FOR SIGHT

Annual Report 2012

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

As we celebrate the 21st anniversary of the UC San Diego Shiley Eye Center and the Department of Ophthalmology, I am proud to share with you our first Annual Report. While it provides a comprehensive overview of our clinical, scientific and educational activities, more importantly, it highlights the exceptional individuals and teams who oversee and participate in our world class programs that preserve sight and prevent blindness.

Patient Care
Outstanding quality of patient care is at the center of our endeavors. This year, we recruited two eminent clinician-scientists to our faculty, Natalie Afshari, M.D. and Jeffrey Goldberg, M.D., Ph.D. Our cadre of clinicians are globally recognized for their contributions to the diagnosis, medical treatment and surgery of all forms of eye disease and disorders in adults and children. Challenging clinical disorders are addressed by teams of specialists who provide unique care. In this Report, for example, you will learn about our multi-disciplinary Thyroid Eye Clinic that brings together oculoplastic, strabismus and neuro-ophthalmic specialists to treat patients with debilitating thyroid eye disease. Across the entire spectrum of eye care, we seek to provide both hope and treatment to all who suffer from vision loss.

Research
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In research, our emphasis is directed at advancing science through translational breakthroughs. We seek to accelerate the introduction of laboratory discovery into clinical practice across all ophthalmic subspecialties. The Hamilton Glaucoma Center and the Jacobs Retina Center are at the forefront of these investigational efforts, and both are renowned for their pioneering clinical and laboratory research. Our research programs are cross-disciplinary and build bridges across areas that have the most promise for improved diagnostic and innovative therapies. In the Report, you will learn about our scientists:

• in collaboration with Bioengineering, are designing and planning to implement an artificial retina for individuals with degenerative retinal diseases, such as macular degeneration.

• with the Institute for Genomic Medicine, are identifying through genetic research new therapeutic targets to treat vision-destroying eye disease of children, diabetic retinopathy and other blinding eye conditions.

• in collaboration with stem cell biologists, are pioneering innovative therapies to prevent and rescue vision loss, and also restore vision to those with blinding eye diseases such as glaucoma and retinal degenerations.

Education
Brilliant trainees seek to enhance their clinical and scientific skills each year in the Department of Ophthalmology, and we take special pride in our tradition of training the next generation of academic and clinical leaders in ophthalmology. With the introduction of new and robust didactic activities during the past year and the refinement of existing ones, we not only have reshaped the educational activities for our clinicians and scientists, but have also taken a major step to bring the latest information to community physicians as well.

The Vision
Years ago, when Donald Shiley conversed about the future of the Shiley Eye Center, he always spoke of patients and his desire for the Center to be a home for the best eye care, vision research and education. Today our entire team of outstanding clinicians, renowned scientists, committed educators and dedicated staff strive daily to realize his vision.

To our donors and friends, I thank you for your generous and remarkable support.

Sincerely,

Chairman and Distinguished Professor of Ophthalmology
Director, Shiley Eye Center
Morris Gleish, M.D. Chair of Ophthalmology

Robert N. Weinreb, M.D.
A LETTER FROM OUR CHAIRMAN

Chairman and Distinguished Professor of Ophthalmology
Director, Shiley Eye Center
Morris Gleish, M.D. Chair of Ophthalmology
On July 31, 2010, the UC San Diego Shiley Eye Center sadly lost its compassionate and generous benefactor, Donald P. Shiley. Donald Shiley, engineer, medical device inventor and entrepreneur, recognized the need for a world-class eye center in San Diego. In 1990, he and his wife Darlene donated the funds to create a comprehensive eye care facility where top ophthalmologists would treat patients, conduct research and train the next generation of leaders in eye care and vision research. "The Shiley Eye Center of UC San Diego will always be a priority for us," said Mr. Shiley.

The Shileys' personal experience with vision impairment subsequently led them to support many programs at the Shiley Eye Center. Whether providing gifts for research, innovative community outreach programs for children and seniors, additional space for patient care and research as the Center grew or simply to offer wise counsel and represent at community functions, Donald Shiley was the Shiley Eye Center.

Mr. Shiley passed away in San Diego after several years of failing health. To honor him, Darlene Shiley completed the funding for the Stuart I. Brown, M.D. Chair in Ophthalmology in Memory of Donald P. Shiley. According to Robert N. Weinreb, M.D., Director of the Shiley Eye Center and Chairman of the Department of Ophthalmology, "The generosity of Darlene Shiley perpetuates Donald’s legacy and his wish to house a world-class eye center in San Diego.

The impact of the Shileys on the Department of Ophthalmology at UC San Diego and in Southern California, as well as nationally and globally is far reaching. "Donald Shiley will long be remembered for giving hope to countless visually challenged individuals and helping to improve their quality of life," added Dr. Weinreb.

"Donald Shiley was an extraordinary individual and we are honored to have the Shiley name on our Center,"

— Robert N. Weinreb, M.D.

Donald P. Shiley – In Memoriam
January 19, 1920 – July 31, 2010

“My much loved husband was a gentle man with a soaring spirit, deep work ethic, and enormous talent. I will do everything I can to keep that spirit alive in all that we have done and all that I will do in the future in his memory."

— Darlene V. Shiley

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Photo by Eduardo Contreras/San Diego Union-Tribune. Copyright 2012. San Diego Union-Tribune
AN ARTIST’S VISION

From the moment he first learned to hold a pencil, Jerome Walker began drawing on everything and with everything he could find, including on walls with his sister’s lipstick. Despite being visually impaired, he built a career as a painter, showing in galleries in Chicago, London and Paris.

In 2011, one of his paintings was recognized by the Regional Juried Show at the San Diego Art Institute. Displayed next to the painting was the artist’s dedication: “This painting is gratefully dedicated to Donald and Darlene Shiley and Dr. Weinreb of the Shiley Eye Center in La Jolla, without whose help this painting (and possibly the artist himself) might never have seen the light of day.”

Walker was nearly blind from glaucoma when he first came to UC San Diego’s Shiley Eye Center, where he has been a patient for more than 10 years. In a letter addressed to Mr. and Mrs. Shiley, Walker expressed his gratitude for their visionary support which has enabled him to continue his passion for art.

Due to a childhood illness, Walker was blind by the age of nine and underwent extensive treatment that left him with scar tissue over both corneas, severely limiting his vision for the next 37 years. “All the years I was growing up, I never saw a blackboard in school,” recalls Walker, who grew up in a small town in Illinois. Upon graduating from high school, Walker found himself bored with small town life and tried to join the Navy. He managed to fake his way through the required eye exam and was sent to training. “But when I got to the Great Lakes Naval Training Center,” said Walker, “they were horrified at how bad my sight was, declared me 4F and sent me home with an Honorable Discharge.”

Shortly after that experience, Walker’s mother learned of a Rehabilitation Scholarship for the Visually Impaired, and with help from the scholarship Walker applied and was accepted to the Art Institute of Chicago. As Walker himself put it, “This was akin to a nearly deaf person going to music school!”

Although Walker had always drawn and painted, it was at this point that he began to flourish as an artist and develop his unique abstract style. His work was shown in galleries both in the U.S. and Europe, winning several awards. Throughout the years, Walker worked as a freelance illustrator, art teacher and later as a senior art director at the Leo Burnett Advertising Agency, where he created television commercials for the Keebler Elves, “Tony the Tiger” and Ronald McDonald, among others.

In 2000, Walker and his wife Julie moved to San Diego. Unfortunately, shortly after arriving everything went wrong with his eyes: glaucoma, cataracts and the failure of the cornea that had been replaced in Chicago. Walker’s doctor in Chicago referred him to the Shiley Eye Center and he has been a patient there ever since. After undergoing surgery for glaucoma, cataracts and cornea transplants, Walker was able to paint again and began showing his work in local competitions. One of his paintings was chosen for inclusion in the international book “Art Buzz, 2010.”

“Julie’s Garden #5” by Jerome Walker

“I don’t think it would have turned out quite differently,” said Walker.
Attempts to treat retinal diseases such as macular degeneration, retinitis pigmentosa and other degenerative retinal conditions have come from several directions. While many of these strategies offer great promise, each faces numerous clinical challenges. A breakthrough strategy to salvage vision is to use an artificial retina or a retinal prosthesis intended to work with the remaining retina following the degeneration of photoreceptors. Such degeneration of photoreceptors is the cause of vision loss in macular degeneration and retinitis pigmentosa and contributes to vision loss in other conditions. To date no device has successfully restored meaningful functional vision in patients. In a collaboration among laboratories in the Jacobs Retina Center, the UC San Diego Departments of Bioengineering and Electrical Engineering, and the Salk Institute for Biological Science, our team is developing a completely novel device. It is an ultra-high resolution nanoengineered wireless retinal prosthesis device, made up of arrays of ultra-high light sensitive nanowires. This device is being engineered to restore functional vision following degenerative retinal disorders to a resolution that actually exceeds that of the healthy retina.

Retinal prostheses are engineered devices that can be surgically implanted in the eye to assume the job of taking incoming light and transducing it into an electrical signal in the retina, in effect replacing lost photoreceptors. Such a prosthesis can also be programmed to perform the signal processing normally done by the healthy retina. Retinal prostheses have the advantage over biological approaches in that one generally has more control over the engineering of a device compared to manipulating biology or developing a drug. Furthermore, they do not have the potentially irreversible and unintended consequences such as formation of tumors in gene therapy trials. So while molecular and biological approaches are an important approach to retinal diseases, a retinal prosthesis may be the shortest path towards reaching the clinic first. Our team has shown that prototype devices can stimulate rodent retinas which have damage to the rods and cones and are now proceeding to conduct tests of the compatibility and functionality of the implant in living eyes. Our goal is to begin implanting a next-generation device in our patients within a short few years.

This project brings together five world-class labs at UC San Diego and one lab from the Salk Institute. Gabriel A. Silva, M.Sc., Ph.D. in bioengineering and ophthalmology, is coordinating the project and brings expertise in neural engineering, translational neuroscience, nanotechnology, calcium optical imaging, and computational neuroscience. William R. Freeman, M.D., director of the Jacobs Retina Center brings expertise on animal models of degenerative retinal disorders and human clinical trials. Together, Dr. Freeman and Dr. Silva founded and co-direct the Retinal Engineering Center within the Institute for Engineering. Yuhwa Lo, Ph.D. and Deli Wang, Ph.D. from electrical engineering originated the core technology and are experts on conductive nanowires and nanophotonics. Gent Cauwenberghs, Ph.D., co-director of the Institute for Computational Neuroscience is an expert on the design and fabrication of wireless neural circuits. EJ Chichilnisky, Ph.D. rounds out the team at the Salk Institute, where he specializes in ganglion cells and the ganglion cell neural code.
Before and after eye surgery couple of days Geri Beckord awoke and looked in the mirror. She did not look like herself. Her eyes were bulging and painful. Not only was her vision becoming affected, but she noted that others were beginning to notice as well. She needed help and did not know where to go. Thankfully, her physician referred her to the Thyroid Eye Clinic at Shiley. Geri was diagnosed with Graves’ Disease, an autoimmune disorder that attacks the thyroid gland, the orbital tissues around the eyes, and occasionally the skin of the lower leg. The swelling of soft tissues around Geri’s eyes caused them to bulge and her eyelids to retract. She also developed double vision, which can happen when the muscles enlarge and the eyes become misaligned. The affected thyroid gland usually secretes abnormally high levels of thyroid hormones, causing weight loss, rapid heart rate and nervousness, but does not actually cause the eyes to become affected. The common denominator is an immune system attack. Since not all patients with the typical eye findings have Graves’ disease, the broader term Thyroid Eye Disease or TED is the more accepted term. Shiley’s Thyroid Eye Clinic, established in 1997 as the first of its kind in the nation, has been a model for other academic medical centers. This unique clinic makes it possible for patients with TED to be seen by an entire team of specialists in one visit: an adult strabismus specialist, an oculoplastic surgeon, and a neuro-ophtalmologist. Many of the latest diagnostic and treatment options were developed at Shiley. The team includes: David B. Granet, M.D. (Eye Alignment Disorders), Don O. Kikkawa, M.D. and Bobby S. Korn, M.D., Ph.D. (Global and Orbit Surgery) and Leah Levi, M.B.B.S. (Neuro-ophthalmology).

The decision to treat TED relies on the severity and the activity of the disease. Depending on the degree of involvement, treatments can range from medical therapy or surgical treatment including orbital decompression, muscle or eyelid surgery. Many disillusioned patients have travelled from all over the world to Shiley’s Thyroid Eye Clinic after having been told by other doctors that nothing can be done and to “just live with the condition.” Geri had a severe case of TED and the Shiley team recommended orbital decompression, an operation designed to bring the eyes back in the socket, followed by eye alignment surgery and finally eyelid surgery. She could not be happier with the results.

The Shiley Thyroid Eye Clinic has been an exceptional resource to frustrated patients and physicians and was a godsend to Geri Beckord: “I love life and how I look now, thanks to all the wonderful doctors and staff at the Shiley Eye Center who put me back together.”

“I love life and how I look now, thanks to all the wonderful doctors and staff at the Shiley Eye Center who put me back together.”

Geri Beckord

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FROM A PATIENT’S PERSPECTIVE

THYROID EYE DISEASE

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(Left) During active phase of Thyroid Eye Disease: orbital decompression, eye muscle surgery and eyelid retraction repair.
in motor vehicle crashes, however, we know very little about the factors related to driving with glaucoma. We know that glaucoma patients have a higher risk of being involved be affected by glaucoma is driving, according to Dr. Medeiros. “Driving is the primary glaucoma on task performance,” he continues. One of the most important tasks that can satisfactory quality of life, we still have an incomplete understanding of the impact of glaucoma. “Although the ability to perform daily activities is essential in order to maintain decreases in quality of life can rapidly ensue once symptoms appear. Although glaucoma can remain asymptomatic until late, irreversible loss of visual function and remain a major cause of disability which can severely impact the way patients practice with innovative approaches to study disability from the disease,” Dr. Medeiros says. “Our ultimate goal is to be able to develop predictive models that allow us to investigate driving and overall cognitive performance in glaucoma patients and to understand the factors related to driving safety in the disease. It will also enable us to predict which patients are at high risk for functional impairment,” says Dr. Medeiros. The driving simulator has been implemented to the large-patient cohort who undergoes research testing at the Moonshine Glaucoma Center, as part of the Diagnostic Innovations in Glaucoma Study (DIGS). Dr. Medeiros has also partnered with Linda Zangwill, Ph.D., Professor of Ophthalmology at the University of California, San Diego. Dr. Rosen is a psychophysics researcher with extensive experience in studying driving performance in other conditions such as stroke and dementia. Dr. Rosen is an engineer and a former U.S. Air Force test pilot who has an interest in developing advanced software for the automobile industry. “The use of a driving simulator allows us to investigate driving and overall cognitive performance in glaucoma patients and to understand the factors related to driving safety in the disease. Although the ability to perform daily activities is essential in order to maintain sensitivity of quality of life, we still have an incomplete understanding of the impact of glaucoma on task performance,” he continues. One of the most important tasks that can be affected by glaucoma is driving, according to Dr. Medeiros. "Driving is the primary mode of transportation in the United States and the ability to drive is intimately associated with quality of life. We know that glaucoma patients have a higher risk of being involved in motor vehicle crashes, however, we know very little about the factors related to driving impairment in glaucoma," he adds. "Although it is clear that vision is essential for driving, it is not evident what vision skills and tests are actually more closely related to the ability of driving safety," he continues. In order to assess driving performance in glaucoma patients, Dr. Medeiros has partnered with Robert N. Weinreb, M.D., Distinguished Professor and Chair of the Department of Ophthalmology at USC, Peter Rosen, M.D., Associate Clinical Professor, and Erin Bose, Ph.D. to implement a driving simulator in the Glaucoma Center at USC. Dr. Medeiros is a clinician-scientist with longstanding experience in studying visual and cognitive function in glaucoma patients, whereas Dr. Bose is a psychophysiologist who investigates driving performance in other conditions such as stroke and dementia. Dr. Rosen is an engineer and a former U.S. Air Force test pilot who has an interest in developing advanced software for the automobile industry. “The use of a driving simulator allows us to investigate driving and overall cognitive performance in glaucoma patients and to understand the factors related to driving safety in the disease.” It will also enable us to predict which patients are at high risk for functional impairment,” says Dr. Medeiros. The driving simulator has been implemented to the large-patient cohort who undergoes research testing at the Glaucoma Center, as part of the Diagnostic Innovations in Glaucoma Study (DIGS). Dr. Medeiros has also partnered with Linda Zangwill, Ph.D., Professor of Ophthalmology. “Our approach involves the comprehensive assessment of the glaucoma patient by integrating tests commonly performed in clinical practice with innovative approaches to study disability from the disease.” Dr. Medeiros says. “Our ultimate goal is to use a chemical approach to understand the factors which could inform us which patients are at higher risk of developing disability from glaucoma, such as impaired driving. These are the patients that need to be more aggressively treated,” he concludes.

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“Although the ability to perform daily activities is essential in order to maintain the success of this work could mean a paradigm shift in how new treatment is marketed, and could have broad and profound impact on human vision impairment in glaucoma,” he said. Dr. Rosen is a psychophysics researcher with extensive experience in studying driving performance in other conditions such as stroke and dementia. Dr. Rosen is an engineer and a former U.S. Air Force test pilot who has an interest in developing advanced software for the automobile industry. “The use of a driving simulator allows us to investigate driving and overall cognitive performance in glaucoma patients and to understand the factors related to driving safety in the disease.” It will also enable us to predict which patients are at high risk for functional impairment,” says Dr. Medeiros. The driving simulator has been implemented to the large-patient cohort who undergoes research testing at the Glaucoma Center, as part of the Diagnostic Innovations in Glaucoma Study (DIGS). Dr. Medeiros has also partnered with Linda Zangwill, Ph.D., Professor of Ophthalmology. “Our approach involves the comprehensive assessment of the glaucoma patient by integrating tests commonly performed in clinical practice with innovative approaches to study disability from the disease.” Dr. Medeiros says. “Our ultimate goal is to use a chemical approach to understand the factors which could inform us which patients are at higher risk of developing disability from glaucoma, such as impaired driving. These are the patients that need to be more aggressively treated,” he concludes.
As a UC San Diego alumnus, Kevin Churchill, '96, already knew that the university had a reputation for cutting-edge research and advanced medical care. However, it wasn’t until his son Benny was born visually impaired that Churchill discovered the remarkable breadth of leading research taking place at his alma mater.

Benny has Optic Nerve Hypoplasia (ONH), a cause of visual impairment in newborns that can also be associated with hormone deficiencies, developmental delays, sleep dysfunction and seizures. ONH is an underdevelopment of the optic nerve (the nerve that carries visual information from the eye to the brain) in one or both eyes. The degree of vision impairment with ONH varies, from near-normal vision to no light perception at all.

Benny’s first ophthalmologist told Churchill and his wife Ziki that nothing could be done for their son. Frustrated by this answer, the Churchills turned to the UC San Diego Department of Ophthalmology at the Shiley Eye Center. There they met Dr. David Granet, director of the Anne F. and Abraham Ratner Children’s Eye Center. Granet provided patient care above and beyond the Churchills' expectations, and also talked to them about the potential for scientific research and discoveries to one day help their son, and children like him around the world.

“UC San Diego, can I assure that each child gets the best possible personalized care and treatment while each family gets the most up-to-date information,” said Granet. “Then we think about new paradigms and how to do better.”

Churchill recalls, “We were so relieved to meet Dr. Granet. We have found him to be nothing short of brilliant with the utmost care and love for children with eye-related conditions, all packaged with a great personality.”

Granet introduced the Churchills to UC San Diego’s Dr. Kang Zhang, Professor of Ophthalmology and Genetics at UC San Diego. Zhang is internationally renowned for his work in genetic and stem cell research.

Inspired by the doctors at the Shiley Eye Center and their progressive work, the Churchills decided to help seed a new research fund—The Optic Nerve Regeneration Fund—with the ultimate goal of helping ONH patients to regain their sight. With sufficient funding, the Optic Nerve Regeneration Fund will enable Zhang and his team to put together an aggressive and groundbreaking research project to develop biotechnology that may one day partially or completely restore vision in ONH patients by using genetic science and stem cells to generate new, usable optic nerve tissue.

“It is an ambitious goal, but one we feel is attainable if we can spread the word and through fundraising get enough support for the research,” said Church. While donations have been received from friends and family, additional funding is needed in order for the research to take off.

“My wife and I are just ordinary people who give because we know that research leads to practice, every-day applications that advance our health and way of being,” said Churchill. “In our case, genetic and stem cell research at UC San Diego has the potential to transform our son’s life, and the lives of children like him all over the world. As alumnus, having UC San Diego lead the way toward that goal is tremendously rewarding.”

Granet added, “The donations and support from families like the Churchills make change possible. They literally can impact the treatment for their own child and others like him. We think of that as another way of empowering families.”

In their spare time, Churchill and his wife also do outreach in the local community to educate people about Optic Nerve Hypoplasia and the exciting new research at the Shiley Eye Center. Their three-year-old son, Benny, is still under the care of Granet and the family looks forward to seeing what science, research and UC San Diego will accomplish in the future to improve treatments for visual impairment.

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- Dr. David Granet
THE SMART CONTACT LENS

Doctors and researchers at the Hamilton Glaucoma Center at the Shiley Eye Center have launched the first clinical trials in the United States of a futuristic “smart contact lens” that estimates eye pressure – a key risk factor for glaucoma, the second leading cause of preventable blindness in the world.

Though the causes of glaucoma remain murky, high intraocular pressure (IOP) or excessive pressure within the eye appears to be causative in many individuals, promoting deterioration of the optic nerve and progressive loss of vision eventually leading to blindness.

Doctors can slow or prevent the progression of glaucoma by reducing IOP with drugs, but their working knowledge of their patients’ conditions traditionally has been limited to an occasional pressure reading obtained during an office visit. “It’s a snapshot in time,” said Robert N. Weinreb, M.D., Chairman of the Department of Ophthalmology at the Shiley Eye Center. “Current treatments are based on these one-time readings even though they provide limited information.”

But recent research, much of it produced by Weinreb, John H.K. Liu, Ph.D., and colleagues at the Hamilton Glaucoma Center’s sleep laboratory, show that intraocular pressure rates and falls throughout the day and night. It is often lowest during waking hours when doctors typically see patients, and highest at night when patients are usually asleep.

The new smart contact lens is being tested in collaboration with Felipe Meireles, M.D., Ph.D, Professor of Ophthalmology and Kaweh Mansouri, M.D., an international fellow, who worked with Sensimed, the Swiss-based maker of the lens, while he was at the University of Geneva in Switzerland.

The lens is designed to provide ophthalmologists with a much more accurate, longer term assessment of the IOP. Called the “Triggerfish,” it consists of a clear, silicone contact lens ringed by a strain gauge and a microprocessor and antenna that transmits data to an external receiver. The gauge continuously monitors the shape of the cornea, indicating greater or lesser intraocular pressure. Information about IOP fluctuations is immediately transmitted via radio frequencies from the lens’ microprocessor to a recording receiver. The microprocessor is powered by an induction loop which uses a magnetic field around the eye to generate the tiny amounts of required electricity. (Induction loops are also used to power hearing aid implants.)

The Triggerfish is intended to be worn for just 24-hours, then discarded. Glaucoma patients would wear the device once every six to eight months. From these brief periods of monitoring, Weinreb said doctors would likely obtain a detailed description of the patient’s IOP and eye health.

“It’s the difference between seeing a single movie frame and watching a full-length motion picture,” Weinreb said. “With more information, we better understand what is happening to the eye. We can provide earlier and more accurate diagnoses. We can detect changing conditions more quickly. The benefits are transformative. This is personalized medicine for the eye.”

The clinical trials for the Triggerfish are the first in this country. Shiley is the only center in the U.S. to have already treated glaucoma patients with the smart contact lens. A similar device was recently approved for use in Europe. Sensimed officials hope for U.S. approval by the Food and Drug Administration soon.

Weinreb said he and colleagues are also pursuing a second IOP-monitoring device to complement the contact lens approach. This one would be implantable and permanent. It would provide continuous measurements over the lifetime of the patient.
A NEW VISION

We are excited to announce the redesign and launch of the new Shiley Eye Center website. The website was created to better serve our patients and represent our world class facility, faculty and staff.

The comprehensive website allows patients, faculty, residents, fellows, donors and other site visitors the ability to find everything they need on one, easy-to-navigate website.

The redesigned site distinguishes the Shiley Eye Center as the leading medical facility of its kind. The site appeals to audiences from around the globe, showcases our portfolio of services for patients, and articulates what distinguishes the Shiley Eye Center as the best of its kind while maintaining a consistent and user-friendly experience for visitors.

Upon visiting the site, patients will be able to find the exact information they need through the dynamic symptom search tool. By searching for symptoms or conditions, patients will be directed to condition information, treatment instructions, physician names and contact information.

In addition to the symptom search, out of town and international patients will find a plethora of resources to help plan their visit to San Diego. Beautiful photography, engaging video and easy to find resources set the Shiley Eye Center website apart from all others of its kind.

Physicians will find extensive information on continuing education, residency, and fellowship programs. The research of our talented physicians, faculty and staff is housed in one location for easy access. Our generous donors will be featured on the site and prospective donors can easily find meaningful ways to give to Shiley Eye Center.

We hope you enjoy the new website and will visit often!

www.shileyeye.org

YEAR IN REVIEW

PATIENT VISITS
120,000

SURGERIES PERFORMED
5,459

FACULTY
33

STAFF
152

SHILEY EYE
91,000 SQ FT

GRANTS
$8.3 MILLION

PUBLICATIONS
228

CLINICAL TRIALS
31
The Shiley Eye Center’s influence spans the entire globe. Patients from throughout the world have come to Shiley to receive unique and unparalleled eye care in our center. Residents and fellows come from all corners of the globe to seek training from our renowned faculty. Upon completion of their training, our international fellows return to their home countries to assume prominent leadership roles in major academic centers around the world.

**GLOBAL REACH**

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**SOME DISTINGUISHED ALUMNI**

- **Alfonso Anton, M.D.**
  Professor of Ophthalmology, Universitat de Catalunya, Barcelona

- **Eyal Biton, M.D.**
  Chairman and Professor, Department of Ophthalmology, Rambam Hospital, Technion. Reapport Faculty of Medicine, Israel

- **Jonathan Cravath, M.D., Ph.D.**
  Chairman and Wrigley Professor, Department of Ophthalmology, University of Biuflersance, Australia

- **Robert Fechner, M.D.**
  Professor of Ophthalmology, UMDNJ – New Jersey Medical School

- **Robert Feldman, M.D.**
  Chairman and Professor, Ruiz Department of Ophthalmology, University of Texas Medical Center at Houston

- **Christopher Girkin, M.D.**
  Chairman and Professor, Department of Ophthalmology, University of Alabama, Birmingham

- **Neena Gupta, M.D., Ph.D.**
  Professor of Ophthalmology, University of Toronto, Canada

- **Jong Il-Kim, M.D.**
  Professor of Ophthalmology, National University, Seoul, Korea

- **Eytan Blumenthal, M.D.**
  Chairman and Professor, Department of Ophthalmology, Rambam Hospital, Technion Rappaport Faculty of Medicine, Israel

- **Jonathan Crowston, M.D., Ph.D.**
  Chairman and Ringland Professor, Department of Ophthalmology, University of Melbourne, Australia

- **Robert Feldman, M.D.**
  Chairman and Professor, Ruiz Department of Ophthalmology, University of Texas Medical Center at Houston

- **Christopher Girkin, M.D.**
  Chairman and Professor, Department of Ophthalmology, University of Alabama, Birmingham

- **Neena Gupta, M.D., Ph.D.**
  Professor of Ophthalmology, University of Toronto, Canada

- **Dong Myung Kim, M.D.**
  Professor of Ophthalmology, Chinese University of Hong Kong, China

- **Baruch D. Kupperman, M.D., Ph.D.**
  Professor of Ophthalmology, Chair of Retina Service, University of California, Irvine

- **Evelyn A. Leung, M.D.**
  Professor of Ophthalmology, Chinese University of Hong Kong, China

- **Steven Merriam, M.D.**
  Vice Chairman, Department of Ophthalmology, Portland, Oregon

- **Arthur Mueller, M.D., Ph.D.**
  Professor and Chair, Department of Ophthalmology, Klinikum Augsburg, Germany

- **Pamela Sample, Ph.D.**
  Emeritus Professor in Residence, University of California, San Diego

- **Seong Wave Suh, M.D., Ph.D.**
  Professor and Chief, Department of Ophthalmology, Gangnam National University School of Medicine, Seoul, Korea

- **Ningyi Wang, M.D., Ph.D.**
  Chairman and Professor, Department of Ophthalmology, Tongren Eye Center and Capital University, University of Medical Sciences Beijing, China

- **Suk-Woo Yang, M.D.**
  Professor and Chair of Ophthalmology, Department of Ophthalmology and Visual Science, College of Medicine, The Catholic University of Korea, Seoul, Korea

- **Yen Yücel, M.D., Ph.D.**
  Professor of Pathology and Chief, Ophthalmic Pathology, University of Toronto, Canada
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.

The UCSD Hamilton Glaucoma Center offers the most comprehensive glaucoma diagnostic services in the world with unique instrumentation that is not yet available anywhere else. In addition to standard optic nerve imaging and functional testing, specialized programs are available including continuous measurement of 24-hour intraocular pressure, a dedicated deep unit for glaucoma testing, anterior segment imaging, objective perimetry with pupillometry, swept source OCT for imaging of the lamina cribrosa and choroid, and a driving simulator.

Our glaucoma specialists are world-renowned for their clinical and research excellence and offer unparalleled diagnostic services, including those that are not yet available anywhere else. In addition to standard optic nerve imaging and functional testing, specialized programs are available including continuous measurement of 24-hour intraocular pressure, a dedicated deep unit for glaucoma testing, anterior segment imaging, objective perimetry with pupillometry, swept source OCT for imaging of the lamina cribrosa and choroid, and a driving simulator.

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Our glaucoma specialists are world-renowned for their clinical and research excellence and offer unparalleled management programs for glaucoma through clinical trials and innovative medical and surgical therapies.
Madhusudhanan Balasubramanian, Ph.D.
Assistant Professor of Ophthalmology
Graduate School
Louisiana State University
Postdoctoral Fellowship
University of California, San Diego

Special Interests
- Developing tools to non-invasively measure deformation of the optic nerve head from retinal imaging.
- Developing computational methods to reduce the amount of testing needed to detect glaucomatous progression.
- Developing multitask learning in glaucoma progression.

Notables
- NIH K99/R00 Pathway to Independence award
- Imaging and Perimetry Society-Heidelberg Engineering Young Researchers Award

Christopher Bowd, Ph.D.
Assistant Research Scientist of Ophthalmology
Graduate School
Washington State University
Postdoctoral Fellowship
University of California, San Diego

Special Interests
- Early detection and monitoring of glaucoma.
- Machine learning classifiers analyses of imaging and visual function measurements.

Andrew D. Huberman, Ph.D.
Associate Professor of Neuroscience/Neurobiology/Ophthalmology
Graduate School
University of California, Davis
Postdoctoral Fellowship
University of California, San Diego

Special Interests
- Retinal development and retinal ganglion cells.

Won-Kyu (Daniel) Ju, Ph.D.
Assistant Adjunct Professor of Ophthalmology
Graduate School
The Catholic University of Korea (Modern & Ph.D.)
Postdoctoral Fellowship
Washington University in St. Louis St. Louis Washington University Medical Research Institute

Special Interests
- Mechanisms for neuroprotection and neurodegeneration in glaucoma.
- Oxidative stress and glomerular arteriolosclerosis in glaucoma.
- Mitochondria-related gene therapy for RGCs and OCT images for monitoring of glaucoma.

James D. Lindsey, Ph.D.
Adjunct Professor of Ophthalmology
Graduate School
National Tsing Hua University
Graduate School
Texas A&M University

Special Interests
- Connection between visual performance and task performance in all areas of eye disease.
- Psych-physics of visual performance.
- Use of driving simulator as a methodology for evaluating the relationship of visual performance and task performance.

Rigby Slight, M.D.
Assistant Clinical Professor of Ophthalmology
Graduate School
University of Oklahoma; Internship at UCLA
Residency
University of Southern California

Special Interests
- Clinical research in glaucoma.

Christopher Bowd, Ph.D.
Assistant Research Scientist of Ophthalmology
Graduate School
Washington State University
Postdoctoral Fellowship
University of California, San Diego

Special Interests
- Early detection and monitoring of glaucoma.
- Machine learning classifiers analyses of imaging and visual function measurements.

John H.A. Lio, Ph.D.
Adjunct Professor of Ophthalmology
Graduate School
Louisiana State University
Graduate School
Washington State University

Special Interests
- Mechanisms for neuroprotection and neurodegeneration in glaucoma.
- Oxidative stress and glomerular arteriolosclerosis in glaucoma.
- Mitochondria-related gene therapy for RGCs and OCT images for monitoring of glaucoma.

Peter Rason, M.B.
Assistant Clinical Professor of Ophthalmology
Graduate School
University of Alabama; Internship at USA
Residency
University of Southern California
Certification
Board Certification in Ophthalmology

Special Interests
- Clinical research in glaucoma.

Robert Sliggle, M.D.
Assistant Professor of Ophthalmology
Graduate School
University of Alabama; Internship at USA
Residency
University of Southern California
Certification
Board Certification in Ophthalmology

Special Interests
- Clinical research in glaucoma.
- UC San Diego Optic Nerve Reading Center
Diseases of the retina cause severe and debilitating vision loss. Our retina physicians diagnose and treat macular degeneration, diabetic retinopathy, tumors, inherited retinal disease, retinal detachment, macular holes, and other important retinal diseases. The Joan and Irwin Jacobs Retina Center houses research projects seeking to find solutions for people of all ages who suffer from retinal conditions. The clinical research center at the Jacobs Retina Center enables patients to benefit from the latest advances in diagnostic equipment and therapies. Researchers working in the Center’s laboratories apply the power of genetics and stem cell research towards the treatment of blinding diseases.
The Shiley Eye Center Cornea and Refractive specialty is dedicated to the health and functioning of the cornea and combines unparalleled care, expertise, and state-of-the-art equipment to ensure the best experience for patients. Shiley offers a comprehensive range of routine, complex and high-risk corneal and external diseases, as well as the most current vision correction procedures.

**Natalie Afshari, M.D.**

**Residency**
Massachusetts Eye and Ear Infirmary

**Fellowship**
Massachusetts Eye and Ear Infirmary

**Certification**
Board Certification in Ophthalmology

**Special Interests**
Corneal surgery; Keratoplasty; Femtosecond laser-assisted intraocular lens (F-SL): Transplantation; Laser refractive surgery, including LASEK, LASIK, Intrastromal Surface Ablation, MMC, PRK, TPRK, Surgical and medical diseases of cornea.

**Notables**
Best Doctors in America; Top 10 Women in Medicine Award; American Academy of Ophthalmology Achievement Award; American Academy of Ophthalmology Research to Prevent Blindness Award; Chief Medical Officer for American Board of Ophthalmology; Senior Editor for Ophthalmology; Chief Scientific Officer, Judge American Society of Cataract and Refractive Surgeons; Chief Science Officer, American Academy of Ophthalmology; President of Eye Bank Association of America; Founding Trustee, Research to Prevent Blindness

**Medical School**
Chicago Medical School

**Fellowship**
Massachusetts Eye and Ear Infirmary

**Certification**
Board Certification in Ophthalmology

**Special Interests**
Corneal transplantation; Cataract surgery; Descemets stripping endothelial keratoplasty (DSEK); Intacs for keratoconus; Laser refractive surgery, including LASIK, LASEK, Advanced Surface Ablation, PRK, TPRK, Surgical and medical diseases of cornea.

**Notables**
Best Doctors in America; Top 10 Women in Medicine Award; American Academy of Ophthalmology Achievement Award; American Academy of Ophthalmology Secretariat Award; Councilor Emeritus American Academy of Ophthalmology; Founding Trustee, Research to Prevent Blindness Award; Senior Editor for American Board of Ophthalmology; Senior Editor for Ophthalmology; Chief Scientific Officer, Judge American Society of Cataract and Refractive Surgeons; Chief Science Officer, American Academy of Ophthalmology; President of Eye Bank Association of America; Founding Trustee, Research to Prevent Blindness

**Medical School**
Stanford University School of Medicine

**Fellowship**
Stanford University School of Medicine

**Certification**
Board Certification in Ophthalmology

**Special Interests**
Cataract surgery; Corneal transplantation; Refractive surgery (LASEK, LASIK)

**Notables**
Outstanding Teacher Award, America’s Top Ophthalmologists

**Medical School**
University of Illinois Medical School

**Fellowship**
Stanford University School of Medicine

**Certification**
Board Certification in Ophthalmology

**Special Interests**
Cataract surgery; Corneal transplantation; Keratoconus; Ocular surface tumors; Corneal crosslinking and transplantation
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 Center’s skilled neuro-ophthalmologists conduct routine diagnostic tests and a thorough evaluation while working with the referring physician to manage the condition or illness.

Leah Levi, M.B.B.S.
Clinical Professor of Ophthalmology & Neurosciences
Medical School
University of Sydney, Australia
Residency
Tufts - New England Medical Center
Fellowship
William Eye Institute of the Johns Hopkins University
Certification
Board Certification in Ophthalmology
Special Interests
Optic nerve, Double vision, Visual Fields, Thyroid eye disease
Notables
Top Doctors San Diego; Achievement Award; American Academy of Ophthalmology; President, North American Neuro-Ophthalmology Society; Outstanding Teacher Award in Neurology

Peter J. Savino, M.D.
Clinical Professor of Ophthalmology & Neurosciences
Medical School
University of Bologna School of Medicine
Residency
Georgetown University Medical Center
Fellowship
University of Miami
Certification
Board Certification in Ophthalmology
Special Interests
Myasthenia gravis, optic neuritis, diabetes and neuro-ophthalmology, multiple system atrophy, visual field defects, degenerative, inflammatory & demyelinating diseases, neuro-ophthalmology
Notables
Life Achievement Honor Award, American Academy of Ophthalmology; Honorary Member, Tokyo Nippon Ganka Gakka, Academy of Ophthalmologists, Bologna; Tawes; Milt Award; Lifetime Mentor Award; Philadelphia Ophthalmology Club; New York State Sons of Italy Anton Banko Award; TOU Vascular Award; Philadelphia Ophthalmological Society; one of the “Best 100 Ophthalmologists in America,” Ophthalmology Times; Barnes Award; Chicago Ophthalmological Society

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 Center’s skilled neuro-ophthalmologists conduct routine diagnostic tests and a thorough evaluation while working with the referring physician to manage the condition or illness.
Orbits. Eyelids. Face. Lacrimal system. These are the domains of oculofacial plastic surgery. Birth defects, cancer, trauma and the aging process can all alter the periorbital region. These surgeons rebuild, reconstruct, renew and make whole again. The UCSD Division of Ophthalmic Plastic and Reconstructive Surgery is an internationally recognized leader in patient care, teaching and research. Dr. Kikkawa and Dr. Korn have pioneered innovative operations and techniques that have become the standard.

**OPHTHALMIC PLASTIC AND RECONSTRUCTIVE SURGERY**

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**Don O. Kikkawa, M.D., F.A.C.S.**

Chairman, Division of Ophthalmic Plastic and Reconstructive Surgery

**Medical School**

St. Louis University School of Medicine

**Certification**

Board Certification in Ophthalmology

**Fellowship**

University of Wisconsin, Madison

**Residency**

University of California, Los Angeles

**Special Interests**

Oculofacial surgery - aesthetic and reconstructive; eyelid, lacrimal and orbital surgery; Thyroid eye disease - orbital decompression and eyelid surgery; Craniofacial disorders involving the eyelids and orbits; Orbit and eyelid tumors

**Notables**

President-elect American Society of Ophthalmic Plastic and Reconstructive Surgery, Best Doctors in America; Top Doctor, US News and World Report; Top Doctors San Diego; Lester T. Jones Award; Marvin H. Quickert Award; ASOPRS Research Award; American Academy of Ophthalmology Senior Achievement Award; Outstanding Teaching Award

**Medical School**

University of Texas, Southwestern Medical School (M.D. & Ph.D.)

**Orbits. Eyelids. Face. Lacrimal system.**

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**Bobby S. Korn, M.D., Ph.D., F.A.C.S.**

Associate Professor of Clinical Ophthalmology

**Medical School**

University of Texas, Southwestern Medical School

**Certification**

Board Certification in Ophthalmology

**Fellowship**

University of California, San Diego

**Residency**

University of California, San Diego (Chief Resident)

**Medical School**

University of California, San Diego (Chief Resident)

**Notables**

Top Doctor, US News and World Report; Top Doctors San Diego, American Academy of Ophthalmology Achievement Award; ASOPRS Research Award; Marvin H. Quickert Award; Outstanding Teaching Award; Video Atlas of Oculofacial Plastic and Reconstructive Surgery
PEDIATRIC OPHTHALMOLOGY AND ADULT EYE REALIGNMENT SERVICES

Preventing and treating vision loss and ocular problems in children is the highest priority at the Ratner Children’s Eye Center. Dr. David Granet and Dr. Shira Robbins are world-renowned specialists in helping children with eye misalignments (strabismus), nystagmus, congenital diseases like pediatric cataracts and glaucoma, acquired problems from blocked tear ducts to “lazy eye” (amblyopia) as well as trauma. From premature babies to teenagers, our team ensures that each child seen at the family-oriented Ratner Children’s Eye Center is given the attention and personal medical care they deserve in a child-friendly atmosphere. Adults with strabismus suffer from an old childhood problem, trauma, or a condition causing eye misalignment and require individualized intervention. Recognized worldwide for their teaching and developments in this field, the specialized surgeons at the Ratner Eye Center can help virtually everyone—regardless of age—suffering from various ocular misalignments and their consequences.

David B. Granet, M.D., F.A.C.S., F.A.A.P.
Professor of Ophthalmology & Pediatrics
Anne F. Ratner Chair of Pediatric Ophthalmology
Director, Divisions of Pediatric Ophthalmology & Eye Alignment Disorders

Special Interests
Pediatric ocular issues & strabismus; Adult eye misalignments; State-of-the-art adjustable suture strabismus surgery; Nystagmus; Childhood eye alignment disorders; Learning disorders & role of vision

Notables
Senior Achievement Award AAO; American Association of Pediatric Ophthalmology Senior Honor Award; Chair-Elect American Academy of Pediatrics (AAP) Section of Ophthalmology; Top Physician (1%) US News and World Report; Best Doctors in America; Top Doctors in San Diego; Visiting Professor National University Singapore; Co-Founder World Congress of Paediatric Ophthalmology & Strabismus; Co-Editor AAP Case Studies in Ophthalmology; Co-Director AAO Pediatric Ophthalmology Subspecialty Day 2011; Bronze Telly Award; Gold Aurora Award; Emmy Award

Medical School
Yale University School of Medicine

Certification
Board Certification in Ophthalmology

Shira L. Robbins, M.D., F.A.A.P.
Professor of Ophthalmology
Educational Director of the Pediatric Ophthalmology/Strabismus Division

Special Interests
Pediatric ocular issues & strabismus, Adult eye misalignments, State-of-the-art adjustable suture strabismus surgery, Nystagmus, Childhood eye alignment disorders, Learning disorders & role of vision

Notables
Top Doctors in America

Medical School
Medical College of Pennsylvania

Certification
Board Certification in Ophthalmology

PEDIATRIC OPHTHALMOLOGY AND ADULT EYE REALIGNMENT SERVICES

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Anne F. Ratner Chair of Pediatric Ophthalmology
Director, Divisions of Pediatric Ophthalmology & Eye Alignment Disorders

Special Interests
Pediatric ocular issues & strabismus; Adult eye misalignments; State-of-the-art adjustable suture strabismus surgery; Nystagmus; Childhood eye alignment disorders; Learning disorders & role of vision

Notables
Senior Achievement Award AAO; American Association of Pediatric Ophthalmology Senior Honor Award; Chair-Elect American Academy of Pediatrics (AAP) Section of Ophthalmology; Top Physician (1%) US News and World Report; Best Doctors in America; Top Doctors in San Diego; Visiting Professor National University Singapore; Co-Founder World Congress of Paediatric Ophthalmology & Strabismus; Co-Editor AAP Case Studies in Ophthalmology; Co-Director AAO Pediatric Ophthalmology Subspecialty Day 2011; Bronze Telly Award; Gold Aurora Award; Emmy Award

Medical School
Yale University School of Medicine

Certification
Board Certification in Ophthalmology

Shira L. Robbins, M.D., F.A.A.P.
Professor of Ophthalmology
Educational Director of the Pediatric Ophthalmology/Strabismus Division

Special Interests
Pediatric ocular issues & strabismus, Adult eye misalignments, State-of-the-art adjustable suture strabismus surgery, Nystagmus, Childhood eye alignment disorders, Learning disorders & role of vision

Notables
Top Doctors in America

Medical School
Medical College of Pennsylvania

Certification
Board Certification in Ophthalmology

PEDIATRIC OPHTHALMOLOGY AND ADULT EYE REALIGNMENT SERVICES

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David B. Granet, M.D., F.A.C.S., F.A.A.P.
Professor of Ophthalmology & Pediatrics
Anne F. Ratner Chair of Pediatric Ophthalmology
Director, Divisions of Pediatric Ophthalmology & Eye Alignment Disorders

Special Interests
Pediatric ocular issues & strabismus; Adult eye misalignments; State-of-the-art adjustable suture strabismus surgery; Nystagmus; Childhood eye alignment disorders; Learning disorders & role of vision

Notables
Senior Achievement Award AAO; American Association of Pediatric Ophthalmology Senior Honor Award; Chair-Elect American Academy of Pediatrics (AAP) Section of Ophthalmology; Top Physician (1%) US News and World Report; Best Doctors in America; Top Doctors in San Diego; Visiting Professor National University Singapore; Co-Founder World Congress of Paediatric Ophthalmology & Strabismus; Co-Editor AAP Case Studies in Ophthalmology; Co-Director AAO Pediatric Ophthalmology Subspecialty Day 2011; Bronze Telly Award; Gold Aurora Award; Emmy Award

Medical School
Yale University School of Medicine

Certification
Board Certification in Ophthalmology

Shira L. Robbins, M.D., F.A.A.P.
Professor of Ophthalmology
Educational Director of the Pediatric Ophthalmology/Strabismus Division

Special Interests
Pediatric ocular issues & strabismus, Adult eye misalignments, State-of-the-art adjustable suture strabismus surgery, Nystagmus, Childhood eye alignment disorders, Learning disorders & role of vision

Notables
Top Doctors in America

Medical School
Medical College of Pennsylvania

Certification
Board Certification in Ophthalmology
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, Korn and Levi have helped hundreds of patients with this disfiguring disorder and have published extensively on its characteristics and treatment.
The UC San Diego Comprehensive Ophthalmology division provides a variety of services and ophthalmic evaluations that screen and treat a wide range of ophthalmic conditions, including cataracts, ocular surface disorders, glaucoma, diabetic retinopathy, conjunctivitis, blepharitis and macular degeneration. Primary eye care is provided for all types of conditions of the eye and surrounding structures, both routine and urgent. Treatments offered vary from medications and glasses prescriptions; to laser therapy, small in-office procedures and more invasive surgical options.

Shiley Eye Center optometrists are eye care professionals who perform comprehensive eye exams and are experts at fitting all types of contact lenses and glasses. Visual impairment from inherited diseases to diabetic retinopathy and macular degeneration can result in profound vision loss. Using the latest technological advancements in optical aids, optometrists provide much needed care for our low vision patients. Working hand in hand with Shiley ophthalmologists, the optometry service strives to deliver the best possible care to each patient.

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

Medical School
Columbia University College of Physicians & Surgeons (M.D. & Ph.D.)
Residency
Blinken Memorial Hospital (Anatomic Pathology)
Fellowship
University of California, San Francisco (Ophthalmic Pathology)
Certification
Board-Certified in Anatomic Pathology

Special Interests
Ophthalmic Pathology including uveal melanomas (primary acquired melanosis), basal cell carcinoma, retinoblastomas (irradiation therapy, chemotherapy, targeted molecular therapies), uveal inflammatory pseudotumor, IDIOM (iridociliary inflammatory pseudotumor), MRI (mammography), corneal dystrophies, uveitis, ocular trauma, intraocular foreign bodies, retinoblastoma, congenital ocular anomalies, retinoblastoma, congenital ocular anomalies, CIN, and molecular characterization of ocular degenerations.

Notables
American Society for Investigative Pathology Ramzi Cotran Early Investigator Award; Karl Kirchgessner Foundation Vision Research Award; American Federation for Aging Research New Investigator Award; Hellman Family Foundation Jon I. Isenberg Fellow; Hope for Vision Foundation New Investigator Award

Medical School
Columbia University College of Physicians & Surgeons (M.D. & Ph.D.)
Fellowship
University of California, San Francisco (Ophthalmic Pathology)
Certification
Board-Certified in Anatomic Pathology

Optometry
& Low Vision

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

**FELLOWSHIPS**

**CORNEA**

Andrew Crothers, M.D.
Sujata Prabhu, M.D.

**GLAUCOMA**

Anjali Parekh, M.D.
Syril Dorairaj, M.D.
Kaweh Mansouri, M.D.
You Hyun Noh, Ph.D.*
Renato Lisboa, M.D.
Dongwook Lee, M.D., Ph.D.
Andrew Tatham, M.D.
Yeoun Sook Chun, M.D.*
Atsuya Miki, M.D., Ph.D.
Na’ama Hammel, M.D.

**OPHTHALMIC PLASTIC & RECONSTRUCTIVE SURGERY**

Katherine Whipple, M.D.
Lee Hooi Lim, M.D.

**RETINA**

Payam Amini, M.D.
Candy Chan, M.D., Ph.D.
Azadeh Khatibi, M.D.
Giulio Barteselli, M.D.
Su-Na Lee, M.D., Ph.D.
Feiyan Ma, M.D.
Jing Luo, M.D., Ph.D.

**Ophthalmic Plastic and Reconstructive Surgery**

Katherine Whipple, M.D.
Lee Hooi Lim, M.D.

**PEDIATRICS**

Christopher Cillino, M.D.

**Berkley**

Atul Narang, M.D.
Cindy Chen, M.D., Ph.D.
Daniel M. Rapuano, M.D.
Gail Bennett, M.D.
Sara Lee, M.D.
Ray Wang, M.D., Ph.D.

**Cornea**

Andrew Crothers, M.D.
Sujata Prabhu, M.D.

**Glaucoma**

Anjali Parekh, M.D.
Syril Dorairaj, M.D.
Kaweh Mansouri, M.D.
You Hyun Noh, Ph.D.*
Renato Lisboa, M.D.
Dongwook Lee, M.D., Ph.D.
Andrew Tatham, M.D.
Yeoun Sook Chun, M.D.*
Atsuya Miki, M.D., Ph.D.
Na’ama Hammel, M.D.

**Ophthalmic Plastic and Reconstructive Surgery**

Katherine Whipple, M.D.
Lee Hooi Lim, M.D.

**Retina**

Payam Amini, M.D.
Candy Chan, M.D., Ph.D.
Azadeh Khatibi, M.D.
Giulio Barteselli, M.D.
Su-Na Lee, M.D., Ph.D.
Feiyan Ma, M.D.
Jing Luo, M.D., Ph.D.

**Pediatrics**

Christopher Cillino, M.D.

**Berkley**

Atul Narang, M.D.
Cindy Chen, M.D., Ph.D.
Daniel M. Rapuano, M.D.
Gail Bennett, M.D.
Sara Lee, M.D.
Ray Wang, M.D., Ph.D.

*Not Photographed**

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

The UC San Diego Ophthalmology Residency Training Program was recently recognized by the national accrediting body, the Accreditation Council for Graduate Medical Education, with a commendation on the excellence of the Residency Program and its faculty.

1st year residents: [8]


**1 2 3**

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**9**
SAFETY AND EFFICACY OF AR-7718 IN TREATMENT OF POSTERIOR SEGMENT DRUG DELIVERY SYSTEM COMPLICATIONS OF AIDS (LSOCA study). PI: Igor J.AMS, M.D.

A prospective, non-interventional clinical study on ocular complications in patients on highly active antiretroviral therapy (HAART). PI: William R. Freeman, M.D.

A double-masked, randomized, controlled, phase 3 study of the efficacy and safety of standard therapies in diabetic macular edema. PI: William R. Freeman, M.D.

A phase III, double-masked, multicenter, active-controlled, prospective, randomized study on intravitreal administration of VEGF Trap-Eye in neovascular age-related macular degeneration. PI: Colorado. M.D., Ph.D.


Korn BS, Park DJ, Kikkawa DO. Rhomboid for thyroid orbitopathy following orbital decompression. 2011;29:284-5.


Approaches to Medical and Surgical Therapies, San Diego, CA, February 2012.


"Aesthetic Otolaryngology Surgery". "Multidisciplinary Treatment of Thyroid Eye Disease and its Association with the Orbit". "Customized Orbital Reconstruction - Visiting Professor and Commissioning Team. Hong Kong, China, October 17, 2011.


"Aesthetic Otolaryngology Surgery". "Multidisciplinary Treatment of Thyroid Eye Disease and its Association with the Orbit". "Customized Orbital Reconstruction - Visiting Professor and Commissioning Team. Hong Kong, China, October 17, 2011.

SHRALYA, BHUMI, M.D.
“Evaluation of the Non-Saving Infant”
American Academy of Ophthalmology
Annual Meeting – Pediatric Ophthalmology

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developmental disease (ROP) in premature children,
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Newborns: Retinopathy of prematurity (ROP)
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“Evaluation of the Non-Saving Infant”
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For almost 30 years, the philanthropic support from generous individuals, foundations and corporations has provided the Department of Ophthalmology with valuable resources for patient care, research, education and community service. The state of California provides less than 4% of our budget and therefore, we must rely on private gifts. As a friend of the Department of Ophthalmology, there are several giving options for those who wish to contribute to our tradition of excellence.

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