiley Eye Institute at UC San Diego Health.

The confocal microscope image, which depicts a mouse retina sparkling with fluorescent molecules, has been awarded first prize in the National Institutes of Health's 2016 Combined Federal Campaign "Beauty of Science," an arts competition to inspire awareness and support of federal scientific efforts.

The image was featured in a study published last year in the journal *Cell Death and Disease* by UC San Diego School of Medicine and Shiley Eye Institute researchers investigating potential restorative therapies for glaucoma, a progressive disease involving damage to the eye's optic nerve and irreversible vision loss. An estimated 70 million people worldwide, including 3 million Americans, suffer from



Confocal microscope image of mouse retina sparkling with fluorescent molecules. Kim K-Y, Perkins GA, Shim MS, Bushong E, Alcasid N, Ju S, Ellisman MH, Weinreb RN and Ju W-K. DRP1 inhibition rescues retinal ganglion cells and their axons by preserving mitochondrial integrity in a mouse model of glaucoma. *Cell Death Dis.* 2015; 6: 1-15.



Won-Kyu Ju, PhD

glaucoma, though many are unaware and undiagnosed. It is the leading cause of blindness in persons over age 60.

Glaucoma is characterized by the gradual death of neurons called retinal ganglion cells, which transmit light information from the retina to the brain via the optic nerve. "Past research has suggested that targeting these cells with gene therapy designed to prevent their death might slow progression of the disease," said **Robert N. Weinreb, MD**, director of both the Hamilton Glaucoma Center and Shiley Eye Institute, and a co-author of the 2015 *Cell Death and Disease* paper.

Associate professor and senior author **Won-Kyu Ju, PhD**, with Weinreb, and colleagues investigated whether a non-disease-causing virus could be used to effectively deliver therapeutic genes to retinal ganglion cells. In the award-winning image, created by Ju, associate project scientist Keunyoung Kim, PhD, and NCMIR director Mark Ellisman, PhD, a virus carrying a gene tagged with green fluorescent protein (GFP) was introduced into the eyes of 7-month-old mice.

Two months later, the retinas were examined using large-scale mosaic confocal microscopy, a technique pioneered at NCMIR with funding support from the National Institute of General Medical Sciences. "It's similar to Google Earth in that we computationally stitch together many, many small high-resolution images," said Ellisman, who also directs the Center for Research in Biological Systems, which promotes cross-disciplinary research involving NCMIR, the San Diego Supercomputer Center, the California Institute for Telecommunications and Information Technology and UC San Diego Health Sciences.

In the image, GFP expression (yellow) is observed broadly distributed in all parts of retinal ganglion cells, suggesting the viral delivery system could deliver therapeutic genes. The blue dots indicate Brn3a-positive retinal ganglion cells. Brn3a is a marker for retinal ganglion cells. This was stained for examining transduction efficiency of AAV2-GFP in retinal ganglion cells.

Learning How to Build a Better Retina

All scientific achievement begins with an idea. **Karl Wahlin, PhD**, Assistant Professor of Ophthalmology and Director of the Richard C. Atkinson Laboratory for Regenerative Ophthalmology, was awarded funding by the Independent Citizens Oversight Committee of the California Institute for Regenerative Medicine (CIRM) to pursue budding ideas that might eventually impact the field of stem cell research.

The CIRM Discovery Inception Program provides seed money of \$232,000 for “great ideas” that need testing and early data before they can compete for later, larger funding opportunities.

Dr. Wahlin’s “great idea” was to build mini-retinas utilizing pluripotent (or many potentials) stem cells to study eye development and disease. In recent years, researchers have managed to harness the power of HSPCs to generate retinal cells and tissues, often with an

advanced 3-dimensional architecture similar to human eyes. This ability to self-assemble into 3D “mini-retinas” raises hope that such cells could be used for transplantation into individuals going blind from retinal degenerative disease. At present, the process of generating mini-retinas has not been standardized and there is considerable variation in quality, which raises concerns over efficacy and safety.

Dr. Wahlin and his colleagues use the gene-editing tool CRISPR-Cas9 to create retinal reporter stem cells, which his lab then employs to develop systematic and quantifiable methods to improve retinal differentiation, particularly in 3D culture. The goal is to identify and optimize micro-environment conditions that mimic the native embryonic environment of developing eyes. He hopes to develop stem cell models of inherited retinal dystrophy applicable to age-related macular degeneration, retinitis pigmentosa and glaucoma.



Innovative Research of Retinal Diseases

Radha Ayyagari, PhD is investigating retinitis pigmentosa (RP), performing genetic testing and developing new therapies for RP. She is studying the genetics of a large 10,000 cohort of Indian patients with diabetic retinal disease. She hopes this will lead to a better understanding of why people develop diabetic retinopathy. Her studies are supported by the National Eye Institute and Foundation Fighting Blindness.

Optical scientist, **Dirk-Uwe Bartsch, PhD** is working with adaptive optics and a new generation of OCT instruments to allow visualization of individual rods and cones in the retina.

Eric Nudleman, MD, PhD is investigating the development of retinal blood vessels which is particularly important in pediatric retinal disease. He is working to identify molecules that are important for preventing leakage from retinal vessels, and to control the proliferation of abnormal vessels.

Michael Goldbaum, MD is working with **William Freeman, MD** and Dr. Bartsch to find hidden damage from HIV in the retina. He uses machine learning to predict which eyes will develop glaucoma and is using these techniques to classify images of diabetic retinopathy.



Michael H. Goldbaum, MD, MS

CELEBRATING
40
YEARS

Michael H. Goldbaum, MD, Professor of Ophthalmology and Co-Director of the Retina Division, has been with the UC San Diego Department of Ophthalmology since 1977, longer than any other faculty member. This coming year marks his 40th anniversary in the Department. He has observed and participated in much growth and innovation in the Department of Ophthalmology over this extraordinary period.

Dr. Goldbaum's ophthalmology training began at Tulane University in 1966. During the Vietnam War, after a year of residency at Tulane, he entered the Navy. He completed his ophthalmology training at the US Naval Hospital in Oakland, California. After five years in the Navy, he was a retina fellow at New York Hospital Cornell Medical Center from 1972-1973.

His academic career began in 1973 at the University of Illinois Eye and Ear Infirmary in Chicago, where he participated in the groundbreaking Television Ophthalmology Project which was one of the first applications of digital imaging in medicine. In 1975, he conceived a method of automated computer diagnosis from images of the retina which was named Structured Analysis of the Retina (STARE).

He was recruited to the UC San Diego School of Medicine Division of Ophthalmology in 1977 by David Worthen, MD, who was then Chief of the Division of Ophthalmology, when the practice was located in Hillcrest.

In 1987, he sought funding from the National Eye Institute (NEI) of the National Institutes of Health (NIH) for the revolutionary STARE project. Automated computer diagnosis from medical images had never been done. There was no previous body of scientific work and no other scientists doing similar work, and the NEI had no scientists with knowledge in the area of research to review the STARE project. Therefore, an ad hoc review committee of retina scientists was assembled to evaluate if this brand new area of research was feasible and worth supporting. The grant was funded, and this groundbreaking project turned out to be successful. The STARE project was supported by the NEI from 1987 to 2000 and then reactivated in 2013.

The pioneering STARE research project created the methods that are now used by other researchers focusing on computer analysis of medical images around the world. Some of this research led to uses outside of medicine. For example, most recently, this method of measuring the bending and twisting of blood vessels in the retina has been applied to satellite images to measure the curvature of rivers.

As the Department grew in the 1980's, Dr. Goldbaum initiated a specialized retina service for treating intraocular tumors and retinopathy of prematurity. Over the years, he has seen thousands of retina patients, including those that sometimes are the most difficult to diagnose. In addition to his clinical practice, teaching and research, he has participated in



Lab 1979



Project Orbis 1983 Surgery



Clinic 2013

“I hope that making a contribution to medical knowledge, teaching, providing compassionate and quality care for my patients, and being a resource in Southern California for the care of patients with pediatric and geriatric eye tumors will be my legacy.”

several medical missions around the world. On these missions, Dr. Goldbaum taught vitrectomy and new retinal and laser surgery methods to students and physicians in the following countries: China, Ukraine, Italy, Philippines, Russia, Thailand, Georgia, Kyrgyzstan and Kazakhstan.

In 2000, when the NEI began to support outcome-driven research, Dr. Goldbaum pioneered another area of research that did not previously exist. The project, Medical Advances through Glaucoma Informatics (MAGI), uses what is commonly referred to as neural networks and scientifically called machine learning classification to improve the diagnosis and management of glaucoma. This was among the earliest research considered to

be “Big Data”. Working with the Department’s glaucoma team led by Robert N. Weinreb, MD, Linda Zangwill, PhD and Pam Sample, PhD, new research methods were created demonstrating that machine learning methods could improve the diagnosis of glaucoma from visual fields. “Dr. Goldbaum is an early visionary who understood the importance of applying artificial intelligence and machine learning to glaucoma diagnosis”, said Dr. Weinreb.

Since then, Dr. Goldbaum and his Hamilton Glaucoma Center collaborators have applied their methods to glaucoma imaging for diagnosis to predict which eyes will develop glaucoma and to detect which eyes with glaucoma are deteriorating.

“My interest over the past 25 years has been computational ophthalmology, particularly the use of computers to analyze and diagnose images of the ocular fundus. We have used machine learning methods to find hidden damage from HIV retinopathy in patients with no other evidence of HIV. Our latest work is the use of deep learning to classify images of diabetic retinopathy.”

Many scientists make valuable contributions to the medical community and for the care of patients by refining existing areas of research. Dr. Goldbaum has gone a step further by imagining two new disciplines of research and developing the original methods for these disciplines to advance medical knowledge and care. The STARE project and MAGI form the basis of research that is now being taken up by other researchers.

Dr. Goldbaum states, “I am proud to have been a part of the Department of Ophthalmology for 40 years and grateful for the opportunities that I have had to contribute to the research that was uniquely possible at UC San Diego.”

Over these many years of clinical practice, teaching and research, Dr. Goldbaum had a supportive family which includes his wife Brenda and children David, Stephen and Rachel. His children and 7 grand-children are now spread across the globe from San Diego to New York and Australia. He is also an avid bicycle enthusiast and has ridden all over the United States, Canada, and Europe.

FACULTY SPOTLIGHT:

Don O. Kikkawa, MD

Don O. Kikkawa, MD, FACS is Vice Chairman of the Department of Ophthalmology and Chief of the Division of Ophthalmic Plastic and Reconstructive Surgery. Dr. Kikkawa joined the faculty in 1993 and is currently a Professor of Clinical Ophthalmology and Clinical Surgery (Plastic Surgery).

He has been a leader in many organizations including, being the past president of American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS), a 700-member national and international subspecialty society. In addition to being a well published author, he lectures and teaches around the world.

Dr. Kikkawa is recognized as one of the top in his field, being named in Woodward and White's Best Doctor's in America; Top Doctors in U.S. News and World Report; Castle Connolly America's Top Doctors; and San Diego Magazine's Physicians of Exceptional Excellence. He has also received numerous awards from peers recognizing his contributions and expertise and was recently named a Director of the American Board of Ophthalmology.



What is oculoplastics and why did you decide to specialize in it?

Oculoplastics is a diverse field where we care for patients with eye and facial problems from a variety of causes such as trauma, birth defects, tumors, and acquired disorders. I first became interested in the specialty during residency when we staffed a county hospital trauma center where I took care of patients with major eye and facial injuries. I was amazed back then, as I still am today, that the improvement and final results for patients even with the most severe injuries is astounding. It is one of the few fields in medicine where the preservation and restoration of vision, facial function and appearance are all intimately interwoven.

Dr. Trude Hollander



You have cared for many patients in your career. Are there any that have impacted you professionally or personally?

I am blessed to have wonderful patients who are a pleasure to take care of and sincerely grateful for their care. Two patients have left a lasting impression on me.

Several years ago, I was approached by Marines serving in Afghanistan to care for a 9 year old girl, Nooria, whose eye was injured by shrapnel. The Marines, surrounded by violence and devastation on a daily basis, had bonded with Nooria, whose name means "light." Through their relationship, they found one meaningful way to make a positive difference. With the generosity of donors, funds were raised to bring the little girl and her father to San Diego, and we performed reconstructive surgery at Shiley. She and her father returned back to Afghanistan all healed and best of all, the Marines felt whole.

Another is Dr. Trude Hollander. She is a wonderful retired physician that my family and I have come to know well. I first took care of Trude 15 years ago and we have been good friends since. This year, she celebrated her 106th birthday and is as sharp and spry as ever. Whenever Trude comes into the office, I always "show her off" to all the residents and fellows as it is so rare to encounter someone of such good health, grace and warmth, at 106!

How do collaboration and partnerships fit into your administrative role, research or surgical procedures?

The importance of collaboration and partnerships cannot be overemphasized. In general, teams are able to accomplish much more because of different perspectives and talents that contribute to the whole, whether it is in patient care, research alliances or administration with the medical center. Team building and leadership are areas that are not formally taught either in medical school or residency. Just this year we started a leadership series for our residents, fellows and staff at Shiley. The feedback has been overwhelmingly positive and hopefully will be fruitful.

Twenty years ago, you co-founded the Thyroid Eye Clinic at SEI. How has this multi-disciplinary approach changed the way patients deal with the disease?

Many patients with this potentially blinding and disfiguring disorder have been told by numerous doctors that “nothing can be done” or “live with it.” When we started this clinic years ago, we had no idea how successful it would become. Our approach was to build an eye team that could care for the most complex cases. We see patients from around the world and have been a model for other academic centers. We have learned a lot from our patients as they deal with the devastating impact of this disease, one of which is that we cannot neglect the psychosocial impact that it has. Some patients withdraw socially and when we get them back to “themselves” again, they regain their confidence. Our most generous supporters are Steve and Kathleen Flynn and the Bell Charitable Foundation, who have also raised awareness of this disease nationally through the Graves Disease and Thyroid Foundation.

What do you see as the next big advances in your specialty field?

There has been a great shift towards personalized medicine. For example, we recently had a patient who had undergone numerous procedures elsewhere to repair an orbital fracture, but his eye was still displaced.

We removed his old implant and implanted a customized 3D printed orbital implant. Now he is as good as new! Similarly, at the molecular level, we are able to characterize the markers on tumors and recommend specifically targeted therapy based on a patient’s particular genetic and tumor profile.

What are some of the challenges and opportunities that you see for the future of the Shiley Eye Institute, ophthalmology and medicine?

We live in challenging times. Declining funding, increasing administrative burden and growing practice barriers all confront the future practice of medicine. On the bright side, never before have we had the ability to treat so many patients and restore them to their pre-disease state. The everyday advances in treatment, diagnosis and prevention, are astonishing. We still see the brightest minds entering medicine and the goal of helping our fellow man has never been stronger.

Steve and Kathleen Flynn



What do you do in your free time?

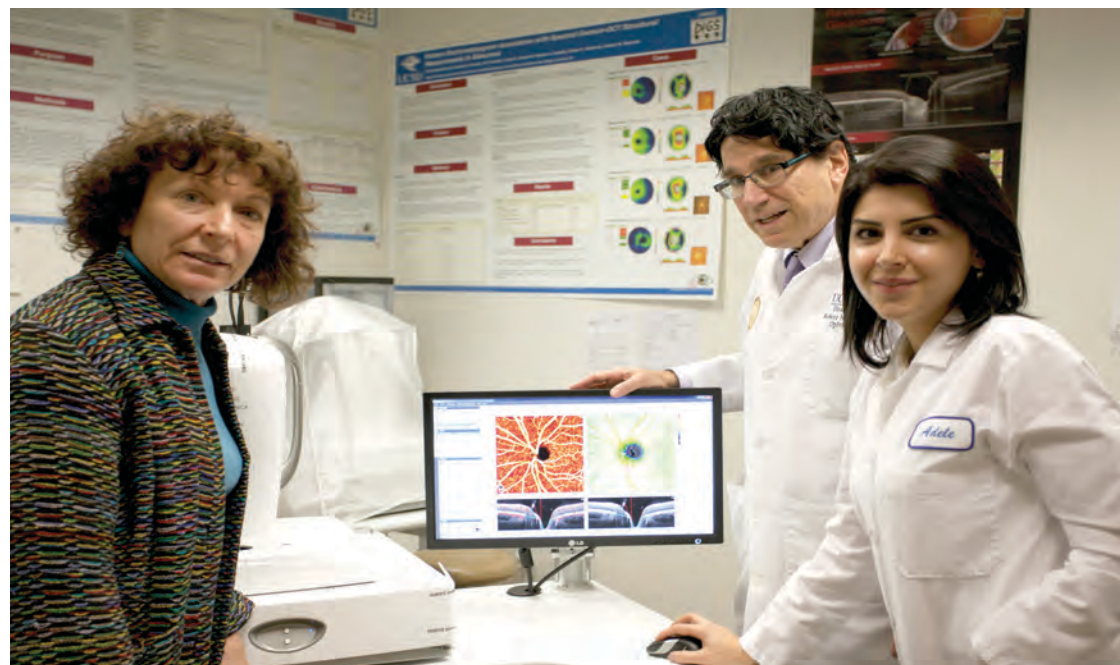
My wife Cheryl and I are the proud parents of three wonderful children, Jason, Claire and Alina. As a husband and father most of my free time is spent with family activities. All of my children are involved with sports and I am their biggest fan! I also find it important to give back to the community and am a volunteer surgeon for Fresh Start Surgical Gifts and DOCS (Doctors Offering Charitable Services).

A NEW ROLE FOR THE “OCT” IN GLAUCOMA STUDIES

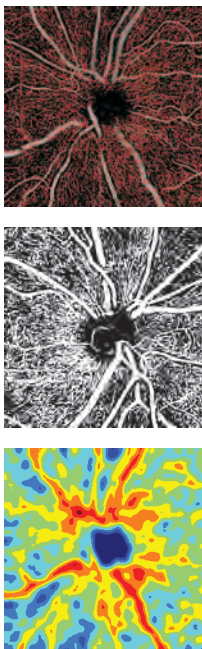
A potential role of ocular blood flow and its microvascular networks in causing glaucomatous damage has been suggested for decades. Study of the ocular vasculature has been a challenge, however, as there has not been a useful technique for measuring them until now. **Adeleh Yarmohammadi, MD**, a research fellow, in collaboration with **Robert N. Weinreb, MD** and other investigators from the Hamilton Glaucoma Center at the Shiley Eye Institute are now employing a novel technology, optical coherence tomography angiography (OCT-A), to study the arrangement and functionality of blood vessels in glaucoma.

OCT angiography is a new method for non-invasive characterization of ocular vasculature. The device extracts vascular information and qualitatively and quantitatively computes high-resolution perfused blood vessels including tiny capillaries.

“There are several advantages to OCT-A over the previous methods of imaging the ocular vasculature,” said Dr. Weinreb. “OCT-A is noninvasive and fast and is able to provide qualitative and quantitative measurements at a level of precision that has not been achieved with previous instruments that measured



Drs. Zangwill, Weinreb & Yarmohammadi with sample OCT-A images



blood flow. Additionally, vascular information is characterized at various retinal layers.”

In one ground-breaking study, published in *Investigative Ophthalmology and Visual Science* (2016 July 1;57(9):OCT451-9. doi:10.1167/iovs.15-18944.), they found that the retinal nerve fiber layer vessel density was lower in glaucoma eyes than healthy eyes. Moreover, vessel density measurements distinguished glaucoma eyes from healthy eyes with similar diagnostic accuracy to RNFL thickness measurements.

In another study, they observed in *Ophthalmology* (2016 Dec;123(12):2498-2508. doi: 10.1016/j.ophtha.2016.08.041.), that vessel density was significantly associated with the severity of visual field damage.

Longitudinal follow-up of the peripapillary and macular vascular changes in glaucoma

and other ongoing clinical trials are underway to address many questions about ocular microvasculature, and its relevance to the pathophysiology of glaucoma.

“The ability of OCT-A to noninvasively characterize vascular networks in various layers shows promise for characterizing glaucomatous retinal vascular changes and may have a role in the management of glaucoma,” said **Linda Zangwill, PhD**, a collaborator in these studies.

OCT-A measurements may reflect damage to tissues relevant to the pathophysiology of glaucoma. According to Dr. Weinreb, “The ultimate value of the vascular information obtained by a new technology will be dependent on longitudinal studies to clarify the temporal relationship between vascular changes and glaucomatous damage.”



Richard C. Atkinson

Laboratory for Regenerative Ophthalmology

2016 Update

Stem cell derived '3D optic cup' illustrating the entire eye at early stages of development

Pluripotent stem cell derived fluorescent reporter mini-retinas genetically engineered to identify early stages of retina formation

Retinal degenerative (RD) diseases, such as age-related macular degeneration (AMD), retinitis pigmentosa (RP), and Leber's congenital amaurosis (LCA), as well as glaucoma, are blinding disorders, that unfortunately, are untreatable once photoreceptors or ganglion cells are lost. The remarkable regenerative capacity of pluripotent stem cells (PSCs) is demonstrated by recent studies showing that such cells can give rise to a multitude of tissues found throughout the body including cells that form the eye. Retinas derived from such stem cells offer enormous potential to generate new cells and tissue for transplantation, a system to address the origins of disease and a platform to screen for drugs that could block the disease process.

Under the direction of **Karl Wahlin, PhD**, the Richard C. Atkinson Laboratory for Regenerative Ophthalmology at the Shiley Eye Institute has been developing new strategies for vision repair using pluripotent stem cells. Using stem cell derived human 3D "mini-retinas", genetic engineering and drug screening, his lab is investigating new ways to better understand how the human retina forms and how genetic defects cause human retinal disease. The so-called 3D "mini-retinas" that are being developed in his lab resemble actual retinas of people and with recently developed genome engineering tools, his lab

uses 'precision molecular scissors' to introduce fluorescent markers into cells in order to track their development. These fluorescent reporters are now helping his team to systematically optimize the microenvironment of cultured stem cell derived mini-retinas and in some cases have already improved our understanding of the biology of eye formation. For example, by tweaking oxygen levels to mimic the conditions normally experienced by a living human embryo, they were able to exploit the fluorescent signature of retina reporters to confirm that such conditions also improved the outcome of early eye development in experimental settings. These findings are encouraging results that will hopefully lead to more efficient ways to generate transplant ready retinal cells.

Over the past year, the laboratory has also used this DNA editing approach to introduce mutations into laboratory grown stem cells in order to create human retinal disease models, including for childhood onset LCA. Sometimes referred to as the "disease-in-a-dish" approach, this method is one of the best opportunities to study the close to 300 mutations that result in retinal degenerations. While still in early phases, these "disease-in-a-dish" models are under active development as a first step towards identifying neuroprotective compounds to block or even reverse the degenerative condition.

Over the past year, the team in the Atkinson Laboratory for Regenerative Ophthalmology has also assembled sophisticated high throughput imaging and liquid handling tools for drug discovery and functional genomic screens to explore the mechanism that allows a cell to transform from an undifferentiated progenitor to mature photoreceptors, RPE and ganglion cells. These tools are essential for high throughput approaches to identify neuroprotective pathways applicable to glaucoma, RP and AMD. The fluorescent cell type reporters that have been developed will allow researchers at Shiley to visualize living cells under a variety of experimental conditions allowing for more efficient generation of high purity pools of photoreceptor and ganglion cell precursor cells.

An example of the work currently being conducted in his lab is a pilot screen of close to 400 drug compounds that was used to uncover at least one new pathway involved in the generation of new retinal cells. The success of this relatively small pilot screen sets the stage for larger screens in which thousands of compounds will be tested simultaneously. It is hoped that this translational work will enhance our ability to find treatments for many of the retinal degenerations including macular degeneration, glaucoma and other eye diseases that are currently incurable.

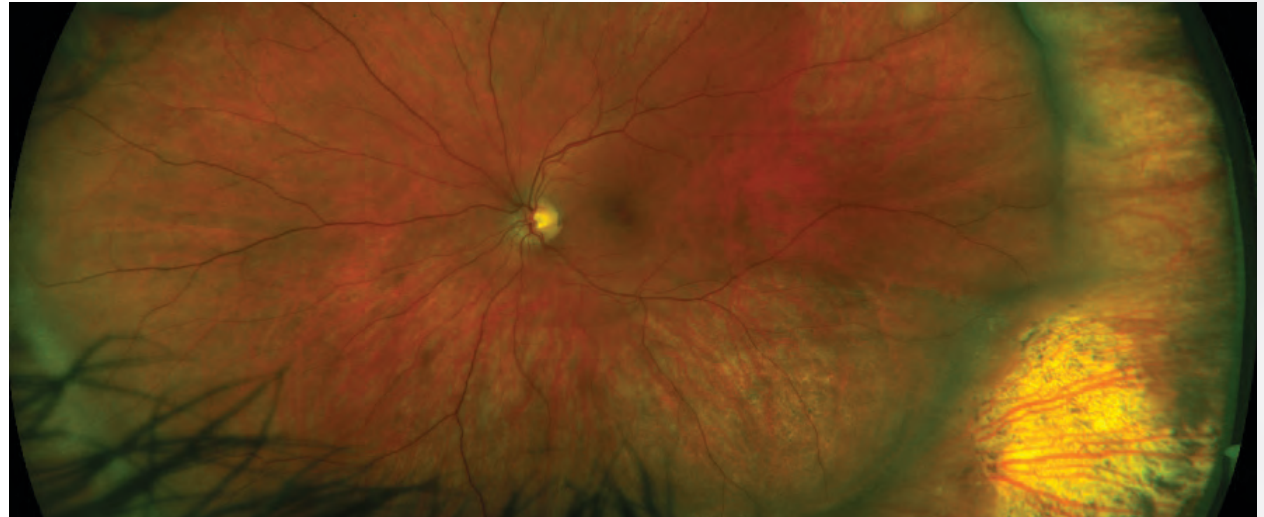
Don't Ignore Flashes of Light

Two years ago, thirty-year old Jennifer Wilbanks became alarmed when she noticed flashes of light in her left eye. As a marine mammal trainer for six years, she relies on having precise eyesight when maneuvering underwater with these beautiful creatures. She saw an optometrist but the doctor did not see anything wrong, so she “lived with it” for a year.

Last year, right before Labor Day weekend, Jennifer realized that she was not able to see the upper part of her vision in her left eye. “It was like a curtain fell and blocked my sight,” stated Jennifer. Luckily, a friend told her about the Shiley Eye Institute at UC San Diego and Jennifer called.

She was triaged by Esmeralda McClean, OD who feared a retinal detachment and referred her to retina specialist, **Henry A. Ferreyra, MD**. Jennifer was diagnosed right away with a macula-sparing retinal detachment, a medical emergency that requires immediate treatment. “After seeing Dr. Ferreyra, I felt validated that I wasn’t crazy. I really did see light flashes and then nothing from the top of my left eye. I never realized how serious this condition is,” said Jennifer.

The retina is the light-sensitive tissue that lines the inside of the eye. It contains photoreceptors, specialized cells that convert light into electrical



Color photo of left eye after scleral buckle surgery

impulses that are sent through the optic nerve and to the brain to produce vision. A retinal detachment occurs when the retina pulls away from its supportive tissues that provide oxygen and nutrients. If not promptly treated, a retinal detachment can cause permanent vision loss.

Thanks to Dr. Ferreyra, Jennifer had successful scleral buckle surgery that preserved her vision. This surgery consists of attaching a tiny synthetic band to the outside of the eyeball to push the wall of the eye against the detached retina.

“Any surgery is scary but especially eye surgery. I live in San Diego and my family is in Texas so I was not sure about the home care for the pre-

and post-operative procedures. The staff in the clinic and the surgery suite helped to put my mind to rest, knowing that I would be well taken care of,” explained Jennifer. Luckily, her mother flew out from Texas to care for her.

With modern therapy, over 90 percent of patients with a retinal detachment can be successfully treated, although sometimes second treatment is needed. However, the visual outcome is not always predictable. The final visual result may not be known for up to several months following surgery. Even under the best of circumstances, and even after multiple attempts at repair, treatment sometimes fails and vision may eventually be lost. Visual results are best if the retinal

detachment is repaired before the macula (the center region of the retina responsible for fine, detailed vision) detaches.

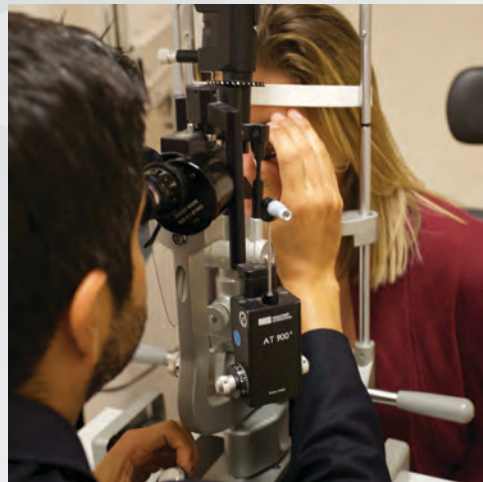
Dr. Ferreyra stated, “It is important to contact an eye care professional immediately if you see a sudden or gradual increase in the number of floaters and/or light flashes, or a dark curtain over the field of vision. These are the most common signs of a retinal detachment and need to be taken seriously.”

A retinal detachment can occur at any age, but it is more common in people over the age 40. It affects men more than women.

A retinal detachment is also more likely to occur in people who:

- Have high myopia (extreme nearsightedness)
- Have had a retinal detachment in the other eye
- Have a family history of retinal detachment
- Have had cataract surgery
- Have other eye diseases or disorders, such as retinoschisis, uveitis, degenerative myopia, or lattice degeneration
- Have had an eye injury

Jennifer lost a slight amount of sight in the upper part of her visual field in her left eye, but is thankful to be visually stable since her surgery last year. She is grateful to Dr. Ferreyra and his team for saving her vision. She continues to work in her dream job caring for amazing animals and hopes to do so for many years to come.



SENSE OF HUMOR ALWAYS HELPS

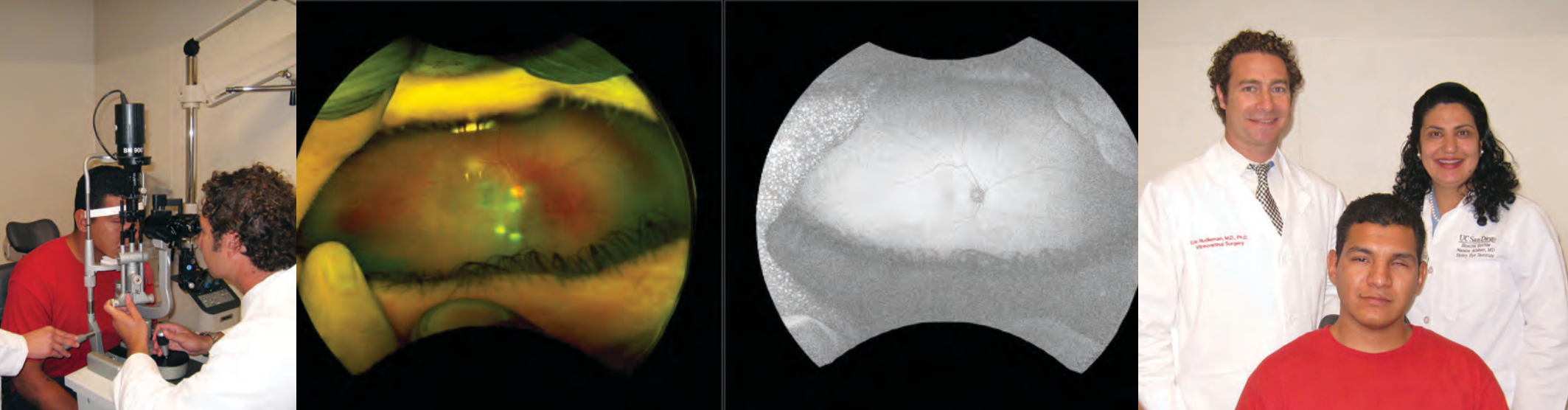
Fourteen-year-old Aidan Guilfoyle came to see **Shira L. Robbins, MD**, Clinical Professor of Pediatric Ophthalmology at the Ratner Children's Eye Center, complaining of a large discolored bump on her left lower eyelid.

On examination, there was a fairly large conjunctival lesion over the left eye. The family opted for surgical intervention that was completed as an outpatient procedure at the Shiley Eye Institute surgery center. Dr. Robbins performed an excisional biopsy.

“Much to my surprise, Aidan showed up to her surgery with a complete pirate outfit as she knew that her left eye was going to be patched for several hours after the surgery. She took the pirate theme to a new level!” stated Dr. Robbins

Aidan has done fabulously and healed very quickly. It appears that she may have had a foreign body that flew into her eye and her immune system responded with a larger than normal inflammatory response. Her discomfort led to mechanical trauma from eye rubbing which additionally inflamed the area.

Dr. Robbins further noted, “Aidan has a heck of a sense of humor. Kids will always find a way to have fun. That is why pediatric ophthalmology is the best!”



GETTING HIS LIFE BACK

Adan Rodriquez was out with his friends in 2011 when he was struck at close range by rubber pellets directly to his head, nose and eyes. At only 22 years old, he lost most of his vision instantly. He was left with a traumatic cataract in the right eye and subsequent loss of the left eye. Regardless of the adverse situation, Adan maintained a positive outlook. He thought to himself, "I can only see shadows but I can deal with this!"

Shortly after the incident, he went to see a doctor who said that his case was too complicated and they could not do anything for him. Again he thought, "I can deal with this!" Later, doctors referred him to the Shiley Eye Institute at UC San Diego, where **Natalie A. Afshari, MD**, Chief of the Cornea and Refractive Surgery Division, first examined him.

When Adan presented to the Shiley Eye Institute, he had a prosthetic left eye and white traumatic cataract with phacodonesis in the right eye. He was only seeing light and had to hold on to others to walk around.

"I knew that Adan had a difficult condition but he was very young and I was hopeful that we could improve his vision through surgery", stated Dr. Afshari.

"When scheduling surgery, I asked Dr. Afshari what my chances of future vision were and she said, 'you have a very good chance of seeing if your retina is healthy'" said Adan, "After almost five years, I thought that I would be blind for the rest of my life!"

Dr. Afshari swung into action by conferring with **Eric Nudleman, MD, PhD** on his retina because of Adan's previous trauma. They scheduled surgery for Adan the next week.

After surgery, Adan's eye was patched and while driving back home he noticed that he was able to see the color red through the side of his patch. He was excited but cautious with his expectations. The next day when examined with the patch off, he was immediately able to see everything in front of him! He was walking around Shiley Eye Institute reading every sign and smiling. He was amazed.

Dr. Nudleman noted, "With the history of trauma, we were very worried about damage to his retina or optic nerve that would cause irreversible vision loss. We were thrilled that once his lens was removed, the retina looked healthy. That gave us hope that he would recover useful vision."

After three days, he was able to read again but didn't want to pressure himself so he would cover up his eye. "I felt like my eye was reborn and it just couldn't stop looking at everything and everyone around me," he stated excitedly, "my eye wanted to see and catch up on lost time."

Coming back to the Shiley Eye Institute for a check up with both physicians, Adan had 20/20 vision in the right eye and was beaming with happiness. He is 27 years old now and wants to start life over. He is interested in finding a job with his new found eyesight. He is so grateful to both Drs. Afshari and Nudleman for bringing back his sight. "It is amazing that I am able to get my life back!" Adan said leaving the Shiley Eye Institute.

THE BLESSING OF VISION

Jacqueline (Jacquie) Grinstead's glaucoma was detected at age 38 in Nebraska. For over 20 years, she was treated for glaucoma with eye drops and regular check-ups with her local ophthalmologist. In the early 1990's, she underwent eye surgery to relieve the pressure followed by additional procedures. A few of her siblings have been diagnosed with glaucoma, as well.

After one of her glaucoma surgeries, Jacquie and her husband Jerry wanted to visit their children and grandchildren in Southern California for the December holidays. Her ophthalmologist from Nebraska agreed to let her travel on one condition, that she be checked by **Robert N. Weinreb, MD** at the Shiley Eye Institute. And as she states, "the rest is history!"

Since meeting Dr. Weinreb, Jacquie has had several more glaucoma surgeries and most recently, "he took great care of me when I severely damaged my right eye in a fall." Jacquie continued, "way back in the 1990's, I was told by doctors that I would be blind within 10 years. Needless to say, that has NOT happened due to the awesome care and expertise of the great Dr. W. I truly feel the blessing of vision and being able to see."

Since 2010, the Grinsteads have been so grateful for their care with Dr. Weinreb and his team that they made gifts to the Shiley Eye Institute personally in honor of Dr. Weinreb and several friends. In addition, they have asked their children, grandchildren and friends to donate to Glaucoma Research. Over these years, the Grinsteads have even forgone their Mother's and Father's Day gifts to Dr. Weinreb's research. As Jerry Grinstead notes, "Without Dr. Weinreb, Jacquie would not have her eyesight – we are confident of that! In the past, my Father's Day present was usually Dunkin Donuts coffee – now I want Dr. Weinreb's research to benefit! It has become our family's cause to support."

Jacquie proclaims, "With continued monitoring and care, we pray that my eye issues will be in a "holding pattern" for many years to come. The vision in my right eye has actually improved from the fall and the last surgery with Dr. Weinreb. A big thanks to Dr. W and the staff at Shiley for keeping the positives going for our family and for so many more around the world. YOU are the greatest!"



Shiley Eye Institute Welcomes Derek S. Welsbie, MD, PhD

The UC San Diego Shiley Eye Institute welcomes glaucoma specialist and research scientist **Derek S. Welsbie, MD, PhD** from the Johns Hopkins University Wilmer Eye Institute. The newly appointed Dr. Welsbie is an Assistant Professor in the UC San Diego Department of Ophthalmology.

Prior to joining UC San Diego, Dr. Welsbie won the prestigious Shaffer Prize for Innovative Glaucoma Research from the Glaucoma Research Foundation in 2014. He completed a residency in Ophthalmology and fellowship training in Glaucoma at the Wilmer Eye Institute. He earned his medical degree and doctorate in molecular biology from the David Geffen School of Medicine at UCLA.

Dr. Welsbie studies the way in which glaucoma leads to optic nerve injury, neurodegeneration and vision loss. Specifically, he uses high-throughput genetic screening to comprehensively characterize the genes responsible for nerve cell death. His ultimate goal is to develop new medication and gene therapy-based neuroprotective strategies to interfere with these harmful genes, prevent nerve cell death and improve outcomes for patients with glaucoma.

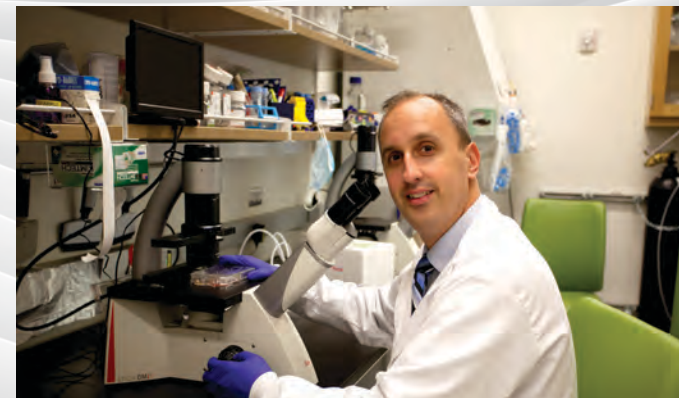
"I look forward to working with **Robert N. Weinreb, MD** and **Karl Wahlin, PhD** in the Richard C. Atkinson Laboratory for Regenerative Ophthalmology to find the genes responsible for nerve cell death in glaucoma so that we can develop new types of medications that work

by directly improving the health of nerve cells," states Dr. Welsbie.

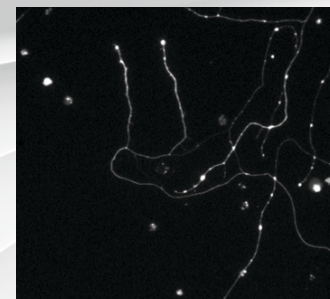
Glaucoma is a disease that can damage the eye's optic nerve and result in vision loss and blindness. According to the World Health Organization, glaucoma is the second leading cause of blindness in the world and it is estimated that over 3 million Americans have glaucoma but only half know it.

Dr. Welsbie explains glaucoma in layman's terms, "The nerve that connects to the back of your eyeball is called the optic nerve. Its job is to take the visual signal from the eye and relay it to the brain (much like the USB cord that runs from your camera to your computer when you download images). In a USB cord, if you unwrapped the insulation, you would see a bunch of little copper wires. In the nerve, you would see about a million or so nerve fibers. Each fiber is the really, really long "arm" of a nerve cell, called a retinal ganglion cell (RGC). Each RGC is responsible for processing and transmitting the vision signal from a certain point in the retina to the brain and it takes about a million of these to line the inside of the entire retina."

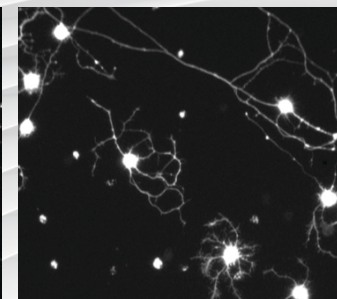
Glaucoma is a neurodegeneration, much like Parkinson Disease and Alzheimer Disease, but it is not brain nerve cells dying, rather it's the retinal nerve cell (i.e. RGC). Dr. Welsbie continues, "If one of these RGCs die, that point in the retina becomes disconnected from the brain and the patient develops a blind spot.



Derek S. Welsbie, MD, PhD



Control



DLK Inhibition



Richard C. Atkinson Laboratory

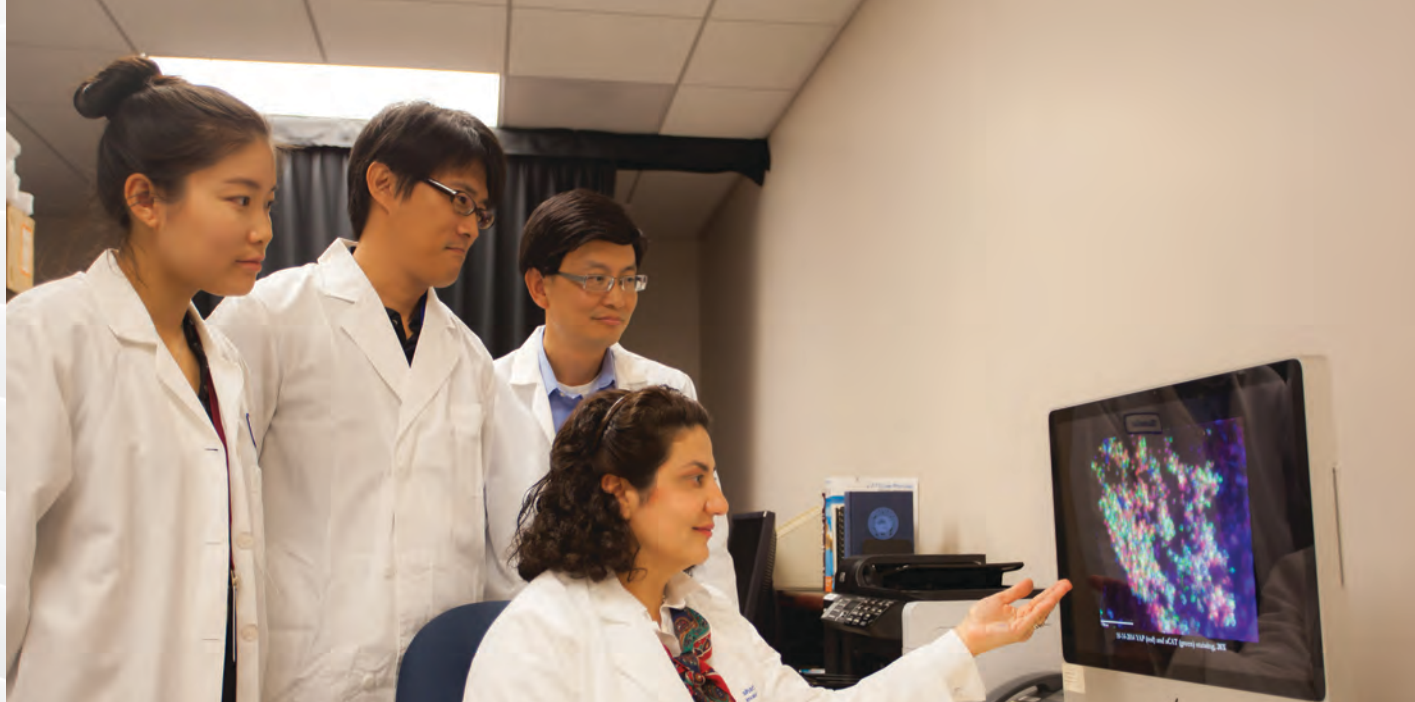
Over time, the patient loses more and more “spots” and, eventually, can become totally blind.”

Unfortunately, there is no way to regrow these cells yet so the damage is permanent. The treatment for lowering eye pressure in glaucoma is by laser, eye drops or surgery. This often helps although lowering eye pressure is difficult in some patients while others continue to get worse despite pressure lowering. Dr. Welsbie is trying to develop a new type of therapy, called a neuroprotective, which might complement traditional pressure-lowering strategies.

When RGCs get injured in glaucoma, there is a set of genes inside the RGC that are responsible for sensing the injury and triggering cell death. So, if these genes could be identified, one might be able to interfere with their function and prolong the life of the RGC. If the RGCs are still alive and functioning, people keep their vision! Unfortunately, figuring out exactly which genes to target is not easy. There are over 20,000 different genes in any given cell. Most laboratories can only study a few of these ~20,000 genes at a time to check their importance in RGC death.

Dr. Welsbie’s team has figured out a way to test nearly ALL the genes and ask the question, “which of the ~20,000 is the best possible neuroprotective drug target?” The team has a technology to, one-by-one, interfere with all of the genes in the genome. RGCs are purposefully injured and then robotic microscopy is used to identify which genes, when inhibited, lead to improved RGC survival. Those genes are the ones that are potential drug targets for glaucoma and which are going to be further investigated by Dr. Welsbie and his team of researchers.

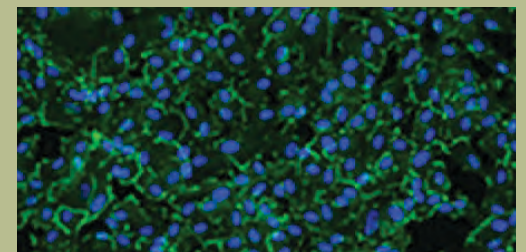
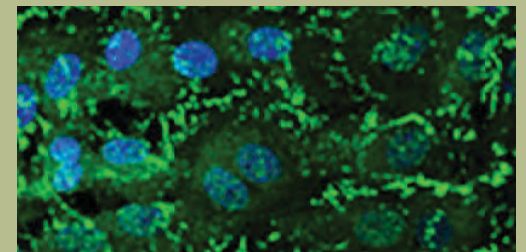
His laboratory has already identified a key target called DLK and is now trying to develop strategies to inhibit DLK. He is also interested in investigating the role of DLK in other eye diseases like retinitis pigmentosa and age related macular degeneration.



FUCHS DYSTROPHY AND CORNEAL WOUND HEALING

Natalie A. Afshari, MD, Chief, Division of Cornea and Refractive Surgery, and Vice Chair of Education is directing studies that focus on corneal regeneration and repair.

Dr. Afshari and her colleagues have found that topical treatment of Rho-associated kinases (ROCK) inhibitors stimulate corneal endothelial cell proliferation and migration. These results demonstrate the efficacy of these drugs as a potential new topical therapy for patients with corneal endothelial diseases.



Corneal endothelial cells (porcine) characterized by positive ZO-1 (green) staining by confocal microscopy images showing flattened polygonal cells and cell-cell tight junctions.

THE OPHTHALMOLOGIST “TOP 100 POWER LIST” FOR 2016



Robert N. Weinreb, MD



Napoleone Ferrara, MD



Kang Zhang, MD, PhD

Three Shiley Eye Institute faculty, **Robert N. Weinreb, MD**, **Napoleone Ferrara, MD** and **Kang Zhang, MD, PhD** are distinguished in *The Ophthalmologist's* “Top 100 Power List” for 2016.

The Ophthalmologist, a European based publication, collects global nominations from physicians and scientists to determine the most influential in the field of Ophthalmology from around the world.

Congratulations to Drs. Weinreb, Ferrara and Zhang for their outstanding accomplishments!

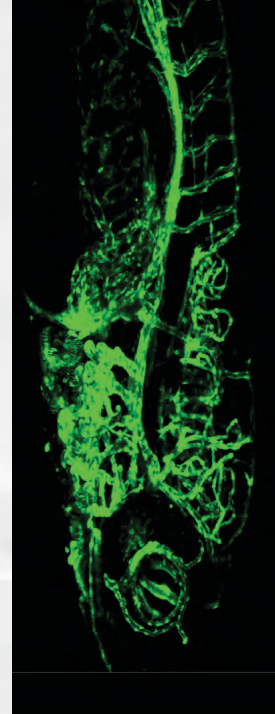
Shiley Eye Institute
Welcomes

Daniel L. Chao,
MD, PhD

Daniel L. Chao, MD, PhD, new Assistant Professor of Clinical Ophthalmology in the Department of Ophthalmology, comes to the Shiley Eye Institute from UC San Francisco where he completed his fellowship in retinal disease. During this time, he won the Heed Ophthalmic Foundation Fellowship and the William F. Hoyt Fellow Teaching Award.

Dr. Chao completed his residency at the Bascom Palmer Eye Institute, University of Miami and obtained his MD and PhD in Neuroscience from Stanford University. While there, he was the recipient of the Stanford Medical Scientist Research Fellowship and did his PhD thesis on the molecular mechanisms of synapse formation and elimination in *C. Elegans*.

Dr. Chao is a retina surgeon and a physician scientist focused on translational research in retinal diseases. His laboratory focuses on using a common tropical fish, the zebrafish



5 Day Old Zebrafish Embryo
with Blood Vessels Labeled
with Green



Adult Zebrafish



5 Day Old
Zebrafish Embryo

(*Danio rerio*), to model retinal diseases such as diabetic retinopathy and age related macular degeneration (AMD). Zebrafish are an excellent organism to model human retinal disease as their DNA is 70% identical to humans, and the composition and architecture of the zebrafish retina is remarkably similar to humans.

The zebrafish embryos are transparent and develop externally, so one can image in real time the development of the retina and blood vessel growth in an intact living eye. Zebrafish can also be easily genetically manipulated to introduce fluorescent proteins to label blood vessels and retinal cells, as well as manipulate genes which are known to be important for human disease. The small size of zebrafish embryos and the ability to add drugs directly into the fish water allow them to be used in large scale drug screens to look for novel molecules

which can affect retinal blood vessel growth and retinal cell survival.

Dr. Chao is focused on diseases that affect the retinal blood vessels such as diabetic retinopathy and macular degeneration. In both diabetic retinopathy and AMD, there is an aberrant growth of immature blood vessels in the retina which then leak fluid and damage the retina. Current therapies for diabetic retinopathy and AMD, such as bevacizumab (Avastin®), ranibizimab (Lucentis®), and aflibercept (Eylea®) work by inhibiting this aberrant blood vessel growth and leakage. While these current therapeutics have revolutionized treatment for these diseases, many patients have incomplete responses, and there is a great need to identify additional therapeutics which can be used in combination with current treatments.

Dr. Chao has identified a zebrafish strain which has aberrant growth of vessels in the retina which leak fluid, serving as an excellent model of diabetic retinopathy and AMD. He is characterizing this zebrafish strain to identify new molecular pathways involved in retinal vessel growth and maturation. In the future, he plans to initiate drug screenings to find new pharmaceuticals that inhibit aberrant blood vessel growth and leakage. His long-term goal is to identify new therapeutic targets for diabetic retinopathy and AMD, then translate these into treatments that can help save vision of patients with these blinding diseases.

"I am excited to collaborate with other scientists at the Shiley Eye Institute such as **Radha Ayyagari, PhD** and **Karl Wahlin, PhD** to develop further zebrafish models of retinal degeneration" states Dr. Chao.

GLAUCOMA

Glaucoma can cause blindness if untreated and is the second leading cause of blindness in the United States. As many as 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 medical and/or surgical treatment. The best way to protect your sight from glaucoma is to get tested. Early diagnosis and appropriate treatment are the keys to preserving vision.



Robert N. Weinreb, MD

Chairman & Distinguished Professor of Ophthalmology
Director of the Shiley Eye Institute
Director of the Hamilton Glaucoma Center
Morris Gleich, MD Chair in Glaucoma

Certification

Board Certification in Ophthalmology

Medical School

Harvard Medical School

Residency & Fellowship

University of California, San Francisco

Special Interests

Glaucoma Surgery; Optic neuropathy and aging of the eye; Cell and molecular biology of uveoscleral outflow; Imaging of the optic disc and retinal nerve fiber layer; Mechanisms of optic nerve damage in glaucoma; Neuroprotection in glaucoma; Measurement of intraocular pressure; Drug delivery to eye; Cataract Surgery

Notables & Awards

2016 Best Doctors in America; 2016 Inaugural Residency Leadership Award; Shiley Eye Institute, UC San Diego; 2016 Inaugural International Scholar Award; Chinese Academy of Ophthalmology; 2016-2019 Adjunct Professor; The Chinese University of Hong Kong; China; 2015-2016 Castle Connolly Top Doctors



Felipe A. Medeiros, MD, PhD

Ben and Wanda Hildyard Chair for Diseases of the Eye
Professor of Clinical Ophthalmology
Medical Director & Director of Visual Function Research
Fellowship Program Director, Hamilton Glaucoma Center

Certification

Board Certification in Ophthalmology

Medical School & Residency

University of Sao Paulo

Fellowship

University of California, San Diego

Special Interests

Management of challenging glaucoma cases and new surgical procedures; Cataract surgery; Advanced imaging analysis for diagnosis and detection of glaucoma progression; New techniques for interocular pressure measurement; Functional impairment in glaucoma; Prediction models and risk assessment in glaucoma

Notables & Awards

2016 Moacyr Alvaro Gold Medal; Federal University of Sao Paulo; 2016 Senior Achievement Award; American Academy of Ophthalmology; 2016 Best Doctors in America



Linda M. Zangwill, PhD

Professor of Ophthalmology in Residence
Co-Director of Clinical Research,
Hamilton Glaucoma Center
Director, Hamilton Glaucoma Center,
Data Coordinating Center

Graduate School

Harvard School of Public Health (MS)
Ben-Gurion University of the Negev (PhD)

Postdoctoral Fellowship

University of Waterloo, Waterloo, Ontario, Canada

Special Interests

To improve our understanding of the complex relationship between structural and functional change over time in the aging and glaucoma eye; To develop computational and statistical techniques to improve glaucomatous change detection, reduce the number of visits and optimize the type of testing required; To identify risk factors that can predict glaucomatous progression and rapidly progressing glaucoma

Notables & Awards

2016 Gold Fellow, The Association for Research in Vision and Ophthalmology



Dorota Skowronska-Krawczyk, PhD

Associate Project Scientist of Ophthalmology

Graduate School

University of Geneva, Switzerland

Postdoctoral Fellowship

Eye Hospital Jules Gonin, Lausanne, Switzerland
University of California, San Diego

Special Interests

Molecular mechanisms in retina development and in genetic and age related eye diseases, including glaucoma



John H.K. Liu, PhD

Adjunct Professor of Ophthalmology
Director, Glaucoma Molecular Pharmacology Laboratory

Graduate School

National Tsing Hua University (MS Molecular Biology)
Texas A&M University (PhD Pharmacology)

Postdoctoral Fellowship

Harvard Medical School

Special Interests

Regulation of intraocular pressure and ocular blood flow; 24-hour sleep laboratory for glaucoma and other eye diseases



Akram Belghith, PhD

Assistant Project Scientist of Ophthalmology

Graduate School

University of Strasbourg, France

Fellowship

University of California, San Diego

Special Interests

Change detection and monitoring of glaucoma; Image processing and machine learning classifier analyses



Christopher Bowd, PhD

Research Scientist of Ophthalmology

Director of the Hamilton Glaucoma Center-based Visual Field Assessment Center

Co-Director of the Hamilton Glaucoma Center-based Imaging Data Evaluation and Analysis (IDEA) Center

Graduate School

Washington State University

Postdoctoral Fellowship

University of California, San Diego

Special Interests

Early detection and monitoring of glaucoma; Machine learning classifier analyses of imaging and visual function measurements

Notables & Awards

2016 Silver Fellow, The Association for Research in Vision and Ophthalmology



Won-Kyu "Daniel" Ju, PhD

Associate Professor of Ophthalmology

Graduate School

The Catholic University in Korea (Masters & PhD)

Postdoctoral Fellowship

Washington University in St. Louis (Post-doctoral Fellow)

Sanford-Burnham Medical Research Institute (Staff Scientist)

Special Interests

Mechanisms for neuroprotection and neurodegeneration in glaucoma - Oxidative stress and glutamate excitotoxicity in glaucoma - Mitochondrial dynamics; bioenergetics and dysfunction in retinal ganglion cell (RGC) and optic nerve head (ONH) astrocyte in glaucoma - Mitochondria-related gene therapy for RGC and ONH astrocyte neuroprotection in glaucoma

Notables & Awards

2016 Beauty of Science First Prize, National Institutes of Health



James D. Lindsey, PhD

Adjunct Professor of Ophthalmology

Graduate School

University of California, San Diego

Postdoctoral Fellowship

Johns Hopkins University School of Medicine

Special Interests

Retinal ganglion cell function; Methods for retinal ganglion cell rescue and optic nerve regeneration; Mechanisms for aqueous outflow regulation



Rigby Slight, MD

Associate Clinical Professor of Ophthalmology

Certification

Board Certification in Ophthalmology

Medical School

University of Oklahoma; Internship at UCLA

Residency

University of Southern California

Special Interests

Clinical research in glaucoma; UC San Diego Optic Disc Reading Center



Derek S. Welsbie, MD, PhD

Assistant Professor of Ophthalmology

Certification

Board Certification in Ophthalmology

Medical School

University of California, Los Angeles

Residency & Fellowship

The Johns Hopkins University School of Medicine / Wilmer Eye Institute

Special Interests

Neuroprotection in glaucoma and other optic neuropathies; Use of functional genomic technologies to identify novel mediators of axon injury signaling in neurons; Development of dual leucine zipper kinase inhibitors; Role of dual leucine zipper kinase in traumatic brain injury

RETINA & VITREOUS

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.



William R. Freeman, MD

Distinguished Professor of Ophthalmology
Vice-Chairman, Department of Ophthalmology
Director, Jacobs Retina Center
Co-Director, Retina Division

Certification

Board Certification in Ophthalmology

Medical School

Mount Sinai School of Medicine, New York, NY

Residency

Lenox Hill Hospital, New York, NY

Fellowship

University of California, San Francisco, CA (Uveitis & Immunology)

University of Southern California, Los Angeles, CA (Vitreoretinal Surgery)

Special Interests

Complicated retinal detachment; Diabetic retinopathy; Macular holes & age related macular degeneration

Notables & Awards

2016 Best Doctors in America; 2015-2016 Castle Connolly Top Doctors



Michael H. Goldbaum, MD, MS

Professor of Ophthalmology in Residence
Co-Director, Retina Division

Certification

Board Certification in Ophthalmology

Medical School

Tulane University School of Medicine (MD)

Stanford University (MS)

Residency

Tulane University School of Postgraduate Medicine & U.S. Naval Hospital

Fellowship

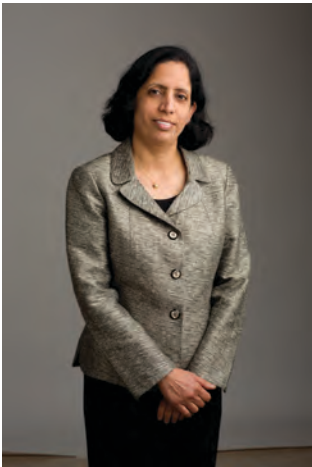
Cornell University Medical Center and New York Hospital

Special Interests

Surgical & Medical treatment of the Retina and Vitreous; Macular Degeneration; Pediatric Retina; Ocular Tumors; Glaucoma informatics

Notables & Awards

2016 Best Doctors in America; 2015-2016 Castle Connolly Top Doctors



Radha Ayyagari, PhD

Associate Professor of Ophthalmology and Pathology
Chief of Ophthalmic Molecular Diagnostic Laboratory
(CLIA certified)
Director of Shiley Eye Institute BioBank

Certification

Board Certification in Molecular Diagnostics

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; Biological mechanisms underlying retinal diseases; Age-related macular degeneration; Diabetic retinopathy; and Glaucoma

Notables & Awards

2015 Thome Memorial Foundation Award from Edward N. and Della L. Thome Memorial Foundation



Dirk-Uwe Bartsch, PhD

Associate Adjunct Professor of Ophthalmology
Co-Director, Jacobs Retina Center

Graduate School

University of California, San Diego

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 Pole



Daniel L. Chao, MD, PhD

Assistant Clinical Professor of Ophthalmology

Certification

Board Certification in Ophthalmology

Medical School

Stanford University (MD and PhD)

Residency

Bascom Palmer Eye Institute, University of Miami

Fellowship

University of California, San Francisco

Special Interests

Surgical and medical management of retinal diseases, diabetic retinopathy, age related macular degeneration; Translational research; Scientific focus on developing zebrafish as a model for retinal diseases; technology development for new treatments and diagnostics for retinal disease

Notables & Awards

2016 William F. Hoyt Fellow Teaching Award, UC San Francisco



Lingyun Cheng, MD

Adjunct Professor of Ophthalmology
Director of Ocular Pharmacology

Medical School

Shanxi Medical University, China

Residency

The First Teaching Hospital of Shanxi Medical University, China

Fellowship

University of California, San Diego

Ideta Eye Hospital, Japan

Special Interests

Ocular drug delivery and vitreoretinal diseases

Notables & Awards

2015 Achievement Award, American Academy of Ophthalmology



Henry A. Ferreyra, MD

Associate Clinical Professor of Ophthalmology

Certification

Board Certification in Ophthalmology

Medical School

University of California, San Diego

Residency

University of California, San Diego

Fellowship

University of California, San Diego

Special Interests

Electrophysiology Inherited disorders of the retina; Age-related macular degeneration; Diabetic retinopathy; Retinopathy of prematurity



Eric Nudleman, MD, PhD

Assistant Clinical Professor of Ophthalmology

Certification

Board Certification in Ophthalmology

Medical School

Albert Einstein College of Medicine (MD) Stanford University (PhD)

Residency

Washington University in St. Louis

Fellowship

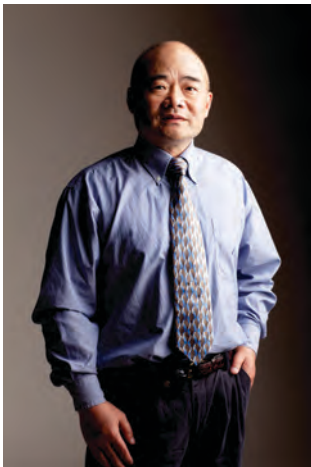
Associated Retinal Consultants / William Beaumont Hospital

Special Interests

Adult and pediatric vitreoretinal diseases, including macular degeneration, diabetic eye disease, retinal vein occlusions, retinal detachments, proliferative vitreoretinopathy, macular holes and epiretinal membranes; Specialty interest in pediatric vitreoretinal diseases, including the surgical management of advanced retinopathy of prematurity, familial exudative vitreoretinopathy, Coats disease, persistent fetal vascular syndrome, and intraocular trauma; Scientific focus on developmental angiogenesis, with emphasis on the role of the Wnt Signaling pathway in developmental vascular diseases

Notables & Awards

2016 Best Doctors in America



Peter Shaw, PhD

Assistant Professor of Ophthalmology
Clinical and Translational Research Institute
School of Medicine Recruitment and
Admission Committee

Graduate School

McMaster University, Ontario, Canada

Postdoctoral Fellowship

University of California, San Francisco

Special Interests

Evaluation and diagnosis of eye diseases including macular degeneration, diabetic retinopathy, glaucoma and inherited retinal degenerations by genetic variants and plasma biomarkers; Investigation of how genetic and oxidative stress risk factors impact on disease pathology; Development of molecular and gene therapy methods to treat eye diseases



Gabriel A. Silva, MSc, PhD

Associate Professor of Bioengineering
Associate Adjunct Professor of Ophthalmology
Jacobs Faculty Fellows Professor of Bioengineering
Co-Director, Retinal Engineering Center

Graduate School

University of Illinois at Chicago (PhD)

University of Toronto (MSc)

Postdoctoral Fellowship

Northwestern University

Special Interests

Cell signaling and information processing in biological cellular neural networks;
Retinal physiology; Neural engineering; Degenerative retinal disorders



Kang Zhang, MD, PhD

Professor of Ophthalmology
Founding Director,
Institute for Genomic Medicine
Co-Director, Biomaterials and Tissue Engineering,
Institute for Engineering in Medicine

Certification

Board Certification in Ophthalmology

Medical School

Harvard Medical School / Massachusetts Institute of Technology (MD / PhD Program)

Residency

The Johns Hopkins University School of Medicine / Wilmer Eye Institute

Postdoctoral Fellowship

University of Utah School of Medicine

Special Interests

Age related macular degeneration; Diabetic retinopathy; Inherited retinal degeneration

CORNEA & REFRACTIVE

The Shiley Eye Institute 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. The Shiley Eye Institute provides comprehensive eye care for a range of routine, complex and high-risk corneal, cataract and external diseases, as well as the most current vision correction procedures.



Natalie A. Afshari, MD, FACS

Professor of Ophthalmology
Stuart I. Brown MD Chair in Ophthalmology
in Memory of Donald P. Shiley
Chief, Division of Cornea and Refractive Surgery
Vice Chair of Education

Certification

Board Certification in Ophthalmology

Medical School

Stanford University Medical School

Residency & Fellowship

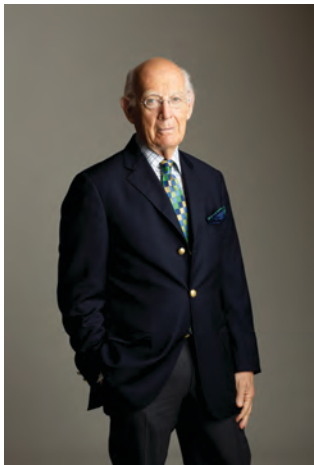
Harvard University, Massachusetts Eye and Ear Infirmary

Special Interests

Cataract surgery; Fuchs Dystrophy; Corneal transplantation; Endothelial keratoplasty (DSAEK & DMEK); Intacs and collagen crosslinking for keratoconus; Laser refractive surgery, including LASIK and PRK, Surgical and medical diseases of cornea

Notables & Awards

2016 Gold Fellow, The Association for Research in Vision and Ophthalmology; 2016 San Diego Magazine's Top Doctors; 2016 Best Doctors in America; 2015-2016 Castle Connolly Top Doctors; 2015 Women in Ophthalmology Educators Award



Stuart I. Brown, MD

Professor of Ophthalmology
Dr. Richard and Tatiana Lansche Chair in Ophthalmology

Certification

Board Certification in Ophthalmology

Medical School

University of Illinois Medical School

Residency

Tulane Medical School

Fellowship

Harvard University, Massachusetts Eye and Ear Infirmary

Special Interests

Corneal transplantations; Cataract surgeries



Weldon W. Haw, MD

Clinical Professor of Ophthalmology
Chief of Ophthalmology at Veterans
Administration Medical Hospital

Certification

Board Certification in Ophthalmology

Medical School

University of California, Los Angeles School of Medicine

Residency

Stanford University School of Medicine (Chief Resident)

Fellowship

Stanford University School of Medicine (Chief Fellow)

Special Interests

Specialty Cataract Surgery, Intraocular lenses, Dry Eye/Pterygium, Cornea
Transplantation, Refractive Surgery/LASIK

Notables & Awards

2016 Special Contribution Award, San Diego VA Health System; 2015-2016 Castle
Connolly Top Doctors



Chris W. Heichel, MD

Associate Clinical Professor of Ophthalmology

Certification

Board Certification in Ophthalmology

Medical School

Chicago Medical School

Residency

University of California, San Diego (Chief Resident)

Fellowship

University of California, San Diego

Special Interests

Corneal transplantations and Keratoprotheses Challenging cataract and IOL
surgeries LASIK, Intacs, & Visian ICL Advanced techniques in laser & refractive
surgery Keratoconus Ocular Surface Tumors Limbal Stem Cell Transplantation

Notables & Awards

2015-2016 Castle Connolly Top Doctors



Jiagang "Jack" Zhao, PhD

Associate Project Scientist of Ophthalmology

Graduate School

Mount Sinai School of Medicine

Postdoctoral Fellowship

Salk Institute for Biological Studies, La Jolla, California

Special Interests

Age related macular degeneration; Diabetic retinopathy; Inherited retinal
degeneration

OPHTHALMIC PLASTIC & RECONSTRUCTIVE SURGERY

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.



Don O. Kikkawa, MD, FACS

Professor of Clinical Ophthalmology and Plastic Surgery
Vice-Chairman, Department of Ophthalmology
Chief, Division of Oculofacial Plastic and
Reconstructive Surgery

Certification

Board Certification in Ophthalmology

Medical School

St. Louis University School of Medicine

Residency

University of California, Los Angeles

Fellowship

University of Wisconsin, Madison

Special Interests

Oculofacial surgery; Eyelid, lacrimal and orbital surgery; Thyroid eye disease (orbital decompression and eyelid surgery); Craniofacial disorders involving the eyelids and orbits; Orbital and eyelid tumors; Facial aesthetics - soft tissue fillers and injectables

Notables & Awards

2016 Visiting Professor, Dalian Medical University, Dalian China; 2016 Best Doctors in America; 2015-2016 Castle Connolly Top Doctors



Bobby S. Korn, MD, PhD, FACS

Associate Professor of Clinical Ophthalmology and
Plastic Surgery

Certification

Board Certification in Ophthalmology

Medical School

University of Texas, Southwestern Medical School (MD & PhD)

Residency & Fellowship

University of California, San Diego (Chief Resident)

Special Interests

Cosmetic & reconstructive surgery (eyelid & face); Blepharoplasty (eyelid lift surgery); Ptosis surgery (droopy lid surgery); Asian Blepharoplasty (double eyelid surgery); Congenital birth defects; Endoscopic forehead lifting; Thyroid eye disease management; Eyelid & orbital tumors & cancers; Lacrimal/tear outflow system disorders; Bulging or proptosis of eyes; Reconstruction of eyelids post cancer removal; Reconstruction after trauma / eye injuries; Botox, Restylane, Juvederm & facial fillers; Skin rejuvenation – chemical peel

Notables & Awards

2016 Best Doctors in America; 2015-2016 Castle Connolly Top Doctors; 2016 San Diego Magazine Top Doctors



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.

Don O. Kikkawa, MD

David B. Granet, MD

Bobby S. Korn, MD, PhD

PEDIATRIC OPHTHALMOLOGY & ADULT EYE REALIGNMENT

Preventing and treating vision loss/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 disease causing eye misalignment and require individualized intervention. Recognized worldwide for their teaching & 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.



David B. Granet, MD, FAAO, FACS, FAAP

Professor of Ophthalmology & Pediatrics
Anne Ratner Chair of Pediatric Ophthalmology
Director, Anne F. and Abraham Ratner
Children's Eye Center
Director, Division of Pediatric Ophthalmology
& Eye Alignment Disorders

Certification

Board Certification in Ophthalmology

Medical School

Yale University School of Medicine

Residency

New York University Medical Center (Chief Resident)

Fellowship

Children's Hospital of Philadelphia University of Pennsylvania Medical Center
Scheie Eye Institute

Special Interests

Pediatric ophthalmology & strabismus; Adult eye movement problems; State-of-the-art adjustable suture strabismus surgery; Childhood eye misalignments & disorders; Nystagmus Learning disorders & role of vision

Notables & Awards

2016 Best Doctors in America; 2015-2016 Castle Connolly Top Doctors



Shira L. Robbins, MD, FAAO, FAAP

Clinical Professor of Ophthalmology
Educational Director of Pediatric Ophthalmology /
Strabismus Division

Certification

Board Certification in Ophthalmology

Medical School

Medical College of Pennsylvania Hospital

Residency

Hahnemann University Hospital

Fellowship

University of California San Diego & Naval Medical Center

Special Interests

Strabismus/eye misalignment/double vision; Amblyopia; Retinopathy of prematurity; Pediatric glaucoma & cataracts; including intraocular lens placement; Nasolacrimal duct disorders; Congenital eye syndromes; Craniofacial syndromes; Systemic diseases affecting the eyes; Nystagmus

Notables & Awards

2016 Best Doctors in America; 2016 Achievement Award, American Academy of Ophthalmology; 2016 Award for Distinguished Service, American Association for Pediatric Ophthalmology and Strabismus; 2016 Best Doctors in America; 2016 San Diego Magazine Top Doctors; 2014-2017 Hartwell Foundation Biomedical Investigator Award

NEURO-OPHTHALMOLOGY

Neuro-ophthalmologists diagnose and treat neuro-sensory disorders including brain tumors, double vision, giant cell arteritis, ischemic optic neuropathy, optic neuritis, papilledema, pseudotumor cerebri, thyroid eye disease and visual field defects. Shiley Eye Institute's skilled neuro-ophthalmologists conduct routine diagnostic tests and a thorough evaluation while working with the referring physician to manage the condition or illness.



Peter J. Savino, MD

Clinical Professor of Ophthalmology & Neurosciences

Certification

Board Certification in Ophthalmology

Medical School

University of Bologna School of Medicine

Residency

Georgetown University Medical Center

Fellowship

University of Miami

Special Interests

Myasthenia gravis optic neuritis, atrophy and neuropathy brain and nervous system tumors visual field defects; Degenerative, metabolic, inflammatory & demyelinating diseases vascular disorders

Notables & Awards

2016 Best Doctors in America; 2015-2016 Castle Connolly Top Doctors

COMPREHENSIVE OPHTHALMOLOGY

Shiley's comprehensive ophthalmology division provides primary eye care for all conditions of the eye and surrounding structures, both routine and urgent. This specialty offers routine ophthalmic evaluations which screen and treat a wide range of ophthalmic conditions including cataracts, ocular surface disorders, glaucoma, diabetic retinopathy and macular degeneration. Diagnostic services include evaluation of visual acuity, refraction, slit lamp evaluation, ophthalmoscopy, tonometry, gonioscopy and visual field testing.

Typical treatments include prescription medications and/or optical correction, however, occasional surgical intervention for cataracts and laser treatments are offered as part of comprehensive ophthalmology. The comprehensive ophthalmology division refers patients to the Department's subspecialty ophthalmologists for evaluations regarding eye surgery and/or long-term treatment. The comprehensive service handles most of the general ocular problems and those patients desiring screenings for cataracts, glaucoma and diabetic retinopathy.



Jeffrey E. Lee, MD

Assistant Professor of Clinical Ophthalmology
Program Director, Ophthalmology Residency

Certification

Board Certification in Ophthalmology

Medical School

University of California, San Diego

Residency

University of California, San Diego

Special Interests

Facial burns; Orbital trauma; Ocular manifestations of HIV, Optimizing residency cataract surgery education

Notables & Awards

2015 Faculty Award for Innovation and Quality, UC San Diego PACE



Thao P. Nguyen, MD

Assistant Clinical Professor of Ophthalmology

Certification

Board Certification in Ophthalmology

Medical School

University of Oklahoma, Tulsa

Residency

University of Rochester, New York

Fellowship

University of California, San Diego

OPHTHALMIC PATHOLOGY

Ophthalmic pathology 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.



Jonathan H. Lin, MD, PhD, FCAP

Associate Professor

Certification

Board Certification in Anatomic Pathology

Medical School

Columbia University College of Physicians & Surgeons (MD & PhD)

Residency

Brigham Women's Hospital (Anatomic Pathology)

Fellowship

University of California, San Francisco (Ophthalmic Pathology)

Special Interests

Ophthalmic Pathology including pigmented ocular lesions (uveal melanoma, primary acquired melanosis), basal cell carcinoma, sebaceous gland lesions, inflammatory lesions (sclerosing orbital inflammatory pseudotumor, IgG4 disease), MALToma, corneas (PKPs, DSAEKs), conjunctival biopsies (conjunctival intraepithelial neoplasia - CIN), orbital lesions, intraocular fine needle aspirates/vitrectomy specimens; Cellular and molecular mechanisms of retinal degeneration; RPE and ocular stem cells

REGENERATIVE OPHTHALMOLOGY

Retinal degeneration (RD) disease, such as age-related macular degeneration (AMD), retinitis pigmentosa (RP), Leber's congenital amaurosis (LCA) and glaucoma are blinding disorders, that unfortunately, are untreatable once photoreceptors or retinal ganglion cells are lost. Pluripotent stem cells (PSCs) are remarkable cells that can give rise to virtually every cell type in the body including cells that form the eye. Retinas derived from such stem cells offer a potential means to generate new cells and tissue for transformation, a system to address the origins of disease and a platform to screen for drugs that could block the disease process.

Researchers at the Shiley Eye Institute are using stem cell derived human 3D 'mini-retinas', genetic engineering and drug screening to better understand how the human retina forms and to understand the complex biology of human retinal disease and explore potential cures. Combining the power of stem cells and genetic engineering we are developing so-called 'disease-in-a-dish' models to explore totally new ways to treat retinal disease.



Karl Wahlin, PhD

Assistant Professor of Ophthalmology
Director, Richard C. Atkinson Laboratory for
Regenerative Ophthalmology

Graduate School

The Johns Hopkins School of Medicine (Neuroscience)

Fellowship

The Johns Hopkins School of Medicine / Wilmer Eye Institute

Special Interests

Directed differentiation of pluripotent stem cells and their application towards the study of retinal development and eye disease; Photoreceptor cell development and retinal connectivity; Retinal and optic nerve regeneration

RETINAL VASCULAR DISEASES

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.



Napoleone Ferrara, MD

Distinguished Professor of Ophthalmology
and Pathology
Senior Deputy Director for Basic Sciences,
UCSD Moores Cancer Center

Medical School & Residency

University of Catania Medical School, Catania, Italy

Fellowship

University of California, San Francisco

Special Interests

Regulation of angiogenesis (the formation of new blood vessels) and the role of VEGF (vascular endothelial growth factor); Continue to develop new therapies to treat age related macular degeneration building upon past development of Avastin® and Lucentis®.

Notables & Awards

2016 International Gold Award, The Chinese Ophthalmological Society; 2015 Elected to The National Academy of Medicine

OPTOMETRY & LOW VISION

Shiley Eye Institute 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.



John F. Kulischak, OD



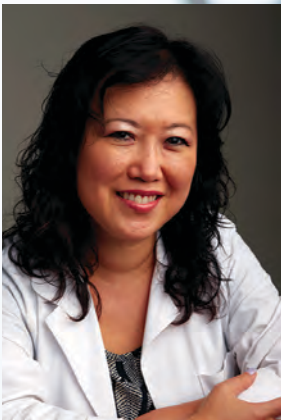
Anne B. Lam, OD



Lara D. Hustana, OD



Maria Laura Gomez,
MD, OD



Pamela A. Hoo, OD



Lianne Mizoguchi, OD



Esmeralda McClean, OD



Jessica A. Tasto, OD



Alicia Lau, OD

PATIENT SEMINARS

Graves' Disease and Thyroid Eye Disease Seminar



Don O. Kikkawa, MD, David B. Granet, MD and Bobby S. Korn, MD, PhD.

On Saturday, May 7, 2016 the Graves' Disease and Thyroid Foundation (GDATF) co-hosted a patient and family mini-conference at the Shiley Eye Institute. Thyroid eye disease (TED) is characterized by abnormal enlargement of the thyroid gland and swollen or inflamed eye muscles that can cause the eyeballs to protrude from their sockets.

Physician presenters included Shiley's Thyroid Eye Clinic team **David B. Granet, MD**, **Don O. Kikkawa, MD** and **Bobby S. Korn, MD, PhD** along with UC San Diego doctors Kevin T. Brumund, MD (Thyroid Surgery), Karen McCowen, MD (Endocrinology) and

Farshad Moradi, MD (Nuclear Medicine). The conference incorporated panels of patients who shared their experiences of being diagnosed with thyroid eye disease and going through treatment and surgeries. The patients brought hope and inspiration to the entire audience sharing their very personal and emotional journeys.

Established in 1990, the Graves' Disease and Thyroid Foundation provides education and support for patients, families, caregivers, friends and healthcare professionals on the symptoms and treatment for Graves' Disease.



Dr. Weinreb presenting at the UC San Diego Altman CTRI Auditorium to a packed house.

The thirty-third annual Glaucoma Update was held on November 2, 2016 at the new Altman Clinical Translational Research Institute. **Robert N. Weinreb, MD** presented the latest trends in glaucoma research at the Shiley Eye Institute and around the world.

Patty Maysent, MPH, MBA, Chief Executive Officer of UC San Diego Health, reported on the opening of the new 245-bed Jacobs Medical

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Center as well as the changes taking place on the Health Sciences La Jolla campus.

In addition, **Karl Wahlin, PhD**, Director of the Richard C. Atkinson Laboratory for Regenerative Ophthalmology, described the ground-breaking work the lab is undertaking. New faculty member, **Derek Welsbie, MD, PhD**, explained his innovative stem cell investigations.

OPHTHALMOLOGY EDUCATION

OPHTHALMOLOGY COMMUNITY LECTURE SERIES & GRAND ROUNDS

Monthly, the UC San Diego Department of Ophthalmology offers the Community Lecture Series with a world renowned invited visiting professor. Prominent specialists and international leaders update ophthalmologists from all over San Diego County. Continuing medical education (CME) credits are offered to attendees along with a reception immediately following the lectures.

The community is also invited to the departmental weekly Grand Rounds every Monday afternoon. The Grand Rounds consist of case presentations with moderated discussion. Interesting eye diseases, treatment dilemmas and surgical challenges are often the theme. These are offered in the Shiley Eye Institute Education Center.

2015 – 2016 VISITING PROFESSORS:

10/05/2015 DOUGLAS R. LAZZARO, MD
Professor and Chair, Department of
Ophthalmology
Sunny Downstate Medical Center, New York
Title: "Peripheral Ulcerative Keratitis"

11/02/2015 DIMITRI T. AZAR, MD, MBA
Dean, College of Medicine
Professor of Ophthalmology,
Bioengineering and Pharmacology
University of Illinois, Chicago
Title: "Surgical Treatment of Astigmatism:
Wavefront and Q-based Refractive and Toric IOLs"

1/11/2016 REZA DANA, MD, MPH, MSC
Claes Dohlman Professor of Ophthalmology
Harvard Medical School
Vice Chairman, Harvard Department of Ophthalmology
Director, Cornea and Refractive Surgery,
Massachusetts Eye and Ear Affirmity
Title: "Immune Regulation of the Ocular Surface"

3/14/2016 MALVINA B. EYDELMAN, MD
Director, Division of Ophthalmic and Ear,
Nose and Throat Devices
Office of Device Evaluation,
US Food and Drug Administration
Title: "A Look inside the Black Box: FDA Regulation of
Ophthalmic Products"

4/18/2016 RICHARD L. LINDSTROM, MD
Founder, Minnesota Eye Consultants
Adjunct Professor Emeritus, Department of
Ophthalmology,
University of Minnesota
Title: "The Future in Focus: Crisis, Challenge and
Opportunity"

5/16/2016 JAMES D. BRANDT, MD
Professor, Ophthalmology and Vision Science
Director, Glaucoma Service, UC Davis
Title: "Informatics in the Eye Clinic – How EMRs,
Big Data and Expert Systems Will Change
How We Practice"



Natalie Afshari, MD, Reza Dana, MD and
Robert Weinreb, MD



Robert Weinreb, MD, Dimitri Azar, MD and
Natalie Afshari, MD



Felipe Medeiros, MD, PhD, Linda Zangwill, PhD,
James Brandt, MD, and Robert Weinreb, MD



Malvina Eydelman, MD and
Natalie Afshari, MD

OPHTHALMOLOGY UPDATE

The 2016 Ophthalmology Update was held February 13-14, 2016 at the Hilton La Jolla Torrey Pines. The event was a great success with over 300 attendees. **Don O. Kikkawa, MD** and **Robert N. Weinreb, MD** served as Program Chairs. The interdisciplinary faculty of ophthalmic sub-specialties gave presentations on the latest surgical techniques, innovative ideas and research in ophthalmology.

Distinguished Invited Speakers were: Kerry Assil, MD, Helen Danesh-Meyer, MD, Robert A. Goldberg, MD, Jeffrey M. Liebmann, MD, Ken K. Nischal, MD, Srinivas R. Sadda, MD, Ningli Wang, MD

GRADUATION HIGHLIGHTS

On June 27, 2016 the Department of Ophthalmology graduated four outstanding residents with a ceremony and dinner. Brian Chang, MD, (Administrative Chief Resident) is now with Facey Medical Group in Mission Hills, CA; Roman Fajardo, MD, is now with Alta Rose Surgery Center in Las Vegas, NV; Abigail Huang, MD, (Academic Chief Resident) is now with the VA in Durham, NC; and Usha Kumar, MD, is now with Kaiser in Vacaville, CA.

During the graduation awards ceremony, the third annual “Lamont Ericson, MD Award for Outstanding Patient Care by a Resident” was presented by Robert N. Weinreb, MD to Abigail Huang, MD. Dr. Huang was selected by the other residents for the second year in a row. Dr. Ericson was an outstanding former resident in the Department who passed away in 2007 at a young age.

Also during graduation, the inaugural “Residency Leadership Award” was given to **Robert N. Weinreb, MD** by chief residents Abigail Huang, MD and Brian Chang, MD. This award is given to a faculty member who has fostered an environment of learning for the residents, served as a model of clinical and academic excellence and inspired residents to achieve their greatest potential.

The entire Department celebrated the departing fellows with a “Hats off to our Graduating Fellows” event on June 29, 2016. After everyone enjoyed some refreshments, each specialty division chief awarded diplomas to the graduating fellows.

ARVO WRAP UP

After the April 30 – May 5, 2016 Annual Meeting of the Association for Research in Vision and Ophthalmology (ARVO) in Seattle, WA, the Department of Ophthalmology held an ARVO Wrap Up in the Shiley Eye Institute Education Center. The Department of Ophthalmology and the Shiley Eye Institute presented over 60 papers and posters.

The Wrap Up provided an opportunity for residents, fellows, faculty and medical students to hear and view the outstanding research that has been conducted in the Department during 2015-2016, as well as engaging the scientists in discussion about their projects.



Brian Chang, MD,
Robert N. Weinreb, MD,
and Abigail Huang, MD



Abigail Huang, MD
and Jeffery Lee, MD

“Hats off to our
Graduating Fellows”





Top row left to right, Roman Fajardo, MD, Landon Grange, MD, Brian Chang, MD, Derek Mai, MD, Amir Marvasti, MD, Kyle Godfrey, MD

Bottom row left to right, Brenda Nuyen, MD, Nickisa Hodgson, MD, Courtney Ondeck, MD, Sally Baxter, MD, Usha Kumar, MD, Abigail Huang, MD

RESIDENCY

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 county 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 at the Shiley Eye Institute. During their training residents learn, 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 eye conditions.

In addition, with departmental support, residents partake 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.

3rd YEAR RESIDENTS WIN AWARDS

Third year resident **Courtney Ondeck, MD** was awarded the Starr E. Schulman MPA Fellows Award for 2016 from the California Academy of Eye Physicians and Surgeons (CAEPS). This grant subsidized her participation in the Academy of Ophthalmology's Advocacy Ambassador Program from April 13-16, 2016 in Washington, DC. This program introduces the residents to congressional legislators at the US Capitol and they attend a series of educational talks on issues of concern for ophthalmologists.

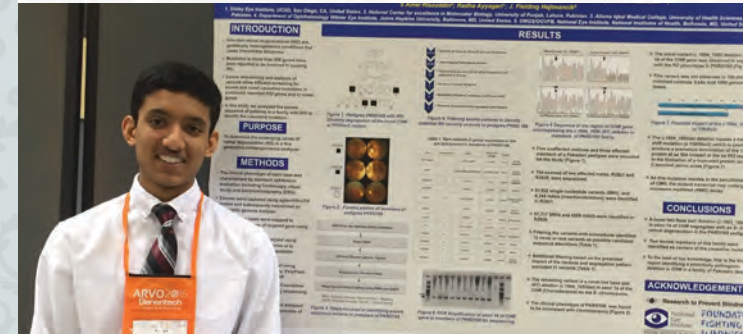


Nickisa Hodgson, MD received the Continuing Specialized Education (CSE) Award for 3rd year residents. This honor provided a scholarship to attend the CSE meeting in Fort Worth, Texas from August 19-20, 2016. The program is designed to provide the awarded residents with state-of-the-art didactic and wet lab experience as well as opportunities to exchange ideas with the thought leaders in ophthalmology.



Young Scientist Funded by Foundation Fighting Blindness

High-School Sophomore Finds Gene
Mutation in Family with Choroideremia



The annual meeting of ARVO (Association for Research in Vision and Ophthalmology) was held on May 1-5, 2016 in Seattle, Washington with more than 11,000 attendees from 75 countries. The UC San Diego Department of Ophthalmology had its most visible presence yet with over 78 presentations and posters from faculty, residents and fellows. This was among the highest of any department in the world.

Also in attendance was the son of Shiley retina research scientist, **Radha Ayyagari, PhD**, Aditya A. Guru. Sixteen year old Aditya found the CHM gene mutation causing choroideremia in a large family for a Torrey Pines High School science fair project. He too presented his poster on his findings which was funded by Foundation Fighting Blindness.

FELLOWS

Shiley Eye Institute 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 Pictured:

Glaucoma

Xin Xia, PhD

Retina

Kyung Seek Choi, MD, PhD

Cornea



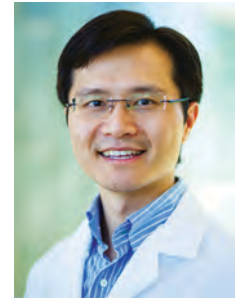
Andres C. Benatti, MD



Hideki Fukuoka, MD, PhD

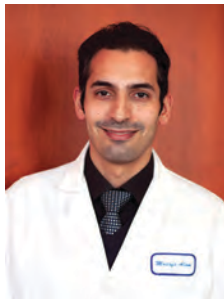


Shabnam Taylor, MD



Aaron Wang, MD, PhD

Retina



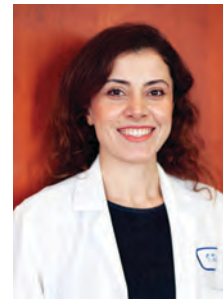
Mostafa Alam, MD



Raouf Gaber, MD



Joseph Ho, MD



Ilkay Kilic, MD



Sang Woong Moon, MD



Hema Ramkumar, MD



Angel Soto-Hermida, MD



Travis Stiles, PhD



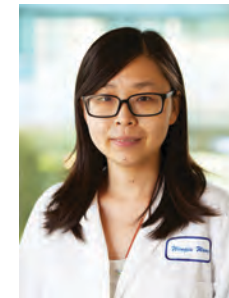
Frank Tsai, MD



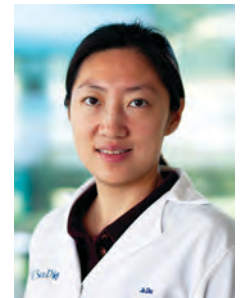
Qisheng You, MD



Ehsan Shahrian
Varnousfaderani, PhD

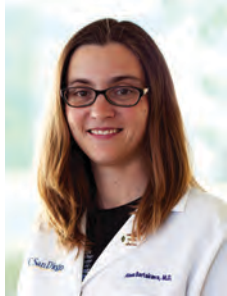


Wenqiu Wang, PhD



Jie Zhu, PhD

Glaucoma



Alena Bartakova, MD



Alberto Diniz-Filho,
MD, PhD



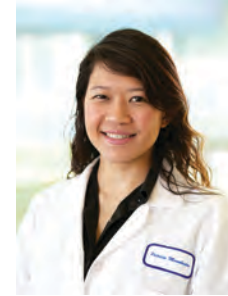
Joana Galvao, MD



Karl Kador, PhD



Ting Liu, MD



Patricia Manalastas, MD



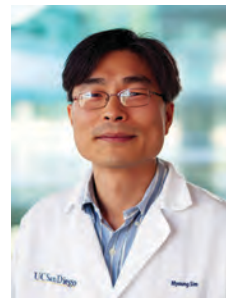
Hamideh
Moayedpardazi, MD



Masaki Nakanishi, PhD



Luke Saunders, PhD



Myoung Sup Sim, PhD



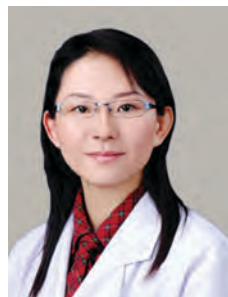
Min Hee Suh, MD



Zhiyong Yang, PhD



Adele
Yarmohammadi, MD

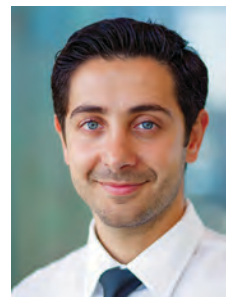


Chunwei Zhang, MD



Feilin Zhu, MD

Oculoplastics



Ramzi Alameddine, MD



Audrey Ko, MD

Pediatrics



Michael Kinori, MD

CLINICAL TRIALS

CORNEA

A Multi-Center, Double-Masked, Randomized, Placebo-Controlled Evaluation of the Safety and Efficacy of SUN-131 Transdermal System (TDS) as Compared to Placebo TDS in Adult Patients with a Chalazion
PI: Natalie A. Afshari, MD

Evaluation of Efficacy of 20 µg/ml rhNGF New Formulation (with Anti-Oxidant) in Patients with Stage 2 and 3 Neurotrophic Keratitis
PI: Natalie A. Afshari, MD

Prospective Randomized Comparison of Timing of Application of Topical Antibiotics in Cataract Surgery and Analysis of Aqueous Humor
PI: Natalie A. Afshari, MD

A Phase 2B, Open-Label, Single-Arm Study of Selinexor (KPT-220) Plus Low-Dose Dexamethasone in Patients with Multiple Myeloma Refractory to Bortezomib, Lenalidomide, Carfilzomib and Pomalidomide
Sub-I: Natalie A. Afshari, MD

Phase 1 Study of MEDI6386 (an OX40 Agonist) in Adult Subjects with Select Solid Tumors
Sub-I: Natalie A. Afshari, MD

First-in-Human, Dose-Escalation Study to Evaluation the Safety, Tolerability, and Pharmacokinetics of X-396 in Patients with Advanced Solid Tumors and Expansion Phase in Patients with ALK + Non-Small Cell Lung Cancer
Sub-I: Natalie A. Afshari, MD

A Phase 1, Open-Label, Dose-Escalation, Dose-Finding Study Evaluating the Safety and Pharmacokinetics of SM04755 in Subjects with Advanced Colorectal, Gastric, Hepatic or Pancreatic Cancer
Natalie A. Afshari, MD

A Phase 1b with Expansion Study Evaluating the Efficacy and Safety of Momelotinib Combined with Trametinib in Subjects with Metastatic KRAS-mutated Non-Small Cell Lung Cancer (NSCLC) Who Have Failed Platinum-Based Chemotherapy
Sub-I: Natalie A. Afshari, MD

A Thirteen-Year Study of the Indications and Visual Outcomes of Capsular Tension Ring Implantation in Cataract Surgery
PI: Christopher Heichel, MD

INTACS (Intrastromal Corneal Ring Segments) for Corneal Ectasia
PI: Christopher Heichel, MD

Ketorolax Prphylaxis for Cystoid Macular Edema Assessed by Optical Coherence Tomography in Patients Undergoing Uncomplicated Cataract Phacoemulsification Surgery
PI: Christopher Heichel, MD

Laser Eye Care of California
PI: Christopher Heichel, MD

GLAUCOMA

Effects of CH100649 on RGC Survival in Mouse Model of Optic Nerve Cruch in Vivo or in Primary Culture System in Vitro
PI: Won Kyu Ju, PhD

Effect of Ubiquinol on Retinal Ganglion Cell Survival and Mitochondrial Alteration in Mouse Model
PI: Won Kyu Ju, PhD

Ischemic Mouse Model with Acute IOP Elevation (100mm Hg)
PI: Won Kyu Ju, PhD

The Efficacy and Safety of Bimatoprost SR in Patients with Open-Angle Glaucoma or Ocular Hypertension
PI: Felipe Medeiros, MD, PhD

DRI OCT-1 Optical Coherence Tomography System
PI: Felipe Medeiros, MD, PhD

Evaluation of Bimatoprost 0.01% and Bimatoprost 0.03% in Patients with Glaucoma or Ocular Hypertension
PI: Felipe Medeiros, MD, PhD

An Open Label (Stage 1) and Randomize (Stage 2), 24-month Study of Safety and Efficacy of Bimatoprost Drug Delivery System
PI: Felipe Medeiros, MD, PhD

A Randomized, Multicenter, Double-Masked, Parallel-Group Study on BOL-303259-X 0.024% (Latanoprostene Bunod)
PI: Felipe Medeiros, MD, PhD

Evaluation of the Repeatability and Reproducibility of AngioVue
PI: Robert N. Weinreb, MD

Retinal Amyloid
PI: Robert N. Weinreb, MD

STARFISH
PI: Robert N. Weinreb, MD

Neighbors Genotyping
PI: Robert Weinreb, MD

iVue ETM Study
Co-I: Robert N. Weinreb, MD

Double-Masked Randomized Sham Controlled Trial of QPI-1007
PI: Robert N. Weinreb, MD

Angiography in Glaucoma Study
PI: Robert N. Weinreb, MD

Imaging of Choroid in Glaucoma
PI: Robert N. Weinreb, MD

OPHTHALMIC PATHOLOGY

Diagnostic Detection of Amyloid Aggregates in Ocular Tissues
PI: Jonathan Lin, MD, PhD

OPHTHALMIC PLASTIC & RECONSTRUCTIVE SURGERY

Loteprednol Etabonate Ophthalmic Ointment Versus Soothe Night Time Ointment
PI: Bobby Korn, MD, PhD

PEDIATRIC OPHTHALMOLOGY

Binocular Computer Activities for Treatment of Amblyopia (ATS18)
PI: Shira Robbins, MD

An Observational, Multicenter Study of the Prevalence of Cerebrotendinous Xanthomatosis (CTX) in Patient Populations Diagnosed with Early-Onset Idiopathic Bilateral Cataracts-Protocol Number 018CTXX15001
PI: Shira Robbins, MD

RETINA

A Study of Investigating the Efficacy and Safety of Lampalizumab Intravitreal Injections in Participants
Sub-I: Daniel Chao, MD, PhD

A Phase III, Multicenter, Randomized, Double-Masked, Sham-Controlled Study to Assess the Efficacy and Safety of Lampalizumab Administered Intravitreally to Patients with Geographic Atrophy Secondary to Age-Related Macular Degeneration
PI: Henry A. Ferreyra, MD

Safety and Efficacy of Brimonidine Posterior Segment Drug Delivery System in Patients with Geographic Atrophy Secondary to Age-Related Macular Degeneration (BEACON Study)
PI: William R. Freeman, MD

A Two-Year, Randomized, Double-Masked, Multicenter, Three-Arm Study Comparing the Efficacy and Safety of RTH258 Versus Aflibercept in Subjects with Neovascular Age-Related Macular Degeneration (HAWK Study)
PI: William R. Freeman, MD

A Phase II, Multi-Center, Randomized, Active Treatment-Controlled Study of the Efficacy and Safety of the Ranibizumab Port Delivery

System for Sustained Delivery of Ranibizumab in Patients with Subfoveal Neovascular Age-Related Macular Degeneration (LADDER Study)
PI: William R. Freeman, MD

A Phase 3 Randomized, Double-Masked, Controlled Trial to Establish the Safety and Efficacy of Intravitreal Administration of Fovista TM (Anti PDGF-B Pegylated Aptamer) Administered in Combination with Lucentis® Monotherapy in Subjects with Subfoveal Neovascular Age-Related Macular Degeneration (FOVISTA Study)
PI: William R. Freeman, MD

Evaluation of Abicipar Pegol (AGN-150998) in Patients with Decreased Vision Due to Diabetic Macular Edema (PALM Study)
PI: William R. Freeman, MD

GSK/BAM-114341 A Phase 2, Multi-Centre, Randomised, Double-Masked, Placebo, Controlled, Parallel-Group Study to Investigate the Safety, Tolerability, Efficacy, Pharmacokinetics and Pharmacodynamics of GSK933776 in Adult Patients with Geographic Atrophy (GA) Secondary to Age-Related Macular Degeneration (AMD). (BAM Study)
PI: William R. Freeman, MD

Protocol OPH1004: A Phase 3 Randomized, Double-Masked, Controlled Trial to Establish the Safety and Efficacy of Intravitreal Administration of Fovista (Anti PDGF-B Pegylated Aptamer) Administered in Combination with Either Avastin or Eylea Compared to Avastin or Eylea Monotherapy in Subjects with Subfoveal Neovascular Age-Related Macular Degeneration (AMD)
PI: William R. Freeman, MD
Sub-I: Eric D. Nudleman, MD, PhD

Regeneron VGFT-OD-1009: A Double-Masked, Randomized, Active-Controlled, Phase 3 Study of the Efficacy and Safety of Intravitreal Administration of VEGF Trap-Eye in Patients with Diabetic Macular Edema
PI: William R. Freeman, MD

Rescue of Bevacizumab or Ranibizumab Failure by Intravitreal Aflibercept (RAFT Study)
PI: William R. Freeman, MD

A Multi-Center, Two Stage, Open-Label Phase I and Randomized, Active-Controlled, Masked Phase II Study to Evaluate the Safety and Efficacy of Intravitreal Implantation of NT-503-3 Encapsulated Cell Technology Compared with Eylea for the Treatment of Recurrent Subfoveal Choroidal Neovascularization (CNV) Secondary to Age-Related Macular Degeneration (AMD)
PI: William R. Freeman, MD

A Phase II, Multicenter, Randomized, Active Treatment-Controlled, Study of Efficacy and Safety of the Ranibizumab Port Delivery System for Sustained Delivery of Ranibizumab in Patients with Subfoveal Neovascular Age-Related Macular Degeneration
PI: William R. Freeman, MD

GX29185 Trial
PI: Michael Goldbaum, MD

RUBY
I: Eric D. Nudleman, MD, PhD

ORBIT: Ocriplasmin Research to Better Inform Treatment
I: Eric D. Nudleman, MD, PhD

LADDER
Sub-I: Eric D. Nudleman, MD, PhD

NT-503 ECT
Sub-I: Eric D. Nudleman, MD, PhD

BEACON
Sub-I: Eric D. Nudleman, MD, PhD

HAWK
Sub-I: Eric D. Nudleman, MD, PhD

EAGLE: Evaluating Genotypes Using Intravitreal Aflibercept Injection
PI: Kang Zhang, MD, PhD

A Phase 2 Randomized, Double-Masked, Multicenter, Active-Controlled Study Evaluating Administration of Repeated Intravitreal Doses of hI-con1TM in Patients with Choroidal Neovascularization Secondary to Age Related Macular Degeneration
PI: Kang Zhang, MD, PhD

Whitehill Prize 2016



In June 2016, the Academy of Clinician Scholars at UC San Diego Health awarded the Whitehill Prize for 2016 in the Department of Ophthalmology to **Eric Nudleman, MD, PhD**, Assistant Clinical Professor of Ophthalmology. The Whitehill Charitable Trust established in 1995 by Jules Leonard Whitehill, MD generated the Whitehill Prize for excellence in the teaching of clinical medicine or surgery.

RARE TO HAVE THREE!

The Shiley Eye Institute is proud that we have received three prestigious institutional grants from the National Eye Institute. We are one of only five institutions in the U.S. with such funding.

T32: Translational Vision Research Training at UCSD

PI: Linda Zangwill, PhD

These awards are made to support several pre- and post-doctoral trainees within a formal program established by an institution of higher learning. Funds are provided for stipends and other expenses such as tuition and fees, health insurance, research supplies, equipment, and travel. The training program may be focused on a single scientific discipline or may more broadly include several disciplines relevant to vision research.

K12: NEI Mentored Clinical Scientist Development Award Program

PI: Robert N. Weinreb, MD

This award is made to an institutional program to enable them to award K grants to outstanding ophthalmologists who seek a career path as a physician-scientist. It provides the candidates with an individualized mentored career development experience.

P30: Center Core Grant for Vision Research

PI: Linda Zangwill, PhD

This program is designed to enhance an institution's environment and capability to conduct vision research, to facilitate collaborative studies of the visual system and its disorders, and to attract scientists of diverse disciplines to research on the visual system. Institutions must hold a minimum of eight NEI awards for basic research in order to be eligible.

GRANTS

NATALIE A. AFSHARI, MD

Integrative Genetic Analyses in Fuchs
Endothelial Corneal Dystrophy

PI: Natalie A. Afshari, MD

NIH/NEI, March 2013 - February 2017

Limbal Stem Cell Fate and Corneal Specific
Enhancers

Co-I: Natalie A. Afshari, MD

NIH/NEI, April 2015 - March 2020

A Genome Wide Association Study of Fuchs
Endothelial Corneal Dystrophy

PI: Natalie A. Afshari, MD

NIH/CIDR

RADHA AYYAGARI, PHD

Studies on Genetics of Hereditary Retinal
Degeneration by Whole Genome Analysis

PI: Radha Ayyagari, PhD

NIH/NEI, December 2010 - May 2021

Molecular Genetic Analysis of Patients with
Retinal and Macular Degenerations

PI: Radha Ayyagari, PhD

The Foundation Fighting Blindness,
July 2010 - July 2017

Insights into AMD Derived from the Genetic
Mechanisms in Late Onset Retinal Macular
Degeneration (L-ORMD)

PI: Radha Ayyagari, PhD

Edward N. and Della L. Thome Memorial
Foundation, December 2014 - December 2016

Molecular Pathology Underlying Retinal
Degeneration Due to the Involvement of
CTRP5/C1QTNF5 and MFRP Genes

PI: Radha Ayyagari, PhD

The Foundation Fighting Blindness,
June 2015 - June 2018

HTRA1 as a Therapeutic Target in the
Treatment of Wet AMD

Co-I: Radha Ayyagari, PhD

NIH/NEI, August 2015 - June 2020
Genetics of Glaucoma in Patients of African American Ancestry
NIH

Foundation Fighting Blindness-W.K. Kellogg Eye Center for the Study of Retinal Degenerative Diseases, Module II
PI: Radha Ayyagari, PhD
Foundation Fighting Blindness,
July 2010 - July 2017

DIRK-UWE BARTSCH, PHD

Mechanistic-Based, Non-Invasive Assessment of Retinal Damage in the HAART Era
PI: Dirk-Uwe Bartsch, PhD
NIH/NEI, September 2011 - September 2015

CHRISTOPHER BOWD, PHD

Predicting and Detecting Glaucomatous Progression Using Pattern Recognition
PI: Christopher Bowd, PhD
NIH, February 2012 - July 2016

LINGYUN CHENG, MD

Porous Silicon Particles for Sustained Intravitreal Drug Delivery
PI: Lingyun Cheng, MD
NIH/NEH, September 2011 - August 2016

Center Core Grant for Vision Research
Co-Module Director: Lingyun Cheng, MD
NIH/NEH, July 2012 - June 2017

WILLIAM R. FREEMAN, MD

Porous Silicon Particles for Sustained Intravitreal Drug Delivery
Co-I: William R. Freeman, MD
NIH/NEI, September 2011 - August 2016

Porous Silicon Particles for Sustained Intravitreal Drug Delivery
Module PI: William R. Freeman, MD
NIH/NEI, July 2012 - June 2017

Tissue Processing and Confocal Microscopy
PI: William R. Freeman, MD
NIH/NEI, July 2012 - June 2017

DAVID GRANET, MD

Binocular Treatment of Amblyopia (ATS18)
Co-I: David Granet, MD
NIH

An Observational, Multi-Center Study of the Prevalence of Cerebrotendinous Xanthomatosis (CTX) in Patient Populations Diagnosed with Early Onset Idiopathic Bilateral Cataracts
Co-I: David Granet, MD
Retrophin, Inc

WON-KYU JU, PHD

Mitochondrial Dysfunction in Glaucomatous Optic Neuropathy
PI: Won-Kyu Ju, PhD
September 2009 - August 2018

JONATHAN LIN, MD, PHD

Endoplasmic Reticulum Stress in Retinal Degeneration
PI: Jonathan Lin, MD, PhD
NIH, September 2010 - August 2016

Protein Homeostasis and Proteotoxicity Mechanisms
PI: Jonathan Lin, MD, PhD
NIH, February 2015 - January 2020

JOHN H.K. LIU, PHD

Cellular and Molecular Mechanisms of Age-Related Retinal Degeneration
PI: Jonathan Lin, MD, PhD
Development, April 2014 - March 2018

Validation of Cephalad Fluid Shift Countermeasure
Co-I: John H.K. Liu, PhD
National Space Biomedical Research Institute,
June 2015 - May 2017

FELIPE MEDEIROS, MD, PHD

Development of a Portable Objective Method for Assessment of Visual Field Loss
PI: Felipe Medeiros, MD, PhD

Calit2 Strategic Research Opportunities (CSRO) Grant
PI: Felipe Medeiros, MD, PhD

UCSD Academic Senate Grant
PI: Felipe Medeiros, MD, PhD

ERIC D. NUDLEMAN, MD, PHD

Ophthalmology and Visual Sciences Career Development K12 Program
Co-I: Eric D. Nudleman, MD, PhD
NIH/NEI, April 2015 - March 2020

SHIRA ROBBINS, MD

Pediatric Eye Disease Investigator Group Coordinating Center
Shira Robbins, MD
JAEB/NIH, December 2014 - December 2018

Omega-3 Fatty Acids as a Non-Invasive Therapy for the Prevention of Retinopathy of Prematurity
Shira Robbins, MD
The Hartwell Foundation, April 2015 - March 2018

Study of Binocular Computer Activities for Treatment of Amblyopia
Co-I: Shira Robbins, MD
Pediatric Eye Disease Investigator Group,
December 2014 - December 2018

Cerebrotendinous Xanthogranulomatosis Prevalence Study
PI: Shira Robbins, MD
Retrophin 2015

PETER SHAW, PHD

HTRA1 as a Therapeutic Target in the Treatment of Wet AMD
PI: Peter Shaw, PhD
NIH, August 2015 - June 2020

GABRIEL SILVA, MSC, PHD

Experimental Testing and Validation of a Quantum Dot FRET Calcium Sensor
PI: Gabriel Silva, MSC, PhD
NIH, September 2013-August 2015

KARL WAHLIN PHD

Modeling Photoreceptor Development and Disease with Human Pluripotent Stem Cells
PI: Karl Wahlin, PhD
NIH/NEI, August 2016 - July 2019

Microenvironment Based Optimization of Retinal Induction Using CRISPR-CAS9 Reporter Pluripotent Stem Cells as an Expandable Source of Retinal Progenitors
PI: Karl Wahlin, PhD
California Institute for Regenerative Medicine (CIRM)

ROBERT N. WEINREB, MD

ADAGES III: Contribution of Genotype to Glaucoma Phenotype in African Americans
PI: Robert N. Weinreb, MD
NIH, September 2013 – August 2018

Ophthalmology and Visual Sciences Career Development K12 Program
PI: Robert N. Weinreb, MD
NIH, April 2015 – March 2020

P30 – Center Core Grant for Vision Research
Co-I: Robert N. Weinreb, MD
NIH, July 2012 – June 2017

Translational Vision Research Training at UCSD
Co-I: Robert N. Weinreb, MD
NIH, April 2016 – March 2021

Diagnostic Innovations in Glaucoma Study:
Structural Assessment
Co-I: Robert N. Weinreb, MD
NIH, April 2011 – April 2016

Diagnostics Innovations in Glaucoma Study:
Functional Impairment
Co-I: Robert N. Weinreb, MD
NIH, September 2011 – August 2016

Mitochondrial Dysfunction in Glaucomatous
Optic Neuropathy
Co-I: Robert N. Weinreb, MD
NIH, September 2009 – August 2018

African Descent and Glaucoma Evaluation
Study II: Glaucoma Progression
Co-I: Robert N. Weinreb, MD
NIH, February 2010 – January 2016

Predicting and Detecting Glaucomatous
Progression Using Pattern Recognition
Co-I: Robert N. Weinreb, MD
NIH, February 2012 – July 2016

Ocular Hypertension Treatment Study
PI: Robert N. Weinreb, MD
NIH, July 2015 – June 2020

DEREK WELSBIE, MD, PHD

Glaucoma Neuroprotection: Rho-Associated
Kinase 2 (Rock2) as an Upstream activator of
Dual-Leucine Zipper Kinase (DLK) in Response
to Axonal Injury
PI: Derek Welsbie, MD, PhD
Ziegler Foundation Career Development
Award, November 2014 – October 2017

Targeting Dual Leucine Zipper Kinase as a
Therapeutic Strategy for Traumatic Optic
Neuropathy and Brain Injury
PI: Derek Welsbie, MD, PhD
Department of Defense Vision Research
Program Translational Research Award,
September 2014 – October 2017

High-Content High-Throughput Functional
Genomics in Rodent Retinal Ganglion Cells
PI: Derek Welsbie, MD, PhD

Research to Prevent Blindness (RPB Career
Development Award), July 2013 – June 2016

Developing Dual Leucine Zipper Kinase
Inhibitors for Glaucoma
PI: Derek Welsbie, MD, PhD
Brightfocus Foundation Glaucoma Research
Award, July 2014 – June 2016

High-Content High-Throughput Functional
Genomics in Rodent Retinal Ganglion Cells
PI: Derek Welsbie, MD, PhD
NIH, December 2011 – November 2016

LINDA ZANGWILL, PHD

T32 Translational Vision Research Training at
UCSD
PI: Linda Zangwill, PhD
NEI, April 2016 – March 2021

P30 Center Core Grant for Vision Research
PI: Linda Zangwill, PhD
NIH, July 2012 – June 2017

Diagnostic Imaging in Glaucoma Study (DIGS):
Structural Assessment
PI: Linda Zangwill, PhD
NEI, April 2012 – March 2017

Ocular Hypertension Treatment Study 20-Year
Follow-Up: Resource Center Grant
PI: Linda Zangwill, PhD
NEI, July 2015 – June 2019

African Descent and Glaucoma Evaluation
Study (ADAGES) II: Glaucoma Progression
PI: Linda Zangwill, PhD
NEI, February 2010 – January 2016

ADAGES III: Contribution of Genotype to
Glaucoma Phenotype in African Americans
Co-I: Linda Zangwill, PhD
NEI, September 2013 – August 2018

Diagnostic Innovations in Glaucoma Study
(DIGS): Functional Impairment
Co-I: Linda Zangwill, PhD
NEI, September 2011 – August 2017

Predicting and Detecting Glaucomatous
Progression Using Pattern Recognition
Co-I: Linda Zangwill, PhD
NEI, February 2012 – January 2017

KANG ZHANG, MD, PHD

Regeneration of Retinal Neurons by Chemically
Induced Reprogramming of Muller Glia
PI: Kang Zhang, MD, PhD
NIH, September 2010 – August 2015

Limbal Stem Cell Fate and Corneal Specific
Enhancers
PI: Kang Zhang, MD, PhD
NIH, April 2013 – March 2020

Non-Coding Variants Predisposing to Age-
related Macular Degeneration
PI: Kang Zhang, MD, PhD
Ludwig Institute for Cancer Research/NIH as
Prime, August 2015 – June 2018

Layer-by-Layer Bioprinting of Stem Cells for
Retinal Tissue Regeneration
Co-I: Kang Zhang, MD, PhD
DOD, September 2014 – August 2016

Biomaterial Enhancement of Stem Cell
Transplant Efficacy for Macular Degeneration
Co-I: Kang Zhang, MD, PhD
NIH, February 2014 – January 2017

EAGLE: Evaluating Genotypes Using Intravitreal
Aflibercept Injection
PI: Kang Zhang, MD, PhD
Regeneron Pharmaceuticals

A Phase 2 Randomized, Double-masked,
Multicenter, Active-controlled Study Evaluating
Administration of Repeated Intravitreal Doses
of hI-con1TM in Patients with Choroidal
Neovascularization Secondary to Age Related
Macular Degeneration
PI: Kang Zhang, MD, PhD
Chiltern International Inc.

LECTURES

NATALIE A. AFSHARI, MD

2015 American Academy of Ophthalmology,
Cornea Subspecialty Day, Las Vegas, NV
"Herpes Simplex Virus: Treatment of Acute and
Chronic Disease"

2016 The Pacific Coast Oto-Ophthalmological
Society Centennial Meeting, Kauai, HI
"Endothelial Keratoplasty: Which Techniques
are Best for Which Situations?"

2016 The Pacific Coast Oto-Ophthalmological
Society Centennial Meeting, Kauai, HI
"Management of Refractive Surgery
Complications"

2016 Connecticut Society of Eye Physicians
and Surgeons (CSEP): Annual Education
Program, Plantsville, CT
"Cornea Transplants, Flaps, Lasers, Bubbles:
Recent Advances in Cornea and Refractive
Surgery"

2016 Connecticut Society of Eye Physicians
and Surgeons (CSEP): Annual Education
Program, Plantsville, CT
"Challenging Cases in Cataract Surgery: What
Would You Do?"

2016 Connecticut Society of Eye Physicians
and Surgeons (CSEP): Annual Education
Program, Plantsville, CT "A Journey Through
the Cornea: From A to Z"

2016 Yale University Grand Rounds, New
Haven, CT "A Journey Through the Cornea:
From A to Z"

2016 Harvard University Massachusetts
Eye and Ear Infirmary 12th Annual Harvard
Medical School Department of Ophthalmology
Cataract Course, Boston, MA "Practical IOL
Calculations"

2016 The Fifth Fuchs Symposium, Baltimore, MD "Update on Fuchs Genetics"
2016 The Fifth Fuchs Symposium, Baltimore, MD "DESK vs DMEK: A Meta-Analysis"

2016 The Fifth Fuchs Symposium, Baltimore, MD "DMEK in Challenging Cases"

2016 Ophthalmology Update 2016, University of California, San Diego, La Jolla, CA
"IOLS for Astigmatism: Why Every Degree Matters"

2016 Ophthalmology Update 2016, University of California, San Diego, La Jolla, CA
"Lid Disease and the Ocular Surface"

2016 Ophthalmology Update 2016, University of California, San Diego, La Jolla, CA
"Video Grand Rounds of Anterior Segment/Ocular Surface Surgery"

2016 San Diego Eye Bank Excimer Laser Users Meeting, La Jolla, CA "Refractive Surgery Patient Selection: Dry Eye Case Studies"

2015 Philippine Academy of Ophthalmology (PAO) Annual Meeting, Manila, Philippines
"When Endothelial Keratoplasty Fails: Keratoprosthesis"

2015 Philippine Academy of Ophthalmology (PAO) Annual Meeting, Manila, Philippines
"Endothelial Keratoplasty: Evolution from DLEK to DMEK"

2015 Philippine Academy of Ophthalmology (PAO) Annual Meeting, Manila, Philippines
"Pearls for Successful Combined Procedures with Endothelial Keratoplasty"

2015 Philippine Academy of Ophthalmology (PAO) Annual Meeting, Manila, Philippines
"A Journey Through the Cornea: From A to Z"

2015 Nebraska Academy of Ophthalmology, Omaha, NE "Advances in Corneal Surgery: Implications for Endothelial Diseases"

2015 Nebraska Academy of Ophthalmology, Omaha, NE "Challenging Cases in Cataract Surgery: What Would You Do?"

2015 American Academy of Ophthalmology Meeting, Las Vegas, NV
"Management of Vitreous for the Anterior Segment Surgeon"

RADHA AYYAGARI, PHD

2015 Prevention Genetics Conference, Marshfield, WI "Genetics and Molecular Diagnostics of Retinal Degeneration in the Era of Next Generation Sequencing"

2015 Rand Rounds, Department of Ophthalmology, University of Pennsylvania, Philadelphia, PA "Molecular Diagnostic Testing for Inherited Retinal Degenerations"

2015 Vision Research Seminar Series, Department of Ophthalmology, Oakland University, Oakland, MI "Molecular Mechanisms Underlying Retinal Degenerations"

2015 Regeneron Genetics Center, Tarrytown, NJ "Genetics of Ophthalmic Hereditary Diseases"

2016 International Society of Eye Research, Tokyo, Japan "Whole Genome Analysis of Patients with Inherited Retinal Dystrophies"

DIRK-UWE BARTSCH, PHD

2016 Ophthalmic Photographer's Society Annual Meeting, Chicago, IL
"Scanning Laser Ophthalmology Imaging"

CHRISTOPHER BOWD, PHD

2016 Association for Research in Vision and Ophthalmology Imaging in the Eye Conference, Seattle, WA "Structural Changes can be Detected Earlier Using Bayesian Bootstrap Regression"

2016 Association for Research in Vision and Ophthalmology Imaging in the Eye Conference, Seattle, WA "Deep Learning

Applied to Optical Coherence Tomography Angiography (OCT-A) Measurements for Discriminating Between Glaucoma Suspect and Glaucoma Eyes"

LINGYUN CHENG, MD

2015 Asian Pacific Association of Ophthalmology New Delivery Approaches to Drug Therapy in Glaucoma Symposium, Guangzhou, China "Controlled Release of Antimetabolites to Promote Success of Glaucoma Filtering Surgery"

2015 Asian Pacific Association of Ophthalmology Drugs and Therapeutics Symposium 3, Guangzhou, China
"Horizon of Sustained Drug Delivery to Retina and Choroid Through Sclera"

2015 Frontiers in Therapeutic and Diagnostic Delivery Seminar Series: Grand Medical Challenges, La Jolla, CA "Novel Drug Delivery Strategies for Refractory Vitreoretinal Diseases"

NAPOLEONE FERRERA, MD

2016 Argentinean Ophthalmology Society, Buenos Aires, Argentina "Angiogenesis: Molecular Mechanism of Action"

2016 Department of Ophthalmology Seminar, McGill University, Montreal, Canada
"10 Years of Intravitreal Anti-VEGF Therapy- Learnings and New Strategies in the Field of Angiogenesis Blockade"

2016 35th C. McCulloch Lecture, Department of Ophthalmology, University of Toronto, Toronto, Canada "New Insight Into the Regulation of Ocular Angiogenesis"

2016 Chinese Ophthalmology Society Meeting, Beijing, People's Republic of China
"Ten Years of Anti-VEGF Therapy for Intraocular Vascular Disorders"

HENRY A. FERREYRA, MD

2015 San Diego County Optometric Society
"Diabetic Retinopathy"

2015 UCSD School of Medicine, From Principles to Practice Lecture Series (SOM 410) Ophthalmology Session, La Jolla, CA
"The Ophthalmic Examination and Skills Session"

2016 Ophthalmology Update 2016, La Jolla, CA "Retinal Problems Encountered in Cataract Surgery"

WILLIAM R. FREEMAN, MD

2015 The Association of Columbian Retina and Vitreous Surgeons, VIII Program, Cartagena, Colombia "Upcoming Therapies for CNB in AMD"

2015 The Association of Columbian Retina and Vitreous Surgeons, VIII Program, Cartagena, Colombia "Upcoming Therapies for Dry AMD"

2015 The Association of Columbian Retina and Vitreous Surgeons, VIII Program, Cartagena, Colombia "New Imaging Modalities Including For Retinal Disease"

2015 The Association of Columbian Retina and Vitreous Surgeons, VIII Program, Cartagena, Colombia "Refractory CME After Pars Plana Vitrectomy"

2016 Ophthalmology Update, UCSD Department of Ophthalmology, San Diego, CA
"To Treat or Not to Treat: Pitfalls in Management of Retinal Disease"

MICHAEL H. GOLDBAUM, MD

2015 Euro-Asian Conference on Ophthalmosurgery, Ekaterinburg, Russia
"Options for Diagnosis of Intraocular Tumors"

2015 Euro-Asian Conference on Ophthalmosurgery, Ekaterinburg, Russia
"Vitrectomy Choice of Gauge"

2015 Euro-Asian Conference on Ophthalmic Surgery, Ekaterinburg, Russia
"Ambulatory Binocular Patching"

2015 11th North American Perimetry Society, Skaneateles, NY "A Mathematical Framework for Detecting Glaucomatous Progression in Visual Fields"

2016 East-West Conference 2016, Ufa, Russia
"The Frequent Misdiagnosis of Retinoschisis"

2016 East-West Conference 2016, Ufa, Russia
"Pneumatic Retinopathy for Uncomplicated Detachments"

2016 East-West Conference 2016, Ufa, Russia
"Options for Diagnosis of Intraocular Tumors"

2016 East-West Conference 2016, Ufa, Russia
"Intraocular Tumors, Options for Treatment"

2016 Midwest Ocular Angiography Conference, Waieka Beach, Hawaii
"Positive Scotoma from Paracentral Acute Middle Maculopathy"

2016 Midwest Ocular Angiography Conference, Waieka Beach, Hawaii
"Distinguishing between Chronic Central Serous Chorioretinopathy and Polypoidal Choroidal Vasculopathy"

DAVID B. GRANET, MD

2015 American Eye Study Club Annual Meeting (AESC), Mackinac Island, Michigan
"Dealing with the Poorly Behaved Child"

2015 American Eye Study Club Annual Meeting (AESC), Mackinac Island, Michigan
"Strabismus Complications"

2015 7th International Conference on Ocular Infections, Barcelona, Spain "The Red Eye in Infants and Children"

2015 7th International Conference on Ocular Infections, Barcelona, Spain
"Interactive Case Oriented Panel Discussion: Practical Approach to Common Ocular Infectious Syndromes"

2015 American Academy of Ophthalmology Annual Meeting, Las Vegas, NV
"Stripping with Bad Hairs: Superior Oblique Surgery and Ciliopathies"

2015 American Academy of Pediatrics Section on Ophthalmology and the American Association of Certified Orthoptists Meeting, Las Vegas, NV "Traumatic Brain Injury in Children, The Team Approach"

2015 Philippine Academy of Ophthalmology Annual Meeting, Metro Manila, Philippines
"Reading and Vision"

2015 Philippine Academy of Ophthalmology Annual Meeting, Metro Manila, Philippines
"Glasses for Myopia"

2015 Philippine Academy of Ophthalmology Annual Meeting, Metro Manila, Philippines
"Muscling in on Refractive Surgery"

2015 Philippine Academy of Ophthalmology, Metro Manila, Philippines "Strabismus Techniques"

2015 Philippine Academy of Ophthalmology Annual Meeting, Metro Manila, Philippines
"Thyroid Ophthalmopathy"

2015 Philippine Academy of Ophthalmology Annual Meeting, Metro Manila, Philippines
"Video Potpourri"

2016 World Ophthalmology Congress of the International Council of Ophthalmology, Guadalajara, MX "Ocular Surface Disease"

2016 Ophthalmology Update 2016, La Jolla, CA "Medical Therapy for Myopia"

2016 Career Day for Del Mar Heights Elementary School, San Diego, CA
"The Eyes Have It"

2016 Pediatric Grand Rounds for the University of Michigan Kellogg Eye Center, Ann Arbor, Michigan "Update on Myopia Treatment"

2016 67th Annual Conference of Delhi Ophthalmological Society DOSCON
2016 Ophthalmic Panorama, Pediatric Ophthalmology Session, New Delhi, India
"I Don't Know, What I Don't Know"

WELDON W. HAW, MD

2016, Irvine, CA
Cataract Surgery Update: "Treating Inflammation and Pain"

2016 Ophthalmology Update: New Approaches to Medical and Surgical Therapies, La Jolla, CA
"Update on Ocular Surface Diseases: Dry Eye Disease and Allergies"

2016 Ophthalmology Update: New Approaches to Medical and Surgical Therapies
"Anterior Segment and Ocular Surface Surgery"

2015 Continuing Specialized Education (CSE) Advance Cataract Surgery Course
"Advanced Cataract Surgery Techniques - A Case Based Interactive Discussion"

2015 Continuing Specialized Education (CSE) Advance Cataract Surgery Course
"Advanced Cataract Surgery - Improving Speed and Efficiency without Compromising Safety"

2015 Ophthalmology Update 2016: New Approaches to Medical and Surgical Therapies, La Jolla, CA
"Cornea and Ocular Surface Section"

2015 Continuing Specialized Education (CSE) Advance Cataract Surgery Course, Phoenix, AZ

CHRISTOPHER W. HEICHEL, MD

American Society of Cataract and Refractive Surgery Annual Symposium, Cornea Day, New Orleans, LA "Remind Me Again: Which Lens Should I Use? Which Lens Should I Avoid?"

2015 UCSD Ophthalmology Update, La Jolla, CA "Capsular Tension Rings: Should We Use Them for Every Cataract Surgery Case"

2015 UCSD Ophthalmology Update, La Jolla, CA "The SMILE Refractive Procedure"

WON-KYU JU, PHD

2016 Vision Research Lecture, Seoul National University Department of Ophthalmology, Seoul, Korea "Mitochondrial Dynamics and Dysfunction and Neuroprotection in Glaucomatous Neurodegeneration"

DON O. KIKKAWA, MD

2016 International Thyroid Eye Disease Society Symposium (ITEDS), London, England
"Surgical Options - Overview (Rationale and Sequence)"

2016 International Thyroid Eye Disease Society Symposium (ITEDS), London, England
"Lateral Wall Orbital Decompression"

2016 International Thyroid Eye Disease Society Symposium (ITEDS), London, England
"Surgery for TED - Introduction"

2016 III CIEPO/XXXXIV CIOP, Brazilian Society Ocular Plastic Surgery, Ouro Preto, Brazil
"Challenges in Orbital Reconstruction"

2016 III CIEPO/XXXXIV CIOP, Brazilian Society Ocular Plastic Surgery, Ouro Preto, Brazil
"Perfecting Your Skills with the Aesthetic Patient"

2016 III CIEPO/XXXXIV CIOP, Brazilian Society Ocular Plastic Surgery, Ouro Preto, Brazil
"Management of the Failed DCR"

2016 III CIEPO/XXXXIV CIOF, Brazilian Society Ocular Plastic Surgery, Ouro Preto, Brazil "Complicated Ptosis Repair"	2016 ASOPRS 46nd Annual Fall Scientific Symposium, Las Vegas, NV "Pearls for Upper and Lower Eyelid Surgery"	2015 The 3rd International Training Course Masters Technique in Ophthalmic Plastic and Reconstructive Surgery, Bumrungrad International Hospital, Bangkok, Thailand "Asian Blepharoplasty: Complications and Management"	2015 Continuing Professional Education Course, Phoenix, AZ "Oculoplastics Perspective for Cataract Surgery"
2016 III CIEPO/XXXXIV CIOF, Brazilian Society Ocular Plastic Surgery, Ouro Preto, Brazil "How to Deal with the Contracted Socket"	2015 ESOPRS 34th Annual Scientific Symposium, Brussels, Belgium "Surgical Management of Thyroid Eye Disease - Orbital Decompression"		2015 World Congress of Pediatric Ophthalmology and Strabismus, Barcelona, Spain "Customized Orbital Reconstruction Using 3D Printing"
2016 International Orbital Society Meeting, San Francisco, CA "Post Maxillectomy Orbital Reconstruction"	2015 ESOPRS 34th Annual Scientific Symposium, Brussels, Belgium "The Challenging and Changing Landscape of Aesthetic Facial Surgery"	2015 The 3rd International Training Course Masters Technique in Ophthalmic Plastic and Reconstructive Surgery, Bumrungrad International Hospital, Bangkok, Thailand "Orbital Decompression"	2015 Facial Plastic and Reconstructive Surgery Resident core Lecture Series, University of California, San Diego, Division of Head and Neck Surgery, San Diego, CA "Pearls and Pitfalls in Oculoplastic Surgery"
2016 2nd Russell W. Neuhaus Lecture, Austin, TX "Lower Eyelid-Midface Resuspension: A Tool for Reconstruction and Aesthetics"	2015 Ptosis Seminar, Samsung Medical Center, Seoul, Korea "Ptosis Repair in Craniofacial Synromes"	BOBBY S. KORN, MD, PHD	
2016 Texas Oculoplastics Consultants, Austin, TX "Complications of Blepharoplasty"	2015 Ptosis Seminar, Samsung Medical Center, Seoul, Korea "Complicated Ptosis Repair"	2016 Vision China 2016, Shenzhen, China "Minimarly Invasive Optic Nerve Sheath Fenestration"	2015 Master Techniques in Ophthalmic Plastic and Reconstructive Surgery, Bumrungrad International Hospital, Bangkok, Thailand "Endoscopic and Eyebrow Lifting"
2016 Texas Oculoplastics Consultants, Austin, TX "Asian vs. Hispanic Blepharoplasty: One and the Same?"	2015 Ptosis Seminar, Samsung Medical Center, Seoul, Korea "Ten Minute Ptosis Repair"	2016 Vision China 2016, Shenzhen, china "Optimizing DCR to a 10 Minute Procedure"	2015 Master Techniques in Ophthalmic Plastic and Reconstructive Surgery, Bumrungrad International Hosptial, Bangkok, Thailand "Advanced Endoscopic Dacryocystorhinostomy"
2016 National Training Course, Guilin, China "Evaluation and Management of the Patient with Tearing"	2015 32nd Annual Superficial Anatomy and Cutaneous Surgery, Del Mar, CA "Periocular Reconstruction and Blepharoplasty"	2016 Graves' Disease and Thyroid Foundation Seminar, La Jolla, CA "Update of Medical Management of Thyroid Eye Disease"	2015 Master Techniques in Ophthalmic Plastic and Reconstructive Surgery, Bumrungrad International Hospital, Bangkok, Thailand "Orbital Fracutre Repair"
2016 39th SIMASP, Sao Paolo, Brazil "Ptosis Repair: How to Get Your Best Results"	2015 The 3rd International Training Course Masters Technique in Ophthalmic Plastic and Reconstructive Surgery, Bumrungrad International Hospital, Bangkok, Thailand "Transcutaneous and Transconjunctival Lower Lid Blepharoplasty"	2016 Oculoplastics Session, Beijing Tongren Eye Center Meeting, Beijing, China "Nonsurgical Rejuvenation with Fillers and Toxins"	2015 Master Techniques in Ophthalmic Plastic and Reconstructive Surgery, Bumrungrad International Hospital, Bangkok, Thailand "Eyelid Retraction Repair"
2016 39th SIMASP, Sao Paolo, Brazil "Pearls of Cosmetic Blepharoplasty"		2016 Chinese Oculoplastic Society Annual Meeting, Guilin, China "Cosmetic Surgery"	2015 Master Techniques in Ophthalmic Plastic and Reconstructive Surgery, Bumrungrad International Hospital, Bangkok, Thailand "Eyelid Retraction Repair"
2016 39th SIMASP, Sao Paolo, Brazil "How to Deal with the Contracted Anophthalmic Socket"	2015 The 3rd International Training Course Masters Technique in Ophthalmic Plastic and Reconstructive Surgery, Bumrungrad International Hospital, Bangkok, Thailand "Surgical Approaches to the Orbit"	2016 Ophthalmology Update 2016, San Diego, CA "Practical Tips for Blepharoplasty"	2015 23rd Annual Meeting of the Lebanese Ophthalmological Society, Beirut, Lebanon "Recognizing and Managing Complications in Blepharoplasty"
2016 39th SIMASP, Sao Paolo, Brazil "The Changing Landscape of Aesthetic Surgery"		2016 Southeastern Society of Plastic and Reconstructive Surgeons (SESPRS), Atlanta, GA "How to Restore an Almond Shaped Eye"	2015 23rd Annual Meeting of the Lebanese Ophthalmological Society, Beirut, Lebanon "Surgical Management of Thyroid Eye Disease"
2016 Multidisciplinary Treatment of Thyroid Orbitopathy, Inaugural Opening of Orbital Center, 2nd Hospital of Dalian Medical University, Dalian, China	2015 The 3rd International Training Course Masters Technique in Ophthalmic Plastic and Reconstructive Surgery, Bumrungrad International Hospital, Bangkok, Thailand "Endoscopic Brow Lifting"	2016 Southeastern Society of Plastic and Reconstructive Surgeons (SESPRS), Atlanta, GA "Managing Complications of Ptosis Repair"	2015 23rd Annual Meeting of the Lebanese Ophthalmological Society, Beirut Lebanon "Non-Surgical Rejuvenation"
2016 Japan Society of Ophthalmic Plastic and Reconstructive Surgery, Okayama, Japan "Surgery for Eyelid and Orbital Tumors"		2016 Southeastern Society of Plastic and Reconstructive Surgeons (SESPRS), Atlanta, GA "My Algorithm for Lower Eyelid Retraction Repair"	

2015 25th Anniversary Meeting of the Singapore National Eye Centre, Singapore
"Optimizing Outcomes for En-bloc DCR"

2015 30th Asia Pacific Academy of Ophthalmology 2015, Guangzhou, China
"Applications of 3D Printing for Orbital Reconstruction"

2015 30th Asia Pacific Academy of Ophthalmology 2015, Guangzhou, China
"Postblepharoplasty Lower Eyelid Retraction"

2015 38th Annual SIMASP Symposium, Ophthalmology Congress, Paulista School of Medicine, Federal University of Sao Paulo, Sao Paulo, Brazil "Integrating Ptosis Repair with Aesthetic Blepharoplasty"

2015 38th Annual SIMASP Symposium, Ophthalmology Congress, Paulista School of Medicine, Federal University of Sao Paulo, Sao Paulo, Brazil "DCR in Ten Minutes"

2015 38th Annual SIMASP Symposium, Ophthalmology Congress, Paulista School of Medicine, Federal University of Sao Paulo, Sao Paulo, Brazil "Transcutaneous Lower Blepharoplasty with Orbitomalar Suspension"

2015 38th Annual SIMASP Symposium, Ophthalmology Congress, Paulista School of Medicine, Federal University of Sao Paulo, Sao Paulo, Brazil "Levator Extirpation and Frontalis Sling for Marcus Gunn Jaw Wink"

2015 38th Annual SIMASP Symposium, Ophthalmology Congress, Paulista School of Medicine, Federal University of Sao Paulo, Sao Paulo, Brazil "Periocular Fillers: Pearls and Pitfalls"

2015 38th Annual SIMASP Symposium, Ophthalmology Congress, Paulista School of Medicine, Federal University of Sao Paulo, Sao Paulo, Brazil "Lower Blepharoplasty with Fat Reposition"

2015 38th Annual SIMASP Symposium, Ophthalmology Congress, Paulista School of Medicine, Federal University of Sao Paulo, Brazil "New Technologies and Advances in Oculoplastic Surgery"

2015 Ophthalmology Update 2015, San Diego, CA "Ptosis Repair"

2015 Ophthalmology Update 2015, San Diego, CA "Soft Tissue Fillers"

2015 Ophthalmology Update 2015, San Diego, CA "Complications of Injectables"

2015 Hawaiian Eye 2015, Maui, HI
"The Droopy Lid: Management Options for Ptosis"

JEFFREY E. LEE, MD

2015 Internal Medicine Morning Report
"An Interesting Case of Vogt Koynagi Harada Syndrome"

2015 UCSD Family Medicine Noon Conference, La Jolla, CA "Ophthalmology for the Family Medicine Doctor" 2016 UCSD School of Medicine MS4 Course, La Jolla, CA "Principles to Practice: Ophthalmology"

2016 Ophthalmology Update, San Diego, CA "Pterygium Surgery"

2016 UCSD Internal Medicine Teaching Conference, La Jolla, CA "Ophthalmology for the Internist Part I"

2016 UCSD Internal Medicine Teaching Conference, La Jolla, CA "Ophthalmology for the Internist Part II"

JONATHAN H. LIN, MD, PHD

2015 FASEB Biology and Chemistry of Vision Conference, Big Sky, Montana

2015 Kavli Foundation, Unravelling Neurodegeneration Conference, San Francisco, CA

2016 Cole Eye Institute, Distinguished Lecture Series, Cleveland Clinic, OH

2016 Jackson Laboratory, Center for Precision Genetics, Bar Harbor, ME

JOHN H.K. LIU, PHD

2015 The Chinese University of Hong Kong, Department of Ophthalmology and Visual Sciences. Kowloon "Lessons from the Sleep Laboratory on Glaucoma Medications"

2016 World Ophthalmology Congress, Guadalajara, Mexico "Pneumatometry in Clinical Practice"

FELIPE A. MEDEIROS, MD, PHD

2016 ARVO Annual Meeting "The nGoggle: A Portable Brain-Based Method for Assessment of Visual Function Deficits in Glaucoma"

2016 ARVO Annual Meeting, Special Interest Group on the Mixed Blessing of Biomarkers and Surrogate Endpoints in Ophthalmic Clinical Research "Biomarkers and Surrogate Endpoints in Glaucoma Clinical Trials"

2016 University of Southern California Glaucoma CME Lecture Series, Los Angeles, CA "New Measures of Functional Vision in Glaucoma"

2016 University of Southern California Glaucoma CME Lecture Series, Los Angeles, CA "Detecting Glaucoma Progression: Structure versus Function"

2016 Federal University of Sao Paulo, 39th Annual Meeting "New Metrics of Functional Vision"

2016 Federal University of Sao Paulo, 39th Annual Meeting "New Metrics of Functional Vision"

2016 Vanderbilt University, Nashville, Tennessee MGS Allergan Research Lecture: "Glaucoma Meets Virtual Reality"

2016 Federal University of Sao Paulo, 39th Annual Meeting "New Diagnostic Tools for Glaucoma: OCT Angiography and New Structural Parameters"

2016 Ophthalmology Update Annual Meeting, San Diego, CA "Glaucoma Progression: What is New? What is Best?"

2016 Faculty, American Glaucoma Society Meeting "Combining Structure and Function: Simple Logics, Bayes Theorem, and Beyond!"

2016 Faculty, American Glaucoma Society Meeting "ORA Corneal Hysteresis and Resistance Factor as Predictors of Glaucoma Progression"

2016 American Glaucoma Society Meeting "A Novel Bayesian Retinal Nerve Fiber Layer"

2015 Kaiser Ophthalmology Symposium 2015, Anaheim, CA "Prediction Models and Risks Assessment in Glaucoma"

2015 Kaiser Ophthalmology Symposium, Anaheim, CA "New Perspective in Using OCT NFL and Formal Visual Field in the Diagnosis and Detection of Glaucoma Progression"

2015 Manhattan Eye, Ear & Throat (MEETH) Glaucoma Fellows Grand Rounds and Visiting Professor Lectureship "New Ideas in Glaucoma: Improving the Way we Diagnose and Detect Progression"

2015 Chilean Ophthalmology Symposium, Santiago, Chile
Keynote Speaker

ERIC D. NUDLEMAN, MD, PHD

2016 Association of Pediatric Retina Surgeons, Cabo San Lucas, Mexico "OCT-Angiography in FEVR"

2016 Chinese Academy of Ophthalmology, Suzhou, China "Reduced Density of Deep Vascular Plexus in FEVR"

SHIRA L. ROBBINS, MD

2016 Vision Screening in Young Children, Child Health and Disability Prevention Program, San Diego, CA

2016 Doctors in the Community: The Eyes Have It, Francis Parker School, San Diego, CA

2015 USC California Physician Leadership Program Review with Comparison to UCSD Leadership Academy, Los Angeles, CA

2015 UCSD Fetal Consortium, San Diego, CA “Omega-3 Fatty Acids as a Non-Invasive Therapy for the Prevention of Retinopathy of Prematurity”

2015 Vision Screening in Young Children, Child Health and Disability Prevention Program

2015 UCSD Fetal Medicine Conference, San Diego, CA “Orbital and Ocular Anomalies on Pre-Natal Ultrasound”

2015 American Academy of Ophthalmology, Pediatric Ophthalmology Strabismus Original Papers and Best of AAPOS Session “Strabismus and Pediatric Plastics: A Novel Preoperative Planning Approach for Strabismus surgery”

2015 Annual Meeting, Las Vegas, Nevada “Pediatric Eye Emergencies You Don’t Want to Miss”

2015 American Academy of Ophthalmology, Las Vegas, NV “Colorado ROP Screening Model: A Multi-Institutional Validation Study, AAO/AAPOS Best of 2015 Original Papers”

2015 Hartwell Foundation Annual Investigator Meeting, Madison, Wisconsin “Omega-3 Fatty Acids as a Non-Invasive Therapy for the Prevention of Retinopathy of Prematurity”

2015 World Congress of Pediatric Ophthalmology and Strabismus, Barcelona, Spain “Prenatal Ultrasound and the Eye”

PETER J. SAVINO, MD

2015 Neuro Ophthalmology Society of Australia’s 31st Annual Clinical & Scientific Meeting, Auckland, New Zealand

2015 10th Annual NeuroVision Training Weekend, Auckland, New Zealand

2015 American Academy of Ophthalmology, Las Vegas, NV

2016 Wills Eye Institute Review Course, Philadelphia, Pennsylvania

2016 68th Annual Wills Eye Hospital Conference, Philadelphia, Pennsylvania

2016 Arthur J. Bedell Lecture, 68th Annual Wills Eye Hospital Conference, Philadelphia, Pennsylvania

2015 Department of Neurology, Royal Melbourne Hospital, Melbourne, Australia

2016 Grand Rounds-Neuroscience Department, UC San Diego, La Jolla, CA

PETER SHAW, PHD

2016 Annual Ophthalmology Meeting, Chongqing, China “Oxidized Phospholipids, Innate Immunity and Age-Related Macular Degeneration”

2016 Shiley Eye Institute Annual Residents and Fellows Research Day, La Jolla, CA “Soluble Aenyl Cyclase is Required for Retinal Ganglion Cell and Photoreceptor Differentiation”

DOROTA SKOWRONSKA-KRAWCZYK, PHD

2016 University of Science and Technology of China (USTC), School of Life Sciences, Hefei, China “Mechanism of Retinal Ganglion Cells Pathogenesis in Glaucoma”

2016 School of Pharmaceutical Sciences, Xiamen University, China “Mechanism of Neuronal Degeneration in Glaucoma”

KARL WAHLIN, PHD

2015 North Carolina State University (NCSU) College of Veterinary Medicine Research Excellence Speaker “Pluripotent Stem Cell Derived 2D Retinas as a Model for Studying Photoreceptor Development and Disease”

2016 ARVO, Seattle, WA “Gene-Edited Human Pluripotent Stem Cells for the Systematic Optimization of Retinal Cups by Small Molecule Screening”

2016 FASEB (Federation of American Societies for Experimental Biology, Keystone, Colorado “Pluripotent Stem Cell Derived 3D Retinas for Studies of Retinal Connectivity”

ROBERT N. WEINREB, MD

2015 Annual Meeting of Pan American Association of Ophthalmology, Bogota, Colombia “Imaging Glaucoma Progression”

2016 Arthur Gerard DeVoe Lecture, Columbia University, New York, New York “A View of Glaucoma”

2016 John R. Lynn Lectureship, UT Southwestern Medical Center, Dallas, Texas “Personalizing Glaucoma”

2016 F. Bruce Fralick Lecture, University of Michigan, Ann Arbor, Michigan “A Future for Glaucoma”

2016 International Scholar Award Lecture, 21st Annual Meeting of Chinese Academy of Ophthalmology, Suzhou, China “What is Next for Glaucoma”

DEREK WELSBIE, MD, PHD

2015 5th Annual Optic Nerve Conference, Obergurgl, Austria “Functional Genomic Screening to Identify Mediators of Retinal Ganglion Cell Death”

LINDA ZANGWILL, PHD

2015 Glaucoma Progression Scholars Conference, Skaneateles, NY “The Rate of Structural Change in Glaucoma: An Update and Discussion”

2015 Rich Lecture, University of Alabama at Birmingham, Birmingham, AL “The Rate of Structural Change in Glaucoma: A Better Outcome Measure?”

2016 Ophthalmology Update, San Diego, CA “OCT Angiography and Glaucoma”

JIAGANG “JACK” ZHAO, PHD

2015 General Hospital of People’s Liberation Army, Beijing, China “Human Eye Field Stem Cells: Induction, Differentiation, and Transplantation”

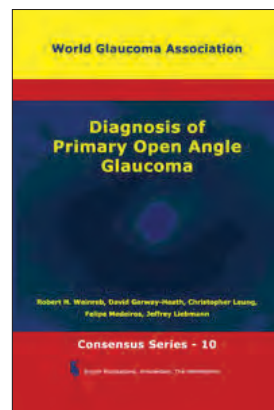
PUBLICATIONS

Over this past year, the Shiley Eye Institute faculty edited several ophthalmic textbooks.

Robert N. Weinreb, MD and co-editors including **Felipe Medeiros, MD, PhD** recently published *Diagnosis of Primary Open Angle Glaucoma*, which is the 10th volume in the World Glaucoma Association consensus series. (Figure A)

Bobby Korn, MD, PhD and **Don Kikkawa, MD** published the 2nd Edition of their book, *Video Atlas of Oculofacial Plastic and Reconstructive Surgery*. (Figure B)

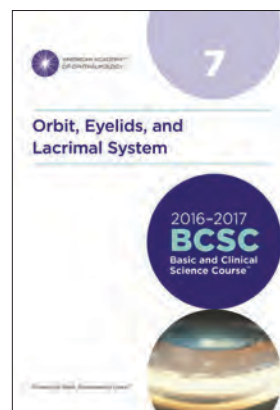
Natalie Afshari, MD, Felipe Medeiros MD, PhD, and Bobby Korn, MD, PhD are editors of the American Academy of Ophthalmology's Basic and Clinical Sciences Series for their respective specialties cornea, glaucoma and oculoplastics. These invaluable references are often the first source of learning by ophthalmology residents throughout the world. (Figures C,D,E)



A



B



C



D



E

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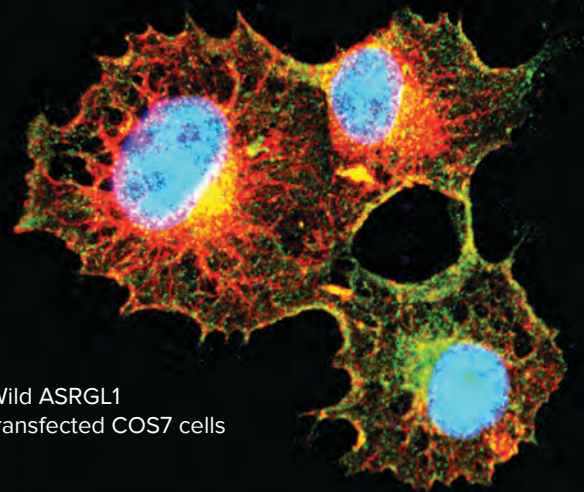
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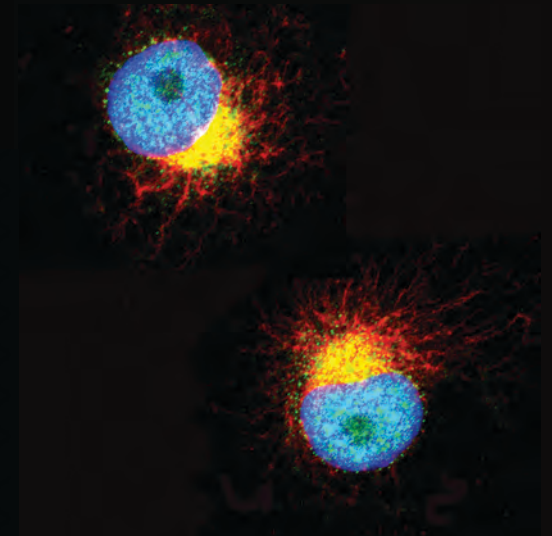
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Amber Moret

August 5, 1988 - June 30, 2016



Amber Moret was an ophthalmic technician who passed away suddenly in July 2016, only 27 years old. Amber arrived at the Shiley Eye Institute each day with a positive attitude and morning smile. She was always there to kindly help a colleague or patient. She will be truly missed.



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