

Annual Report 2012–2013



SteinEye



Stein Eye Institute
Annual Report 2012–2013

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Dear Friends,

You may remember that the cover of last year's Annual Report showed a work-in-progress: the construction of the Edie & Lew Wasserman Building. Now, a grand and architectural award-winning facility stands proudly in Stein Plaza surrounded by beautiful terraced gardens, new signage, and improved logistics. What a difference a year makes!

This year we celebrate our transformation to a vision science campus. As one of the top eye care centers in the United States and the best in the Western United States, the Jules Stein Building, Doris Stein Building, and Edie & Lew Wasserman Building are now unified under the banner, **Stein Eye Institute**.

Affirming our Founders' commitment to vision science research, ophthalmic education, and patient care, our talented and distinguished faculty have received notable honors and have been awarded important research grants by the National Institutes of Health and other funding organizations.

The Stein Eye Institute's dedication to helping our community was bolstered tremendously by the UCLA Mobile Eye Clinic receiving a grant of \$4.1 million from First 5 LA, which will be used to provide vision-screening services to more than 90,000 preschool children in Los Angeles County. Helping children was of paramount concern to Founding Member of the Stein Eye Institute, **Leonard Apt, MD**, who sadly passed away this year. His legacy lives on through his pioneering research, sight-saving programs, and generous philanthropy.

I thank the loyal dedication of our countless donors and friends who have contributed to our accomplishments, ensuring that the Stein Eye Institute continues to build upon its standing as one of the world's preeminent eye research centers, leading the charge to preserve and restore vision. Please enjoy our highlights of the 2012–2013 academic year.

Sincerely,

Bartly J. Mondino, MD

Bradley R. Straatsma Professor of Ophthalmology
Director, Jules Stein Eye Institute
Chairman, Department of Ophthalmology
David Geffen School of Medicine at UCLA

“Movements to advance science and medicine need the time, the effort, and the ability of those men and women who have learned to move the immovable mountain.”

Jules Stein, MD

A Year in Review

July 1, 2012–June 30, 2013

The 2012–2013 academic year has seen great physical and internal changes to our Institute. We welcomed new faculty and said goodbye to respected colleagues. Faculty members were recognized for their contributions to ophthalmology, and researchers made further inroads in vision science investigations, increasing our knowledge of vision processes and eye diseases. Utilizing multidisciplinary, integrative education, faculty members mentored, counseled, lectured, and demonstrated new medical and scientific approaches to the next generation of ophthalmologists, further contributing to the preservation and restoration of vision around the world. Here at home, a \$4.1 million dollar grant received from First 5 LA ensures that the UCLA Mobile Eye Clinic can continue to provide children from underserved populations in Los Angeles County with access to the highest quality eye care. And recognizing that private funding is critical to advance science and medicine, generous donors provided needed support for the sight-saving endeavors of the Stein Eye Institute.

Stein Eye Institute



SteinEye

Providing the aesthetic complement to our name, the Institute's logo is a bold and unique interpretation of vision and the structure of the eye. Based upon the Stein legacy of excellence, the global spectrum of color is a visual representation of the Stein Eye Institute's evolution.

In November 1966 the doors of the Jules Stein Eye Institute opened and the University of California welcomed to the campus of UCLA a comprehensive eye care facility dedicated to the preservation of vision and the prevention of blindness. At the Institute's dedication, **Jules Stein, MD**, alongside his wife **Doris Stein**, stated that the Jules Stein Eye Institute had been built for the people of today and tomorrow. He added, "The deepest gratitude will never be expressed. It will be found in the eyes of those who will drink in the beauty of life and who will say to themselves in acknowledgement of this magnificent gift, 'It is wonderful to see.'"

With dedication of purpose, in 1989, the Institute expanded with the opening of the Doris Stein Eye Research Center, and with the upcoming addition of the architectural award-winning Edie & Lew Wasserman Eye Research Center, the Jules Stein Eye Institute has grown from one singular structure to a vision science campus at UCLA. Representative of this growth—and with the approval of the Board of Trustees—the Jules Stein Building, Doris Stein Building, and Edie & Lew Wasserman Building are now unified under the banner, **Stein Eye Institute**.

Reflective of these and future changes, the Institute has updated its Mission Statement to more accurately define where the Stein Eye Institute is today and where it is headed:

The Stein Eye Institute at UCLA is a vision science campus dedicated to the preservation and restoration of vision through its global programs and innovative research, quality patient care, and multidisciplinary, integrative education, all with community outreach.

As one of the top eye care centers in the United States and the best in the Western United States, **Bartly J. Mondino, MD**, director of the Stein Eye Institute, points to the future: "The Institute's comprehensive programs in patient care, research, and education—combined with state-of-the-art facilities and breakthroughs in clinical and laboratory research—promise to elevate the Institute to a higher level of achievement in eradicating blindness and preserving vision, and to fulfill Dr. Stein's dream for everyone to realize, 'It is wonderful to see.'"

Stein Plaza Redesign: Enhancing the Patient Experience

While the primary construction of the Edie & Lew Wasserman Building was occurring, the gateway to the Stein Eye Institute, Stein Plaza, was undergoing a major renovation by Richard Meier & Partners Architects, the same firm that created the Getty Center.

The redesign and physical transformation of Stein Plaza includes improved logistics, color-coded signage, parking enhancements, and beautiful grounds, all with an eye to further enhance the patient experience at the Institute. "As Stein Plaza is the entrance to the Stein Eye Institute, our chief aim was to simplify the process of coming to the Institute as much as possible," notes the Institute's Chief Administrative Officer **Jonathan Smith**.





“Mirroring the personalized care we strive to give every patient, we wanted to ensure that hand-in-hand with the Institute growing, the visitor experience would remain intimate and comfortable.”

Bartly J. Mondino, MD, Director, Stein Eye Institute

Ease of Navigation

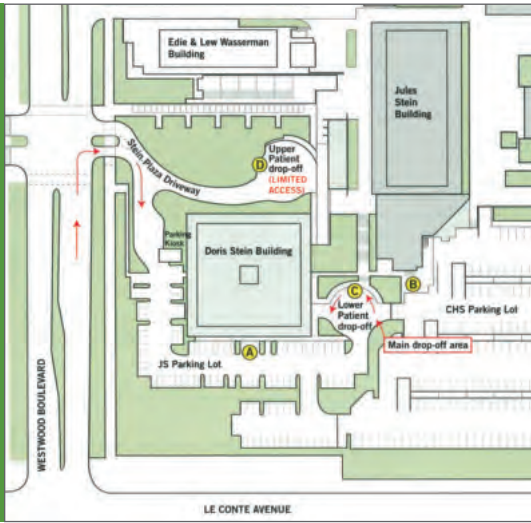
So that visitors can more easily pinpoint their appointment location, large color-coded signage has been added at key locations, which identifies each building by name and a specific color: Jules Stein Building (orange), Doris Stein Building (yellow), and Edie & Lew Wasserman Building (blue). The new signage also includes a directory listing the divisions located within each facility. To further assist guests, the grounds of Stein Plaza were re-graded so that all three buildings are on the same level.

Ease of Patient Drop-off and Pick-up

A critical requirement of the renovation was to establish safe and seamless turn-arounds for easy drop-off and pick-up of patients. The primary drop-off area is situated within the Stein Eye Institute parking lot, allowing drivers to safely drop off their passenger and then easily park their vehicle. The secondary drop-off area is the most convenient for patients undergoing procedures, as its location is on the main plaza level with direct access to each of the three buildings. Drivers are then able to continue on the loop where they can either park their vehicle or exit the Institute.



New signage located throughout Stein Plaza helps visitors easily find their way.



Ease of Exiting

Visitors now have the option of paying for parking prior to returning to their vehicle at one of two pay stations (location A and B on map). Prepaying allows use of a dedicated pay-station exit lane for fast and easy departure out of the Institute and onto Westwood Boulevard. Guests may also continue to pay for parking at the staffed kiosk located at the lot's exit.

"It is our hope that these modifications will further contribute to a positive and patient-friendly experience at the Stein Eye Institute," concludes Dr. Mondino.

Stein Plaza offers two convenient patient drop-off areas (location C and D). Drivers can pay for parking at one of two pay stations (location A and B) or upon exiting at the staffed kiosk.

Transitions

In Remembrance

Leonard Apt, MD

Professor of Ophthalmology Emeritus

June 28, 1922–February 1, 2013

The Stein Eye Institute said goodbye to Founding Member and Professor of Ophthalmology Emeritus, **Leonard Apt, MD**, an internationally respected ophthalmologist who gave the gift of sight to millions of children. Dr. Apt was the first physician to become board certified in both pediatrics and ophthalmology, and his prolific research resulted in innovations in each field.

Dr. Apt published more than 300 articles and received many honors and awards, including the American Academy of Pediatrics Lifetime Achievement Award and their establishment of the biennial "Leonard Apt Lecture." In 2010, Dr. Apt was selected National Physician of the Year.

Joining the UCLA faculty in 1961, Dr. Apt founded the nation's first full-time Pediatric Ophthalmology and Strabismus Division. He was co-founder and co-director of the UCLA Center to Prevent Childhood Blindness and endowed both a professorship and a fellowship. Dr. Apt's generous support of initiatives extended across the UCLA campus and the community, and he devoted tremendous energy to ensure that children from underserved areas not only had access to health care but also to the arts.

"Leonard was devoted to improving patient care on a large scale," said longtime collaborator **Sherwin J. Isenberg, MD**, Laraine and David Gerber Professor of Pediatric Ophthalmology. Summarizing the view of colleagues, students, friends, and countless patients, Dr. Isenberg concluded, "Leonard was kind, dedicated, and went beyond the call of duty. He will be sorely missed."



Dr. Leonard Apt



"Leonard made the world a better place. He was a brilliant physician-scientist, a tireless advocate for the eye care of children, a generous philanthropist, and a true friend."

Bradley R. Straatsma, MD, JD
 Founding Member and
 Founding Director of the
 Stein Eye Institute

“The greatest use of life is to spend it for something that will outlast it.”

William James, American Philosopher and Physician

In Remembrance

Gene J. Pawlowski, MD

Associate Clinical Professor of Ophthalmology

October 31, 1937– August 2, 2012

Considered by colleagues and patients to be a superb physician who served his patients with devotion and diligence, **Dr. Gene J. Pawlowski's** stated passion was teaching neuro-ophthalmology to residents. The students presented their mentor with the Faculty Teaching Award in 2011, and in Dr. Pawlowski's honor and memory, the tradition of Pawlowski Teaching Rounds at Olive View-UCLA Medical Center continue every Friday.



Dr. Gene Pawlowski (third from left) with Stein Eye Institute residents.”

In Appreciation

Barry A. Weissman, OD, PhD

Professor of Ophthalmology Emeritus (Active Recall)

On September 21, 2012, a farewell reception was held to honor Dr. Barry A. Weissman upon his retirement as a full-time faculty member. Friends and colleagues gathered to celebrate Dr. Weissman's 33 years of service to the Institute and his dedication to vision science research.



Dr. Barry Weissman holds up a plaque commemorating his valued time at the Institute.

Welcome

Irena Tsui, MD, a pediatric vitreoretinal specialist, was appointed assistant professor of ophthalmology, effective July 1, 2012. Dr. Tsui received her medical degree from the University of Pennsylvania and completed her residency at the Edward Harkness Eye Institute, Columbia University.



Pradeep S. Prasad, MD, was appointed health sciences assistant clinical professor in the Retina Division, effective February 1, 2013. Dr. Prasad completed his ophthalmology residency and vitreoretinal fellowship training at the Stein Eye Institute.



New Appointment

Vivian Phan, OD, is the Stein Eye Institute's contact lens specialist following the retirement of **Dr. Barry A. Weissman**. Dr. Phan completed her fellowship in contact lens practice at the Stein Eye Institute.





Honors and Awards

Faculty Honors

As part of their ongoing academic pursuits, Stein Eye Institute faculty present prestigious lectures around the world, participate in influential professional and community organizations, and serve as writers and editors for a wide range of scientific journals. This year our faculty members received notable honors in recognition of their accomplishments and contributions:

Chief of the Cornea-External Ocular Disease Division, **Anthony J. Aldave, MD**, delivered the 12th Wilfred E. Fry, MD, Memorial Corneal Lecture on December 1, 2012, at Wills Eye Hospital in Philadelphia, Pennsylvania.

In a February 19, 2013, *Medscape Medical News* article, **Anne L. Coleman, MD, PhD**, Fran and Ray Stark Foundation Professor of Ophthalmology, discussed the systematic review commissioned by the U.S. Preventive Task Force on the treatment of open-angle glaucoma, specifically its impact on clinical practice and future studies.

Joseph L. Demer, MD, PhD, Leonard Apt Professor of Pediatric Ophthalmology, presented the Leonard Apt Lecture on April 6, 2013, at the Annual Meeting of the American Association for Pediatric Ophthalmology and Strabismus in Boston, Massachusetts.

Distinguished Professor of the Departments of Integrative Biology/Physiology and of Ophthalmology, **Gordon L. Fain, PhD**, was presented with the Jay Pepose '75 Award in Vision Sciences at Brandeis University in Waltham, Massachusetts, on March 13, 2013.

Gary N. Holland, MD, Jack H. Skirball Professor of Ocular Inflammatory Diseases, received the 2013 David Geffen School of Medicine Excellence in Education Award on May 22, 2013, in recognition of his leadership and commitment to ophthalmology education.

At the January 2013 All India Congress in Hyderabad, India, Emeritus Professor of Ophthalmology and Founding Director of the Stein Eye Institute, **Bradley R. Straatsma, MD, JD**, was elected to be the recipient of the Bernardo Streiff Gold Medal. The medal is awarded every four years to an ophthalmologist who has most contributed to the advancement of ophthalmology through history, ethics, and education.

Assistant Professor of Ophthalmology, **Irena Tsui, MD**, was awarded a 2013 Oppenheimer Research Award.

David S. Williams, PhD, Jules and Doris Stein Research to Prevent Blindness Professor of Ophthalmology, was named as a 2013 Silver Fellow of the Association for Research in Vision and Ophthalmology.



American Academy of Ophthalmology Honors

Several UCLA Ophthalmology faculty were also honored by the American Academy of Ophthalmology for their outstanding contributions to the Academy, its scientific and educational programs, and to the field of ophthalmology. The following awards were announced at the Academy's annual meeting in Chicago, Illinois, in November 2012:

The Secretariat Award recognizes ophthalmologists for their significant contributions to the Academy and ophthalmology. **Kevin M. Miller, MD**, Kolokotronis Professor of Ophthalmology, was honored by the secretaries for quality care, knowledge base development, ophthalmic knowledge, online education/e-learning, and clinical education.

Steven D. Schwartz, MD, Ahmanson Professor of Ophthalmology, was the recipient of the 2012 Senior Achievement Award for his contributions to the Academy, its scientific and educational programs, and to ophthalmology.

Institute Honors

Stein Eye Institute Rated Best in the West

The Stein Eye Institute continued in its position as one of the top five American eye care centers—and the best in the Western United States for the 23rd consecutive year—according to *U.S. News & World Report's* 2012–2013 Best Hospitals rankings. Additionally, Ronald Reagan UCLA Medical Center is the only hospital in Los Angeles and the Southern California region that appears on the magazine's "Honor Roll," a place reserved for medical centers with high levels of expertise in multiple specialties. The Ronald Reagan UCLA Medical Center was ranked the number one hospital in California.

Edie & Lew Wasserman Building Wins the Gold!

The Edie & Lew Wasserman Building was recognized as the Best Medical Project at the 2013 Commercial Real Estate Awards, winning the highest distinction of "gold." Hosted by the *Los Angeles Business Journal*, the awards recognize the biggest, best, and most notable real estate projects. This is the Edie & Lew Wasserman Building's second honor, having received a Community Impact Award at the 2011 Los Angeles Architectural Awards ceremony.

Research is a key pillar of the Institute's mission and a high priority for faculty who often devote their life's work to furthering our knowledge of specific vision processes and eye diseases. In this academic year, Stein Eye researchers have made important discoveries and have continued to take leadership roles in defining how diseases are managed.



“Discovery consists of seeing what everybody has seen and thinking what nobody has thought.”

Albert Szent-Györgyi, Hungarian Physiologist

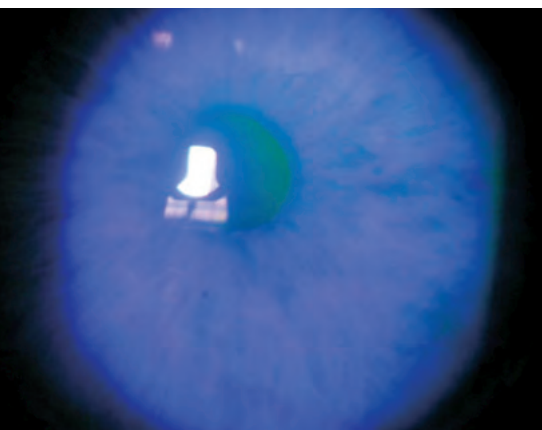
Noninvasive Imaging Method Could Help Detect and Monitor Limbal Stem Cell Deficiency

A research group headed by **Sophie X. Deng, MD, PhD**, assistant professor of ophthalmology, found a noninvasive imaging technique with potential to play a significant role in the detection of early-stage limbal stem cell deficiency (LSCD), as well as providing a tool for monitoring patients’ response to treatment.

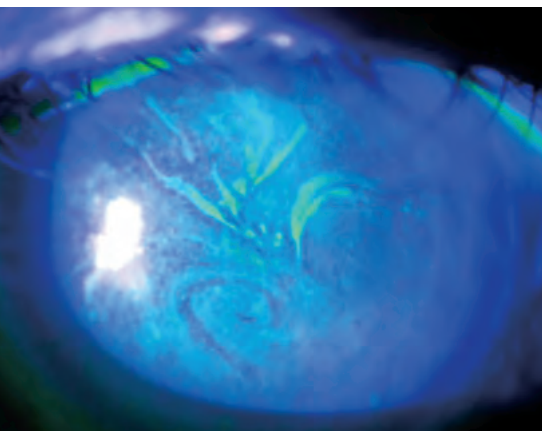
Researchers were able to use in vivo laser scanning confocal microscopy to analyze cellular changes during various stages of the disease. Dr. Deng’s study published in the *Archives of Ophthalmology* was the first to use the confocal microscopy approach to describe the microstructural changes in LSCD.

LSCD, in which the limbal stem cells are lost or become deficient, can cause unremitting pain along with significant visual impairment. Though often a result of chemical burns, it can be found in patients who have had multiple intraocular surgeries, as well as those with Stevens-Johnson syndrome. Limbal stem cells are believed to play a role in maintaining the integrity of the corneal epithelial surface; when they become dysfunctional, the conjunctival epithelial cells move onto the cornea, reducing vision and causing pain.

Diagnosing LSCD and monitoring patients’ response to treatment have proved challenging. “The diagnosis of LSCD is mainly based on history and clinical presentation,” notes Dr. Deng. “Patients with partial or sectoral LSCD often have only subtle changes that may be missed by clinical examination alone.” Impression cytology, a diagnostic test for LSCD, has a high false-negative rate, and there is no sensitive test to quantify limbal stem cell damage. “It is important to investigate the cellular changes in the cornea and limbus where these cells are located to understand the pathogenesis of this disease,” says Dr. Deng. To accomplish this, Dr. Deng’s group turned to in vivo laser scanning confocal microscopy, an increasingly employed approach capable of producing high-resolution images of the ocular surface at the cellular level. In vivo laser scanning confocal microscopy is now commonly used to evaluate physiologic and pathologic changes in the cornea, conjunctiva, and limbus, but until Dr. Deng’s study, no one had used the imaging technique to elucidate and quantify the cellular changes in various stages of LSCD.



Normal clear and smooth corneal epithelial surface without fluorescein staining.



Pooling and stippling fluorescein staining in a classic vortex pattern in sectoral limbal stem cell deficiency.

Clinical Trial of Mobile Application to Enhance Diabetic Eye Care

A collaboration headed by **Irena Tsui, MD**, assistant professor of ophthalmology, is evaluating the use of a mobile application to record and coordinate diabetes management by the diabetic patient, patient caregiver, diabetes medical care team, and ophthalmology vision care team.

In the United States, more than 23 million adults 20 years of age and older have diabetes mellitus. Forty percent of diabetics have retinopathy, and diabetes is

the leading cause of new blindness in adults 20 to 72 years of age. Strict control of glycemia, serum lipids, and blood pressure delays onset and progression of retinopathy, and timely treatment decreases vision loss caused by diabetic proliferative retinopathy and macular edema.

Of particular concern is the marked increase of children and young adults with diabetes, which is often associated with obesity. These individuals are often unaware of severe long-term complications and may be resistant to control of diabetes and the risk factors for diabetic retinopathy. They are, however, often connected to social media and the Internet and accustomed to acquiring information and moderating activities by mobile applications. Use of an “app” to record and coordinate diabetes care and control, therefore, may be of major benefit in moderating diabetes care among tech-savvy children and adults. Mobile apps have been successfully used to modify patient behaviors in other fields of medicine, including educating asthma patients about their chronic condition and guiding patients through exercise programs for home-based cardiac rehabilitation.

The results of Dr. Tsui’s research may improve the care of diabetes and decrease the risk of vision loss caused by diabetes.

Thyroid Eye Disease Clinic Promotes Improved Treatment, Enhanced Support

The Thyroid Eye Disease Clinic has been established at the Stein Eye Institute to improve patient care, enhance the level of support for thyroid eye disease (TED) patients, and provide a focused site for basic and clinical research—along with education of residents, fellows, and visiting clinicians—on a disease in which the Institute has long played a leadership role.

Graves’ disease, an autoimmune disorder characterized by overactivity of the thyroid gland, can lead to ophthalmopathy (bulging eyes) in up to 50% of patients and cause other eye-related problems, such as double vision, dryness, irritation, and in rare cases, vision loss. But the concerns tend to be psychological as well as functional. “Thyroid eye disease is very difficult for the patients affected,” says **Robert Alan Goldberg, MD**, Karen and Frank Dabby Professor of Ophthalmology and director of the Orbital Disease Center. “TED occurs in the prime of life and is more common in women. It changes the appearance of the eyes, causing disfigurement that affects patients’ social interactions and self-confidence.” Researchers at the Stein Eye Institute have pioneered surgical and nonsurgical interventions for treating TED. “Patients can be rehabilitated with minimal-incision approaches, and we can often restore a significant amount of function and comfort—and in some cases—return the appearance to what it was before the eye disease,” notes Dr. Goldberg.

Dr. Goldberg and colleagues are participating in a multicenter study investigating a new drug for TED. Subjects are given either the drug or a placebo, and neither the subject nor the physician knows in which group they are placed. The study consists of eight infusions over the course of a year with an additional year of follow up. This study is believed to have potential to provide a nonsurgical treatment with minimal side effects for patients suffering from TED.

Education at the Stein Eye Institute is multifaceted, ranging from teaching medical students, graduate students, postdoctoral fellows, residents, and clinical fellows to leading national conferences. In the course of their educational duties, faculty members mentor, counsel, lecture, and demonstrate. They are entrusted with developing and sharing new approaches to science and medicine that will ultimately result in improved patient care. This year the Stein Eye Institute was host to exciting educational events designed to broaden the knowledge of ophthalmology.



The Thyroid Eye Disease Clinic is dedicated to providing enhanced treatment and support to patients with thyroid eye disease. From left to right: Drs. Catherine J. Hwang, clinic medical director; Ami Ben-Artzi, clinic rheumatologist; Dan B. Rootman, clinical instructor; Alice Goh, visiting fellow; Joseph L. Lin, clinical instructor; Jocelyne Kohn, visiting fellow; and Robert Alan Goldberg, director of the Orbital Disease Center.



Dr. Stephen H. Tsang presents the 11th Bradley R. Straatsma Lecture.



Attendees at the 2013 Clinical and Research Seminar.



Dr. Suraj P. Bhat (right) discusses his laboratory's research on the molecular development of the lens and retina with Dr. Bradley R. Straatsma.

Annual Clinical and Research Seminar

Ophthalmologists gathered at the Stein Eye Institute on June 14, 2013, for the Institute's most prestigious annual academic event, the Clinical and Research Seminar. Sponsored by the Department of Ophthalmology Association, the Seminar provides an opportunity for discussion of emerging vision research and celebrates teaching and faculty volunteerism.

At this year's Seminar, **Randall J. Olson, MD**, chief executive officer of the Moran Eye Center, and professor and chairman of the Department of Ophthalmology and Visual Sciences at the University of Utah, presented the 44th Jules Stein Lecture; **Stephen H. Tsang, MD, PhD**, associate professor of pathology, cell biology, and ophthalmology at the Edward S. Harkness Eye Institute at Columbia University Medical Center, gave the 11th Bradley R. Straatsma Lecture; and **Gregg T. Kokame, MD**, clinical professor of ophthalmology at the University of Hawaii School of Medicine, delivered the 11th Thomas H. Pettit Lecture.

In recognition of their service, selected volunteer and clinical faculty received awards of distinction. The S. Rodman Irvine Prize, which recognizes excellence among Department of Ophthalmology faculty, was awarded posthumously to **Gene J. Pawlowski, MD**. The Faculty Teaching Award, honoring contributions to residency education, was presented to **Ben J. Glasgow, MD**, Edith and Lew Wasserman Professor of Ophthalmology. Senior Honor Awards were presented to **Bruce B. Becker, MD**, **Jerome R. Klein, MD**, **Steven Leibowitz, MD**, and **Alfred M. Solish, MD, MS**, distinguished volunteer faculty who have been members of the UCLA Department of Ophthalmology for at least 25 years.

Comprehensive Ophthalmology Review Course

The Stein Eye Institute and the Doheny Eye Institute teamed up to sponsor the eighth Comprehensive Ophthalmology Review course on March 7–10, 2013. The course co-directors, **David Sarraf, MD**, associate clinical professor of ophthalmology at the Stein Eye Institute, and **John Irvine, MD**, professor of ophthalmology at the Doheny Eye Institute, organized a program concentrating on the epidemiology, clinical presentation, diagnosis, and management of ophthalmological disease.

18th Annual Vision Science Conference

The 18th annual Vision Science Conference, co-sponsored by the National Institutes of Health/National Eye Institute Vision Science Training Grant and the Stein Eye Institute, was held October 26–28, 2012. More than 80 basic scientists and clinical researchers gathered at UCLA's Lake Arrowhead Conference Center to participate in scientific discussions and memorable networking events. Director of Stem Cells and Regenerative Biology at Sanford-Burnham Medical Research Institute, **Evan Snyder, MD, PhD**, was the Conference's keynote

“There is a single light of science, and to brighten it anywhere is to brighten it everywhere.”

Isaac Asimov, American Author and Professor of Biochemistry

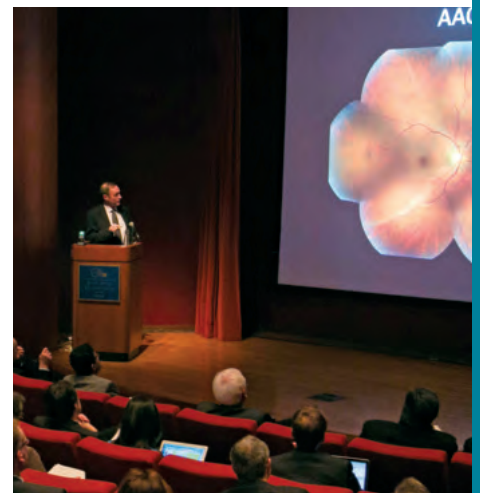


Participants gather at the eighteenth annual Vision Science Conference in Lake Arrowhead, California.

speaker; Director of Controls Accountability at the University of California, Davis, **John W. Gregg**, spoke about ethics, integrity, excellence, accountability, and respect; and Assistant Professor of Cell and Neurobiology at the University of Southern California, **Michael Habib, PhD**, presented a fascinating session on paleontology.

International Retinal Imaging Symposium (IRIS)

The Stein Eye Institute hosted the inaugural International Retinal Imaging Symposium (IRIS) on February 26, 2013. The meeting was an international success bringing together world-class ophthalmologists who delivered lectures on the novel basic science and clinical innovations of retinal imaging, including the critical importance in the understanding, evaluation, and management of retinal disorders. Associate Clinical Professor of Ophthalmology, **David Sarraf, MD**, planned and organized the meeting with **Stephen H. Tsang, MD, PhD**, Stein Eye Institute alumnus and associate professor of pathology, cell biology, and ophthalmology at the Edward S. Harkness Eye Institute in New York.



Attendees at the Stein Eye Institute's first International Retinal Imaging Symposium.

Community Outreach

“Alone we can do so little; together we can do so much.”

Helen Keller, American Author, Political Activist, and Lecturer



Dr. Laura Syniuta greets a young patient in the UCLA Mobile Eye Clinic.

UCLA Mobile Eye Clinic Receives \$4.1 Million Grant

Recognizing the tremendous unmet need for eye care in Los Angeles County, an anonymous donor established the UCLA Mobile Eye Clinic (UMEC) in 1975 with the mission of traveling the region providing high quality vision services at no cost.

Thanks to a new collaboration between the Stein Eye Institute and First 5 LA, the child advocacy and grant-making organization committed to the well-being of children in Los Angeles County's diverse communities, now more young children will be seeing things a lot clearer.

The First 5 LA commission granted to the UMEC \$4.1 million that will be used over the next five years to screen more than 90,000 children between the ages of three and five from underserved populations in the area. The UMEC will provide a variety of services to preschoolers, including initial vision screenings at preschool locations, full-eye examinations conducted by ophthalmologists and optometrists for children who fail the initial exam, referrals to partner specialists for visually impaired children who need special medical or surgical treatment, and free eyeglasses for those with refractive errors. The clinic's staff will work hand-in-hand with preschool teachers and parents to ensure follow-up care and compliance.

“It is estimated that one in five preschool children has a vision problem that affects his or her learning ability,” explains **Anne L. Coleman, MD, PhD**, Fran and Ray Stark Professor of Ophthalmology, and director of the UMEC and the Stein Eye Institute's Center for Community Outreach. “Improving a child's vision helps improve academic performance, protects them from environmental hazards, and enhances the quality of their social and personal lives.”

Speaking to the core importance of the grant, **Bartly J. Mondino, MD**, director of the Stein Eye Institute, notes, “Some of our most vulnerable neighbors are at risk of unnecessarily losing their sight. The First 5 LA collaboration will further enable the Stein Eye Institute to make a difference in the lives of those less fortunate.”

Jules Stein Eye Institute Affiliates: Helping our Community and Raising Awareness

The Institute's volunteer arm, the Jules Stein Eye Institute Affiliates, is a broad-based network consisting of volunteers, donors, staff, faculty, fellows, and residents who participate in a multitude of activities throughout the year to raise awareness and funds for vision-related programs. Established in 1990 to support the Institute's three-tiered curriculum of research, education, and patient care, the Affiliates provides vision education and patient-care programs throughout Los Angeles that are supported entirely by volunteer efforts and funded by membership dues. In 2013, the Affiliates established a Facebook page, www.facebook.com/JSEIAffiliates; this page combined with the Affiliates website, www.jseiaffiliates.com, allows volunteers to have numerous ways to stay connected!

Make Surgery Bearable

Two successful sponsorship events were held this year to attract funding for the Make Surgery Bearable program. This initiative provides Dr. Teddy bears to each pediatric patient undergoing eye surgery at the Stein Eye Institute. The cuddly bears are tagged with the name of the donor or donor's designee and go a long way to help children feel comforted and secure during what could otherwise be a frightening time.

MagniVision Program

The Affiliates MagniVision program provides financial and volunteer support for the Stein Eye Institute's Vision Rehabilitation Center (VRC). Volunteers work on site at the VRC and train low-vision patients on the use of magnifiers and various vision aids. Financial assistance from the Affiliates enables the VRC to purchase new assistive and magnification devices for its lending library and supports its general needs.

Preschool Vision Screening

The Affiliates Preschool Vision Screening program marked its modest beginnings 13 years ago at the D. B. Kaufman Branch Library in Brentwood with the inspiration and support of **Mrs. Gloria Kaufman**. Under the supervision of the late **Dr. Leonard Apt**, founding chief of the Division of Pediatric Ophthalmology and Strabismus, just a handful of local preschoolers were screened for simple refractive errors and eye muscle problems. During the 2012–2013 school year, in a greatly expanded program, Affiliates volunteers under the supervision of four retired optometrists, visited 26 preschools to screen 837 children between the ages of three and five years of age.

Shared Vision Program

This last year, the Affiliates Shared Vision program collected and recycled approximately 2,500 donated eyeglasses for those in need. Recycled eyeglasses were cleaned, tagged with the vision correction, and distributed to clinic missions conducted by nonprofit groups in Africa, Central America, and other developing nations.

Vision Education

Vision IN-School (VIS) is a vision education program offered free of charge to fourth- through seventh-grade students in Los Angeles. The curriculum is fun and interactive, covering the anatomy of the eye, the developing eye and possible eye problems, eye care and eye safety tips, and optical illusions. One of the presentation highlights for the students is the dissection of a cow eye. VIS volunteers visited nine different schools this past year, presenting the curriculum to over 300 elementary students. The program's goal is to create a greater awareness of vision and the eyes, thus inspiring the children to protect their precious gift of sight for a lifetime of good vision.

Vision Walk

On October 21, 2012, the Affiliates participated in the sixth annual Los Angeles Foundation Fighting Blindness Vision Walk through UCLA's north campus. Over 300 participants on the Stein Eye Team, "Volunteers with Vision," raised awareness and more than \$100,000 to advance retinal eye disease research.



JSEI Affiliates, supported entirely by volunteers, serves a valuable role in providing vision-education and patient-outreach programs throughout Los Angeles.

The Stein Eye Institute at UCLA was established in 1966, born from the remarkable insight and philanthropy of Dr. and Mrs. Jules Stein, and for nearly 50 years the Institute has continued to advance and expand its programs and facilities.

“Private support remains critical for scientific innovations, exceptional education and training, and the finest, most compassionate therapeutic approaches,” emphasizes **Bartly J. Mondino, MD**, director of the Stein Eye Institute. “This fiscal year, hundreds of generous donors supported our sight-saving endeavors.”

To Serve Humanity Forever

The transformative 1945 report, *Science: the Endless Frontier*, stated that the responsibility for creation of new scientific knowledge rests on a small body of men and women who understand the fundamental laws of nature and are skilled in the techniques of scientific research.

For **Pat and Joe Yzurdiaga**, supporting scientific discovery is of pivotal importance, and in September 2012, the couple donated \$1,000,000 to the Pat and Joe Yzurdiaga Endowed Cataract Fund. Explaining their motivation for such a generous gift, Joe says, “We have human nature and Mother Nature. Human nature seems to remain the same over the centuries, but science continues to uncover Mother Nature’s laws. We want scientists to discover what helps, what truly helps.”

Established in 2009, the Yzurdiagas’ endowment supports Stein Eye Institute cataract programs under the direction of **Kevin M. Miller, MD**, Kolokotronis Professor of Clinical Ophthalmology and chief of the Comprehensive Ophthalmology Division.

Dr. Miller plans to use the gift in part to help patients with a partial or complete loss of an iris, known as aniridia, which can severely compromise vision. “I am conducting several ongoing and unfunded studies evaluating the implantation of artificial iris devices—many at the time of cataract surgery. The function of the device is to limit the amount of light entering the eye, like a natural iris, reducing symptoms of light and glare sensitivity,” explains Dr. Miller.

The Yzurdiagas’ endowment was given to the Institute in perpetuity for continual support of research. “Science helps everyone,” emphasizes Joe, “and our desire is that the funds are used in a truly meaningful way.” The couple’s giving philosophy is further embedded in a strong belief that private giving is more stable than public funding: through private giving, donors enhance the goals of the institute, reducing reliance on public funding, which can be capricious.

“I thank the Yzurdiagas’ for their generous gift and their contribution to vision-science research,” says Dr. Miller reflecting on the scope of the couple’s donation and the possibilities it holds for the Stein Eye Institute.

For the Yzurdiagas, also avid supporters of music and the arts, their philanthropy holds a lasting significance. “Pat and I believe in what we are doing,” affirms Joe. “It’s our way to serve humanity forever.”



Established in 2009, the Pat and Joe Yzurdiaga Endowed Cataract Fund serves to support scientific discovery.

“If I am remembered for anything, it will not be for anything I did in show business, but for what I did to prevent blindness.”

Jules Stein, MD

Working Together to Make a Difference

Ruth and George Moss are committed to making life better for others. In an action having wide impact, the couple made a generous donation to the Stein Eye Institute to benefit ophthalmic oncology research and treatment by supporting the work of **Tara A. McCannel, MD, PhD**, assistant professor of ophthalmology and director of the Institute’s Ophthalmic Oncology Center. “Our hope is that by providing funding to Dr. McCannel, one day no one will have to experience what I did,” asserts George.

It was during a routine eye examination in 2006 that George learned he had an ocular melanoma—a rare condition with a 50% mortality rate—and he was referred to Dr. McCannel for treatment. Choroidal melanoma has historically been treated by enucleating (removing) the eye, but Dr. McCannel’s less radical approach used a custom-built radioactive plaque on the eye to destroy the tumor. “The prognosis for recovery with the plaque is very good,” explains Dr. McCannel, “but the prognosis for good vision is less favorable due to the effects of radiation.” Though George ultimately lost sight in the treated eye, he states, “Under the skilled hands of Dr. McCannel, I am cancer free, and I have both my eyes. Losing vision in one was a small price to pay.”

In the six years since George’s surgery, Dr. McCannel’s therapy has become increasingly sophisticated and new therapies have been developed that limit radiation damage. “Our study results have been excellent, and the procedure we are now using may be the only successful treatment for protecting the central vision,” notes Dr. McCannel. The Institute is also working in collaboration with other cancer centers so that discoveries—and ultimately a cure—can be reached even faster. Dr. McCannel remarks, “Because of the Mosses’ generosity, research activities can be conducted that indeed result in discovery, progress in the care and treatment of patients, and cures within the field.”

The Mosses have been active volunteers at the UCLA Medical Center since the 1960s. “Under the auspices of Jules Stein and Lew Wasserman, the Institute set an unparalleled standard of excellence beginning with the recruitment of the first faculty. This level of excellence continues today as exemplified by Dr. McCannel,” says Ruth.

When asked what motivates their volunteerism and generosity, George explains, “The reason for our participation is simple: we hope that in a small way we can improve the quality of life for others, because no one can do it all alone.”



With their generous gift, George and Ruth Moss are supporting ophthalmic oncology research to further improve the care and treatment of patients with ocular melanoma.

“When alumni give back, it is a demonstration of their appreciation for the education and development the Stein Eye Institute provided to them. Alumni donations ensure that future generations of ophthalmic students receive the finest education possible.”

Bartly J. Mondino, MD, Director, Stein Eye Institute



Randi and Dr. David Fett stress the importance of alumni giving and encourage other UCLA alumni—especially ophthalmologists who studied at the Stein Eye Institute—to follow their lead.

Alumni Who Pay It Forward

The Stein Eye Institute is known for its world-class fellowship programs, and for nearly 50 years, the best and brightest physicians have come here to train in specific areas of clinical ophthalmology. The rising cost of education, coupled with state budget cuts, however, has made it increasingly difficult to finance such training. Recognizing this problem, **David Fett, MD**, current Stein Eye Institute associate clinical professor and a past resident of the Institute, and his wife, **Randi Fett**, a UCLA graduate, recently pledged \$500,000 to establish the David and Randi Fett Orbital and Ophthalmic Plastic Surgery Fellowship Endowment. This gift adds to the funding they established for this purpose in 2010.

The Fetts are proud Bruins, and this most recent commitment continues their long-standing tradition of philanthropy and perfectly unifies two causes they feel passionately about: education and helping others. The Fetts' note, "We have made a conscious decision to concentrate our major gifts toward education, specifically scholarships, from which we have both benefited. People who did not know us felt the same way and funded our educational opportunities. We are honored to invest in the next generation."

"I am extremely appreciative of the Fetts and their generous gift," says **Bartly J. Mondino, MD**, director of the Stein Eye Institute, who worked closely with the couple to establish the endowment. "We strive to produce graduates who are successful in their chosen path. When alumni give back, it is a demonstration of their appreciation for the education and development the Stein Eye Institute provided to them. Alumni donations ensure that future generations of ophthalmic students receive the finest education possible."

Randi and David Fett exemplify the importance of alumni giving, and encourage other graduates of UCLA—particularly doctors who studied at the Stein Eye Institute—to follow their lead. "The Institute could not obtain and retain the best faculty, recruit and train the best students, and conduct important research without donations," they observe, "and these donations help to change lives—the lives of the patients benefiting from medical care and medical breakthroughs and the lives of the students who are trained to give that care. We need alumni to 'pay it forward' and make sure that the opportunity is there for tomorrow's doctors."

Thank You

We are grateful for the generous and steadfast support the Stein Eye Institute receives for research, education, patient care, and outreach activities. This investment has a positive impact on ophthalmology, related disciplines at UCLA, and throughout the broader vision community. Thank you for your commitment to advancing eye research and treatment for the preservation and restoration of vision throughout the world.

Major Gifts over \$25K:

Diane and Robert Bigelow	Bert Levy
Bruce Ford and Anne Smith Bundy Foundation	Walton Li, MD
Carl & Roberta Deutsch Foundation	Macula Vision Research Foundation
Dr. and Mrs. David Fett	Ruth and George E. Moss
The Foundation Fighting Blindness	Gerald Oppenheimer Family Foundation
Laraine Gerber	William R. Payden
Carol and Timothy W. Hannemann	Samuel J. and Della Z. Pearlman Trust
John and Susan Hess	Research to Prevent Blindness, Inc.
Conrad N. Hilton Foundation	Beth and David Shaw
William & Margaret Fern Holmes Family Foundation	The Simms/Mann Family Foundation
Winifred R. Kenley	The Skirball Foundation
The Karl Kirchgessner Foundation	Jerome and Joan Snyder
Knights Templar Eye Foundation, Inc	Jules and Doris Stein UCLA Support Group
Wendy and Theo Kolokotronis	Raymond and Ruth Stotter
Walter Lantz Foundation	Vision of Children, Sam and Vivian Hardage, Co-Founders
Deborah J. Leschin Trust	Pat and Joe Yzurdiaga
David and Susan Leveton, Ann C. Rosenfield Fund	

The following individuals were honored with a tribute gift this past year:

In Honor of:

Janet Buckley
Joseph Caprioli, MD
Veronica Cotto
Les Elliott
Dr. Scott Feiler
Daisy E. Fenton
William E. Fenton
Devin Freeman
Michael Bruce Gorin, MD
John D. Hofbauer, MD
Sherwin Jay Isenberg, MD
Jule D. Lamm, OD
David Alan Leveton, Esq.
Susan Leveton
Tara A. McCannel, MD
Kevin M. Miller, MD
Hanna Posmentier
Steven D. Schwartz, MD
Bradley R. Straatsma, MD, JD

In Memory of:

Leonard Apt, MD
Cheri Brown
E. Richard Brown, PhD
Robert Case
Rosemary Case
Peggy L. Giambrocco
Katherine L. Gray
Roger P. Gray
Ione J. Kanne
LaVonne Nosbusch
Arthur L. Rosenbaum, MD
Virginia Rouleau

Endowed Professorships and Fellowships

ENDOWED PROFESSORSHIPS

Ahmanson Chair in Ophthalmology

Established in 2005 by The Ahmanson Foundation as an administrative chair for the Retina Division Chief to further research, education, and clinical care programs

Steven D. Schwartz, MD
2007–Present

Leonard Apt Endowed Chair in Pediatric Ophthalmology

Established in 2003 by Professor Emeritus of Ophthalmology and Founding Director of the Division of Pediatric Ophthalmology and Strabismus, Dr. Leonard Apt, with a gift from the trust of Frederic G. Rappaport, Dr. Apt's nephew

Joseph L. Demer, MD, PhD
2005–Present

Karen and Frank Dabby Endowed Chair in Ophthalmology

Established in 2007 by Dr. and Mrs. Dabby as a term chair to support the activities of a distinguished faculty member in the area of orbital disease

Robert A. Goldberg, MD
2008–Present

Charles Kenneth Feldman Chair in Ophthalmology

Established in 1982 by various donors in memory of Charles Kenneth Feldman, an entertainment industry executive

Robert D. Yee, MD
Professor 1984–1987

Hillel Lewis, MD
Scholar 1989–1993

Gabriel H. Travis, MD
2001–Present

Laraine and David Gerber Chair in Ophthalmology

Established in 1998 as a term chair by Mr. and Mrs. Gerber and converted to a permanent chair in 2007 with an additional pledge

Joseph L. Demer, MD, PhD
2000–2004

Sherwin J. Isenberg, MD
2004–Present

Brindell and Milton Gottlieb Chair in Pediatric Ophthalmology

Established in 2005 by Mr. and Mrs. Gottlieb as an administrative chair for the Division of Pediatric Ophthalmology and Strabismus, in honor of the late Dr. Arthur L. Rosenbaum

Arthur L. Rosenbaum, MD
2008–June 2010

Dolly Green Chair of Ophthalmology

Established in 1980 by Ms. Dorothy (Dolly) Green

Dean Bok, PhD
1984–Present

Ernest G. Herman Endowed Chair in Ophthalmology

Initiated in 2007 by Mr. Ernest G. Herman to support a vision scientist or a clinician-investigator

Xian-Jie Yang, PhD
2012–Present

Karl Kirchgessner Foundation Chair in Vision Science

Established in 2001 as a term chair by a colleague of Dr. Jules Stein's to promote basic-science research initiatives

Debora B. Farber, PhD, DPhhc
2001–Present

Kolokotronis Chair in Ophthalmology

Established in 2004 by Wendy and Theo Kolokotronis to support the teaching and research of a cataract surgeon and scientist

Kevin M. Miller, MD
2005–Present

Grace and Walter Lantz Endowed Chair in Ophthalmology

Established in 1991 as a term chair by Mr. and Mrs. Lantz and converted to a permanent chair in 2010 with an additional pledge

J. Bronwyn Bateman, MD
Grace and Walter Lantz Scholar
1993–1995

Sherwin J. Isenberg, MD
Grace and Walter Lantz Scholar
1993–1995

Professor 1996–2004

Joseph L. Demer, MD, PhD
Professor 2004–2005

Walton Li Chair in Cornea and Uveitis

Established in 2013 by Walton W. Li, MD, as an administrative chair for the Cornea-External Ocular Disease Division Chief to further research, education, and clinical care programs

David May II Endowed Chair in Ophthalmology

Established in 1998 as a term chair by the family of Mr. David May II, a founding member of the Institute's Board of Trustees, to perpetuate, in memoriam, Mr. May's association with the Stein Eye Institute and converted to a permanent chair with an additional pledge from the Wilbur May Foundation

Gary N. Holland, MD
1999–2004

Joseph Caprioli, MD
2004–Present

Oppenheimer Brothers Chair in Ophthalmology

Established in 2002 as a term chair by the Oppenheimer Brothers Foundation

Joseph Horwitz, PhD
2003–Present

Harold and Pauline Price Chair in Ophthalmology

Established in 2000 by the Louis and Harold Price Foundation and converted to a permanent chair in 2006 with an additional pledge

Michael B. Gorin, MD, PhD
2006–Present

Jack H. Skirball Endowed Chair in Ocular Inflammatory Diseases

Initiated in 2007 by The Skirball Foundation in honor of Jack H. Skirball's long-standing friendship with Dr. Jules Stein and Lew Wasserman

Gary N. Holland, MD
2009–Present

Jerome and Joan Snyder Chair in Ophthalmology

Established in 2007 by Mr. and Mrs. Snyder to support the activities of a distinguished faculty member who directs the Ophthalmology Residency Program, ensuring that UCLA's accredited program continues to offer rigorous and comprehensive instruction for individuals of the highest caliber

Anthony C. Arnold, MD
2008–Present

Joan and Jerome Snyder Chair in Ophthalmology

Established in 2012 by Mr. and Mrs. Snyder to support the activities of a distinguished faculty member in the area of corneal diseases and research

The Fran and Ray Stark Foundation Chair in Ophthalmology

Established in 1992 as a term chair by the Fran and Ray Stark Foundation and converted to a permanent chair in 2007 with an additional commitment

Joseph Caprioli, MD
1997–2004

Anne L. Coleman, MD, PhD
2004–Present

Jules Stein Chair in Ophthalmology

Established in 1982 as a memorial tribute to Dr. Jules Stein by his many friends, with the leadership of Mr. Samuel Goldwyn, Jr.

Wayne L. Hubbell, PhD
1983–Present

Bradley R. Straatsma, MD, Endowed Chair in Ophthalmology

Established in 1994 to honor Founding Director of the Stein Eye Institute, Bradley R. Straatsma, MD, JD

Bartly J. Mondino, MD
2000–Present

Vernon O. Underwood Family Chair in Ophthalmology

Established in 1995 as a term chair by Mrs. Adrienne Underwood Pingree in memory of her late husband, Mr. Vernon O. Underwood

John R. Heckenlively, MD
1997–2004

Gary N. Holland, MD
2004–2009

Lynn K. Gordon, MD, PhD
2012–Present

Edith and Lew Wasserman Chair in Ophthalmology

Established in 1977 by Edie and Lew Wasserman to honor Dr. Jules Stein

Manfred Spitznas, MD
1979–1981

Bartly J. Mondino, MD
Scholar 1984–1988
Professor 1988–2000

Ben J. Glasgow, MD
2003–Present



ENDOWED FELLOWSHIPS

Rosalind W. Alcott Fellowship

Established in 1978 by the Rosalind W. Alcott Charitable Remainder Trust for the training of outstanding postdoctoral fellows

Ryan St. Clair, MD
2012–2013

Leonard Apt Endowed Fellowship in Pediatric Ophthalmology

Established in 2002 by Founding Chief of the Pediatric Ophthalmology and Strabismus Division, Leonard Apt, MD, to support outstanding clinical fellows in the field of pediatric ophthalmology and strabismus

Anika Tandon, MD
2012–2013

Thelma and William Brand Director's Fund

Established in 2004 with a trust from Mr. William F. Brand to benefit worthy students at the Stein Eye Institute

Joshua Udoetuk, MD
2012–2013

Cooperman Fellowship Fund

Established in 1988 by the Coopermans to support eye research and education, with emphasis on clinical ophthalmology

Joshua Udoetuk, MD
2012–2013

David and Randi Fett Orbital and Ophthalmic Plastic Surgery Fellowship Endowment

Established in 2013 by Dr. and Mrs. Fett to support fellows in the Orbital and Ophthalmic Plastic Surgery Division

Klara Spinks Fleming Fellowship Fund

Established in 1985 by Klara Spinks Fleming to support cataract research

Rosalind Vo, MD
2012–2013

Frances Howard Goldwyn Fellowship

Established in 1977 by Mr. Samuel Goldwyn, Jr., with gifts from Mrs. Goldwyn's estate and Dr. and Mrs. Jules Stein

Alena Reznik, MD
2012–2013

Elsa and Louis Kelton Fellowship

Endowed by the Keltons in 1982 to support postdoctoral research and training

Payam Morgan, MD
2012–2013

Bert Levy Research Fellowship Fund

Established in 1995 by Mr. Bert Levy to enhance the educational opportunities of vision science scholars and advance research in neuro-ophthalmology

David May II Fellowship Fund

Established in 1992 by the family of Mr. David May II to support advanced study and research in ophthalmology and vision science

Renu Jivrajka, MD
2012–2013

John and Theiline McCone Fellowship

Established in 1989 by the McCones to support and enhance education programs and fellowship training in macular disease

David Cupp, MD
2012–2013

Sujit Itty, MD
2012–2013

Abe Meyer Memorial Fellowship Fund

Established in 1969 by various donors to support clinical fellows at the Institute

Saradha Iragavarapu, MD
2012–2013

Adelaide Stein Miller Research Fellowship

Established in 1977 by Mr. Charles Miller as a tribute to Dr. Jules Stein's sister

Erica Oltra, MD
2012–2013

Harold and Pauline Price Fellowship

Established in 1986 by the Louis and Harold Price Foundation to support research and education in ophthalmology and vision care

Anika Tandon, MD
2012–2013

Frederic G. Rappaport Fellowship in Retina/Oncology

Established in 2004 by Mrs. Jeanne A. Rappaport as a memorial to her son Frederic

Sujit Itty, MD
2012–2013

Dr. Jack Rubin Memorial Fellowship

Established by the family of Dr. Jack Rubin to support postdoctoral fellows

Sanford and Erna Schulhofer Fellowship Fund

Established in 1986 by Mr. Sanford Schulhofer to support postdoctoral research and training in vision science

Ryan Wong, MD
2012–2013

Lee and Mae Sherman Fellowship Fund

Established in 1981 by the Sherman family to support postdoctoral fellows

Daniel Rootman, MD
2012–2013

Audrey and Jack Skirball Ocular Inflammatory Disease Fellowship

Established in 2011 by The Skirball Foundation to support the training of fellows specializing in ocular inflammatory disease

Ryan St. Clair, MD
2012–2013

Jules Stein Research Fellowship

Established in 1982 by various donors to honor the memory of Charles Kenneth Feldman

Ryan Wong, MD
2012–2013



Endowments for Research, Education, and Patient Care

The Annenberg Foundation Fund

J. Richard Armstrong and Ardis Armstrong Fund

Elsie B. Ballantyne Regents Fund

Elsie B. Ballantyne UCLA Foundation Fund

Virginia Burns Oppenheimer Endowment Fund

Card Family Research Fund

Edward and Hannah Carter Fund

Anthony Eannelli Fund

Katherine L. Gardner Research Fund

Emma B. Gillespie Fund

Audrey Hayden-Gradle Trust

Marie and Jerry Hornstein Family Endowed Macular Degeneration Research Fund

Michael Huffington Ophthalmology Scholarship Fund

Stella F. Joseph Fund

JSEI Maintenance Fund

Herman King Fund

The Karl Kirchgessner Foundation Ophthalmology Endowment Fund

Sara Kolb Memorial Fund

John and Theiline McCone Macular Disease Research Fund

William, Richard, and Roger Meyer Fund

Chesley Jack Mills Trust

Patricia Pearl Morrison Research Fund

Gerald Oppenheimer Family Foundation Center for the Prevention of Eye Disease Endowment Fund

Jerome T. Pearlman, M.D., Fund

Emily G. Plumb Estate and Trust

Herb Ritts, Jr. Memorial Vision Fund

Arna Saphier Macular Degeneration Fund

Albert Sarnoff Endowed Cataract Fund

Richard B. Shapiro Vision Fund

The Skirball Foundation Fund

Arthur Spitzer Fund

Dr. William F. Stein and Esther Elizabeth Stein Memorial Fund

Raymond and Ruth Stotter Vision Science Research Fund

Bradley R. Straatsma Research Fund

Barbara P. Taylor Fund

UCLA Center for Eye Epidemiology

Paul J. Vicari Endowed Cataract Research Fund

Uncle Claude Fund

Anne H. West Estate Fund

Daniel B. Whipple Fund

Pat and Joe Yzurdiaga Endowed Cataract Fund

The legacy of Dr. and Mrs. Jules Stein arises from their role in the 20th century as visionaries. Through brilliance and beneficence, they created a multitude of programs aimed specifically at one goal: preserving and restoring eyesight. They approached this task dauntlessly, integrating the worlds of business, medicine, and philanthropy in such a way as to enhance each and leave in trust the promise of limitless accomplishment in the advancement of eye research and treatment. The Stein Eye Institute was established as a result of their philanthropy.



Jules Stein

Jules Stein is the foremost benefactor in the world history of vision science and blindness prevention. He combined his love for music and medicine with a unique talent for analysis and organization to produce a lifetime of celebrated achievements as musician, physician, business leader, and humanitarian.



Born in South Bend, Indiana, in 1896, Jules Stein received a bachelor of philosophy degree from the University of Chicago at age 18 followed by a medical degree from Rush Medical College. After completing postgraduate studies at the University of Vienna and Chicago's Cook County Hospital, he began medical practice and was certified by the American Board of Ophthalmology.

A musician from an early age, he financed his education by playing in and leading his own band. As his reputation increased, he began booking other musicians for professional engagements, and in 1924, founded Music Corporation of America (MCA). Shortly thereafter, he gave up the practice of medicine to concentrate on this enterprise. Within 10 years, MCA represented most of the great name bands and corporate activities began to extend to representation of film stars, directors, writers, and musical artists. MCA entered the promising new field of television at its inception, eventually acquiring the Universal City property, Universal Pictures, and other enterprises to become pre-eminent in the entertainment industry.

Throughout his phenomenally successful career, Jules Stein maintained a strong interest and emotional investment in medicine, particularly his own field of ophthalmology. In the late 1950s, urged by his wife, Doris, he chose to direct his considerable talents to blindness prevention. The result was a concert of ideas and achievements that encompassed philanthropy, government, and academic medicine.

By his efforts, Research to Prevent Blindness was created, now recognized as the world's leading voluntary organization in support of studies of the eye and its diseases. Jules Stein was largely responsible for the passage of legislation to establish the National Eye Institute as a separate entity in the National Institutes of Health. Under his leadership, the Jules Stein Eye Institute was founded as a multidisciplinary center for vision science. Since its establishment, the Institute has become internationally identified as the focus for coordinated programs of research in the sciences

related to vision, ophthalmic education, and the care of patients with eye disease. Jules Stein died in 1981, leaving a legacy of hope to the world. Through his accomplishments and philanthropy, he created ever-replenishing resources for eye research and the means to preserve and restore sight for future generations.

Doris Stein

Doris Stein's purposeful, yet richly varied life, earned the respect and affection of the many people who benefited from her humanitarianism. Inspiring partner of her husband for more than half a century, Doris Stein shared with him the accomplishments of his philanthropic endeavors and guided his interests in ophthalmology, beginning with a visit to the New York Lighthouse for the Blind in the late 1950s. Deeply moved, Doris Stein urged her husband to "do something!" From that passionate beginning came a broad base of programs that catalyzed eye research.

Doris Stein was a major force in this vision renaissance. She served as an officer and director of Research to Prevent



Blindness, personally leading the appeal to establish more resources for investigations into eye diseases. She suggested that Jules Stein assume the principal role in the creation of an eye institute at UCLA, and her unflagging enthusiasm nurtured the Institute's development as a unique provider of every facet of vision research and patient care. Serving as Trustee, she focused special attention on Institute initiatives to combat blindness throughout the world. She devoted her last days, until her death in 1984, to the development of an expansion and companion building for eye

research. In 1989, dedication ceremonies were held for the Doris Stein Eye Research Center.

With grace, vision, and meaningful action, Doris Stein enhanced the lives of all privileged to know her, stimulated a cascade of progress in eye research, co-founded the Institute with its boundless scientific potential, and extended the miracle of sight to un-told numbers of people.

Board of Trustees

The Stein Eye Institute Board of Trustees was established in 1977 to ensure the Institute's orderly growth and development. The Board meets regularly during the year, with each Trustee providing his/her unique counsel. Collectively, their invaluable contributions have included fiscal planning for the Institute, adoption of measures to facilitate recruitment of the world's finest vision scientists, allocation of funds for the purchase of vision research equipment, and recommendations for facilities expansion programs.

Current Members

Bartly J. Mondino, MD

Director
Stein Eye Institute
1994–present



Nelson C. Rising, Esq.

Chairman and
Chief Executive Officer
Rising Reality Partners
2011–present



Ronald L. Olson, Esq.

Partner
Munger, Tolles, and Olson
1995–present



Katrina Vanden Heuvel

Publisher and Editor
The Nation Magazine
1984–present



Gerald H. Oppenheimer

President
Gerald Oppenheimer
Family Foundation
President
Systems Design Associates
1992–present



Casey Wasserman

President and
Chief Executive Officer
The Wasserman Foundation
1998–present



Andrea L. Rich, PhD

Retired President,
Chief Executive Officer, and
Director
Los Angeles County Museum
of Art
Executive Vice Chancellor Emerita
UCLA
2007–present



Executive Committee

Director, Jules Stein Eye Institute
Chairman, UCLA Department of Ophthalmology

Bartly J. Mondino, MD

Associate Directors, Jules Stein Eye Institute

Wayne L. Hubbell, PhD

Gabriel H. Travis, MD

Vice-Chairs, UCLA Department of Ophthalmology

Sherwin J. Isenberg, MD

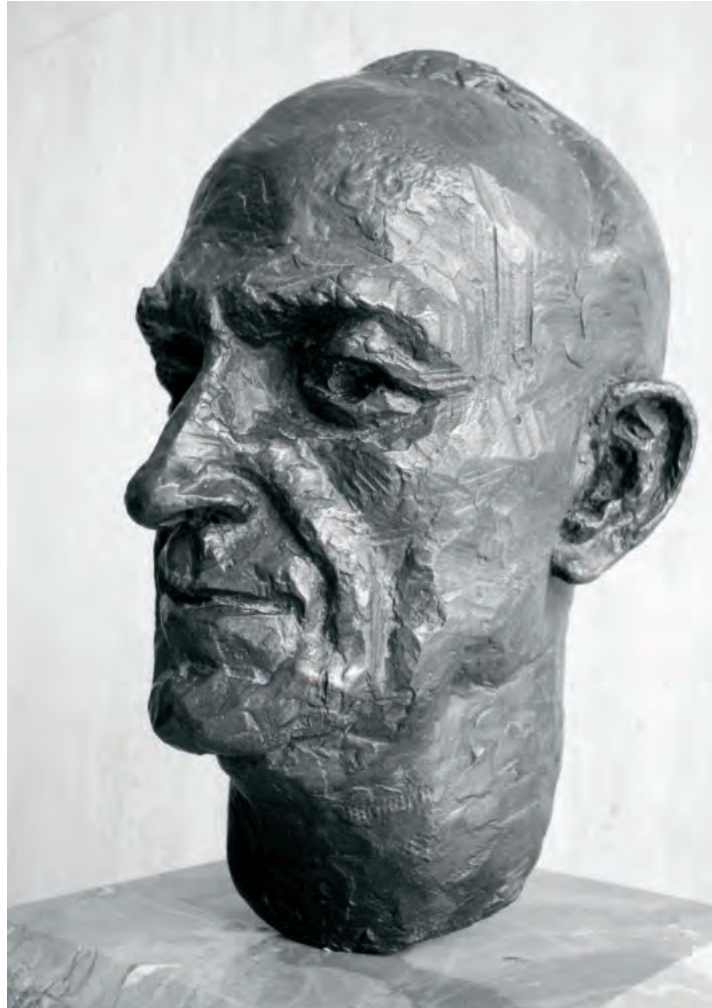
Anne L. Coleman, MD, PhD

Chief Administrative Officer, Jules Stein Eye Institute

Jonathan D. Smith



Jules Stein Eye Institute Executive Committee (sitting from left to right): Drs. Bartly Mondino, Sherwin Isenberg, Anne Coleman, and Gabriel Travis; (standing from left to right) Dr. Wayne Hubbell and Mr. Jonathan Smith.



The Stein Eye Institute at UCLA is a vision science campus dedicated to the preservation and restoration of vision through its global programs and innovative research, quality patient care, and multidisciplinary, integrative education, all with community outreach.



Faculty

Anthony J. Aldave, MD

Associate Professor of Ophthalmology

Chief of the Cornea-External Ocular Disease Division

Member of the Stein Eye Institute

RESEARCH SUMMARY

Discovering the Genetic Basis of the Corneal Dystrophies

The Cornea Genetics Laboratory, under Dr. Aldave's direction, is involved in the search for the genetic basis of inherited corneal disorders such as keratoconus, posterior polymorphous corneal dystrophy, and posterior amorphous corneal dystrophy.

Honors

Delivered the 12th Wilfred E. Fry, MD, Memorial Corneal Lecture at Wills Eye Hospital in Philadelphia, Pennsylvania, on December 1, 2012.

Public Service

Chair, International Advisory Committee of Tissue Banks International

Vice Chair, American Academy of Ophthalmology Knowledge Base Development Project, Cornea and External Disease Panel

Vice Chair, American Academy of Ophthalmology Ethics Committee

Associate Examiner, American Board of Ophthalmology

Member, Cornea Society Board of Directors

Reviewer for many scientific journals

Research Grants

National Eye Institute: Identification and Characterization of the Genetic Basis of PPCD, 12/1/12–11/30/17

JAEB Center for Health Research: Effect of the Corneal Preservation Time on Long-Term Graft Success (CPTS), 3/6/12–6/31/16



Anthony C. Arnold, MD

Jerome and Joan Snyder Professor of Clinical Ophthalmology

Chief of the Neuro-Ophthalmology Division

Director of the UCLA Optic Neuropathy Center

Member of the Stein Eye Institute

RESEARCH SUMMARY

Ischemic and Inflammatory Diseases of the Optic Nerve

Dr. Arnold directs a neuro-ophthalmology research program concerned with diseases of the optic nerve. The overall goals of the program are the development of new techniques for imaging the optic nerve and its blood supply; an improved understanding and classification of ischemic and inflammatory optic nerve diseases; and the development and evaluation of new therapeutic modalities for these diseases.

Dr. Arnold was a principal investigator in the National Eye Institute-sponsored clinical study of optic nerve sheath decompression surgery for nonarteritic anterior ischemic optic neuropathy, and he was on the study's Visual Field Data Analysis Committee. He is a primary advisor for an international multicenter study of risk factors for nonarteritic anterior ischemic optic neuropathy.

Ongoing additional research studies include clinical characteristics of ischemic optic neuropathy in young patients; improved differentiation of arteritic from nonarteritic anterior ischemic optic neuropathy; identification of ischemic aspects of other rare optic neuropathies, such as diabetic papillopathy, uremic optic neuropathy, and chemotherapy-induced optic neuropathy after bone marrow transplantation; and classification of unusual optic neuropathies, such as ethambutol-induced optic neuropathy and focal congenital optic nerve hypoplasia. A study of differentiation of optic disc drusen from papilledema has recently been completed. A major thesis entitled, The Spectrum of Optic Disc Ischemia, has been submitted to the American Ophthalmological Society.

Public Service

Faculty, Stanford/Bay Area
Basic Science Course in
Neuro-Ophthalmology

Faculty, Lancaster Course in
Ophthalmology, Colby College

Board Director, American
Board of Ophthalmology

Chair, ACGME Residency Review
Committee for Ophthalmology

Chair, ACGME Milestones Committee
for Ophthalmology

Reviewer for many scientific journals



Richard S. Baker, MD

Associate Professor of Ophthalmology

Executive Director, Urban Health Institute

Chairman, Department of Ophthalmology
Charles R. Drew University of Medicine and Science

Member of the Stein Eye Institute

RESEARCH SUMMARY

Ophthalmic Epidemiology and Health Services Research

Dr. Baker's primary areas of research interest are in the fields of ophthalmic epidemiology, health services research, and health information technology including telemedicine. Current projects in ophthalmic epidemiology include statistical analysis of national and statewide databases to produce definitive population-based estimates of the distribution and the determinants of major ophthalmic diseases and their treatments.

As director of the Charles Drew Center for Health Services Research, Dr. Baker works closely with collaborators at the Stein Eye Institute and across UCLA on multiple projects related to improving access to care, optimizing the quality of care, and eliminating health disparities in diverse and underserved populations.

Public Service

Board Member,
California Medical Association

Chairman, Council for Scientific
and Clinical Affairs, California
Medical Association

Chairman, African American Physician
Advisory Committee, Los Angeles
County Medical Association

Board Member, Latino Physicians
of California

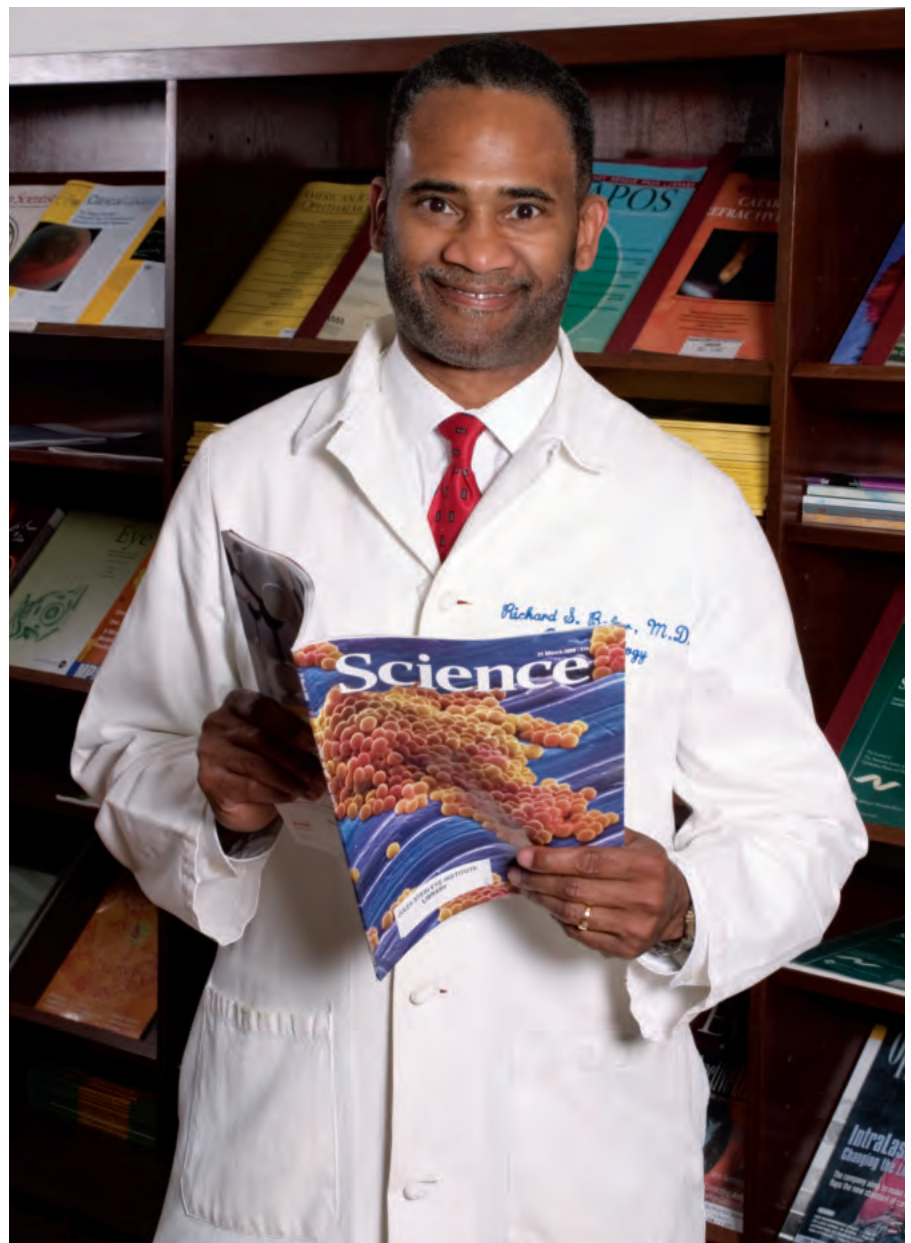
Board Member, Hispanic-Serving
Health Professions Schools

Co-Founder and Board Member,
Los Angeles Eye Institute

Member, South Los Angeles
Health Care Leadership Roundtable

Reviewer for multiple NIH and AHRQ
Special Emphasis Panels

Reviewer for many scientific journals



Suraj P. Bhat, PhD

Associate Professor of Ophthalmology
Member of the Molecular Biology Institute
Member of the Stein Eye Institute

RESEARCH SUMMARY

Molecular Biology of Vision

Dr. Bhat's laboratory studies the regulation of gene activity during differentiation and development of the vertebrate eye. This involves isolation and characterization of genes and gene products, identification of the regulatory elements and factors, and elucidation of their mechanisms employing both *in vivo* and *in vitro* paradigms with manipulated gene sequences.

Two areas of research currently under investigation are focused on gaining deeper insight into molecular mechanisms that developmentally predispose the eye to visual impairment through ocular lens pathologies such as cataracts, and through retinal diseases including age-related macular degeneration (AMD).

One area of attention is the study of the developmental and tissue-specific control of the heat shock promoter of the α B-crystallin gene and its involvement in cataractogenesis. Another is the elucidation of the physiological function of the α B-crystallin protein in the ocular lens, in the neuroretina and retinal pigment epithelium (RPE), and in the brain. Technically this work involves gene manipulations and the study of their consequences on the phenotype, both *in vitro* (cultured cells) as well as *in vivo* (transgenic animals).

Studies on the regulation of the expression of the small heat shock protein gene, α B-crystallin are focused on heat-shock transcription factor 4 (HSF4), which Dr. Bhat's laboratory has reported to be the predominant heat shock transcription factor of the developing ocular lens and whose post-natal expression correlates with the most prevalent form of early childhood lamellar cataracts. Dr. Bhat's laboratory has generated mouse models

of this cataract, thus enabling first-time investigation of this childhood pathology.

Studies on the function of the α B-crystallin protein in the lens and the RPE (in particular its relation to AMD) are focused on elucidating its "non-crystallin" function, which is relevant both in the transparent and nontransparent physiology. These investigations in Dr. Bhat's laboratory have led to the discovery of the secretion of α B-crystallin from the RPE in lipoprotein vesicles known as exosomes, and initiated studies on elucidation of intercellular communication (via exosomes) in the RPE, in health, and in disease.

Public Service

Member, Joint Working Group
INDO-US Collaboration in
Vision Research

Assessor, National Health and
Medical Research Council, Australia

Editor, *Molecular Vision*

Editorial Board Member,
Developmental Neuroscience

Editorial Board Member,
*International Journal of Biochemistry
and Molecular Biology*

Reviewer for many scientific journals



Dean Bok, PhD

Dolly Green Professor of Ophthalmology

Distinguished Professor of Neurobiology

Member of the Brain Research Institute

Member of the Stein Eye Institute

RESEARCH SUMMARY

Cell and Molecular Biology of the Retina

Dr. Bok's research interests involve the cell and molecular biology of the normal and diseased retina. In one research area, he is identifying and characterizing genes specific to retinal pigment epithelium (RPE) and exploring interactions that take place between RPE and retinal photoreceptors. The RPE performs a multitude of functions in the retina, including the transport of nutrients, ions, and fluid; the uptake and processing of vitamin A; and the daily removal of outer segment disc membranes that have been discarded by the photoreceptors. A second area of research involves the study of animal models of human retinitis pigmentosa and macular degeneration.

Dr. Bok is using the techniques of cell and molecular biology to determine the proteins responsible for photoreceptor degeneration. One of the proteins under study in mice and humans is rds/peripherin. Because of a gene mutation, this protein is defective in a strain of mice called rds. As a result, the photoreceptors fail to form their light-sensitive organelles and eventually die. Dr. Bok and his collaborators have prevented blindness in these mice by injecting an artificial gene for rds/peripherin that performs normally. They are currently placing human rds/peripherin mutations into mice in order to study the mechanisms that cause photoreceptor death. Attempts are being made to slow the process of photoreceptor

degeneration by delivery of neurotrophic factors into the retina by non-pathogenic viruses. Finally, with new information regarding the genetics of age-related macular degeneration, Dr. Bok and collaborators are studying mechanisms whereby the alternative complement pathway of the immune system contributes to this disease.

Public Service

Scientific Advisory Board Member, E. Matilda Ziegler Foundation for the Blind, the Karl Kirchgessner Foundation, the Foundation Fighting Blindness, and the Macula Vision Research Foundation

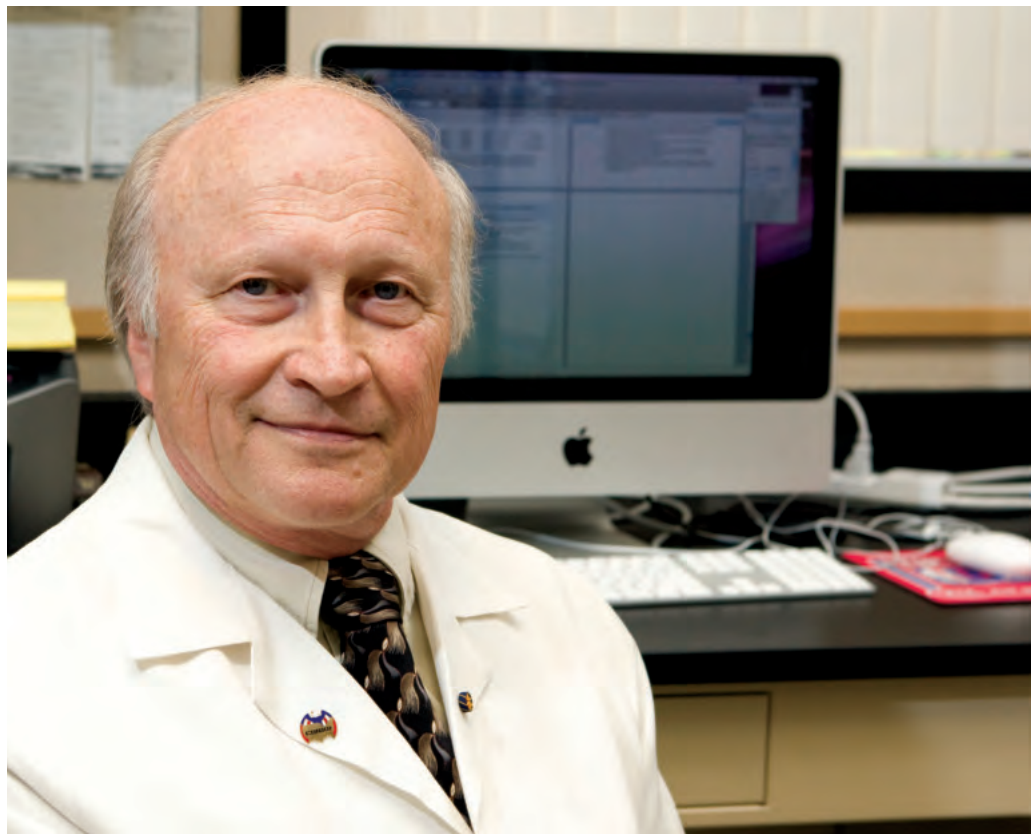
External Advisory Board Member, Center of Biomedical Research Excellence, University of Oklahoma Health Sciences Center; and the Macular Telangiectasia Project, Lowy Medical Research Institute, LTD

Editorial Board Member, *International Review of Cytology*

Reviewer for many scientific journals

Research Grants

Macula Vision Research Foundation: Identification and Cellular Localization of Gene Products that Affect Photoreceptor Survival in Inherited Retinal Degeneration, 4/1/08–3/31/14



Joseph Caprioli, MD

David May II Professor of Ophthalmology

Chief of the Glaucoma Division

Member of the Stein Eye Institute

RESEARCH SUMMARY

Causes and New Treatments for Glaucoma

Dr. Caprioli's long-term objective in his clinical and basic research is to identify those individuals at greatest risk for visual loss and to implement new treatment strategies to prevent blindness. Currently, the only tool that physicians have to treat glaucoma is reduction of intraocular pressure. This treatment does not prevent visual loss in a substantial proportion of patients whose damage progresses quickly. The development of effective neuroprotective avenues of treatment will be a hallmark advance to eliminate blindness from this disease.

Evaluation of Methods to Measure Rates of Glaucomatous Optic Nerve Damage

Accurate assessment of optic nerve and nerve fiber layer is important to the early detection and timely treatment of glaucoma. Studies are underway to develop novel structural measures of the optic nerve and nerve fiber layer, which are sensitive and specific for early and progressive glaucomatous optic nerve damage. The goals of this work include identifying clinically implementable techniques to measure the rate of progressive damage. It is unlikely that a single structural or functional technique will be best throughout the course of the disease, and different methods will need to be applied at different stages to best measure disease progression.

Molecular Mechanisms of Retinal Ganglion Cell Damage and Neuroprotective Approaches to Treatment

Basic science research under Dr. Caprioli's direction involves the mechanisms of glaucomatous optic nerve damage. The stress protein response in a glaucoma model is being intensively studied. An important goal in this research is to identify neuroprotective drugs that prevent the death of retinal ganglion cells in mammalian models of glaucoma, and to apply these findings to clinical trials of human glaucoma.

Public Service

Chair, American Academy of Ophthalmology, Committee on Practice Improvement

Clinical Volunteer, Venice Family Clinic

Editorial Board Member, *American Journal of Ophthalmology*, *Investigative Ophthalmology and Visual Science*, and *Journal of Glaucoma*

Reviewer for many scientific journals

Research Grants

Outcome Sciences, Inc: Comparing the Effectiveness of Treatment Strategies for Primary Open-Angle Glaucoma, 4/29/11–4/28/13



Richard Casey, MD

Health Sciences Clinical Professor of Ophthalmology
Associate Member of the Stein Eye Institute

RESEARCH SUMMARY

Cornea External Disease

Dr. Casey's research is focused on understanding the causes of corneal disease and developing or improving treatments for patients with these disorders. He is collaborating with the Glaucoma and Ophthalmic Pathology Divisions on clinical research projects to understand the nature of comorbid conditions, such as glaucoma and dry eye disease. For dry eye disease, Dr. Casey is engaged in research to evaluate the ocular surface of patients undergoing corneal transplantation surgery to establish previously undescribed clinical-pathologic correlation with tear insufficiency and corneal epithelial abnormalities. The goal of these investigations is to improve the success of corneal transplantation in high-risk patients with the comorbid conditions of glaucoma, and separately, tear insufficiency.

Public Health Services/ Health Access

Dr. Casey has elected to dedicate a significant portion of his professional career to improving access to health care in specific underserved communities of Los Angeles. He has focused on assessing unmet needs in vision health and developing innovative strategies to meet these deficits. He has established the Los Angeles Ophthalmology Medical Group, a comprehensive eye care service entity, which is currently engaged in a partnership to provide eye care services to facilities of the Los Angeles County, Department of Health Services in South Los Angeles.

Public Service

Lead Physician, Martin Luther King, Jr.
Multi-Service Ambulatory Care Center
President, Los Angeles Ophthalmology
Medical Group, Inc.



Anne L. Coleman, MD, PhD

Fran and Ray Stark Professor of Ophthalmology

Professor of Epidemiology

Director of the UCLA Center for Eye Epidemiology and the UCLA Mobile Eye Clinic

Vice Chair of Academic Affairs, Department of Ophthalmology

Member of the Stein Eye Institute

RESEARCH SUMMARY

Glaucoma, Cataract, and Age-Related Macular Degeneration

Dr. Coleman's research is directed toward the diagnosis, treatment, and societal impact of glaucoma, cataracts, and age-related macular degeneration, including the study of lifestyle limitations imposed on patients with these kinds of eye diseases. Clinical projects include studies that analyze the genetic markers in the trabecular meshwork of patients undergoing glaucoma surgery, the prevention of visual impairment and blindness in school-age children, comparative effectiveness research, and glaucomatous visual field and optic nerve progression.



Honors

In a February 19, 2013, *Medscape Medical News* article, Dr. Coleman discussed the systematic review commissioned by the U.S. Preventive Task Force on the treatment of open-angle glaucoma, specifically its impact on clinical practice and future studies.

Public Service

Member, Awards Committee, Association for Research in Vision and Ophthalmology

Chair, Planning Committee, National Eye Health Education Program, National Eye Institute

Secretary for Quality Care, American Academy of Ophthalmology

Director, H. Dunbar Hoskins Jr., MD Center for Quality of Eye Care

Consultant, Ophthalmic Devices Panel, Food and Drug Administration

Chair, Program Committee, American Glaucoma Society

Member, Board of Trustees, Helen Keller International

Executive Editor, *American Journal of Ophthalmology*

Director, UCLA Center for Community Ophthalmology and Vision Health

Research Grants

California Pacific Medical Center Research Institute: Immune Response Gene Polymorphisms and AMD: Examining HLA-KIR Epistasis, 7/1/12–6/30/13

LA County Children and Families First (First 5 LA): UCLA Mobile Eye Clinic Child Vision Program, 10/1/12–6/30/13

Outcome Sciences, Inc: ARRA: Evidence Development for Topics Identified as National Priorities for Comparative Effectiveness Research, 7/19/10–7/18/14

Joseph L. Demer, MD, PhD

Leonard Apt Professor of Pediatric Ophthalmology

Professor of Neurology

Chief of the Pediatric Ophthalmology and Strabismus Division

Member of the Stein Eye Institute

RESEARCH SUMMARY

Motility and Vision

Dr. Demer studies the role of the brain and extraocular muscles in the control of eye movements and visual perception. He is directing a National Eye Institute research project aimed at developing an understanding of the role of orbital connective tissues and nerves in the development of binocular coordination disorders, such as strabismus, and is developing new technologies for magnetic resonance imaging of extraocular muscles and nerves. This research has contributed to the knowledge of the functional anatomy of extraocular muscles and connective tissues, allowing development of new types of surgeries.

Dr. Demer's research also employs novel micro- and nano-technological techniques to study the biomechanical properties of the extraocular muscles and associated tissues, as well as optical and x-ray imaging of the effects of physiological forces in the tissues.

Honors

Received the Senior Honor Award and presented the Leonard Apt Lecture, April 6, 2013, at the Annual Meeting of the American Association for Pediatric Ophthalmology and Strabismus in Boston, Massachusetts.

Public Service

Editorial Board Member, *Investigative Ophthalmology and Visual Science*

Editorial Board Member, *Journal of the American Association for Pediatric Ophthalmology and Strabismus*

Associate Editor, *Strabismus*

Grant Reviewer, United States Public Health Service

Scientific Advisory Committee Member, Knights Templar Eye Foundation

Council Member, International Strabismological Association

Reviewer for many scientific journals

Research Grants

National Eye Institute: Biomechanical Analysis in Strabismus Surgery, 5/1/13–4/30/16



Sophie X. Deng, MD, PhD

Assistant Professor of Ophthalmology

Member of the UCLA Jonsson
Comprehensive Cancer Center

Member of the Stein Eye Institute

RESEARCH SUMMARY

Limbal Stem Cell Deficiency

Dr. Deng's research is focused on improving the current diagnosis and treatments for patients with limbal stem cell deficiency. One of the ongoing clinical studies that Dr. Deng conducts shows correlated cellular changes in the cornea and limbus, using laser scanning *in vivo* confocal microscopy in patients with limbal stem cell deficiency. Damages to the limbal stem cells could be detected using this new technology and correlated with clinical presentation. This new technique could allow for a better understanding of the pathophysiology of limbal stem cell deficiency. Another study focuses on finding a better diagnostic marker for limbal stem cell deficiency. By using the new diagnostic marker and the *in vivo* confocal image study, a timely diagnosis and staging of disease progression could be achieved.

Dr. Deng's laboratory studies the microenvironment/niche of the limbal stem cells to elucidate those factors that govern the fate of limbal stem cells. The role of the Wnt signal transduction pathway in human limbal stem/progenitor cells is under investigation. Recent study in her laboratory reveals that activation of the Wnt/ β -catenin

promotes self-renewal of limbal stem cells and that Frizzled 7 might be the receptor that mediates the Wnt activation. Use of small molecules to modulate Wnt signaling is being investigated to increase the efficiency of *ex vivo* expansion of limbal stem cells for transplantation. The second ongoing project in Dr. Deng's laboratory is to achieve patient-specific therapy by regenerating autologous limbal stem cells in a xenobiotic-free culturing system for transplantation.



Public Service

Member, American Academy of Ophthalmology Ophthalmic Technology Assessment Committee, Cornea and Anterior Segment Disorders Panel

Research Grants

California Institute for Regenerative Medicine: Regeneration of Functional Human Corneal Epithelial Progenitor Cells, 3/1/11–2/28/14

National Eye Institute: Ex Vivo Expansion of Human Limbal Stem Cells for Transplantation, 9/1/12–8/31/17

Gordon L. Fain, PhD

Distinguished Professor of the Departments of
Integrative Biology/Physiology and of Ophthalmology

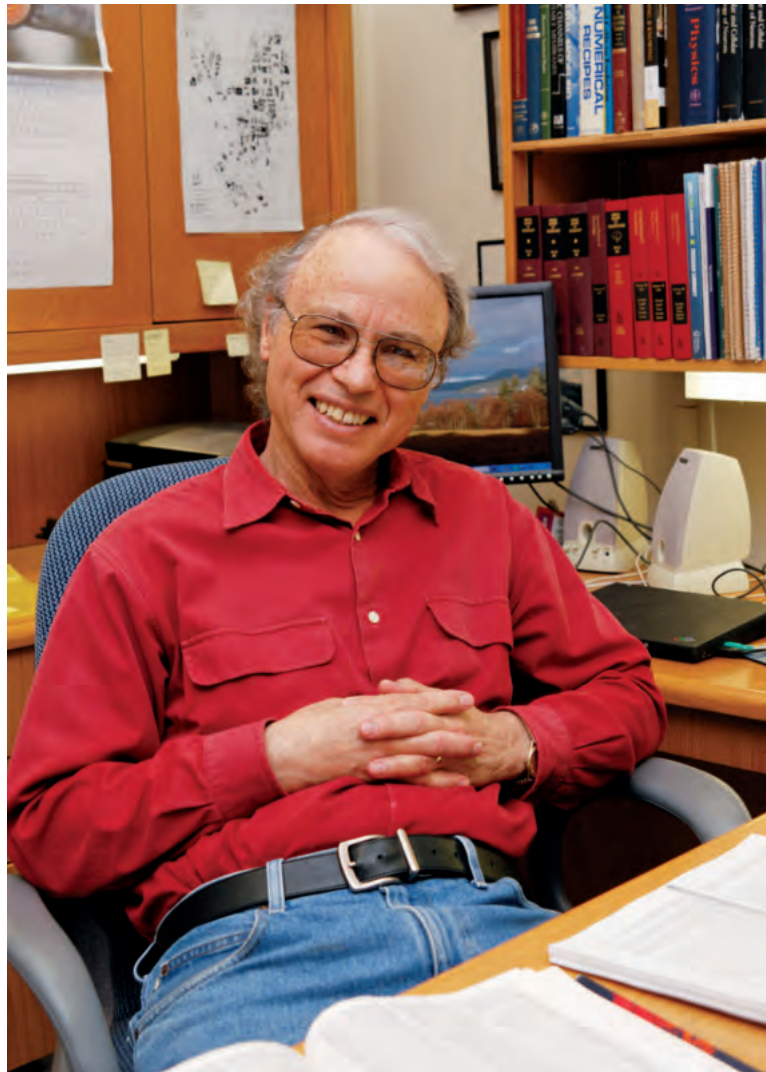
Member of the Stein Eye Institute

RESEARCH SUMMARY

Physiology of Photoreceptors in the Vertebrate Eye

Dr. Fain's primary research interest is in the physiology of photoreceptors in the vertebrate eye. A vertebrate photoreceptor uses a photopigment called rhodopsin and a G-protein cascade to produce the electrical response that signals a change in light intensity. Powerful new techniques have made it possible to understand the working of this cascade in extraordinary detail. Practically all the protein molecules involved in the cascade in a photoreceptor—from the pigment molecule to the G-protein and channels, but also including a large number of control proteins—are expressed only in the photoreceptors and nowhere else in the body. This has enabled scientists to use genetic techniques to create mice in which these proteins have been knocked out, over- or under-expressed, or replaced with proteins of modified structure.

Dr. Fain's laboratory uses electrical recording to study the effects of such genetic alterations on the light responses of mouse rods, in order to understand the role of these proteins in the visual cascade. His research team is especially interested in modulatory enzymes and their function in light and dark adaptation. Dr. Fain also has a long-standing interest in mechanisms of photoreceptor degeneration in genetically inherited disease. His laboratory is presently the only laboratory measuring changes in calcium from mouse rods with fluorescent dyes. Findings have implicated both increases and decreases in calcium concentration as contributing factors in the triggering of apoptosis. Such information may provide insight into the mechanisms of retinal degeneration.



Honors

Presented with the Jay Pepose '75 Award in Vision Sciences at Brandeis University, Waltham, Massachusetts, on March 13, 2013.

Research Grants

National Eye Institute: Physiology of Photoreceptors, 8/1/12–7/31/17

Debora B. Farber, PhD, DPhhc

Karl Kirchgessner Professor of Ophthalmology

Distinguished Professor of Ophthalmology

Member of the Brain Research Institute

Member of the Molecular Biology Institute

Member of the Stein Eye Institute

RESEARCH SUMMARY

Retinal Biochemistry, Molecular Biology, and Genetics of Retinal Degenerations

Dr. Farber's research focuses on the isolation and characterization of genes involved in inherited retinal diseases. Her team has cloned several genes encoding enzymes and proteins that play a key role in vision, including the α -PDE gene, that leads to blindness in mice and dogs, and causes one type of autosomal recessive retinitis pigmentosa (arRP) (utilizing gene therapy methods, they rescued mice photoreceptors by delivering the normal gene to these cells); *RP1* (responsible for a type of autosomal dominant RP); the gene causing disease in the *rd7* mouse—a model for Enhanced S-Cone Syndrome; the α -transducin gene, disrupted in the *Rd4* mouse, another model of retinal disease; and the mouse homologue of the gene causing X-linked juvenile retinosis (*Xlrs1*).

Dr. Farber's group is also working on the mechanisms that regulate transcription and expression of retinal genes. They found that the transcription factor SP4 controls the activity of the α -PDE promoter and that mutations in both SP4 and α -transducin cause digenic arRP and cone-rod dystrophy (arCRD). Other projects include

the identification of cone genes (mutations in *7R* and *ZBED4* cause arRP and arCRD); the characterization of animal models of ocular albinism, which are affected with permanent visual impairment; and the study of microvesicles released by mouse embryonic stem cells that transfer RNA or protein to other cells, *in vitro*.

Public Service

Scientific Advisory Board Member, the Foundation Fighting Blindness; the Center for Vision Research, State University of New York at Syracuse; the Vision of Children Foundation; and an Advisor for the Canadian Retinitis Pigmentosa Foundation

Editorial Board Member, *Molecular Vision*; *The Open Ophthalmology Journal*; *Journal of Ocular Biology, Diseases, and Informatics*; and *Stem Cells and Cloning Advances and Applications*

Reviewer for many scientific journals



JoAnn A. Giaconi, MD

Health Sciences Assistant Clinical Professor of Ophthalmology

Chief of the Ophthalmology Section at the Greater Los Angeles
VA Healthcare System

Co-Director of Ophthalmic Education at the David Geffen School of Medicine, UCLA

Member of the Stein Eye Institute

RESEARCH SUMMARY

Glaucoma

Dr. Giaconi's research focuses on the treatment of glaucoma and the effects of glaucoma surgery on the cornea and vision. She is currently working on a project examining the overtreatment or undertreatment of glaucoma in the veteran population. She is also enrolling patients in two clinical studies at the Stein Eye Institute. One study is examining the effect of various glaucoma surgeries on the corneal endothelium, which is the layer of cells that keeps the cornea clear, and the other is investigating the post-operative eye pressure course following Ahmed valve implant surgery.

Public Service

Member, Glaucoma Panel,
American Academy of Ophthalmology
Knowledge Base Development Project

Secretary, Women in Ophthalmology

President, Los Angeles Society
of Ophthalmology

Member, American Academy of
Ophthalmology Liaisons Committee

Volunteer, Eye Care America

Reviewer for many scientific journals



Ben J. Glasgow, MD

Edith and Lew Wasserman Professor of Ophthalmology

Professor of Pathology and Laboratory Medicine

Chief of the Ophthalmic Pathology Division

Member of the Stein Eye Institute

RESEARCH SUMMARY

Ophthalmic Pathology

Dr. Glasgow's research interests are primarily in the field of ophthalmic pathology. His major focus is the role of human lacrimal gland proteins in the protection and maintenance of the eye. His laboratory is investigating the structure-function relationship of tear lipocalin, the principal lipid carrier protein of tears. Currently, the laboratory has developed a technique called site-directed tryptophan fluorescence to probe and report information regarding molecular motion and solution structure. By studying the molecular mechanisms of tear proteins, Dr. Glasgow is seeking to learn the normal functions of tear lipocalin and its role in maintaining the health of the ocular surface and in the prevention of dry eye diseases. It is hoped that this research will lead to new treatments for dry eye and have broad application to numerous other members of this protein family that transport small, insoluble molecules through the body.



Robert Alan Goldberg, MD

Karen and Frank Dabby Professor of Ophthalmology
Chief of the Orbital and Ophthalmic Plastic Surgery Division
Director of the UCLA Orbital Disease Center
Co-Director of the UCLA Aesthetic Center
Member of the Stein Eye Institute

RESEARCH SUMMARY

Diseases and Therapy of the Eyelid and Orbit

Research into the various surgical approaches to Graves orbitopathy (thyroid eye disease) has resulted in new techniques that include less invasive small incision surgical approaches. In addition, detailed clinical information gathered from patients with Graves orbitopathy is being recorded in a shared database as a way to understand the natural history and response to treatment of this multifaceted disease, which is a cause of significant visual loss and discomfort. Multicenter studies are underway. Dr. Goldberg is also investigating the underlying causes of thyroid-related orbitopathy. The goal of this research is to develop better tests to monitor disease activity, as well as new treatments to address the basic cause of the disease.

Research into orbital and eyelid anatomy, currently in progress, is resulting in improved techniques and approaches to deep orbital disease. Included is the use of high-resolution magnetic resonance imaging and high-resolution dynamic ultrasonography to evaluate motility problems following trauma and orbital surgery, and three-dimensional analysis of orbital anatomy. Improved understanding of eyelid and orbital anatomy is the basis for developing improved surgical techniques. Instrumentation and devices that allow less invasive surgical approaches, such as hyaluronic acid gels, are being developed and studied. In collaboration with the Department of Engineering, custom materials for orbital reconstruction are investigated.

Ongoing research related to the reconstruction of the ocular surface in severe trauma or cicatrizing disease includes the design and evaluation of improved instrumentation and surgery techniques. It is hoped that new treatment approaches can solve problems caused when damaged eyelids, conjunctiva, and support tissues fail to provide a supportive environment for the cornea.

Public Service

Assistant Vice President of Professional Education, California Academy of Ophthalmology

Fellow and Chair, International Committee, American Society of Ophthalmic Plastic and Reconstructive Surgeons

Fellowship Program Director, American Academy of Cosmetic Surgery and American Society of Ophthalmic Plastic and Reconstructive Surgery

Editorial Board Member, *Archives of Ophthalmology*, *Ophthalmic Plastic and Reconstructive Surgery*, *Aesthetic Surgery Journal*, and *Archives of Facial Plastic Surgery*

Section Editor, American Academy of Ophthalmology, ONE Network



Lynn K. Gordon, MD, PhD

Vernon O. Underwood Family Chair in Ophthalmology

Associate Dean for Academic Diversity,
David Geffen School of Medicine at UCLA

Chair of the College of Applied Anatomy,
David Geffen School of Medicine at UCLA

Member of the Stein Eye Institute

RESEARCH SUMMARY

Retinal Cell Biology and Inflammatory Disease

Dr. Gordon's laboratory is involved in two primary areas of research. One project identifies that the cell line ARPE-19 uses the FAK signal transduction pathway to accomplish contraction of collagen gels, an *in vitro* correlate of proliferative vitreoretinopathy (PVR). PVR is observed in up to 10% of individuals following repair of retinal detachments and may lead to recurrent tractional retinal detachment and result in loss of vision. Modulation of gel contraction is accomplished by altering the expression levels of EMP2, and this modulation is mediated through a direct interaction between EMP2 and FAK, resulting in FAK activation. The laboratory, in collaboration with others at UCLA, has recently developed a designer antibody fragment that has demonstrated efficacy in *in vitro* studies in the PVR model and in other animal models *in vivo*. Successful completion of this work may lead to the development of new therapy or prevention of PVR.

The second area of interest of Dr. Gordon's group is the developmental role of programmed death 1 (PD-1), a molecule that is known to play an important role in immune regulation in retinal formation. PD-1 has a major function as a negative regulator in the immune system. Although previous studies identified PD-1 expression in the lymphoid system, Dr. Gordon and her colleagues have recently identified its expression in neuronal cells of the retina. This observation raises the possibility of a developmental role for PD-1 in maturation of the ganglion cell layer and retinal remodeling process as well as a possible role

for PD-1 in degenerative neuronal diseases. By understanding the role of PD-1 in the retina we may understand how to improve the visual outcome for patients with optic nerve diseases.

Public Service

Member, Dermatologic and Ophthalmic Drugs Advisory Committee, Federal Drug Administration

Member, Scientific Review Committee, Fight for Sight Committee Member, American Academy of Ophthalmology, Basic and Clinical Science Course Section 5, Neuroscience

Councilor, American Academy of Ophthalmology

Member, Association for Research in Vision and Ophthalmology's WEAVR Committee

Chair, Neuro-Ophthalmology Research Committee, Member of the Board, North American Neuro-Ophthalmology Society

Editorial Board Member, *Investigative Ophthalmology and Visual Science*, *Journal of Neuro-Ophthalmology*, and *Ocular Immunology and Inflammation*

Research Grants

National Eye Institute, Novel Therapies to Prevent Blindness Caused by Proliferative Vitreoretinopathy, 4/1/10–3/31/14



Michael B. Gorin, MD, PhD

Harold and Pauline Price Professor of Ophthalmology

Chief of the Division of Retinal Disorders and Ophthalmic Genetics

Member of the Stein Eye Institute

RESEARCH SUMMARY

Hereditary Eye Disorders and Molecular Genetics of Age-Related Maculopathy

Dr. Gorin's primary research focus is molecular genetics of hereditary eye disorders, specifically age-related maculopathy (ARM). His research group was the first to identify specific regions of the genome that contributed to ARM development in families, leading to discovery of gene variations that contribute to the risk of developing ARM.

Dr. Gorin investigates the molecular genetics of complex disorders such as cystoid macular edema, age-related cataracts, and glaucoma, as well as monogenic disorders such as hereditary retinal degenerations, glaucoma, cataracts, and ocular syndromes. He is pursuing studies to identify genetic variations that contribute to the severity, complications, and therapeutic responses of these conditions. Dr. Gorin and his clinical team, including Ms. Ariadna Martinez, a certified genetic counselor who specializes in hereditary eye disorders, works with the clinical and research human genetics group at UCLA to explore use of new technologies, including next-generation sequencing for clinical utility in ophthalmic genetics.

Research also focuses on the neurobiology of ocular pain and photophobia (sensitivity to light) to understand the basic biology and neural pathways that contribute to photophobia so that new therapeutic strategies can be developed. Based upon preliminary work, opportunities have emerged to investigate the pathogenesis of light sensitivity for individuals who suffer from migraines and/or mild traumatic brain injury.

Clinical research efforts are directed towards developing methods to monitor and quantify retinal function in progressive retinal disorders (such as diabetic retinopathy, Stargardt disease, and retinitis pigmentosa) and in patients with potential ocular toxicities from systemic medications. Applied research interests include bioinformatics in clinical ophthalmic practice and public health issues pertaining to ocular disease.

Public Service

Medical Director, Stein Eye Institute's Electronic Medical Record System

Member, Medical Education Committee, David Geffen School of Medicine at UCLA

Editorial Board Member, *Current Eye Research* and *Experimental Eye Research*

Advisory Board Member, American Health Assistance Foundation

Member, Association of University Professors of Ophthalmology, Consortium of Medical Education Directors

Member, Special National Institutes of Health Study Sections for the National Eye Institute, National Institute on Aging (Claude Pepper Grants), National Human Genome Research, Center for Inherited Disease Research

Scientific Advisory Committee Member, the American Health Assistance Foundation and the Knights Templar Eye Research Foundation

Founding Member of the von Hippel-Lindau Center of Excellence at UCLA Medical Center

Reviewer for many scientific journals

Research Grants

Foundation Fighting Blindness: Clinical and Genetic Characterization of Stargardt and Stargardt-like Macular Dystrophies, 7/1/10–6/30/13

National Eye Institute: Genetics of Age-Related Maculopathy, 4/1/07–3/31/14; no cost time extension

Neuro Kinetics, Inc.: Phase 2—Developing a Noninvasive Method and Device for Assessing the Degree of Midperipheral Retinal Ischemia in Diabetic Retinopathy, 2/1/11–1/31/14



David Rex Hamilton, MD, FACS

Health Sciences Associate Professor of Ophthalmology

Director of the UCLA Laser Refractive Center

Member of the Stein Eye Institute

RESEARCH SUMMARY

Corneal Biomechanics and Tomography

Dr. Hamilton's research interests are in the areas of corneal biomechanics and tomography (3D imaging of the cornea), screening for corneal ectatic disorders, and refractive surgical techniques to treat patients with complications from previous refractive surgery. He is also interested in the clinical study of intraocular lenses (IOLs) for the treatment of high myopia (Phakic IOLs) and presbyopia (multifocal and accommodating "premium" IOLs). Dr. Hamilton is actively involved in training residents and fellows in the surgical treatment of refractive errors and cataracts.

Public Service

Editorial Board Member, *Ophthalmology*, *Journal of Refractive Surgery*, and *Journal of Cataract and Refractive Surgery*

Member, Refractive Leadership Council, Alcon Laboratories

Member, ASCRS Refractive Surgery Clinical Committee

Member, American Academy of Ophthalmology, Preferred Practice Pattern Committee for Refractive Surgery

Member, American Academy of Ophthalmology, ONE Network, Refractive Surgery



Gary N. Holland, MD

Jack H. Skirball Professor of Ocular Inflammatory Diseases

Director of the Ocular Inflammatory Disease Center

Director of the Stein Eye Institute Clinical Research Center

Member of the Stein Eye Institute

RESEARCH SUMMARY

Uveitis and Cornea-External Ocular Diseases

Dr. Holland's research interests involve infectious and inflammatory diseases of the eye. A major focus of current research is ocular toxoplasmosis, the most common retinal infection in the general population. Dr. Holland is conducting various epidemiological and laboratory investigations in collaboration with investigators at the National Institutes of Health, the U.S. Centers for Disease Control and Prevention, and other universities in the United States, Brazil, and Europe, to understand the sources of infection, course of disease, response to treatment, and disease outcomes. Patient genetic and parasite-related factors that influence the risk of ocular involvement are being studied.

Since 1981, Dr. Holland has been involved in the study of HIV-related eye disease. He is participating in a large, NIH-supported multicenter study to investigate how the ocular manifestations of HIV disease have changed since the introduction of potent antiretroviral drugs. In particular, he is using data generated in the study to investigate HIV-related "neuroretinal disorder" (NRD), a degenerative condition of the retina that appears to be the cause of subtle changes in vision

known to occur in HIV-infected individuals, even among those whose immune function has improved because of antiretroviral drugs. In addition, he is investigating abnormalities of retinal blood vessels and abnormal blood flow as possible contributing factors for development of NRD. Studies performed by Dr. Holland have shown that these vascular changes are markers of non-ocular, sometimes life-threatening diseases among people with AIDS.

In conjunction with members of the Department of Pediatrics-Rheumatology Division, Dr. Holland has established a program to provide care for children with uveitis. He is investigating risk factors for development of vision-threatening complications among children with juvenile idiopathic arthritis and uveitis, and is studying the most effective techniques for evaluation and treatment of uveitis in children.

Dr. Holland is also investigating birdshot chorio-retinopathy, a chronic autoimmune disease of the eye, in conjunction with Drs. Ralph D. Levinson, Steven Nusinowitz, and researchers in Paris, France.

Honors

Received the David Geffen School of Medicine Excellence in Education Award on May 22, 2013, at UCLA, for his leadership and commitment to ophthalmology education.

Public Service

Associate Editor, *American Journal of Ophthalmology*

Executive Committee Member, American Uveitis Society

Steering Committee Member, Studies of the Ocular Complications of AIDS

International Council Member, International Ocular Inflammation Society

Research Grants

Advanced Cell Technology Inc.: ARO Agreement A Phase I/II, Open-Label, Multi-Center, Prospective Study to Determine the Safety and Tolerability of Sub-Retinal Transplantation... Patients with Stargardt's Macular Dystrophy SMD, 4/25/11-1/7/14

Advanced Cell Technology Inc.: ARO Agreement A Phase I/II, Open-Label, Multi-Center, Prospective Study to Determine the Safety and Tolerability of Sub-Retinal Transplantation... Patients with Advanced Dry AMD, 5/31/11-5/30/13

John Hopkins University: Studies of Ocular Complications of AIDS (SOCA), 8/1/13-7/31/14

John Hopkins University: Longitudinal Studies of Ocular Complications of AIDS (LSOCA), 8/1/12-7/31/13; no cost time extension

National Eye Institute: Multicenter Uveitis Steroid Treatment (MUST) Trial, 12/1/10-11/30/13

National Eye Institute: UCLA/AUPO Introduction to Clinical Research Course, 5/1/13-4/30/14

Xoma (US) LLC: A Randomized, Double-Masked, Placebo-Controlled Study of the Safety and Efficacy of Gevokizumab in the Treatment of Subjects with Non Infectious Intermediate....Protocol #X052131, 1/8/13-1/7/14

Xoma (US) LLC: A Randomized, Double-Masked, Placebo-Controlled Study of the Safety and Efficacy of Gevokizumab in the Treatment of Active Non Infectious Intermediate Posterior or Pan-Uveitis, 1/8/13-1/7/14



Joseph Horwitz, PhD

Oppenheimer Brothers Professor of Ophthalmology

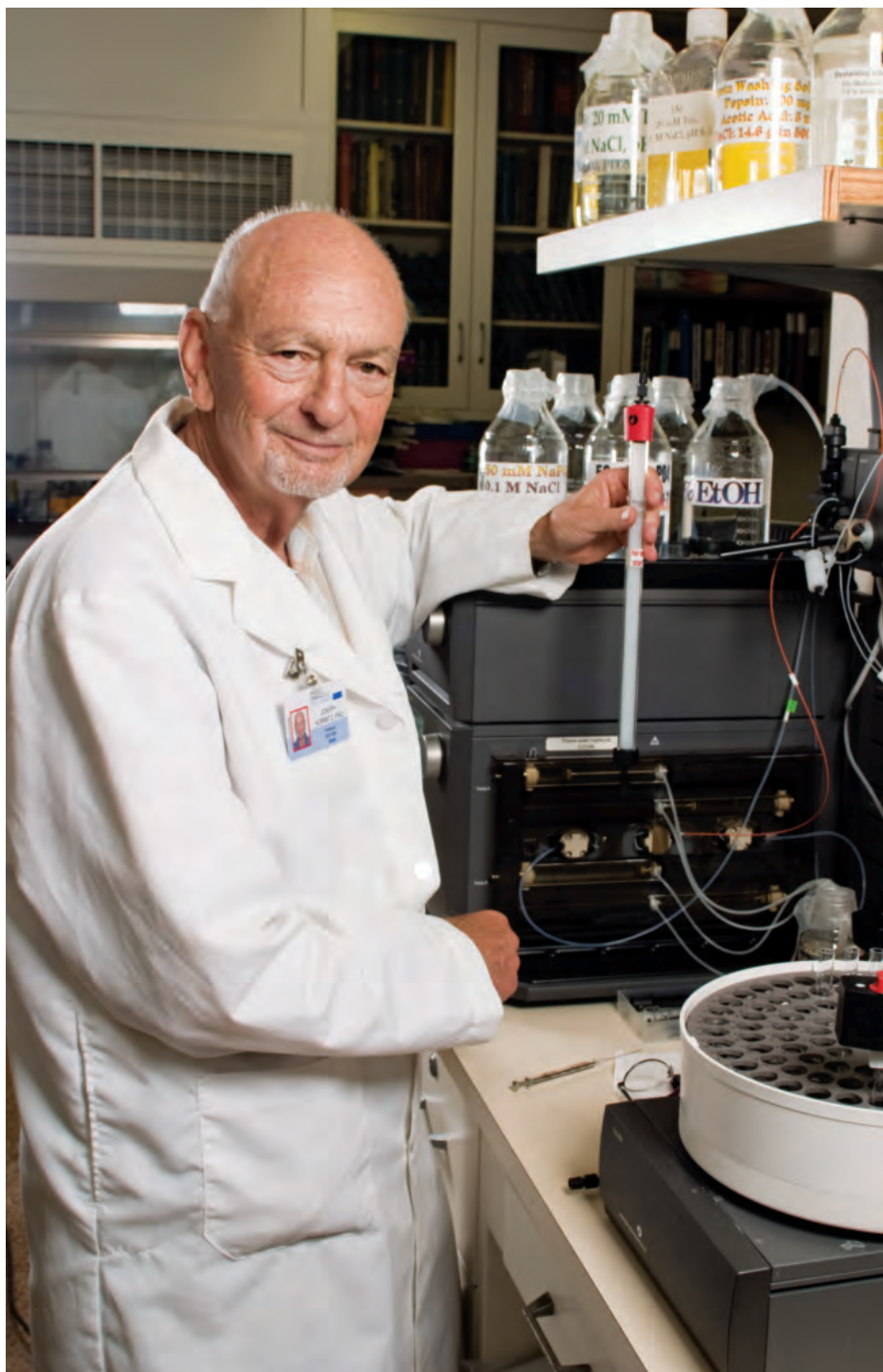
Distinguished Professor of Ophthalmology

Member of the Stein Eye Institute

RESEARCH SUMMARY

Biochemistry and Biophysics of the Crystalline Lens

Dr. Horwitz is conducting research on the biochemical and biophysical properties of normal and cataractous lens proteins. In addition, he is investigating the molecular chaperone properties of the lens' alpha-crystallin, a protein that plays an important role in keeping the eye lens clear during normal aging. Alpha-crystallin is also involved in age-related macular degeneration, as well as in many other neurodegenerative diseases. New spectroscopical techniques are currently being developed for studying protein function and structure utilizing extremely high hydrostatic pressure.



Wayne L. Hubbell, PhD

Jules Stein Professor of Ophthalmology
Distinguished Professor of Chemistry and Biochemistry
Co-Chief of the Vision Science Division
Associate Director of the Stein Eye Institute

RESEARCH SUMMARY

Molecular Basis of Phototransduction in the Vertebrate Retina

Dr. Hubbell's research is focused on understanding the complex relationship between molecular structure, plasticity, and conformational changes that control protein function in the visual system. Of particular interest are proteins that behave as "molecular switches," that is proteins whose structures are switched to an active state by a physical or chemical signal. Examples include rhodopsin, the membrane-bound photoreceptor protein of the retina, and transducin and arrestin, proteins that associate with rhodopsin during function. The overall goal is to determine the structure of these proteins in their native environment, monitor the changes in structure that accompany the transition to an active state, and to understand the role of protein flexibility in function.

To investigate these and other proteins, Dr. Hubbell's laboratory has developed the technique of site-directed spin labeling, a novel and powerful approach to the exploration of protein structure and dynamics. By changing the genetic code, a specific attachment point in the protein is created for a nitroxide spin label probe. Analysis of the electron paramagnetic resonance (EPR) spectrum of the spin label provides information about the local environment in the protein. With a sufficiently large set of labeled proteins, global information on structure is obtained and changes in the structure during function can be followed in real time. While determination of static protein structure is important to understanding function, current research has highlighted a crucial role for protein

flexibility (dynamics), which has not been previously appreciated. To explore molecular flexibility in proteins of the visual system, Dr. Hubbell's group is developing novel methods using time-domain and high-pressure EPR.



Public Service

Member, National Academy of Sciences

Member, American Academy of Arts and Sciences

Research Grants

National Eye Institute:
Molecular Basis of Membrane Excitation, 5/1/10–4/30/15

National Eye Institute: Core Grant for Vision Research at the Stein Eye Institute, 3/1/10–2/28/15

University of San Diego: Molecular Basis of Selective P450 3A Function, 3/1/11–2/28/15

Jean-Pierre Hubschman, MD

Assistant Professor of Ophthalmology

Member of the Stein Eye Institute

RESEARCH SUMMARY

Advanced Vitreoretinal Surgical Interventions and Robotics

Dr. Hubschman's clinical research focuses on the development and evaluation of new vitreoretinal surgical techniques and robotics for ophthalmic surgery. Automated surgery utilizing robotics promises to increase surgical precision and accuracy, and improve access to medical care. His publications include research papers as well as a book chapter about the feasibility of robotic surgery in ophthalmology. Currently, he is also investigating the use of the terahertz laser for the evaluation of ocular tissue hydration.

Public Service

Reviewer for many scientific journals

Research Grants

Genentech, Inc.: A Phase III, Multicenter, Randomized, Double-Masked Study Comparing the Efficacy and Safety of 0.5 mg and 2.0 mg of Ranibizumab in Patients with Subfoveal Neovascular Age-Related Macular Degeneration, 10/13/09–3/1/13



Sherwin J. Isenberg, MD

Laraine and David Gerber Professor of Pediatric Ophthalmology

Professor of Pediatrics

Vice-Chairman of the UCLA Department of Ophthalmology

Member of the Stein Eye Institute

RESEARCH SUMMARY

Pediatric Ophthalmology, Amblyopia, and Ophthalmic Pharmacology

Dr. Isenberg's research activities have concentrated on various aspects of surgical and medical diseases of children's eyes. The goal is to decrease the frequency of blindness in children worldwide. In a series of studies of newborns, Dr. Isenberg has characterized a number of elements: the type and source of bacteria of the external eye; the evolution of iris structural changes; the development of the macula, which is the source of central vision; and pupillary responses after birth. Recent publications have characterized the production and nature of tears of infants and the development of the cornea in the first year of life. He has also reported the ocular signs in newborns whose mothers abuse cocaine, facilitating the diagnosis of newborn cocaine intoxication.

In another avenue of research, povidone-iodine eyedrops have been found to treat bacterial conjunctivitis successfully in a three-year, international study with the University of the Philippines. The eyedrops were also found to be safer and more effective in preventing eye infections than the currently used agents. Dr. Isenberg and other investigators have now proven that the povidone-iodine eyedrops can treat the number one cause of preventable pediatric blindness in the world—corneal infections due to bacteria. These studies, conducted in children and adults in India and the Philippines, should reduce the number of 400,000 children now blind from corneal infections. A new study investigating fungal infections

of the eye, which blind approximately 10,000 children annually, has been completed at three sites in India.

Lastly, a new device that reports blood gases from the conjunctiva, such as oxygen and carbon dioxide, is being developed. Preliminary trials have been completed in animals and in adults undergoing cardiac bypass surgery. The hope is to apply the device to the eyes of premature newborns. The continuous readout of tissue blood gas levels should enable the pediatrician to prevent damage to the baby's brain and keep the oxygen at an appropriate level, minimizing the possibility of blindness from retinopathy of prematurity.

Public Service

Member, Medical Advisory Board and Board of Directors; and Research Committee Chair, Blind Children's Center

Past President, Costenbader Pediatric Ophthalmology Society

Vice President, American Association for Pediatric Ophthalmology and Strabismus

Co-Founder and Delegate, International Pediatric Ophthalmology and Strabismus Council



Simon K. Law, MD, PharmD

Health Sciences Clinical Professor of Ophthalmology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Optic Disc Evaluation

Dr. Law's principal research interest focuses on the structural appearance of the optic disc in different ocular diseases, including patients with high myopia. Assessment of optic disc size is an important component of the diagnostic evaluation for glaucoma. Patients with high myopia are at greater risk of developing glaucoma, and they also have an atypical optic disc that makes diagnosis difficult. The purpose of Dr. Law's research is to characterize the appearance of the optic disc in eyes with high myopia and to identify the related risk factors for development of glaucoma.

Glaucoma Tube Shunt Procedure

To prevent intraocular pressure spikes after an Ahmed valve or tube shunt procedure for glaucoma, Dr. Law is evaluating the effect of using anti-glaucoma medications at different times following surgery. Patients are randomized to receive antiglaucoma medications either at an early phase or at the standard time following the surgical procedure.

Acupuncture and Glaucoma

Dr. Law is conducting a prospective study to evaluate the effect of acupuncture in glaucoma. Acupuncture is a popular alternative medicine based on traditional Eastern medical theory. Its effect on glaucoma has not been objectively and scientifically studied.

Public Service

Expert Reviewer, Medical Board of California

Pharmacy Editor, *eMedicine* online Ophthalmology Journal

Member of the Committee on Aging, American Academy of Ophthalmology

Subcommittee Member, American Academy of Ophthalmology Basic and Clinical Science Course

Reviewer for many scientific journals



Ralph D. Levinson, MD

Health Sciences Clinical Professor of Ophthalmology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Ocular Inflammatory Diseases

Dr. Levinson's research interest is ocular inflammatory diseases. He is the primary investigator on international research projects in both the clinical aspects of uveitis and the basic mechanisms and immunogenetics of ocular inflammation. Current projects include a collaborative longitudinal study of a chronic inflammatory disease, birdshot chorioretinopathy, with investigators in France. The study focuses on the interrelationship of disease factors, as well as the course of disease and response to treatment.

Dr. Levinson is also conducting laboratory research on cell-based therapies for uveitis.

Public Service

Member, COMPASS, ONE, BCSC Committees, American Academy of Ophthalmology

Member, Knowledge-Based Uveitis Panel, American Academy of Ophthalmology Practicing Ophthalmologists Curriculum

Reviewing Editor, *Ocular Immunology and Inflammation*

Institutional Review Board Member, UCLA

Reviewer for many scientific journals

Research Grants

MacDonald Family Foundation: Immunologic and Clinical Studies of Eye Disease at the Stein Eye Institute, 12/1/08–12/31/13



Colin A. McCannel, MD

Associate Professor of Clinical Ophthalmology

Member of the Stein Eye Institute

RESEARCH SUMMARY

Vitreoretinal Surgery

Dr. McCannel has a longstanding interest in the management of vitreo-retinal conditions, particularly complex retinal detachments, complications of diabetic retinopathy, macular holes and epimacular membranes, and age-related macular degeneration. His clinical research efforts are directed at the improvement of vitreoretinal surgical techniques and outcomes, including the prevention of endophthalmitis following intravitreal injections.

Dr. McCannel devotes time to educational research as well. Currently, he is investigating the utility of virtual reality surgery simulation in teaching ophthalmic surgery. He has several ongoing protocols that assess ophthalmic surgical simulation in surgical teaching.

Public Service

Moderator, "Retina Talk" online discussion forum, American Association of Retina Specialists

Judge, American Society of Retina Specialists 14th Annual Film Festival

Chair, Editorial Committee, Retina and Vitreous Basic and Clinical Science Course, Section 12, American Academy of Ophthalmology

Medical Information Technology Committee Member, American Academy of Ophthalmology

Instruction course grader for the 2013 Annual Meeting, Annual Meeting Program Committee, American Academy of Ophthalmology

Abstract grader for the 2013 Annual Meeting, Annual Meeting Program Committee, American Academy of Ophthalmology

Reviewer for many scientific journals



Tara A. McCannel, MD, PhD

Health Sciences Assistant Professor of Ophthalmology

Director of the Ophthalmic Oncology Center

Member of the Stein Eye Institute

Public Service

Reviewer for many scientific journals

RESEARCH SUMMARY

Metastatic Ocular Melanoma

Dr. McCannel's primary research interest is metastatic ocular melanoma. Under her direction, the Ophthalmic Oncology Laboratory is studying molecular markers in ocular melanoma to provide prognostic information to patients and advance understanding of metastatic disease. Discovery of candidate genes from tissue of patients undergoing surgical treatment for ocular melanoma is being explored. This information will be important to establish a better understanding of the biology of metastatic ocular melanoma and help develop better treatments for this cancer. New modalities are being investigated to predict, detect, and ultimately treat choroidal melanoma metastasis.

Surgical Approaches to Vitreoretinal Disease and Cancer

Dr. McCannel is both a vitreoretinal surgeon and an ophthalmic oncologist. She manages the spectrum of vitreoretinal disease in addition to the surgical management of ocular melanoma, allowing patients to benefit maximally from her wide range of surgical prognostic and therapeutic expertise.

Vitrectomy with silicone oil placement is a novel therapeutic strategy, which was discovered at UCLA to reduce radiation exposure to the healthy structures of the eye during plaque surgery for melanoma treatment. Dr. McCannel offers this potentially sight-saving technique to patients who need radiation treatment.

Health Psychology and Ocular Melanoma

Central to incorporating an integrative approach to health care, the concerns and wishes of the patient as a whole are important aspects of cancer management. In collaboration with the UCLA Department of Health Psychology and the Jonsson Comprehensive Cancer Center, Dr. McCannel works closely with health psychologists who are interested in providing clinical care while researching factors, which predict psychological adjustment to cancer.



Kevin M. Miller, MD

Kolokotronis Professor of Clinical Ophthalmology
Chief of the Comprehensive Ophthalmology Division
Member of the Stein Eye Institute

RESEARCH SUMMARY

Cataract and Refractive Surgery

Dr. Miller's research interests are in cataract and refractive surgery, intraocular lenses, artificial iris implants, ophthalmic optics, surgical devices, and surgical outcomes.

Dr. Miller's clinical practice focuses primarily on refractive cataract surgery and the surgical correction of presbyopia and astigmatism with premium technology intraocular lenses. He developed an astigmatism management service for treating corneal astigmatism at the time of cataract surgery that optimizes postoperative uncorrected visual acuity. He developed a nomogram for peripheral corneal relaxing incisions and participated in the clinical trial of the world's most popular toric intraocular lens. He described a nonparametric multivariate technique for comparing astigmatism outcomes between treatment groups. In addition to refractive

cataract surgery, he also performs DSEK, LASIK, and other cornea-based laser refractive procedures.

Dr. Miller runs several clinical trials of artificial iris implants to treat congenital and acquired aniridia. He completed the multicenter Ophtec 311 clinical trial. He has an individual device exemption from the FDA to study Morcher GmbH artificial iris implants. He is the only surgeon in the United States who is permitted by the FDA to implant Morcher devices at this time. He is also studying a custom artificial iris implant from Dr. Schmidt Intraocularlinsen, a subsidiary of HumanOptics AG. All of these devices are showing promising results in patients who suffer from congenital and acquired iris defects.

He is also an investigator in the Calhoun Vision light adjustable lens study and the Alcon high-power toric lens post market approval study.



Honors

2012 Secretariat Award,
American Academy of Ophthalmology
Best Paper, Annual Meeting of the
American Society of Cataract and
Refractive Surgery
Recipient of the Pat and Joe Yzurdiaga
Endowed Cataract Research Fund

Public Service

Course Director, Southern California
Basic and Advanced Cataract
Surgery Courses for Residents
and Fellows
American Academy of Ophthalmology,
Skills Transfer Course
Advisory Committee
American Academy of Ophthalmology,
Annual Meeting Program Committee,
Cataract Subcommittee
Column Editor, American Society of
Cataract and Refractive Surgery,
EyeWorld Magazine
American Society of Cataract
and Refractive Surgery,
Retina Clinical Committee
World Congress of Ophthalmology
2012 Biannual Meeting Program
Planning Committee, Cataract Section
World Congress of Ophthalmology
2014 Biannual Meeting Program
Planning Committee, Cataract Section
International Editorial Board,
Oftalmologia Em Foco
Faculty of 1000, Post-Publication
Peer Review, Lens Disorders Section
American Society of Cataract
and Refractive Surgery Skills
Transfer Subcommittee
Editorial Board, American Academy of
Ophthalmology, *EyeNet* Magazine
Reviewer for many scientific journals

Research Grants

Calhoun Vision, Inc.: A Prospective
Randomized Controlled Multi-Center
Clinical Study to Evaluate the Safety
and Effectiveness of the Light
Adjustable Lens, 7/26/12–7/26/14

Bartly J. Mondino, MD

Bradley R. Straatsma Professor of Ophthalmology
Chairman of the UCLA Department of Ophthalmology
Member of the UCLA Brain Research Institute
Director of the Stein Eye Institute

RESEARCH SUMMARY

Cornea and External Ocular Diseases and Immunological Disorders

Dr. Mondino's research activity is focused on cornea-external ocular diseases, with particular emphasis on immunological disorders. He has studied the role of lymphocytes and the complement system in the immunopathogenesis of anterior segment diseases. In addition, a model of staphylococcal hypersensitivity lesions of the cornea was explored as well as the immune response to staphylococcal endophthalmitis. Other research interests included corneal dystrophies, peripheral corneal ulcers, bullous diseases of the skin and mucous membranes, collagen shields, and contact lens-related corneal ulcers.

Public Service

Medical Advisory Board Member,
Braille Institute

Board of Trustees Member,
Association of University Professors
of Ophthalmology

Executive Vice-President,
Association of University Professors
of Ophthalmology

Editorial Board Member, *Ophthalmic
Surgery, Lasers and Imaging*

Editor, Association of University
Professors of Ophthalmology,
News & Views

Board of Directors Member, National
Alliance for Eye and Vision Research

Research Grants

Research to Prevent Blindness:
Departmental Unrestricted Grant
Award (Annual), 1/1/13–12/31/13



Kouros Nouri-Mahdavi, MD, MSc

Assistant Professor of Ophthalmology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Role of Structural and Functional Measurements for Detection of Glaucoma and Its Progression

Dr. Nouri-Mahdavi's research is focused on improving methods to detect early glaucoma and glaucoma progression with spectral-domain optical coherence tomography (SD-OCT) and various perimetry techniques. More specifically, he is interested in detection of glaucoma progression in patients with advanced disease. SD-OCT has revolutionized glaucoma imaging. Dr. Nouri-Mahdavi is currently exploring the role of macular imaging for detection of glaucoma progression. He is also interested in exploring the structure-function relationships in eyes with angle-closure glaucoma versus eyes with primary open-angle glaucoma. Three cross-sectional and longitudinal SD-OCT imaging studies enrolling open-angle and angle-closure glaucoma patients along with normal control subjects are ongoing in the Glaucoma Division.

Public Service

Member, Research Committee,
American Glaucoma Society

FDA-AGS Workshop on the Validity,
Reliability, and Usability of Glaucoma
Imaging Devices, October 5, 2012,
Silver Spring, Maryland

Care Harbor/LA Free Clinic, Volunteer
Ophthalmologist, September 27, 2012.

Volunteer for EyeCare America

Editorial Board Member, *Journal of
Ophthalmic and Vision Research*

Reviewer for many scientific journals

Research Grants

National Eye Institute: Detection of
Glaucoma Progression with Macular
OCT Imaging, 7/1/12–6/30/17



Steven Nusinowitz, PhD

Associate Professor of Ophthalmology

Co-Director of the Visual Physiology Laboratory

Director of the Live Imaging and Functional Evaluation (LIFE) Core

Member of the Stein Eye Institute

RESEARCH SUMMARY

Mechanisms of Retinal Degeneration

Dr. Nusinowitz's primary research interest is focused on understanding the cellular contributions to noninvasive measures of visual function and defining the sites and mechanisms of disease action in inherited retinal and visual pathway disorders. His main approach to gaining an understanding of the site and underlying mechanism of disease action in humans is to study the patterns of electrophysiological and psychophysical responses obtained from mice in which the disruption of different cells or pathways in the visual system are specifically targeted by genetic manipulation. By comparing the patterns of responses in human disease with the patterns of responses from rodents with targeted cellular disruption, Dr. Nusinowitz is able to test hypotheses about the underlying pathophysiology in human disease and to provide a mechanism for the development of specific diagnostic tools that are sufficiently sensitive for early detection and better diagnosis of clinical disease.

Public Service

Editorial Board Service,
Current Eye Research

Grant Reviewer: Foundation Fighting Blindness, Medical Research Council of Canada, Wellcome Trust, Matilda Zeigler Foundation, and National Eye Institute (ad hoc)

Scientific Advisor: The Mouse Mutant Resource, The Jackson Laboratory; Novartis Pharmaceuticals; Allergan, Inc.; and Isis Pharmaceuticals, Inc.

Data Safety Management:
New Drug Investigations,
Isis Pharmaceuticals, Inc.

Reviewer for many scientific journals

Research Grants

Retina Foundation of the Southwest:
Evaluating Rod and Cone Function in Relation to Colocalized Retinal and RPE Structure to Define Different Phenotypes of Early AMD,
7/1/12–6/30/13



Stacy L. Pineles, MD

Assistant Professor of Ophthalmology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Pediatric Neuro-Ophthalmology and Neurologic Causes of Strabismus

Dr. Pineles' research interests include evaluating the surgical outcomes of strabismus surgery and studying pediatric optic nerve diseases. With her dual training in pediatric ophthalmology and neuro-ophthalmology, she has a special interest in pediatric neuro-ophthalmic diseases, as well as adult patients with neurologic causes of strabismus.



Public Service

Member, Department of Ophthalmology Residency Training Committee and Department of Ophthalmology Residency Selection Committee

Associate Residency Director, Department of Ophthalmology

Member, Research Committee, American Academy of Pediatric Ophthalmology and Strabismus

Member, Professional Education Committee, American Academy of Pediatric Ophthalmology and Strabismus

Reviewer for many scientific journals

Research Grants

Jaeb Center for Health Research:
A Randomized Clinical Trial of Observation Versus Occlusion Therapy for Intermittent Exotropia, 2/28/11–12/31/13; no cost time extension

NIH/National Eye Institute:
Binocular Summation in Strabismus, 9/1/11–8/31/16

Natik Piri, PhD

Associate Professor of Ophthalmology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Retinal Ganglion Cell Degeneration in Optic Neuropathies and Neuroprotection

The main directions in Dr. Piri's research are defining the mechanisms leading to retinal ganglion cell (RGC) degeneration in glaucomatous neuropathy; developing strategies for preserving RGCs against neurodegeneration; and identifying and characterizing the genes critical for RGC function and integrity. Different types of RGCs have been identified based on their morphological and physiological characteristics, yet current knowledge of RGC molecular biology is very limited. Dr. Piri has initiated a study to identify the genes expressed in RGCs. Characterization of RGC-expressed genes is fundamental to a better understanding of normal RGC physiology and pathophysiology.

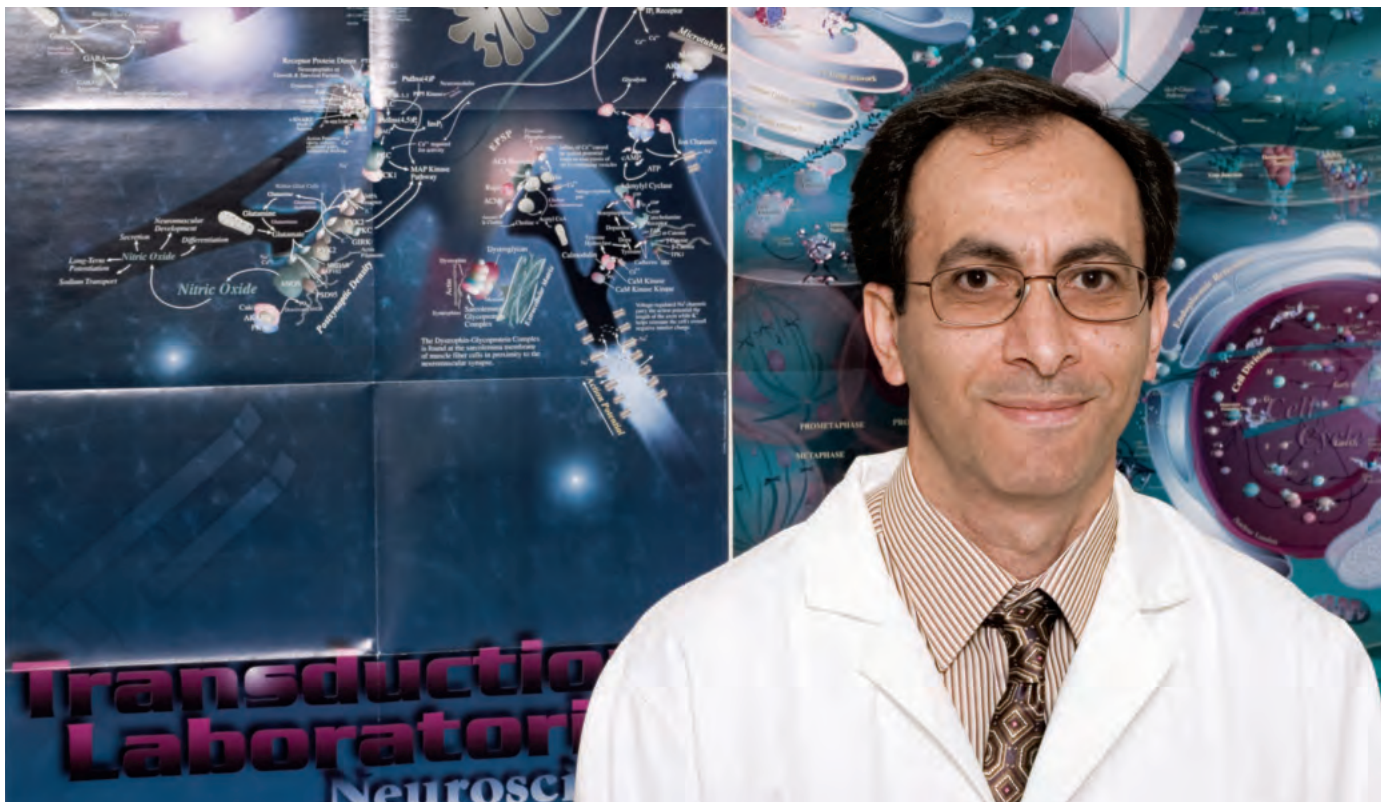
Another area of investigation focuses on understanding the degeneration of RGCs and their axons, which is a hallmark of glaucoma. Dr. Piri's laboratory is analyzing retinal gene expression profiles from the glaucoma model with the aim of identifying factors involved in the initiation and execution of RGC apoptosis. Study results have implicated several members of the crystallin superfamily in this process, including alpha crystallins. Dr. Piri is also studying the involvement of oxidative stress and proteins of the thio-redoxin system, particularly in RGC degeneration in the glaucoma model, and the neuroprotective effects of these proteins against glaucomatous RGC death.

Public Service

Reviewer for many scientific journals

Research Grants

National Eye Institute:
The Neuroprotective Effect of HSP72
Induction in Experimental Glaucoma,
9/30/09–8/31/14



David Sarraf, MD

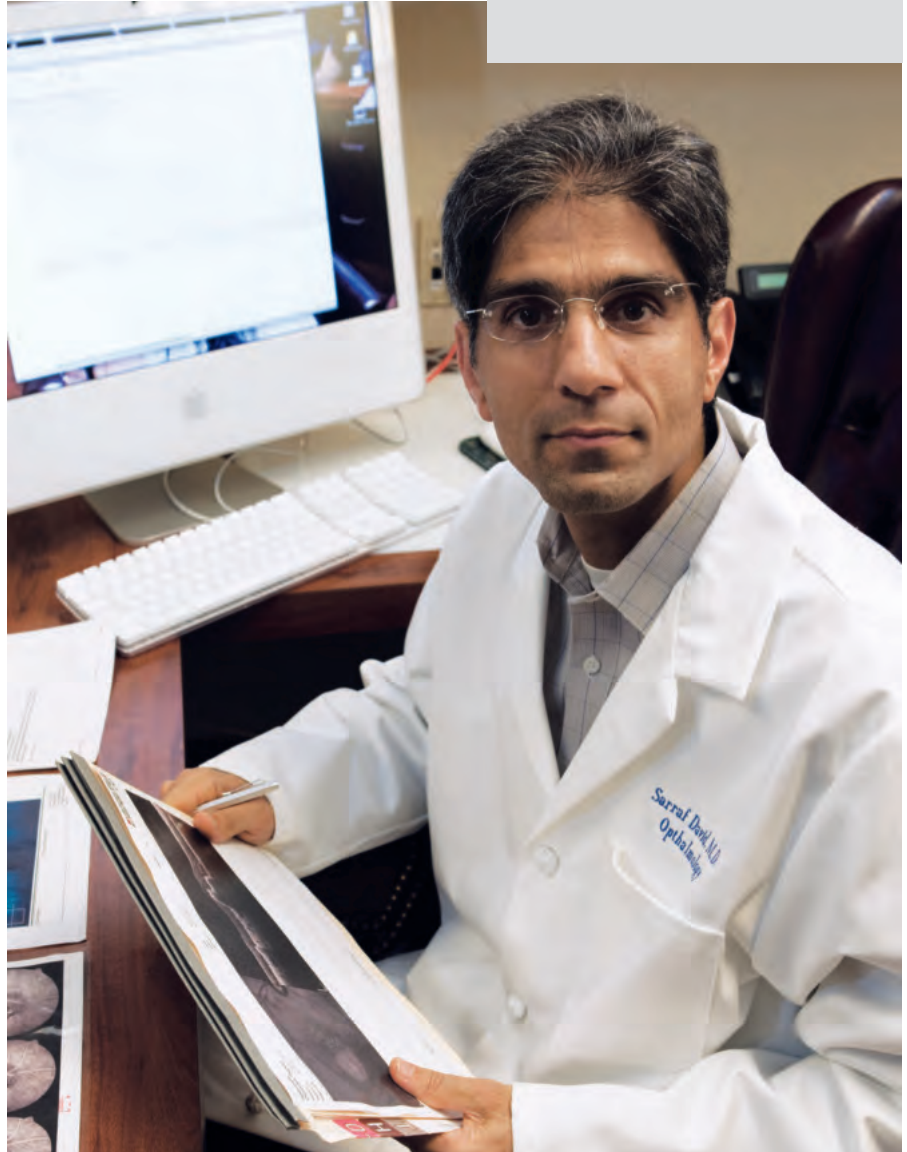
Health Sciences Associate Clinical Professor of Ophthalmology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Age-Related Macular Degeneration and Retinal Imaging

Dr. Sarraf has published approximately 75 research papers, case reports, reviews, and book chapters, and he has been awarded achievement and secretariat awards by the American Academy of Ophthalmology.

A member of the Retinal Disorders and Ophthalmic Genetics Division at the Stein Eye Institute, Dr. Sarraf's research focus is the wet form of age-related macular degeneration, specifically the evaluation of pigment epithelial detachment and retinal pigment epithelial tears. Dr. Sarraf has also published numerous papers studying novel imaging findings of various retinal diseases, including new spectral-domain optical coherence tomography and fundus autofluorescence findings of the white dot syndromes, acute macular neuroretinopathy, and ischemia of the superficial and deep retinal capillary plexi, and he has described imaging characteristics of various new and old retinal toxicity disorders.



Public Service

Associate Editor: *Retinal Cases and Brief Reports*, *OSLI Retina*

Committee Member: BCSC Retina Committee, American Academy of Ophthalmology

Member: The American Society of Retinal Specialists, Retina Society, Macula Society, and Gass Club

Co-Director: Pacific Retina Club and International Retinal Imaging Symposium

Reviewer for many scientific journals

Research Grants

Southern California Desert Retina Consultants: Intravitreal Aflibercept Injection for the Treatment of Submacular Vascularized Pigment Epithelial Detachment (EVEN Study), 2/7/13–12/31/14

Steven D. Schwartz, MD

Ahmanson Professor of Ophthalmology

Chief of the Retina Division

Director of the UCLA Diabetic Eye Disease and Retinal Vascular Center

Director of the Macula Center

Professor-in-Residence of Ophthalmology

Member of the Stein Eye Institute

RESEARCH SUMMARY

Stem Cell Research

Dr. Schwartz is leading two new clinical trials testing the use of stem cell-derived retinal pigment epithelial cells to address vision loss in people suffering from Stargardt macular dystrophy and dry age-related macular degeneration.

Retinal Diseases

Dr. Schwartz's primary areas of research include early diagnosis and treatment of diseases such as retinopathy of prematurity (ROP), diabetic eye disease, and macular degeneration. Additionally, his focus includes development and evaluation of novel medical device technologies, imaging technologies, surgical equipment (including surgical robots), and drug-delivery systems, with particular emphasis on diagnostic and treatment applications. Dr. Schwartz's clinical research focuses on trials of novel pharmacotherapeutic agents to discover treatments for both wet and dry age-related macular degeneration, ROP, and diabetic retinopathy.

Through innovative teleophthalmological approaches to screen for eye diseases, such as diabetic retinopathy and ROP, Dr. Schwartz is dedicated to improving both the quality of and access to specialized ophthalmology care. Currently, a collaborative program with UCLA's Gonda Diabetes Center and Venice Family Clinic is underway,

in which screening for diabetic retinopathy is conducted with a nonmydriatic camera (a camera that does not require dilation of the eyes) as part of each patient's regular diabetes treatment. Results are telecommunicated to specialists at the Stein Eye Institute for interpretation and follow up.



Honors

2012 Senior Achievement Award,
American Academy of Ophthalmology

Public Service

Board Member, American Society of
Retinal Specialists

Program Committee Member,
Association for Research in Vision
and Ophthalmology

Diabetic Eye Disease Screening,
Venice Family Clinic

Research Grants

Advanced Cell Technology, Inc.:
Research with Retinal Cells Derived
from Stem Cells for Age-Related
Macular Degeneration, 4/5/11–4/4/13

Advanced Cell Technology, Inc.:
Research with Retinal Cells Derived
from Stem Cells for Stargardt Macular
Dystrophy, 3/23/11–3/22/13

Allergan Sales, LLC: DEX PS DDS
Applicator System in the Treatment of
Patients with Diabetic Macular Edema,
8/25/05–12/31/13

ThromboGenics, Inc.: Resolution of
Vitreomacular Adhesion (VMA)
Associated with Neovascular
Age-Related Macular Degeneration
(AMD) with Intravitreal Microplasm,
6/30/09–9/1/13

Neurotech Pharmaceuticals, Inc.:
Phase I Multi-Center Open Label
Safety and Tolerability Clinical Trial of
Ciliary Neurotrophic Factor (CNTF)
in Patients with Macular Telangiectasis
Type 2, 7/19/11–7/18/14

Hui Sun, PhD

Associate Professor of Physiology and Ophthalmology

Howard Hughes Medical Institute

Member of the Stein Eye Institute

RESEARCH SUMMARY

Molecular Mechanism of Vitamin A Transport for Vision; Identification of New Therapeutic Targets for Blinding Diseases

Dr. Sun's laboratory studies the molecular mechanism of vitamin A transport for vision and new therapeutic targets for blinding diseases such as age-related macular degeneration. Vitamin A deficiency is the leading cause of blindness in third world countries, and age-related macular degeneration is a leading cause of blindness in the developed world. Vitamin A is essential for vision because it is the precursor for the chromophore of photoreceptor proteins and also plays critical roles in eye development. Plasma retinol binding protein (RBP) is the principal carrier of vitamin A in the blood and is essential for mobilizing the hepatic vitamin A store. Dr. Sun's laboratory identified the long-sought RBP receptor as a multitransmembrane protein of previously unknown function. It functions simultaneously as a membrane receptor and a membrane transporter that mediates cellular uptake of vitamin A. The RBP/RBP receptor system represents a rare example in eukaryotic cells of a small molecule delivery system that involves an extracellular carrier protein but does not depend on endocytosis. Human genetic studies found that the RBP receptor is essential for the formation of the human eye and many other organs, consistent with the critical role of vitamin A in embryonic development. Dr. Sun's laboratory is using a variety of techniques to study this membrane transport system.

Public Service

Ad hoc Reviewer, National Science Foundation, National Eye Institute (United States), Health Research Board (Ireland), and Medical Research Council (United Kingdom)

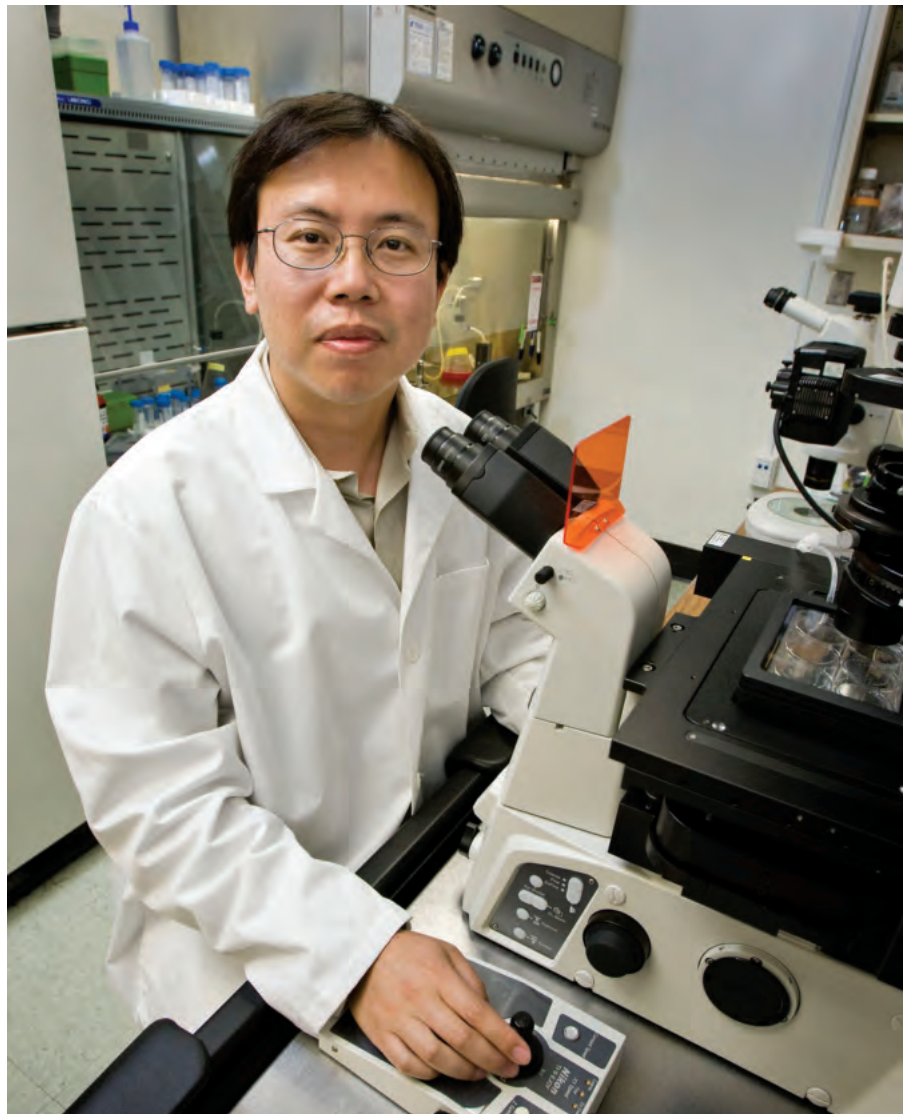
Reviewer for many scientific journals

Research Grants

National Eye Institute: Molecular Mechanism of Vitamin A Uptake for Vision, 9/30/07–8/31/12

Howard Hughes Medical Institute, 9/1/09–8/31/15

Research to Prevent Blindness Ophthalmic Research Award, 1/1/12–12/31/13



Gabriel H. Travis, MD

Charles Kenneth Feldman Professor of Ophthalmology

Co-Chief of the Vision Science Division

Associate Director of the Stein Eye Institute

RESEARCH SUMMARY

Biochemistry of Vertebrate Photoreceptors and Mechanisms of Retinal Degeneration

Dr. Travis' laboratory uses biochemical and genetic approaches to study the visual cycle and its role in retinal and macular degenerations. Vision in vertebrates is mediated by two types of light-sensitive cells: rods and cones. These cells contain light-detecting molecules called opsin pigments. Detection of a single light particle bleaches the opsin pigment. Restoring light sensitivity to a bleached opsin involves an enzymatic pathway called the visual cycle. Mutations in the genes for many proteins of the visual cycle cause inherited blinding diseases.

One project in Dr. Travis' laboratory studies the function of a transporter protein in rods and cones called *ABCA4*. Mutations in the human *ABCA4* gene cause recessive Stargardt macular degeneration and cone-rod dystrophy. Dr. Travis' group generated mice with a null mutation in this gene. Biochemical analysis of the phenotype in these *ABCA4* "knock-out" mice led them to the function of *ABCA4* in photoreceptors, and the biochemical etiology of Stargardt disease. This understanding suggested a pharmacological strategy to reverse the biochemical defect in patients with Stargardt disease and age-related macular degeneration. A phase II clinical trial is currently underway to test a drug based on this strategy as a treatment for age-related macular degeneration.

Another ongoing project in Dr. Travis' laboratory characterizes Rpe65, which catalyzes the critical isomerization step in the visual cycle. Previously, Dr. Travis and co-workers identified Rpe65 as the retinoid isomerase.

Still another project in Dr. Travis' laboratory concerns the mechanism of visual-pigment regeneration in cone photoreceptors. Despite the importance of cones, little is known about how visual pigments are replenished to permit sustained vision under daylight conditions. Recent results from Dr. Travis' group point to the existence of a new enzymatic pathway for regenerating visual pigments in cones. His group is currently working to purify and clone the enzymes that define this new biochemical pathway.

Public Service

Scientific Advisory Panel Member, the Karl Kirchgeessner Foundation Vision Science Program

Grant Reviewer, National Institutes of Health: The Biology and Diseases of the Posterior Eye Study Section

Reviewer, Howard Hughes Medical Institute Investigators

Reviewer for many scientific journals

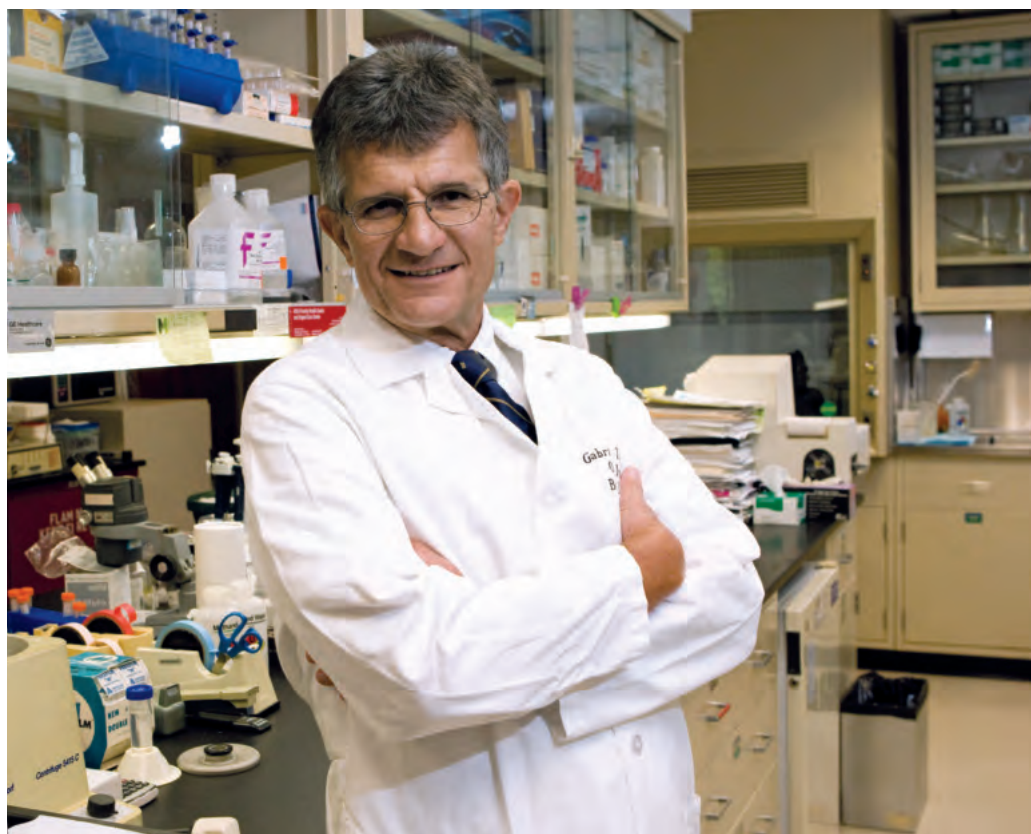
Research Grants

California Institute for Regenerative Medicine: Development of a Stem Cell-Based Transplantation Strategy for Treating Age-Related Macular Degeneration (Principal Investigator, with other investigators), 11/1/09–10/31/12

National Eye Institute: The Role of Muller Cells in Visual Pigment Regeneration, 3/1/08–12/31/13

National Eye Institute: Vision Science Training Grant for the Stein Eye Institute (Principal Investigator), 9/30/11–9/29/16

Bruce Ford and Anne Smith Bundy Foundation, 8/16/11–8/15/13



Irena Tsui, MD

Assistant Professor of Ophthalmology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Clinical Vitreoretinal Research

Dr. Tsui's research focuses on improving clinical outcomes in patients with retinal diseases. Her areas of interest include retinopathy of prematurity, diabetic retinopathy, ultra-wide field imaging, surgical techniques, and studying patient-centered outcomes in our veterans.

Honors

Oppenheimer Research Award 2013

Public Service

Care Harbor LA Free Clinic

Volunteer, Reading to Kids

Volunteer, Downtown Women's Center

Volunteer, Pacific Crossroads Church
Serve the City

Friend of Tenwek Hospital in Kenya

Reviewer for many scientific journals



Federico G. Velez, MD

Health Sciences Assistant Clinical Professor of Ophthalmology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Strabismus and Childhood Eye Disorders

Dr. Velez's primary research interest is studying the mechanisms of congenital and acquired forms of strabismus. He has participated in the development of guidelines for preoperative assessment and surgical approaches to patients with convergent (esotropia), divergent (exotropia), and vertical forms of strabismus, and has developed new techniques to treat pediatric patients with eyelid abnormalities and cataracts.

Dr. Velez has recently completed studies that apply bioengineering technology to the correction of ocular motility disorders. He has also identified a new ocular motility disorder in patients with the human immuno-deficiency virus.

Public Service

Editorial Board Advisory Panel Member, Treatment Strategies—Pediatrics, The Cambridge Research Centre

Editorial Board Member, *Journal of the American Association of Pediatric Ophthalmology and Strabismus*, *Journal of the Colombian Society of Ophthalmology*, and *Video Journal of Ophthalmology*

Member, American Academy of Ophthalmology, American Association for Pediatric Ophthalmology and Strabismus, Latin American Council of Strabismus, Latin American Pediatric Ophthalmology Society, Colombian Society of Ophthalmology, and Colombian Society of Pediatric Ophthalmology and Strabismus

Reviewer for many scientific journals



David S. Williams, PhD

Jules and Doris Stein Research to Prevent Blindness Professor of Ophthalmology
Professor of Neurobiology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Cell Biology of the Retina and Inherited Retinal Disease

Dr. Williams' laboratory focuses on the cell biology of photoreceptor and retinal pigment epithelium cells. His group is especially interested in proteins that function in transport and compartmentalization within these cells. These proteins include those that underlie Usher syndrome. A translational area of his research involves gene therapy experiments aimed at preventing the blindness that ensues from Usher syndrome type 1B.

Public Service

Scientific Advisory Board Member,
Foundation Fighting Blindness

Executive Board Member,
Sustainability Council of New Zealand

Committee Member, ARVO/
International Society for
Ocular Cell Biology

Associate Editor, *Visual Neuroscience*

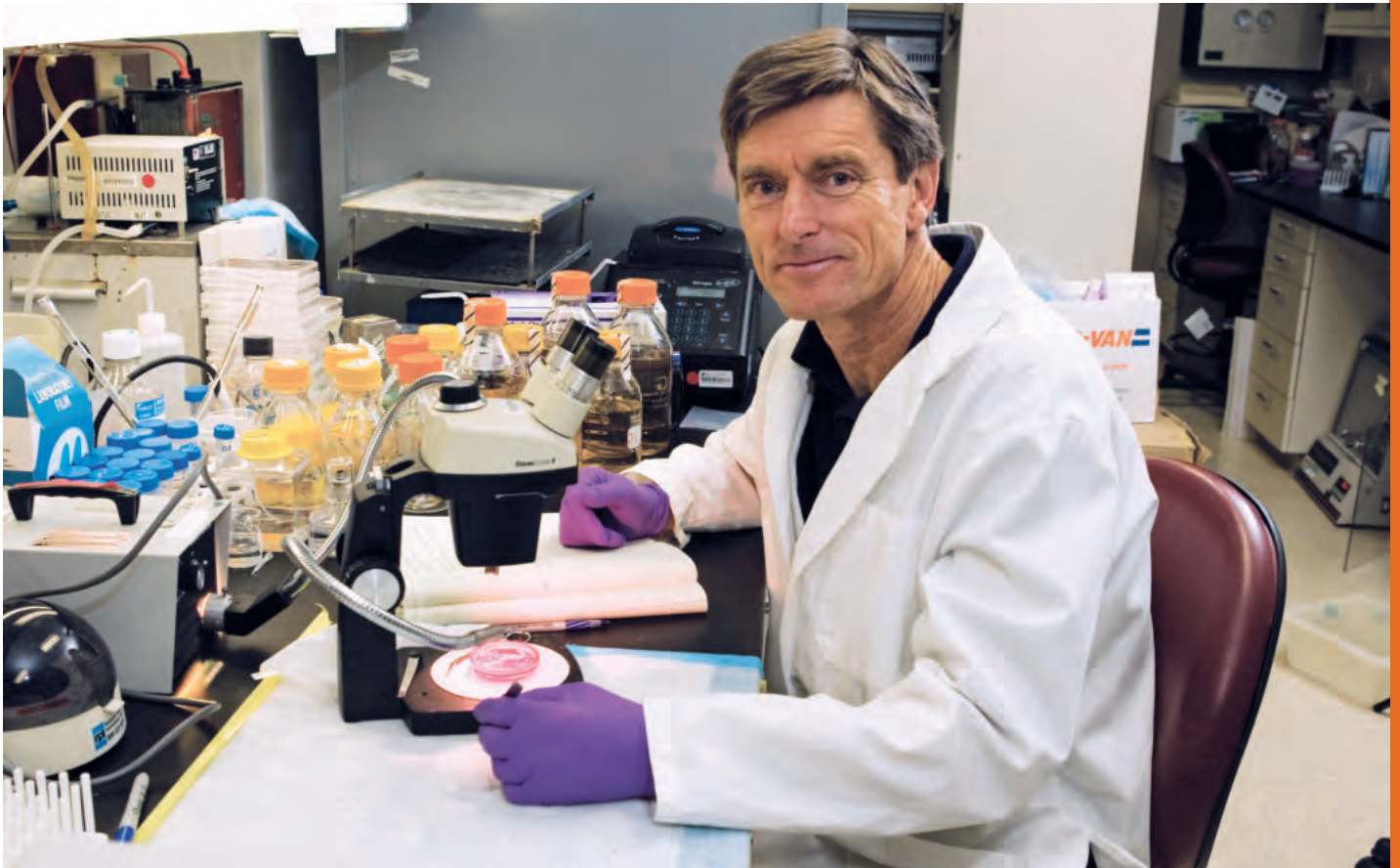
Research Grants

National Eye Institute: RPE Cell
Biology of Myosin VIIa, 7/1/09–6/30/14

National Eye Institute,
The Photoreceptor Cilium,
5/1/13–4/30/18

National Neurovision Research
Institute, Foundation Fighting
Blindness: Wynn-Gund Translational
Research Acceleration Program Award:
MY07A Gene Therapy for Usher 1B,
7/1/08–6/30/13

Research to Prevent Blindness:
Doris and Jules Stein Research to
Prevent Blindness Professorship,
1/1/08–12/31/14



Xian-Jie Yang, PhD

Ernest G. Herman Professor of Ophthalmology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Development and Disease Therapy of the Retina

Dr. Yang is interested in the molecular and cellular mechanisms underlying retinal development and disease. Her research efforts are directed toward understanding how retinal progenitor (precursor) cells become different types of mature retinal neurons during formation of the retina. To achieve these goals, her laboratory uses a variety of molecular and cellular approaches to study genes involved in cell-to-cell communication and neuronal differentiation. As important research tools Dr. Yang utilizes special laboratory-based viruses to mediate gene transfer and advanced transgenic technologies. In addition, Dr. Yang's laboratory is developing stem cell-based cell therapy for retinal degenerative diseases. Her research will enhance researchers' capabilities to manipulate retinal progenitor and stem cells, thereby contributing to the effort to combat retinal degenerative diseases.



Public Service

Ad Hoc Grant Reviewer, Foundation Fighting Blindness, National Science Foundation, Medical Research Council and Wellcome Trust in the United Kingdom, the Research Grant Council of Hong Kong, Biomedical Research Council and National Medical Research Council of Singapore, Israel Science Foundation, and the Nation Science Foundation of China

Standing Member, National Institutes of Health, Biology of the Visual System study section

Editorial Board Member, *Visual Neuroscience*, *Translational Vision Science & Technology*

Reviewer for many scientific journals

Research Grants

National Eye Institute: Hedgehog Signaling in Photoreceptor Differentiation and Maintenance, 12/1/09–11/30/13

INSTITUTE MEMBERS BASED AT OTHER SITES

James W. Bisley, PhD

Assistant Professor of Neurobiology
and Psychology

Member of the Stein Eye Institute

Member of the
Brain Research Institute

RESEARCH SUMMARY

Cognitive Processing of Visual Information

Dr. Bisley's research revolves around understanding the neural mechanisms underlying the cognitive processing of visual information. These cognitive processes include visual perception, visual memory, and visual attention. His recent work has focused on how the responses of neurons in the posterior parietal cortex are involved in the allocation of visual attention to neurons in visual cortices and how they guide eye movements in goal-directed visual search.

Nicholas C. Brecha, PhD

Professor of Neurobiology
and Medicine

Vice Chair of the Department
of Neurobiology

Member of the Stein Eye Institute

Member of the
Brain Research Institute

Member of CURE: Center for
Digestive Diseases

RESEARCH SUMMARY

Functional and Structural Organization of the Mammalian Retina

Dr. Brecha's research focuses on the elucidation of the structural organization of the outer and inner retina for understanding visual information processing by the retina. Morphological studies have defined cell types and classes, and microcircuitry organization in the retina, and neurochemical studies have investigated the action of neurotransmitters and neuroactive peptides in retinal microcircuits. Experimental work has clarified the

functional role of neuropeptides in the inner retina and supports the current hypothesis that certain neuro-peptides are modulators of retinal neurons and circuitry that influence light and dark adaptation; they also influence retinal circuitry that mediates form vision. Other experimental work has investigated the photo-receptor synaptic triad, a specialized synaptic complex that is the site of initial transfer of visual information from photoreceptors and is critically important for visual processing. Experimental studies are testing the idea that a vesicular mechanism underlies transmitter release from horizontal cells in this triad to mediate feedback and feed forward signaling, which is critically important for the formation of visual receptive fields. These investigations are fundamental steps in establishing the retina's functional organization and provide the basis for understanding the pathophysiology of retinal dysfunction.

Patrick T. Dowling, MD, MPH

Chairman of the UCLA Department of
Family Medicine

Kaiser Permanente Endowed
Professor of Community Medicine

Member of the Stein Eye Institute

Health Care Policy and Access for Underserved Populations

Dr. Dowling is a member of the California Community Foundation's Board of Directors and the Board of Trustees at the Charles Drew University of Medicine and Science. He has received numerous grants for international medical graduate training, residency training and family medicine training. He has made unparalleled contributions to the community and to the training of physicians to support the community at a primary level. He is a prior Commissioner of Public Health for the Los Angeles County Department of Health and currently has funding for an innovative program to increase the number of Hispanic physicians in California. Dr. Dowling worked closely with Dr. Anne Coleman on the Remote Area Medical Program, which provided care to the homeless and indigent

in the Los Angeles community. Dr. Dowling's presence as a member of the Stein Eye Institute adds a new dimension that is being developed and pioneered by Dr. Coleman at the Institute's Center for Eye Epidemiology.

Antoni Ribas, MD

Professor of Medicine, Surgery, and
Molecular and Medical Pharmacology

Member of the Stein Eye Institute

RESEARCH SUMMARY

The Immune System and Oncogene-Targeted Therapies in the Treatment of Cancer

Dr. Antoni Ribas conducts research focused on melanoma, an aggressive form of skin and eye cancer. His research aims at developing more effective and less toxic therapies for patients with advanced melanoma by studying how the immune system can be effectively used to fight cancer and also how targeted therapies can specifically block cancer genes. His projects include laboratory and clinical translational research in adoptive cell transfer therapy using T-cell receptor engineered lymphocytes designed to seek out melanoma cells, with the application of molecular imaging and advanced monitoring of the immune system to better study how it can fight cancer. Another way to engage an anti-cancer immune response is through the use of immune modulating antibodies, in particular by releasing the immune breaks CTLA4 and PD-1. He is also testing, both in the laboratory and the clinic, novel targeted therapies blocking cancer-causing events that result in melanoma, as well as the potential clinical applications of nanoparticle delivery of siRNA, which interferes with gene expression related to cancer. Dr. Ribas' goal is to bring new concepts from the laboratory to the clinic to help patients with advanced melanoma.

Dario L. Ringach, PhD

Professor of Neurobiology
and Psychology,
Biomedical Engineering Program

Member of the Stein Eye Institute

RESEARCH SUMMARY

Visual Perception and Neurophysiology

Dr. Ringach's research focuses on the relationship between eye movements and visual perception, as well as how motor planning and execution, such as reaching, grasping, navigating, and adjusting body posture, is influenced by visual information and impaired vision. In collaboration with a team of neurosurgeons at UCLA, Dr. Ringach's laboratory is also recording the brain activity of patients with epilepsy who are undergoing clinical evaluation for surgical treatment. This unique opportunity is shedding new light into the processes involved in object recognition and perception.

Guido A. Zampighi, PhD

Professor of Neurobiology

Member of the Stein Eye Institute

RESEARCH SUMMARY

Intercellular Junctions and Communication

A fundamental property of cells organized in tissues is their ability to communicate with each other via highly specialized areas of plasma membrane contact, called junctions. Dr. Zampighi is studying the gap junction and the chemical synapse, two specialized junctions that mediate electrical and chemical transmission, respectively. The gap junction is composed of specialized channels containing small hydrophilic pores that span the two plasma membranes and the intervening extracellular space (the cell-to-cell channel). He is investigating the high-resolution structure of the channels as well as the mechanisms of assembly, insertion, and retrieval of the connexin proteins that form them. The chemical synapse is composed of a presynaptic neuron filled with small diameter vesicles that contain a high concentration of

neurotransmitters and a postsynaptic neuron with receptors. He is studying the mechanisms by which the synaptic vesicles attach ("dock") to the presynaptic membrane. He uses structural (electron microscopy), biochemical, and electrophysiological techniques in an attempt to identify, purify, and characterize the channels and transporters of both junctions in an effort to increase understanding of the mechanisms mediating cell communication.

PROFESSIONAL RESEARCH SERIES

Novruz Ahmedli, PhD

Associate Research Ophthalmologist

RESEARCH SUMMARY

Studies on Müller Cells

Zbed4 is a multifunctional protein that plays a key role in the cells where it is expressed. Dr. Ahmedli's results indicate that this important protein appears early in embryonic life and while in mouse retina it is detected only in Müller cells, in humans it is expressed in cones and Müller cells. In addition, he has found that the length and shape of Müller cell processes depend on the levels of Zbed4. Dr. Ahmedli's work aims to identify the pathway, which is essential for proper functioning of Zbed4 in Müller cells.

Christian Altenbach, PhD

Research Ophthalmologist

RESEARCH SUMMARY

Structure and Function of Rhodopsin

The membrane protein rhodopsin is a critical first step in visual transduction, converting light energy into a chemical form in the photoreceptor cell of the eye. To understand this process on a detailed molecular level, Dr. Altenbach is using site-directed spin labeling and electron paramagnetic resonance spectroscopy to study the structure of rhodopsin in the absence of light, as well as the changes in structure caused by light.

Barry L. Burgess, BS

Research Specialist IV

RESEARCH SUMMARY

Ocular Melanoma Molecular Genetics

Mr. Burgess provides research support for the Ophthalmic Oncology Center under the direction of Tara A. McCannel, MD, PhD. His research interests include investigation of cytogenetic abnormalities of ocular melanoma and gene discovery for the metastatic form of this cancer. He has developed highly characterized cell lines from both primary ocular melanomas and metastatic lesions to complement the Center's study of biopsy material. His research goals are to identify biochemical pathways that lead to a metastatic outcome and to find targets for therapeutic intervention that may preempt the progression of metastatic disease.

Rajendra Gangalum, PhD

Assistant Research Specialist II

RESEARCH SUMMARY

Function and Regulation of Small Heat Shock Protein α B-crystallin in Health and Disease

Dr. Gangalum's research seeks to gain understanding of the physiological function of α B-crystallin in the developing ocular lens and nonocular tissues. α B-crystallin has been shown to associate with pathologies such as cataracts, cancer, age-related macular degeneration (AMD), and other neurodegenerative diseases. Dr. Gangalum has discovered that α B-crystallin is a Golgi-associated membrane protein, secreted into extracellular medium via exosomes from retinal pigment epithelial cells. These findings explain how α B-crystallin is detected in the protein-lipid deposits known as drusen in AMD. Dr. Gangalum has generated the transgenic mice model of childhood cataract to study the molecular basis of its pathology. Cataracts in infants are debilitating, because opacities in the lens hinder the transmission of light to the retina, which impairs the

development of visual cortex in the brain. This model system is the only paradigm available for future investigations on early childhood cataracts.

Yekaterina Gribanova, MD

Associate Research Specialist I

RESEARCH SUMMARY

Characterization of Novel Retinal Protein 7R

A novel retinal protein, 7R, has been linked to auto-somal recessive retinitis pigmentosa, a disease leading to incurable blindness. Dr. Gribanova is using immunohistochemical analysis, *in situ* proximity ligation assay, co-immunoprecipitation, immunoelectron cryo-microscopy, and gradient flotation fractionation combined with solid-phase immunoabsorption to determine and characterize 7R function in photoreceptor cells. These methods will identify 7R's interacting partners and indicate whether 7R is contributing to the sorting and transport of phototransduction proteins to the outer segment of photoreceptor cells.

Joanna J. Kaylor, PhD

Assistant Research Ophthalmologist

RESEARCH SUMMARY

Characterization and Identification of the Enzymes of the Cone Visual Cycle

Bright light vision is solely mediated by the cone photoreceptor cells of the retina. Recent biochemical evidence supports the existence of a new metabolic pathway in the retina for the regeneration of cone opsin visual pigment. Dr. Kaylor is using biochemistry and molecular biology techniques to characterize and identify the enzymes responsible. Her work has led to the identification of the first vitamin A retinol isomerase, dihydroceramide desaturase-1 (DES1). Understanding the role of DES1 in vision is the current focus of her research.

Jacky M.K. Kwong, PhD

Associate Research Ophthalmologist

RESEARCH SUMMARY

Degeneration of Retinal Ganglion Cells and Neuroprotection

Dr. Kwong's research goal is to identify novel neuro-protective therapies for glaucoma. To understand the loss of retinal ganglion cells in glaucoma, his research focuses on the response and the cell death pathway of retinal ganglion cells in animal models related to optic nerve injury and glaucoma. Dr. Kwong and his colleagues recently found retinal ganglion cell-specific proteins. He is utilizing these proteins to visualize retinal ganglion cells and to investigate their function in retinal ganglion cells during degeneration. He is also applying pharmacologic techniques to evaluate therapies that enhance endogenous neuroprotective responses against glaucomatous, excitotoxic, and axonal damage to nerve cells, and is utilizing multidisciplinary methods to understand the protective mechanisms.

Anna Matynia, PhD

Assistant Research Ophthalmologist

RESEARCH SUMMARY

Neural and Molecular Basis of Photoallodynia

Dr. Matynia is investigating the mechanisms of photo-allodynia, a condition in which normal levels of light produce or enhance ocular or headache pain. Using a combination of behavioral, molecular, and cellular approaches in genetic mouse models, the goal is to identify mechanisms of light-pain association for different causes of photoallodynia, including corneal, retinal, and central causes such as dry eye injury, achromatopsia, and migraine respectively. The research findings will form the basis of treatment strategies for this condition.

Maria Carolina Ortube, MD

Assistant Research Ophthalmologist

Clinical Director of Research Studies, Retinal Disorders and Ophthalmic Genetics Division

RESEARCH SUMMARY

Ocular Genetics

Dr. Ortube is a fellowship-trained specialist in pediatric ophthalmology, strabismus, and pediatric genetic conditions. She is an investigator in four clinical and translational research projects related to ocular genetics. The genetics of inherited eye disorders and Stargardt protocols provide clinical characterization of affected individuals and at-risk family members. The Genetics of Age-Related Maculopathy study focuses on the genetic and environmental risk factors that contribute to age-related maculopathy. The protocols use state-of-the-art imaging and functional technologies in conjunction with molecular genetic testing to identify causative genes and mutations. Dr. Ortube has a special interest in children born with craniofacial ocular disorders. She is also investigating a simple, noninvasive, rapid method for widespread screening of diabetics using the pupillary light reflex. This study aims to identify those who may require medical attention and/or therapy for diabetic retinopathy. Dr. Ortube is a co-investigator in collaborative research efforts with the University of Pittsburgh and Neurokinetics, Inc.

Roxana A. Radu, MD

Associate Research Ophthalmologist

RESEARCH SUMMARY

Retinoids Metabolism in the Eye and Underlying Mechanisms of Macular Degeneration

Dr. Radu's research focuses on the visual cycle and underlying biochemical and molecular mechanisms of macular degeneration. She studies the *in vivo* association of the complement negative regulator genes and age-related macular degeneration (AMD) development. The mechanism by which dysfunction of complement factor H (*CFH*, one of the complement regulatory genes) causes AMD is not known. To investigate the relationship between abnormal build-up of vitamin A-based toxic compounds such as A2E and the complement system, Dr. Radu will generate a mouse lacking both genes *ABCA4* and *CFH*. This complex mouse genetic model will advance understanding of the relationship between lipofuscin accumulation, complement activation, and photoreceptor degeneration in AMD, and it will be a valuable tool for developing new treatments for this disease.

Kiyo Sakagami, PhD

Assistant Research Ophthalmologist

RESEARCH SUMMARY

Hedgehog Signaling and PTEN/PI3K Signaling on Retinal Development

Dr. Sakagami's research aims to understand how extracellular signals coordinate retinal cell fate and behavior during development, using genetic strategies for conditional mutagenesis in the mouse. The more specific goals of her research are to understand how hedgehog signaling regulates bHLH genes to determine cell cycle and cell fate decisions and to investigate the potential role of PTEN/PI3K signaling on retinal formation.

Ned Van Eps, PhD

Assistant Research Ophthalmologist

RESEARCH SUMMARY

The Molecular Mechanism of Transducin Activation

The conversion of light energy into rod cell impulse responses requires signal transfer between a photo-receptor, rhodopsin, and a rod cell protein called transducin. Dr. Van Eps is studying the structural changes in transducin that are necessary for signal relay between the two proteins. The techniques of site-directed spin labeling and electron paramagnetic resonance are used to follow transducin conformational changes that are important for its function and catalytic cycle.

Quan Yuan, PhD

Assistant Research Ophthalmologist

RESEARCH SUMMARY

Biochemistry of Visual Cycle and Retinal Degeneration

Dr. Yuan's research focuses on the biochemical mechanism of key proteins involved in the retinoid visual cycle. Retinal Pigment Epithelium Specific Protein 65kD (Rpe65) is one of the most important enzymes in the visual cycle that converts all-trans-retinyl ester to 11-cis-retinol and regenerates the visual pigment. He has investigated the biochemistry behind the interaction of Rpe65 with ER membrane and resolved the puzzle of Rpe65 membrane association. He is also investigating the chemical mechanism that regulates Rpe65 enzymatic activity, using chemical and state-of-the-art instrumental approaches. In other studies, Dr. Yuan and his colleagues are identifying candidate enzymes involved in the putative secondary isomerase pathway in cone dominant species. Another research interest is elucidating the biochemistry of *ABCA4* protein in Stargardt disease and age-related macular degeneration.

PROFESSIONAL CLINICAL SERIES

John D. Bartlett, MD

Assistant Clinical Professor of Ophthalmology

Clinical Director, University Ophthalmology Associates

Cataract Surgery

Dr. Bartlett provides clinical supervision to resident physicians at the University Ophthalmology Associates and teaches medical students during their ophthalmology surgical subspecialties clinical rotation. He also is responsible for the continued development of the resident cataract surgery educational curriculum.

Gavin G. Bahadur, MD

Associate Physician Diplomate

Clinical Instructor of Ophthalmology

RESEARCH SUMMARY

Comprehensive Ophthalmology, including Cataract, Pterygium, and Glaucoma Surgery

Dr. Bahadur teaches medical students during their ophthalmology surgical subspecialties clinical rotation. He is a full-time comprehensive ophthalmologist at the Stein Eye Center in Santa Monica.

Laura Bonelli, MD

Associate Physician Diplomat

RESEARCH SUMMARY

Neuro-Ophthalmology and Comprehensive Ophthalmology

Dr. Bonelli provides clinical supervision to resident physicians at the University Ophthalmology Associates and teaches medical students during their ophthalmology surgical subspecialties clinical rotation. She is collaborating on a study to learn and better understand giant cell arteritis (GCA), an inflammation of the lining of the arteries. GCA frequently causes blurred or double vision and, if left untreated, may result in loss of vision. She is also a co-investigator for the National Eye Institute-sponsored study of idiopathic intracranial hypertension.

Melissa W. Chun, OD

Associate Clinical Professor of Ophthalmology

Director of the UCLA Vision Rehabilitation Center

RESEARCH SUMMARY

Vision Rehabilitation

Dr. Chun's clinical research interests are in the areas of vision rehabilitation outcomes and training techniques that maximize visual function. She is a member of the Low Vision Research Network, a nationwide collaboration of low vision specialists for multicenter clinical studies. She is currently participating in the Low Vision Rehabilitation Outcomes Study, a multicenter pilot study that utilizes surveys and questionnaires to assess outcome and effectiveness of low vision rehabilitation.

Rachel Feit-Leichman, MD

Associate Physician Diplomat

Cataract Surgery

Dr. Feit-Leichman divides her time between supervising residents and providing patient care at the Stein Eye Institute's Urgent Care Clinic, University Ophthalmology Associates; and teaching cataract surgery and overseeing residents at the ophthalmology clinic of the Harbor-UCLA Medical Center. Dr. Feit-Leichman is also active in striving to improve patient access to eye care in the greater Los Angeles County Healthcare System.

Catherine J. Hwang, MD, MPH

Associate Physician Diplomat

Assistant Clinical Professor of Ophthalmology

RESEARCH SUMMARY

Thyroid Eye Disease, Ocular Surface Disease, Eyelid Disorders

Dr. Hwang's research includes studies involving thyroid eye disease (Graves disease), ocular surface disease, and eyelid disorders such as blepharospasm. Dr. Hwang has a dedicated thyroid eye disease clinic to investigate the clinical course of the disease and treatments, as well as to provide education and patient support. The clinic is the first in the country to provide an orbital specialist, Dr. Hwang, and a rheumatologist, Dr. Ben-Artzi, who work together to evaluate and treat patients affected with thyroid eye disease. Dr. Hwang will be starting a blepharospasm clinic in order to better educate patients, form support groups, and aid in clinical studies. In addition, Dr. Hwang collaborates with researchers from other departments, such as interventional radiology and head and neck surgery, on various projects.

Tania Onclinx, M.D.

Clinical Instructor of Ophthalmology

RESEARCH SUMMARY

Urgent Care and Clinical Supervision

Dr. Onclinx attends at the Urgent Care Walk-In service at the Stein Eye Institute. She teaches resident physicians and medical students at the University Ophthalmology Associates during their subspecialty clinical rotation. She also provides clinical supervision to resident physicians at Ronald Reagan UCLA Medical Center and UCLA Medical Center, Santa Monica.

Pradeep S. Prasad, MD

Health Sciences Assistant Clinical Professor

Chief, Division of Ophthalmology, Harbor-UCLA Medical Center

RESEARCH SUMMARY

Vitreoretinal Surgery and Disease Management

Dr. Prasad specializes in the medical and surgical management of diseases of the retina and vitreous. His research is focused on retinal vascular occlusive disease. Dr. Prasad also provides clinical supervision and instruction to resident physicians and vitreoretinal fellows as chief of the Division of Ophthalmology at Harbor-UCLA Medical Center.

Susan S. Ransome, MD

Associate Physician Diplomate

Clinical Instructor of Ophthalmology

RESEARCH SUMMARY

Cytomegalovirus Retinitis

Dr. Ransome is participating in several clinical research studies involving HIV-infected patients, some of whom have AIDS and cytomegalovirus retinitis. In one study, investigators are following patients over time to see what types of eye problems develop in HIV-infected individuals in the era of potent antiretroviral therapies. Dr. Ransome is also following patients with HIV who have diabetes to see whether there is increased risk of development or progression of diabetic retinopathy when subjects are treated for abdominal lipodystrophy with Egrifta (tesamorelin).

Meryl L. Shapiro-Tuchin, MD

Associate Physician Diplomate

Assistant Clinical Professor
of Ophthalmology

Director of the Ophthalmology
Inpatient Consultation Service

Comprehensive Ophthalmology

Dr. Shapiro-Tuchin provides clinical supervision to resident physicians while they are attending patients at University Ophthalmology Associates clinics. She also functions as Director of the Ophthalmology Inpatient Consultation Service, assisting resident physicians in their evaluation of inpatients admitted to the David Geffen School of Medicine at UCLA.

Mehryar "Ray" Taban, MD, FACS

Assistant Clinical Professor of
Ophthalmology

Associate Physician Diplomate

Aesthetic and Reconstructive Oculoplastic Surgery

Dr. Taban provides clinical supervision to resident physicians and oculoplastic fellows at the Stein Eye Institute. He focuses on nonsurgical and surgical management of disorders of the eyelid, orbital, and lacrimal system.

EMERITUS FACULTY

Michael O. Hall, PhD

Professor of Ophthalmology Emeritus
(Active Recall)

Founding Member of the
Stein Eye Institute

Robert S. Hepler, MD

Professor of Ophthalmology Emeritus
(Active Recall)

Founding Chief of the
Neuro-Ophthalmology Division

Member of the Stein Eye Institute

Allan E. Kreiger, MD

Professor of Ophthalmology Emeritus
(Active Recall)

Founding Chief of the Retina Division

Bradley R. Straatsma, MD, JD

Professor of Ophthalmology Emeritus
(Active Recall)

Founding Chairman of the
Department of Ophthalmology

Founding Director of the
Stein Eye Institute

Barry A. Weissman, OD, PhD

Professor of Ophthalmology Emeritus
(Active Recall)

Marc O. Yoshizumi, MD

Professor of Ophthalmology Emeritus

Member of the Stein Eye Institute

Richard W. Young, PhD

Professor of Neurobiology Emeritus

Member of the Stein Eye Institute

LECTURERS

Kathleen L. Boldy, VMD

Lecturer in Ophthalmology



Programs

Patient Care Services

The Institute's program of care for patients encompasses the full range of eye diseases. Nationally and internationally renowned faculty, along with highly skilled clinical fellows and physician residents, provide integrated consultation and treatment, including new diagnostic and therapeutic procedures that have been made available through recent scientific advances. Institute ophthalmologists are supported by optometrists, orthoptists, technicians, and nurses. Care is delivered in distinctive subspecialty treatment centers, service areas, and clinical laboratories, as well as in specially equipped ophthalmic surgical suites and a dedicated inpatient unit. The Stein Eye Center, Santa Monica, offers the premier service of the Stein Eye Institute in a convenient neighborhood location.

Faculty Consultation Service

Institute faculty members provide direct consultation and treatment, including emerging therapies, to patients through the Ophthalmology Faculty Consultation Service. Faculty members have extensive, advanced training in ophthalmic subspecialties, providing referring physicians and patients with a valuable resource for special eye problems.



Inpatient Consultation Service

Stein Eye Institute, Westwood

The Ophthalmology Inpatient Consultation Service, operating 24 hours a day through the Ronald Reagan UCLA Medical Center, provides consultation and treatment to pediatric and adult patients admitted to the hospital's medical, surgical, and psychiatric inpatient services. Led by **Dr. Meryl L. Shapiro-Tuchin**, the consultation team consists of physician-residents. Subspecialty coverage from faculty is provided as needed.

Stein Eye Center, Santa Monica

The Ophthalmology Inpatient Consultation Service, operating through the Stein Eye Center, Santa Monica, provides consultation and treatment to pediatric and adult patients admitted to the hospital's medical, surgical, and psychiatric inpatient services. Led by **Dr. Laura Bonelli**, the consultation team consists of physician-residents. Subspecialty coverage from faculty is provided as needed.

Surgical Services

Ophthalmic surgery of every variation, from cataract extraction to removal of ocular and orbital tumors, is performed in the Institute's dedicated operating rooms. Additionally, laser vision-correction surgeries, such as laser-assisted *in situ* keratomileusis (LASIK), and certain aesthetic and retinal laser surgeries and injection procedures, are performed in designated outpatient procedure rooms. Faculty members perform surgical procedures according to their specific ophthalmic specialty. They are joined by other medical specialists, including anesthesiologists, nurses, and technicians to ensure the highest quality preoperative and postoperative care.

University Ophthalmology Associates

Comprehensive and subspecialty eye care in all medical and surgical areas of ophthalmology is offered through University Ophthalmology Associates.

Dr. John D. Bartlett is medical director, and ophthalmologists who are members of the UCLA Medical Group staff the practice.

Stein Eye Center, Santa Monica

The Stein Eye Center, under the direction of **Dr. Colin A. McCannel**, offers the world-renowned comprehensive and subspecialty eye care of the Stein Eye Institute at a convenient location in Santa Monica. Established in 2011, the Stein Eye Center features well-equipped exam rooms, an optical shop, convenient on-site parking for easy access, and testing facilities offering a wide range of examinations, including visual field, corneal mapping (corneal topography), intraocular lens measurement, fluorescein angiography, spectral domain optical coherence tomography, and other diagnostic retinal imaging techniques.

Nearly all the evaluation, diagnosis, testing, and treatment services available at the Stein Eye Institute in Westwood are offered at the Stein Eye Center, Santa Monica, by experts in retinal disorders, corneal disorders, glaucoma, neuro-ophthalmology, and laser refraction surgery. For surgeries and seldom-needed tests requiring specialized laboratories, patients can be referred to the main facility in Westwood. The Stein Eye Center is located at 1807 Wilshire Boulevard, Suite 203, Santa Monica, California, 90403. The telephone number is (310) 829-0160; the fax number is (310) 829-0170; and the email address is jsec_sm@jsei.ucla.edu.

Summary of Patient Care Statistics

	2011–2012	2012–2013
Faculty Consultation Service		
Patient visits	82,157	89,186
University Ophthalmology Associates		
Patient visits	20,499	22,398
Inpatient Consultation Service		
Patient evaluations	540	704
Clinical Laboratories		
Procedures	33,574	37,811
Surgery Services		
Number of procedures	11,348	16,188
Mobile Eye Clinic		
Number of patients seen	4,897	12,990*
Ocular abnormalities	64%	17%
Number of trips	180	190

*Includes screenings of special program

Research and Treatment Centers

The Ophthalmology Treatment Centers provide subspecialty care from faculty physicians who are actively involved in related research, enabling emerging and experimental treatment options to be developed for a gamut of eye disorders. In addition to comprehensive treatment, the centers provide both patients and physicians with expert diagnostic and consultation services for diseases that are difficult to identify and treat. Ophthalmology faculty work closely with other specialists, both within the Stein Eye Institute and in other UCLA clinical departments, to create a multidisciplinary team customized for each patient's unique medical needs.



Aesthetic Center

The Aesthetic Center, under the direction of **Dr. Robert Alan Goldberg**, provides services to patients who are interested in enhancing their appearance through aesthetic surgery. **Drs. Catherine J. Hwang** and **Mehryar (Ray) Taban** also see patients. Established in 1998, the Center has earned a reputation for high quality, individualized care delivered by surgeons trained in both ophthalmic and plastic surgery.

Surgical services include upper and lower eyelid blepharoplasty, endoscopic forehead lifting, endoscopic midface surgery, lifting of the neck and face, liposuction, fat transfer, and sclerotherapy, as well as dermal filler and other cosmetic injections to smooth facial lines. Minimal incision approaches are utilized to provide the optimal aesthetic result. A major goal of the Center is to conduct research focused on improving understanding of skin processes, such as aging and healing, and on developing new techniques and substances for aesthetic surgery. Center physicians have pioneered surgical techniques to enhance the normal function and appearance of the eyes and face, and often receive referrals for complex plastic surgery cases.

Center for Community Outreach

The Stein Eye Institute's new Center for Community Outreach, under the direction of **Dr. Anne L. Coleman**, is dedicated to the principle that all individuals deserve the best vision attainable. Building upon the Institute's long tradition of community service and leadership at the interface of ophthalmology and public health, the Center conducts vital research in public-health ophthalmology through the UCLA Center for Eye Epidemiology and provides high-impact community-based services, such as the UCLA Mobile Eye Clinic.

UCLA Center for Eye Epidemiology

The UCLA Center for Eye Epidemiology was established in 1997 to promote interdisciplinary investigations into blinding diseases of public health importance. It is supported by private donations, including an endowment established by The Ahmanson Foundation. The Center maintains and improves vision health through public health research and intervention, and serves as a coordinating body for expanding and sharing information.

Center members have expertise in epidemiology, biostatistics, health policy, public health, and international health. Members draw on their diverse backgrounds and complementary skills to promote an understanding of issues related to vision health as it affects individuals, communities, and society. The Center encourages collaborative research among faculty and investigators from various UCLA departments and other institutions around the world to advance knowledge related to the causes and prevention of specific eye diseases.

UCLA Mobile Eye Clinic

For more than 40 years, the UCLA Mobile Eye Clinic (MEC) has supported patient care and screening programs in neighborhoods where poverty and vision disabilities intersect. The dedication and hard work of MEC ophthalmologists, technicians, and volunteers have touched the lives of hundreds of thousands of individuals.

The MEC, a 39-foot-long bus specially outfitted with eye examination equipment, is supported by charitable contributions to the Stein Eye Institute. The Mobile Eye Clinic's staff of trained ophthalmic personnel provides general eye care to over 4,000 underserved adults and children annually throughout Southern California. Services include ophthalmic examination and refraction, diagnosis of potential or existing eye disorders, treatment of some ocular diseases, and appropriate referral of patients who need additional care.

Center to Prevent Childhood Blindness

The Center to Prevent Childhood Blindness, under the direction of **Dr. Sherwin J. Isenberg**, is committed to reducing pediatric blindness. UCLA physicians and basic scientists, including **Gary N. Holland**, **Steven Nusinowitz**, and **Irwin Weiss**, collaborate on research, education, and patient care programs designed to increase awareness and help treat pediatric blindness. Significant emphasis is on the development and evaluation of ophthalmic medical and surgical options for children.

Center members are developing a new noninvasive method of measuring blood gases from the surface of the eye, which may be critical in preventing retinopathy of prematurity, a leading cause of blindness in premature newborns. In another avenue of research, the Center developed a very inexpensive antiseptic solution to treat pediatric corneal infections in developing areas, and completed a study showing its effectiveness in treating corneal ulcers that now blind

more than 400,000 children worldwide. A second study, which evaluated the solution's effectiveness in treating fungal corneal infections, a major cause of pediatric blindness in tropical countries, has shown promise in treating the milder fungal infections.

Center for Regenerative Medicine in Ophthalmology

Representing a milestone in the therapeutic use of stem cells, in 2011 Stein Eye Institute clinician-scientists successfully transplanted the first human embryonic stem-cell-derived retinal pigment epithelial cells into the eyes of legally blind patients with Stargardt disease and dry macular degeneration.

The Center for Regenerative Medicine in Ophthalmology (CRMO), under the co-direction of **Drs. Sophie X. Deng** and **Gabriel H. Travis**, is building upon these efforts, using stem cells for the treatment of corneal disorders and retinal degenerative diseases. The CRMO fosters a collaboration between basic scientists and clinicians, including **Drs. Debora Farber**, **Jean-Pierre Hubschman**, **Steven Schwartz**, and **Xian-Jie Yang**, to translate advances in basic-science research into new and improved clinical therapies.

Many of the blinding eye diseases, including glaucoma, macular degeneration, and corneal diseases, are due to the loss of functional tissue. The development of effective and safe individualized stem-cell-based therapies relies on robust basic science, translational, and clinical research. The CRMO supports current stem cell studies and pursues new research programs to diagnose, treat, and ultimately cure and prevent blinding eye diseases.

Clinical Research Center

The Stein Eye Institute's Clinical Research Center (CRC) was established in 1998 to provide core support to faculty members who are conducting patient-based research studies. This support involves vital, behind-the-scenes activities that facilitate the

clinical research process. **Dr. Gary N. Holland** serves as director of the CRC; additional members of the Board of Directors include **Drs. Joseph Caprioli**, **Michael B. Gorin**, **Ralph D. Levinson**, and **Steven D. Schwartz**. The CRC has a full-time administrator, **Ms. Ellen Haupt**, and an in-house statistician, **Dr. Fei Yu**. CRC staff members interact with granting agencies and government regulatory bodies; assist with the preparation of grant applications; participate in the design and management of clinical studies; and perform data collection and analysis functions.

Institute faculty members are currently conducting more than 60 clinical research studies (listed in the Appendices). Patients can volunteer to participate in studies that contribute to a better understanding of ocular disorders or that evaluate new, potentially better treatments for various diseases of the eye.

Contact Lens Center

The Contact Lens Center, under the supervision of **Dr. Vivian A. Phan**, serves patients with all ophthalmic diagnoses that can be treated with contact lenses. The Center's primary focus is on customized specialty lenses that visually rehabilitate conditions, such as keratoconus, postcorneal transplants, corneal scarring, postrefractive surgery ectasia, ocular surface disease, and aphakia. Dr. Phan also prescribes contact lenses to address farsightedness, nearsightedness, and presbyopia.

The specialty lenses that are available through the Contact Lens Center include rigid gas permeable contact lenses, multifocal contact lenses, hybrid lenses, scleral lenses, custom soft lenses, soft lenses for irregular corneas, prosthetic soft lenses, pediatric aphakic lenses, and adult aphakic lenses.

Dr. Phan's clinical research is focused on keratoconus, clinical management of penetrating keratoplasty with biotic lenses, and scleral lenses for the treatment of ocular surface disease.

A large majority of her patients require custom contact lenses and are referred by corneal specialists.

Diabetic Eye Disease and Retinal Vascular Center

Under the direction of **Dr. Steven D. Schwartz**, the Diabetic Eye Disease and Retinal Vascular Center provides diabetic patients with comprehensive ophthalmic care. Established more than a decade ago, the Center has contributed significantly to the understanding, treatment, and prevention of diabetic eye disease. Current focus is on innovation in technologies and techniques that expand the standard of treatment, such as new lasers and laser strategies, refinement of microsurgical techniques specific to diabetic eye diseases, and nontraditional treatment approaches.

The Center's treatment philosophy is based upon the systemic nature of diabetes. Patient care is coordinated with other UCLA departments to address the special needs of diabetics that lie outside the field of ophthalmology. Center treatment interventions include laser and ophthalmic surgery. Recognizing the special care needed for diabetics in any surgical situation, Center physicians perform all eye surgeries for diabetics, including those specific to the disease, as well as vitrectomy, cataract surgery, and retinal reattachment.

Eye Trauma and Emergency Center

The Eye Trauma and Emergency Center, under the direction of **Dr. Robert Alan Goldberg**, provides immediate response to ophthalmic emergencies through an eye trauma team available 24 hours a day for consultative, medical, and surgical care involving both primary and secondary ocular repairs. Ophthalmic emergency care has been provided by the UCLA Department of Ophthalmology since its inception. In 1980, the Eye Trauma and Emergency Center was formally

established to encompass all levels of ocular trauma within the UCLA hospital system, including support to affiliated institutions.

Patients are commonly referred to the Center for such ocular traumas as ruptured globe, intraocular foreign bodies, acute orbital hypertension, retinal detachment, chemical burns of the cornea and conjunctiva, and acute vitreous hemorrhage. The Center offers complete evaluation and treatment of the traumatically injured eye, including vitreoretinal and/or orbital and ophthalmic plastic surgery, anterior segment surgery, and medical follow up. Primary surgical repairs are performed immediately for new trauma while secondary repairs are usually scheduled.

Gerald Oppenheimer Family Foundation Center for the Prevention of Eye Disease

Established with a generous pledge from Gail and Gerald H. Oppenheimer, the Gerald Oppenheimer Family Foundation Center for the Prevention of Eye Disease is committed to the discovery of agents and methods to prevent ophthalmic diseases. Areas of study supported by the Foundation include genetic and environmental factors that may cause eye disease, and pharmacologic and natural agents to prevent eye disease. The Center complements an expanding array of research in many other fields at UCLA, where rigorous scientific methods are being applied to study novel approaches to health care.

Glaucoma Center for Excellence in Care and Research

In the United States, glaucoma is the second cause of irreversible legal blindness. If glaucoma is detected early, however, vision loss can be slowed or even prevented. Under the direction of **Dr. Joseph Caprioli**, the Glaucoma Center for Excellence in Care and Research, is committed to giving each patient a chance for a brighter future and a life filled with sight.

Stein Eye Institute researchers, **Drs. Anne L. Coleman, JoAnn A. Giacone, Jacky M. K. Kwong, Simon K. Law, Kouros Nouri-Mahdavi, and Natik Piri**, are working with researchers and statisticians from the UCLA School of Public Health to identify individuals at greatest risk for vision loss, to develop and assess therapeutic strategies, and to implement new treatments to preserve vision.

UCLA Laser Refractive Center

The UCLA Laser Refractive Center is under the direction of **Dr. David Rex Hamilton**. Founded in 1991, the Center specializes in refractive surgery of both the cornea and lens of the eye, including clinical and research applications of new laser technology. The Center is one of a few in the United States to pioneer investigations into laser eye surgery.

The UCLA Laser Refractive Center offers all cornea refractive procedures, including LASIK and LASEK/PRK; astigmatic keratotomy; conductive keratoplasty, and intracorneal ring implantation. Advanced intraocular lens (IOL) procedures are also available, including presbyopia-correcting IOLs (multifocal and accommodating), toric IOLs, and phakic IOLs. Patients referred to the Center undergo a complete ocular examination that includes corneal topographic mapping, wavefront analysis, and corneal biomechanical measurements to identify conditions that may interfere with surgical correction of refractive errors. Candidates for laser or intraocular lens surgery receive intensive education to understand the benefits, risks, and alternatives to surgery. Participation in clinical trials for new refractive devices and techniques to treat nearsightedness, farsightedness, and presbyopia may be an option for qualified patients. For more information about the UCLA Laser Refractive Center, go to: www.uclaser.com and lasik.ucla.edu.

Macular Disease Center

The Macular Disease Center, under the direction of **Dr. Steven D. Schwartz**, was created in 1994 in response to the growing, national incidence of macular degeneration. The Center's mission is threefold: provide high-quality patient care, utilizing standard and developing treatments; offer associated rehabilitation services, such as low-vision aids and counseling, in order to enhance quality of life for patients; and promote collaborative translational research between clinicians and basic science researchers into the cause of macular disease.

Patients with the atrophic or dry form of macular disease are evaluated and often considered for clinical trials, such as the stem cell programs, and their cases are followed at the Macular Disease Center in conjunction with services offered by the Vision Rehabilitation Center. Patients with the exudative or wet form of macular disease are diagnosed and treated with cutting-edge therapies. Treatment options for wet macular disease include therapy and participation in clinical studies that are matched to the patient's disease status. A patient coordinator is available to answer questions and provide information on an ongoing basis.

Ocular Inflammatory Disease Center

The Ocular Inflammatory Disease Center, under the direction of **Dr. Gary N. Holland**, was established in 1985 to coordinate research, educational activities, and patient-care services related to a broad spectrum of inflammatory eye disorders, including uveitis, infectious corneal ulcers, endophthalmitis, autoimmune diseases of the cornea and ocular surface, and the ophthalmic manifestations of HIV disease. The Center has a long history of participating in clinical studies and drug-therapy investigations that have furthered the understanding and treatment of these diseases.

Center faculty members were the first to describe cytomegalovirus (CMV) retinitis as an ophthalmic manifestation of AIDS; today the Center is a nationally recognized site of expertise for AIDS-related ophthalmic disease. Other special programs have been developed in the following areas: ocular toxoplasmosis, uveitis in children, birdshot chorioretinopathy, immunogenetics of inflammatory eye diseases, unusual corneal infections, and chemical mediators of intraocular inflammation.

Ophthalmic Oncology Center

The Ophthalmic Oncology Center, under the direction of **Dr. Tara A. McCannel**, is renowned for its expertise in teaching, research, and clinical management of adult posterior segment tumors. Established in the early 1980s by the Institute's Founding Director, **Dr. Bradley R. Straatsma**, the Center is internationally recognized for the diagnosis and management of ocular melanoma. The Center serves as a hub for national, long-term studies investigating ocular melanoma, and played an important role in the Collaborative Ocular Melanoma Study (COMS) sponsored by the National Eye Institute.

The Center's clinical goal is successful treatment of the primary eye tumor. Patients diagnosed with ocular melanoma may be offered highly sophisticated treatment plans coordinated with UCLA radiation physicists and radiation oncologists. Patients may also qualify to participate in clinical research studies in partnership with the UCLA Jonsson Comprehensive Cancer Center. The Center's primary research goal is to gain a fundamental understanding of the molecular biology of metastatic ocular melanoma. In addition to providing genetic prognostic information to patients on their risk of tumor metastasis, the Center has identified key genes associated with metastatic tumors.

Optic Neuropathy Center

Under the direction of **Dr. Anthony C. Arnold**, the Optic Neuropathy Center provides multidisciplinary consultation, diagnosis, and treatment for patients with complex diseases involving the optic nerve. Established in 1991, the Center incorporates specialized facilities and equipment for diagnostic testing and offers consultation from neuro-ophthalmologists, orbital surgeons, neurologists, neuro-radiologists, and neurosurgeons.

Patients referred to the Optic Neuropathy Center receive advanced diagnostic testing of the orbit and optic nerve to assist in evaluation. Extensive analysis of diagnostic data, together with information from the patient's medical history and comprehensive physical examination, enables Center physicians to determine the nature of the disease and devise a treatment plan. Treatment may be medical or surgical depending on the nature of the referral and the patient's disease status. As part of the Center's clinical research effort, physicians are refining disease classifications along with diagnostic and treatment approaches to further the field of optic neuropathy and improve options for patients with these complex disorders.

Orbital Disease Center

The Orbital Disease Center, under the direction of **Dr. Robert Alan Goldberg**, was founded in 1991. The Center brings multidisciplinary expertise to the treatment and study of orbital diseases arising from trauma, cancer, inflammation, and infection. Care is organized around a team of experts in ophthalmology, neuroradiology, neurosurgery, head and neck surgery, radiation oncology, and craniofacial surgery, bringing to the treatment of orbital diseases a depth of knowledge and experience not available elsewhere in Southern California.

The Center provides both medical and surgical management of orbital diseases; however, surgery is the primary treatment approach. The team performs procedures that are not usually available in the community, including orbital decompression microsurgery for orbital apical tumors, optic canal decompression, and bony reconstruction to address traumatic or congenital defects. The Center has an active program on Graves disease, where new surgical techniques are evaluated and basic science research is carried out to advance understanding about the disease.

Vision Genetics Center

Initially established in 1978 as the UCLA Retinitis Pigmentosa Registry, the Vision Genetics Center, under the direction of **Dr. Michael B. Gorin**, is an integrated clinical and research program that addresses the full spectrum of hereditary eye disorders. Center members, representing multiple disciplines, combine their efforts to understand the underlying molecular basis of a broad range of ocular conditions, including those involving the development of the eye, cornea, lens, extraocular muscles, retina, vitreous, and optic nerve. Areas of interest include both simple inherited conditions caused by alterations in single genes, as well as conditions in which multiple genetic variations and other risk factors play a role.

The Center offers patients and their family members state-of-the-art diagnosis and care of the hereditary eye or vision condition. Services include genetic counseling, and when appropriate, DNA testing either as a clinical diagnostic service, a research program, or in combination. The Center's faculty members collaborate with a number of genetic research groups around the world to ensure that patients can participate in the most advanced research for their particular condition.

Vision Proteomics Center

Genes encode the sequences of proteins, and knowledge of the structure and function of these proteins is required to unlock the secrets of the cell. That task is now set before current and future generations of scientists, and a new field of study, *Proteomics*, has been born. It is only through an understanding of protein function at the molecular level that researchers can learn the fundamental origins of disease and develop rational therapeutic designs to correct defects in the molecular machinery.

The Vision Proteomics Center at Stein Eye Institute, under the direction of **Dr. Wayne L. Hubbell**, with researchers **Drs. Ben J. Glasgow, Dean Bok, Joseph Horwitz, and Gabriel H. Travis**, has pioneered the development of site-directed spin labeling—the only one of its kind in the world, ushering in a new era of exploration of structure/function relationships in proteins. Research groups at the Stein Eye Institute, departments at UCLA, and other major institutions throughout the United States and abroad, are taking advantage of the singular opportunities provided by the Vision Proteomics Center.

Vision Rehabilitation Center

The Vision Rehabilitation Center is under the direction of **Dr. Melissa W. Chun** with **Dr. Steven D. Schwartz** as medical advisor. The Center was established to provide rehabilitation to maximize visual function and quality of life of patients with low vision, defined as best corrected vision of 20/70 or worse in the better eye. These outcomes are accomplished with a rehabilitation plan tailored to each patient's specific needs and goals.

The Center provides assistance in the form of patient consultation and training, including reading and computer training, as well as evaluation with the latest low-vision devices that can help patients adapt to their visual restrictions. The Center utilizes a wide array of technologically advanced devices, such as magnifiers, telescopes, and digital and computer technology. Customized for each patient's individual needs, services may range from simple solutions to specialized approaches. One unique feature of the Center is a special "lending library" of select low-vision devices that enables patients to try them at home or in the office prior to purchase. When appropriate, referrals are provided to assist independent living through occupational therapy and orientation and mobility training.



Clinical Laboratories

The Ophthalmology Clinical Laboratories provide precise measurements, photographs, and quantitative studies of the eye and the visual system. Quantitative information of this type enhances patient care by increasing the accuracy of diagnosis and enlarging the parameters employed to assess the clinical course and effectiveness of treatment. Additionally, the clinical laboratories expand the scope of treatment alternatives, promote clinical research, and generally augment the effectiveness of ophthalmic disease management. The laboratories are available to all ophthalmologists in the community.

Corneal Diagnostic Laboratory

The Corneal Diagnostic Laboratory, under the direction of **Dr. Anthony J. Aldave**, offers a comprehensive array of corneal imaging modalities. Services include imaging of the anterior and posterior corneal surfaces with the Marco OPD-Scan III and Bausch and Lomb Orbscan topographers and the Ziemer GALILEI Dual Scheimpflug Analyzer, and imaging of the corneal endothelium for assessment of corneal endothelial cell morphology and density using the KONAN Cell-Chek XL specular microscope. Full-thickness confocal microscopic imaging of the cornea, a very useful tool in the diagnosis of suspected fungal, acanthamoebic, and other parasitic infections of the cornea, is performed with the Heidelberg HRT3 confocal microscope. This instrument can also perform optical pachymetry to non-invasively measure LASIK residual bed thicknesses and flap thicknesses as well as evaluate the LASIK interface for possible infections, diffuse lamellar keratitis, and ingrowth.

Glaucoma Photography Laboratory

The Glaucoma Photography Laboratory, under the direction of **Dr. Joseph Caprioli**, provides specialized photographs for new and follow-up glaucoma patients to assist the ophthalmologist in the management of patients with this disease. The GDX Nerve Fiber Analyzer utilizes polarized light in place of dilation to measure the thickness of the nerve fiber layer. This test is particularly useful in diagnosing new glaucoma. Heidelberg retinal tomography, using confocal laser light, measures additional parameters of the optic nerve and provides more information on the nerve fiber layer. Optical coherence tomography utilizes reflected light to measure the nerve fiber layer as well as to measure macular holes as a staging procedure for surgical repair. An ophthalmic fundus camera photographs the optic nerve in stereo. The Laboratory is conducting clinical studies to evaluate the effectiveness of each photographic modality in terms of predictive accuracy and early detection of glaucoma.

Ocular Motility Clinical and Basic Science Laboratory

The Ocular Motility Clinical and Basic Science Laboratory, under the direction of **Dr. Joseph L. Demer**, records and quantitatively analyzes eye movement abnormalities resulting from ocular and neurological disorders, such as ocular myasthenia gravis. Several types of tests are performed. The Hess test utilizes specialized eye charts and lenses to assist in the diagnosis of a number of problems, including double vision. Magnetic scleral search coil techniques are utilized in clinical research studies to detect fine movements not evident through normal visual examination. Another test involves the visual recording of eye movement using a video camera. The Laboratory also engages in basic science research to further understanding of eye movement as well as diseases of the eye, brain and muscles, and related tissues of the inner ear.

Ophthalmic Photography Clinical Laboratory

The Ophthalmic Photography Clinical Laboratory, under the direction of **Dr. Tara A. McCannel**, provides a wide array of photographic techniques important in patient care, research, and teaching. The primary purpose of ophthalmic photography in patient care is to record the present state of the eye, and in cases of abnormality, to establish a baseline and monitor the patient's condition over time. Patient care services include photographic documentation of anterior segment diseases involving corneal problems like growths, infection, and trauma; photographs of ocular motility to record abnormalities in eye movement; fundus photography, which captures pictures of the retina; and diagnostic testing using fluorescein and indocyanine green angiography, which records the dynamics of blood flow in the eye. The Laboratory also supports the research and teaching activities of the Stein Eye Institute by preparing and duplicating graphic materials for presentation and publication.

Ophthalmic Ultrasonography Clinical Laboratory

The Ophthalmic Ultrasonography Clinical Laboratory, directed by **Dr. Steven D. Schwartz**, performs clinical examinations that are useful in diagnosing both ocular and orbital eye diseases. Diagnostic examinations include standardized A-scan, B-scan, and biomicroscopy. Standardized A-scan is useful in tissue differentiation and is commonly employed to diagnose ocular and orbital tumors, including choroidal melanoma. B-scan provides location and contour information and is particularly useful in differentiating vitreous membranes from retinal detachment. Ultrasound biomicroscopy provides exquisitely detailed, high-resolution views of the anterior segment of the eye and is a critical tool for the evaluation of ocular pathology, especially in opaque corneas. Biometry and intraocular lens calculations are also performed in the

Laboratory, under the direction of **Dr. Ralph Levinson**. Biometry measures the axial eye length, anterior chamber depth, and lens thickness; intraocular lens calculations are performed to determine the power of the lens implant for cataract patients.

Perimetry Laboratory

The Perimetry Laboratory, under the direction of **Dr. Joseph Caprioli**, performs visual field examinations that determine the sensitivity of central and peripheral vision. Examinations are conducted with advanced Humphrey automated perimetry equipment. Testing detects visual field deficits associated with certain kinds of eye diseases such as glaucoma, retinal disorders, and neuro-ophthalmic conditions. Utilizing pinpoints of light around a perimetry bowl, the test evaluates different areas of the field of vision. Test results are computerized and compared to a range of normal values by age group. Patterns of diminished fields of vision are related to specific eye diseases. Perimetry testing is employed for diagnostic purposes and to monitor visual field sensitivity over time, especially for glaucoma patients. Both standard and shortwave automated techniques are available, in addition to frequency-doubling perimetry and motion-detection perimetry.

Visual Physiology Clinical Laboratory

The Visual Physiology Clinical Laboratory, under the direction of **Drs. Michael B. Gorin** and **Steven Nisnowitz**, quantitatively evaluates the function of the retina and visual pathways. Patients are referred for functional testing to confirm a specific diagnosis, or in cases where the etiology is unknown, to rule out alternative diagnostic possibilities. Electrophysiological tests, including both the full-field and multifocal electroretinograms (ERG and mfERG), the electro-oculogram (EOG), and visually evoked cortical potentials (VECP), record electrical signals from different layers of the visual system to identify

the site responsible for visual symptoms. Psychophysical tests require the participation of the patient in specific tasks to evaluate visual functions like color blindness, contrast sensitivity, and visual acuity. In many cases, both electrophysical and psychophysical tests are performed together to obtain the optimum amount of information for diagnosis.

Training Programs

The Stein Eye Institute and the UCLA Department of Ophthalmology jointly provide comprehensive training in ophthalmology and vision science to medical students, residents, and clinical and research fellows. The programs encompass the gamut of ophthalmic and vision science education, representing every level of training and incorporating a full range of subjects in the study of the eye. The residency program is rated one of the top in the country. A large patient population with diverse vision problems offers innumerable training opportunities for both residents and clinical fellows. The availability of more than 15 research laboratories ensures a wide choice of vision-science projects for all trainees. Pre-doctoral and postdoctoral research fellows particularly benefit from the wealth of new and unfolding research generated by vision scientists at the Institute.

UCLA Medical Student Program

Each academic year, the Department of Ophthalmology and the Institute extend instruction to UCLA medical students in their second, third, and fourth years of enrollment. Through lectures, demonstrations, discussions, and clinical practice, the students have numerous training opportunities from which to gain knowledge and experience in ophthalmology.

All second-year medical students participate in a four-day program that encompasses the ophthalmology portion of Fundamentals of Clinical Medicine. Third-year medical students complete a one-week rotation in ophthalmology, and the fourth-year medical student program is made up of various elective programs. Elective courses provide intensive exposure to clinical ophthalmology and basic visual sciences.

Medical Student Research Program

At the Stein Eye Institute, medical students have taken clinical and laboratory-research electives for decades; however, there has been no formal program wherein a medical student could obtain salary and research support. The Medical Student Research Program allows select medical students to familiarize themselves with laboratory or clinical vision science research. Each year, a committee selects one or two medical student researchers to receive salary and research support for 6–12 months in the laboratory or clinical research area of the student's mentor. The goal of the program is to encourage medical students to pursue careers in academic ophthalmology.



UCLA Ophthalmology Residency Program

The Department of Ophthalmology conducts an accredited three-year residency program for 24 residents; eight new residents begin training each July. The full breadth of ophthalmology training is offered, including experience in general ophthalmology and ophthalmic subspecialties. Training incorporates the resources of the UCLA Stein Eye Institute, Harbor-UCLA Medical Center, Olive View-UCLA Medical Center, and the Veterans Affairs Greater Los Angeles Healthcare System at West Los Angeles and Sepulveda. Every resident has exposure to each medical center during the course of training, thereby ensuring clinical experience with a wide range of problems and patient populations. Certification by the American Board of Ophthalmology is a natural objective of the program.

Clinical Rotations

Clinical rotations at the Stein Eye Institute include both general ophthalmology and subspecialties. In general, ophthalmology residents work as a team, handling clinics, emergencies, and walk-in patients. They also serve as an ophthalmology consult service for inpatients in the UCLA Medical Center. Residents assigned to subspecialty service rotations are provided with intensive exposure to the various divisions within the Department, working closely with faculty members in a private practice environment. At the UCLA-affiliated medical centers, residents work in teams that provide both general and subspecialty patient care.

Didactic Education

Residents receive didactic education in the classroom on an ongoing basis. Once each week, all residents attend a mandatory half-day program that includes faculty lectures that, over the course of the three-year program, cover each of the required subjects in the American Academy of Ophthalmology Basic and Clinical Sciences Course.

These lectures are followed by Grand Rounds, which consist of presentation and discussion of specific patient cases, and faculty lectures on clinical topics related to ophthalmic subspecialties. Throughout the week, clinical conferences in ophthalmic subspecialties are held where problems are presented and discussed.

Surgery Training

Residents begin to perform surgery in their first year of training and continue to operate throughout their residency. Surgical cases are assigned commensurate with level of training and experience. First-year residents begin in the Institute's Microsurgery Laboratory, an organized surgical course that includes computerized surgical simulators. This facility is available to residents throughout their training. Residents first assist on selected surgical cases; by the end of their residency, they are performing procedures independently.

Research

An understanding of and an appreciation for research are major prerequisites for assimilating future developments in ophthalmology. Accordingly, ophthalmic research is an integral component of residency training. Residents are expected to undertake independent investigation or to participate in ongoing clinical or basic science research projects in ophthalmology. They present the results of their work at the Stein Eye Institute Clinical and Research Seminar during their second and third years of residency. They are also encouraged to report their studies at regional and national meetings and publish their results in scientific journals. Residents with special clinical or research interests have an opportunity to use elective time to increase their exposure to a particular area of ophthalmology. This time can be spent with full-time or volunteer faculty at UCLA or at other institutions.

EyeSTAR Program

For physicians who are interested in academic careers and professional leadership as clinician-scientists, the Stein Eye Institute offers an Ophthalmology Specialty Training and Advanced Research Program, referred to as EyeSTAR, which offers vision-science training combined with an ophthalmology residency. Appointees complete a residency program leading to certification in ophthalmology, as well as laboratory research experience leading to a doctorate, or postdoctoral training in the event that the trainee already has a doctorate. EyeSTAR trainees work under the guidance of a faculty advisory panel representing the trainee's clinical and research interests.

The unique program began in 1995 and is geared to physicians committed to academic careers in ophthalmology, combining basic science with clinical practice in a five-year or six-year curriculum. EyeSTAR graduates are trained to compete not just with clinical scientists but also with top basic scientists from all institutions. Trainees select their faculty mentors from the Vision Research Division of the Stein Eye Institute or from the David Geffen School of Medicine at UCLA, College of Letters and Sciences, School of Public Health, Clinical Scholars Program, and RAND Graduate School.

EyeSTAR is recognized by the National Eye Institute and the Association of University Professors of Ophthalmology as a model-training program for clinician-scientists in ophthalmology.

UCLA Clinical Ophthalmology and Vision-Science Fellowship Programs

The Stein Eye Institute offers particularly well-qualified persons the opportunity to receive fellowship training in specific areas of clinical ophthalmology or vision-science research.

Following successful completion of a residency program, a clinical fellowship combines outpatient, inpatient,

and surgical experience in an ophthalmic subspecialty. The clinical fellow assumes increasing responsibility for patient care under the supervision of faculty members responsible for the program. In addition to receiving training from faculty, the fellow instructs medical students and residents. Research is considered an important aspect of specialty training and a major prerequisite for assimilating future developments in ophthalmology. Clinical fellows are expected to undertake independent investigation or to participate in one of the ongoing research projects in a field related to their specialty.

Vision-science fellowship training is laboratory-based and offers both predoctoral and postdoctoral opportunities to trainees in specific areas of vision science that encompass a wide range of topics. Trainees work under the supervision of Institute faculty members who are engaged in basic science research and have active laboratories. The scope and nature of the training program for each predoctoral or postdoctoral fellow is developed by the trainee and his/her faculty mentor. Clinical and vision science fellowships offered by the Institute are described below.

Fellowship in Cornea– External Ocular Diseases and Refractive Surgery

Under the direction of **Drs. Anthony J. Aldave, Sophie X. Deng, David Rex Hamilton, Kevin Miller, and Bartly J. Mondino**, one-year fellowships are offered in the study of diseases of the cornea, external eye, anterior segment, and refractive surgery. Clinical experience consists of participation in the cornea faculty practices, including surgery, and in the care of emergency cornea cases at the Stein Eye Institute. Fellows work in the microsurgical laboratory, and assist in teaching microsurgical skills to ophthalmology residents. Under the direction of faculty, they also perform primary surgical procedures in the UCLA Laser Refractive Center. In addition to in-depth training at the Institute, fellows supervise patient care in

the cornea clinic at the West Los Angeles Veterans Affairs Healthcare Center. Fellows typically complete an original clinical or laboratory research project, and frequently co-author a book chapter or review during their training.

Fellowship in Glaucoma

Under the direction of **Drs. Joseph Caprioli, Anne L. Coleman, JoAnn A. Giaconi, Simon K. Law, and Kouros Nouri-Mahdavi**, the one-year or two-year glaucoma fellowship provides clinical and laboratory experience in glaucoma diagnosis and management. Clinical experience is gained by examining patients in the consultation suite and participating in the patients' clinical and surgical management. Fellows work in the glaucoma microsurgical laboratory, participate in microsurgery courses, assist in the glaucoma clinic, and develop expertise in the various diagnostic techniques used in glaucoma treatment through preceptor-type relationships with faculty. They participate in glaucoma teaching at the Stein Eye Institute and affiliated institutions, present cases at teaching rounds, and prepare presentations for regularly scheduled glaucoma conferences. Fellows also undertake at least one research project, which may be a clinical study or an applied research project in the laboratory, in cooperation with the faculty advisor.

Fellowship in Medical Retina and Genetics

This one-year fellowship, under the directorship of **Dr. Michael B. Gorin**, provides clinical knowledge pertaining to the diagnosis and management of a broad array of retinal disorders, including age-related macular degeneration, diabetic retinopathy, retinal vascular disease, inflammatory retinopathies, drug-related toxic retinopathies, and hereditary retinal and macular degenerations and dystrophies. Fellows are instructed in the proper use and interpretation of noninvasive diagnostic tools, and training includes genetic counseling and the proper use of molecular genetic diagnostics. Fellows will gain experience with a

diverse set of interventional skills, including a wide spectrum of retinal laser procedures and periocular and intravitreal injection of various classes of drugs.

Fellows divide their time among the clinical practices of **Drs. Gorin, David Sarraf, and Colin A. McCannel** within the Division of Retinal Disorders and Ophthalmic Genetics as well as in the Retinal Diagnostics Unit and the Visual Physiology Laboratory directed by **Dr. Steven Nusinowitz** at UCLA. Dr. McCannel's clinic provides exposure to surgical retinal decision-making and management issues. The fellows also provide care and teach residents in retina subspecialty clinics at two UCLA-affiliated hospitals. Fellows are strongly encouraged to engage in translational clinical research and/or clinical trials and descriptive retrospective studies and develop an in-depth working knowledge of the current scientific literature of medical and genetic retina. They are expected to participate in genetic and imaging conferences as well as other relevant meetings.

Fellowship in Neuro-Ophthalmology

The one-year fellowship in neuro-ophthalmology, under the direction of **Dr. Anthony C. Arnold**, involves a close preceptor-preceptee relationship, participation in teaching rounds, and work in the private consultation suite. The David Geffen School of Medicine at UCLA maintains major clinical and research programs in neurology, neurosurgery, and neuroradiology. Fellows attend the weekly Neurology and Neurosurgery Grand Rounds, take an active part in seeing relevant inpatient consultations throughout the medical center, and assist in selected surgical procedures of interest to neuro-ophthalmologists. Attendance at the weekly neuroradiology teaching conferences is encouraged. Time is allotted for scientific reading and for research activities. Participation in clinical research, such as studies of eye movement disorders and disturbances of visual pathways, is expected.

Fellowship in Ophthalmic Pathology

Under the direction of **Dr. Ben J. Glasgow**, this fellowship provides preparation for an academic career in ophthalmic pathology. One-year, two-year, and three-year training programs are available depending on the background of the applicant. Training encompasses many aspects of ophthalmic pathology. Fellows may choose between a research or clinical-based curriculum. Clinical fellows gain expertise in surgical pathology; autopsy pathology; cytology, including fine-needle aspiration; electron microscopy; immunohistochemistry; DNA *in situ* hybridization; Southern blot analysis; and polymerase chain reaction techniques for diagnostic work. The fellowship programs are individualized according to the credentials and capabilities of each fellow.

Fellowship in Orbital and Ophthalmic Plastic Surgery

Fellowships in orbital and ophthalmic plastic surgery, under the overall supervision of **Drs. Henry I. Baylis, Robert Alan Goldberg, Jonathan Hoenig, and Norman Shorr**, provide training for ophthalmologists who are interested in specializing in orbital and adnexal disorders, and in aesthetic and reconstructive orbitofacial surgery. The fellowship program is approved by the American Society of Ophthalmic Plastic and Reconstructive Surgery and the American Academy of Cosmetic Surgery. Fellows participate in orbital and ophthalmic plastic surgery outpatient

consultation, inpatient care, and surgical procedures at the Stein Eye Institute and affiliated hospitals. They also participate extensively in the continuing education and research activities of the Orbital and Ophthalmic Plastic Surgery Division. In addition to publishing results of original research in peer-reviewed scientific journals, fellows complete a formal thesis that partially satisfies the membership requirements of the American Society of Ophthalmic Plastic and Reconstructive Surgery. One to two international fellows also participate in the program annually.

Fellowship in Pediatric Ophthalmology and Strabismus

The division of Pediatric Ophthalmology and Strabismus offers one-year fellowships, under the directorship of **Drs. Sherwin J. Isenberg and Joseph L. Demer**. Clinical experience consists of supervised participation in the ophthalmic care of pediatric patients seen at the Stein Eye Institute, Harbor-UCLA Medical Center, and Olive View-UCLA Medical Center. Specific activities include participation in University Ophthalmology Associates, the nursery and neonatal intensive care units, ophthalmic plastic and reconstructive surgery, and the pediatric retinal service. Other activities in pediatric ophthalmology include experience in the private consultation suites and participation in pediatric cases that are handled through other services. Fellows may collaborate with vision scientists, including biochemists, physiologists, pathologists, and anatomists, on research projects of mutual interest.

Fellowship in Uveitis and Inflammatory Eye Diseases

This one-year fellowship, under the direction of **Drs. Gary N. Holland and Ralph D. Levinson**, offers comprehensive training in the evaluation and management of uveitis and other inflammatory eye diseases. Fellows participate in faculty practices at the Stein Eye Institute, as well as uveitis clinics at two UCLA-affiliated hospitals, assisting with diagnostic evaluations, emergency cases, management

of immunomodulatory therapies, and perioperative care of patients undergoing surgical procedures. Research is an integral part of the fellowship program. Fellows may become involved in patient-based or laboratory-based projects, including special research programs in the Ocular Inflammatory Disease Center and collaborations with investigators at other institutions. Fellows typically complete and publish one or two original research articles and frequently prepare a book chapter or review on a subject of interest. Support is provided for fellows to participate in the activities of related subspecialty organizations, such as the annual meetings of the American Uveitis Society.

Fellowship in Vitreoretinal Diseases and Surgery

Under the co-directorship of **Drs. Allan E. Kreiger and Steven D. Schwartz**, the Vitreoretinal Diseases and Surgery Fellowship in the Department of Ophthalmology at the Stein Eye Institute is a two-year program designed to provide medical and surgical training and clinical and vision science research opportunities related to vitreoretinal disease. Major components of the fellowship relate to diabetic retinopathy, diseases of the macula and retina, hereditary retinal degenerations, ocular trauma, ophthalmic oncology, rhegmatogenous retinal disease, vitreoretinal surgery, pediatric retinal disease, and diagnostic imaging. Clinical training includes the prevention, diagnosis, and treatment of retinal, choroidal, vitreous, and related ocular disease. Fellows participate in retinal clinics and surgical procedures at the Stein Eye Institute and four UCLA-affiliated hospitals. Research is encouraged, whether clinical, laboratory, or translational. Other activities include vitreoretinal disease teaching at the Stein Eye Institute and affiliated institutions and case presentations at teaching sessions. The program also includes the participation of several international fellows.



Fellowships in Vision Science

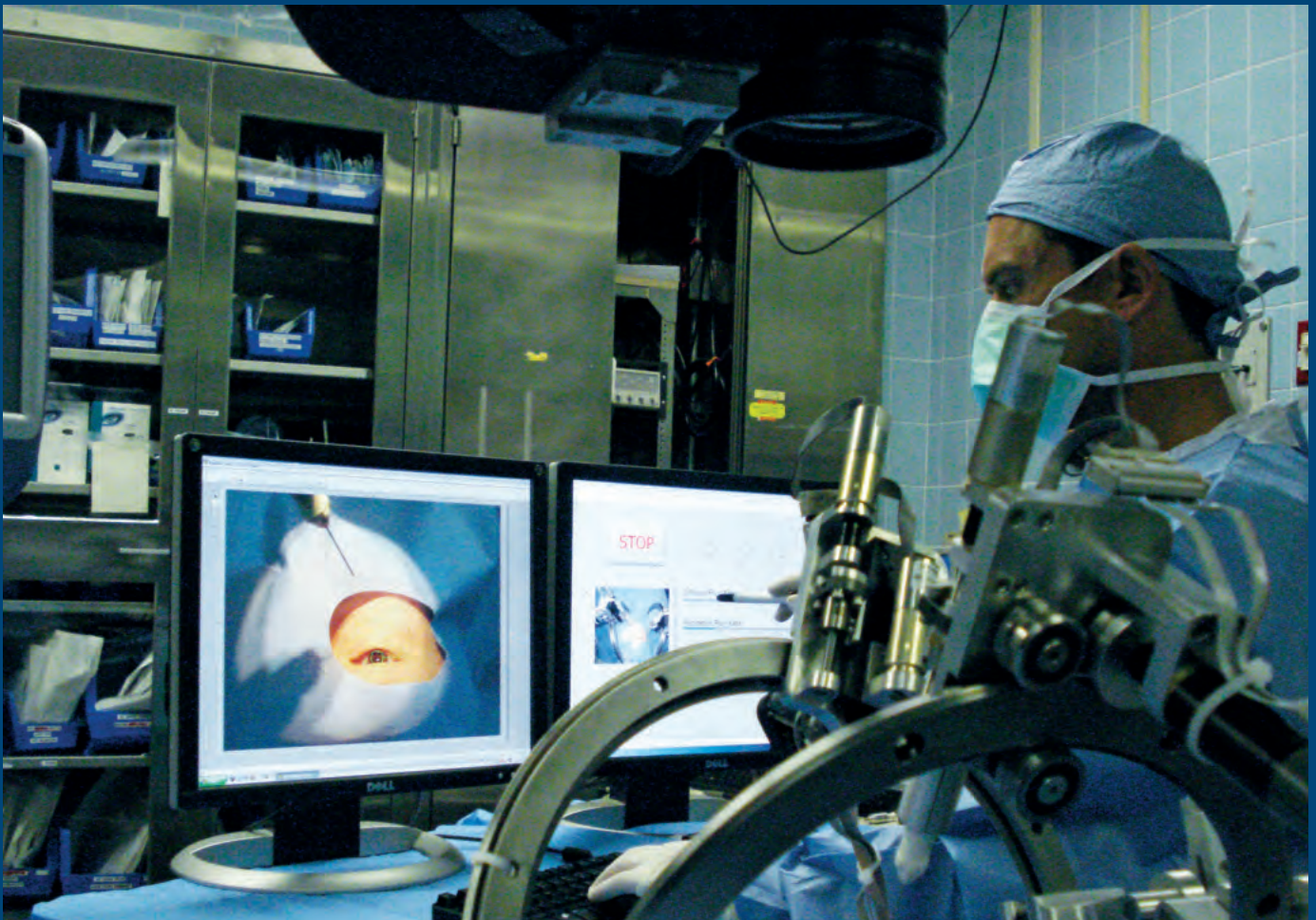
Predoctoral and postdoctoral fellowships in vision science are offered to individuals who have an interest in specific research areas being pursued by Institute faculty in highly specialized laboratory environments. These fellowships are supported either by individual funds available to Institute professors or as part of a special program offered under the auspices of a National Eye Institute Vision Science Training Grant and directed by **Dr. Gabriel H. Travis**.

Predoctoral fellows take a defined program of core courses and carry out eye-related research, obtaining doctorates in about six years. Fellows are required to present their research at informal and formal seminars, and

are encouraged to participate in national and international meetings and publish scientific papers. They gain a broad background in the vision sciences by interacting with members of adjacent laboratories and collaborating with faculty members other than their own preceptors. Postdoctoral research fellowships are offered for one to three years. Each one is unique with research programs established according to mutual agreement between trainees and mentors. Research areas for postdoctoral fellows include molecular biology, genetics, biophysics, biomechanics, cell biology, eye development, and biochemistry. Upon completion of their fellowships, trainees usually pursue careers in academia or industry.

International Fellowship and Exchange Program

To promote and encourage research and education interaction with ophthalmology institutions throughout the world, the Stein Eye Institute offers an International Ophthalmology Fellowship and Exchange Program consisting of one-year to two-year fellowships under the supervision of specific Institute faculty. Candidates for these fellowships are nominated by prestigious institutions outside the United States, and often hold academic positions within their own countries. Fellows participate in the clinical and research activities of ophthalmic subspecialties according to their training needs.







Appendices

Volunteer and Consulting Faculty

Volunteer Faculty in Ophthalmology

Clinical Professor of Ophthalmology

Henry I. Baylis, MD
Founding Chief of the Orbital and Ophthalmic Plastic Surgery Division

Bruce B. Becker, MD
Michael S. Berlin, MD
J. Bronwyn Bateman, MD
William P. Chen, MD
Leland M. Garrison, MD
John D. Hofbauer, MD
Kenneth J. Hoffer, MD
C. Richard Hulquist, MD
Barry M. Kerman, MD
Roger A. Kohn, MD
Howard R. Krauss, MD
Benjamin C. Kwan, MD
Ezra Maguen, MD
Robert K. Maloney, MD
Samuel Masket, MD
Albert T. Milauskas, MD
Anthony B. Nesburn, MD
Leon G. Partamian, MD
Yaron S. Rabinowitz, MD
Teresa O. Rosales, MD
Robert J. Schechter, MD
Alan L. Shabo, MD
Norman Shorr, MD
Roger W. Sorenson, MD

Associate Clinical Professor of Ophthalmology

Kevin J. Belville, MD
W. Benton Boone, MD
Harvey Brown, MD
Andrew E. Choy, MD
Peter J. Cornell, MD
Uday Devgan, MD
Paul B. Donzis, MD
David R. Fett, MD
Donald S. Fong, MD, MPH
Donald I. Goldstein, MD
Michael J. Groth, MD
Thomas A. Hanscom, MD
Andrew Henrick, MD
Edwin P. Hill, MD
David F. Kamin, MD
Brian L. Lee, MD
Jonathan I. Macy, MD
Joan E. McFarland, MD
John F. Paschal, MD
George M. Rajacich, MD
Michael Reynard, MD
David S. Robbin, MD
David E. Savar, MD
Timothy V. Scott, MD
Albert Sheffer, MD
James D. Shuler, MD
Yossi Sidikaro, MD, PhD
Matthew Sloan, MD
Ronald J. Smith, MD
Alfred Solish, MD, MS
Kenneth D. Steinsapir, MD
William C. Stivelman, MD
Hector L. Sulit, MD
Kamal A. Zakka, MD

Assistant Clinical Professor of Ophthalmology

David H. Aizuss, MD
Malvin B. Anders, MD
Richard K. Apt, MD
Reginald G. Ariyasu, MD, PhD
Arthur A. Astorino, MD
John D. Bartlett, MD
Mark A. Baskin, MD
Arthur Benjamin, MD
Katherine L. Bergwerk, MD
Betsy E. Blechman, MD
Cynthia A. Boxrud, MD
Amarpreet S. Brar, MD
Almira W. Cann, MD, PhD
Arnett Carraby, MD
Vicki K. Chan, MD
Andrew M. Chang, MD
Candice Chen, MD
Thomas B-H. Choi, MD
Milton W. Chu, MD
Robert A. Clark, MD
Charles A. Cooper, MD
Yadavinder P. Dang, MD
Jonathan M. Davidorf, MD
John L. Davidson, MD
Sanford S. Davidson, MD
Louise Cooley Davis, MD
Farid Eghbali, OD
Troy R. Elander, MD
Naomi L. Ellenhorn, MD
Calvin T. Eng, MD
Robert E. Engstrom, MD
Doreen T. Fazio, MD
Sanford G. Feldman, MD
Laura E. Fox, MD
Ronald P. Gallemore, MD
George H. Garcia, MD
Kathryn M. Gardner, MD
Leslie C. Garland, MD
W. James Gealy, Jr., MD
Damien Goldberg, MD
Richard Havunjian, MD
Man M. Singh Hayreh, MD
Matthew L. Hecht, MD
Jonathan A. Hoenig, MD
David Hollander, MD
Jeffrey Hong, MD
Morton P. Israel, MD
Steven J. Jacobson, MD
Batool Jafri, MD
Véronique H. Jotterand, MD
J. David Karlin, MD
David S. Katzin, MD
Jerome R. Klein, MD
Craig H. Kliger, MD
Steven Leibowitz, MD
Robert T. Lin, MD
Joanne E. Low, MD
Bryant J. Lum, MD
Michael C. Lynch, MD
M. Polly McKinstry, MD
Ashish M. Mehta, MD





**Assistant Clinical Professor
of Ophthalmology** continued

David R. Milstein, MD
 Ronald L. Morton, MD
 Roger L. Novack, MD, PhD
 Alpa A.S. Patel, MD
 James H. Peace, MD
 Cheryl J. Powell, MD
 Firas Rahhal, MD
 Laurence N. Roer, MD
 Barry S. Seibel, MD
 Meryl Shapiro-Tuchin, MD
 Amelia Sheh, MD
 David M. Shultz, MD
 Eliot B. Siegel, MD
 Lance M. Siegel, MD
 John D. Slaney, MD
 Robert J. Smyth, MD
 Kenneth O. Sparks, MD
 Sadiqa Stelzner, MD
 Mehryar "Ray" Taban, MD
 Robert C. Tarter, MD
 Debra G. Tennen, MD
 Teddy Y. Tong, MD
 Henry E. Ullman, MD
 Sidney J. Weiss, MD
 Scott Whitcup, MD
 Jeffrey V. Winston, MD
 David L. Wirta, MD
 Barry J. Wolstan, MD
 Wilson C. Wu, MD, PhD
 Michael C. Yang, MD
 Patrick C. Yeh, MD
 Richard H. Yook, MD

**Clinical Instructor
in Ophthalmology**

Gavin G. Bahadur, MD
 Eduardo Besser, MD
 Maria Braun, MD
 Neil D. Brouman, MD
 Stephen S. Bylsma, MD
 Andrew Caster, MD
 Joseph H. Chang, MD
 Hajir Dadgostar, MD
 Paul J. Dougherty, MD
 Sean Dumars, MD
 Daniel Ebroon, MD
 Brad S. Elkins, MD
 Satvinder Gujral, MD
 Lawrence M. Hopp, MD, MS
 Aarchan Joshi, MD
 Anisha J. Judge, MD
 Rajesh Khanna, MD
 Julie A. King, MD
 Mark H. Kramar, MD
 Daniel Krivoy, MD
 Laurie C. McCall, MD
 David Paikal, MD
 Jayantkumar Patel, MD
 Susan Ransome, MD
 Steven H. Rauchman, MD
 Richard H. Roe, MD
 Aaron Savar, MD
 Kayar Shah, MD
 Mark Silverberg, MD
 Abraham Soroudi, MD
 Sharon N. Spooner-Dailey, MD
 Dana P. Tannenbaum, MD
 William L. Trotter, MD
 Mathew Wang, MD
 Peter H. Win, MD

**Consulting Members of the
Stein Eye Institute**

Robert W. Baloh, MD
 Professor of Neurology and Surgery
 (Head and Neck)

Ferdinand V. Coroniti, PhD
 Professor, Department of Physics
 and Astronomy

David Eisenberg, DPhil
 Investigator, Howard Hughes Medical Institute
 Director, UCLA-DOE Institute
 for Genomics and Proteomics
 Professor, Departments of Chemistry and
 Biochemistry, and Biological Chemistry
 Molecular Biology Institute

Alan M. Fogelman, MD
 Castera Professor and Executive Chair,
 Department of Medicine

Alan D. Grinnell, PhD
 Professor of Physiology and
 Physiological Science
 Director, Jerry Lewis Neuromuscular
 Research Center
 Director, Ahmanson Laboratory
 of Neurobiology

Sherman M. Mellinkoff, MD
 Professor Emeritus of Medicine
 Former Dean, UCLA School of Medicine

C. Kumar Patel, PhD
 Professor, Department of Physics
 and Astronomy

Antoni Ribas, MD
 Associate Professor, Departments of
 Hematology/Oncology and Surgical Oncology
 Assistant Director for Clinical Programs,
 UCLA Human Gene Medicine Program
 Director, JCCC Cell and Gene Therapy
 Core Facility

Leonard H. Rome, PhD
 Senior Associate Dean for Research
 Professor of Biological Chemistry

Peter C. Whybrow, MD
 Judson Braun Professor and Executive Chair,
 Department of Psychiatry and
 Biobehavioral Sciences
 Director, Neuropsychiatric Institute
 Physician in Chief, Neuropsychiatric Hospital

Residents and Fellows

Residents

Third-Year Residents 2010–2013

Wanda Hu, MD
Crystal Hung, MD
Helen Lee Kornmann, MD, PhD (EyeSTAR)
Ehsan Rahimy, MD
David C. Reed, MD
Neeta Varshney, MD
Sylvia H. Yoo, MD

Second-Year Residents 2011–2014

Meena George, MD
Anthony Joseph, MD
Tina Ku, MD
Robert Kule, MD
Christine Lin, MD
C. Nathaniel Roybal, MD, PhD (EyeSTAR)
Anitra Thomas, MD
Dong Dawn Yang, MD

First-Year Residents 2012–2015

Jamie K. Alexander, MD
Melinda Y. Chang, MD
Diana Katsman, MD, PhD (EyeSTAR)
Robert A. Lalane, MD
Wenjing Liu, MD
Aaron Nagiel, MD, PhD
Lina Rodriguez, MD
P. James Sanchez, MD

EyeSTAR Trainees

Diana Katsman, MD, PhD
Helen Lee Kornmann, MD, PhD
C. Nathaniel Roybal, MD, PhD
Mauricio E. Vargas, MD, PhD

Clinical Fellows

Corneal and External Ocular Diseases and Refractive Surgery

Jason Jun, MD
Ksenia Stafeeva, MD

Glaucoma

Joseph Schmitz, MD
Brian Song, MD
Elaine Thung, MD

Orbital and Ophthalmic Plastic Surgery

Joseph Lin, MD
Daniel Rootman, MD, MSc

Pediatric Ophthalmology and Strabismus

Ajay Manchandia, MD
Matthew Pihlblad, MD

Uveitis and Inflammatory Eye Disease

None

Vitreoretinal Diseases and Surgery

David Cupp, MD
Carolyn Pan, MD
Joshua Udoetuk, MD
Vinod Voleti, MD

International Fellows

Cornea Research

Pejman Bakhtiary, MD, Iran

Comprehensive Ophthalmology

Hongxing Wang, MD, China

Glaucoma

Nila Cirineo, MD, Peru
Junmo Lee, MD, South Korea
Shiva Mehravaran, MD, Iran
Sara Nowroozizadeh, MD, Iran

Orbital and Ophthalmic Plastic Surgery

Siew Ching "Alice" Goh, MBBS, Malaysia

Pediatric Ophthalmology

Karen Hendler, MD, Israel
Ronen Rabinovich, MD, Israel

Pathology (Eye)

None

Visual Physiology

None

Vitreoretinal Diseases and Surgery

David Rivera de la Parra, MD, Mexico
Hamid Hosseini, MD, Iran



Postdoctoral Research Fellows

Navid Amini, PhD
Negin Ashki, PhD
Emilie Colin, PhD
Jeremy Cook, PhD
Julian Esteve-Rudd, PhD
Sheyla Gonzalez-Garrido, PhD
Lei Gu, PhD
Sonia Guha, PhD
Mei Jiang, PhD
Justyna Kanska, PhD
Miyeon Kim, PhD
Vanda Lopes, PhD
Carrie Louie, PhD
John McCoy, PhD
Hua Mei, PhD
Todd Mondzelewski, MD
Shawn Morales, PhD
Martin Nakatsu, PhD
Yu "Christie" Qin, PhD
Agrani Rump, PhD
Shanta Sarfare, PhD
Samuel Strom, PhD
Kaushali Thakore-Shah, PhD
Stefanie Volland, PhD
Zhongyu Yang, PhD
Jang "Lawrence" Yoo, PhD
Alejandra Young, PhD

Predocorial Research Fellows

Guo Cheng
Austin Dean
Jun Deng
Anita Dushyanth
Jun Isobe
Alan Le
Michael Lerch
Carlos Lopez
Allison Sargoy
Kwang Sup "Andrew" Shin
Wei Wang
Binbin Xie

Educational Offerings

Ophthalmology and Vision Science Training Programs

Eighteenth Annual Vision Science Conference

October 26–28, 2012

At this annual event, sponsored jointly by the Stein Eye Institute and the National Eye Institute Vision Science Training Grant, pre- and post-doctoral fellows and faculty discuss a wide range of topics in vision science research.

Ophthalmology Basic and Clinical Science Course

Course Chairman:

Bartly J. Mondino, MD

This course is a major segment of the education program for ophthalmology residents, as well as a review course for ophthalmologists. Sections are presented each year in a rotation designed to provide complete review of all sections in a three-year period. First-year residents participate in a more intensive curriculum in order to obtain a comprehensive foundation of ophthalmologic knowledge. In 2012–2013, the following course components were offered:

Fundamentals and Principles of Ophthalmology

Joseph L. Demer, MD, PhD

September 5, 2012–October 24, 2012

Optics, Refraction, and Contact Lens

Kevin M. Miller, MD

October 31, 2012–January 2, 2013

Neuro-Ophthalmology

Anthony C. Arnold, MD

January 9, 2013–March 13, 2013

Intraocular Inflammation and Uveitis

Gary N. Holland, MD

March 27, 2013–June 5, 2013

Ophthalmology Clinical Conferences

Coordinators:

Anthony C. Arnold, MD

Gary N. Holland, MD

The Clinical Conferences are offered in conjunction with the regular weekly Ophthalmology Basic and Clinical Science Course. These conferences review patient care activities of the UCLA Department of Ophthalmology, present general topics in ophthalmic science, and promote discussion of relevant aspects of ophthalmic pathology and pharmacy.

Vision Science Seminar Series

Coordinators:

Sophie X. Deng, MD, PhD

David S. Williams, PhD

This seminar series, conducted throughout the academic year, allows faculty within the Stein Eye Institute to present their research to other members of the Institute, thereby fostering the exchange of knowledge and cooperation. The series frequently includes presentations by eminent visitors to the UCLA campus.

Phacoemulsification Course

September 29, 2012

May 11, 2013

Course Director:

Kevin M. Miller, MD

This course is a key component of the residency-training program, as well as a resource for practicing ophthalmologists. Both classroom and laboratory instruction are offered, covering in detail the procedural and anatomical components of modern sutureless phacoemulsification.

Study Groups

Focusing on specific topics in clinical ophthalmology, study groups meet regularly under the leadership of faculty members who are acknowledged specialists in their respective fields. The study groups are an integral part of the residency and clinical fellowship training programs and serve as an informal resource for practicing ophthalmologists in the community.

Fluorescein Angiography Conference

Arranged by the clinical fellows in vitreoretinal studies, this conference convenes periodically to review current angiograms representing disease entities, unusual abnormalities, and controversial interpretations of angiographic findings. Steven D. Schwartz, MD, and other members of the Retina Division, supervise the conference.

Glaucoma Weekly Conference

This conference is designed to teach residents and fellows a basic understanding of the pathophysiology and clinical care of glaucoma. Faculty, fellows, and residents all participate in case and subject presentations and discussions. The conferences are coordinated by Joseph Caprioli, MD.

Neuro-Ophthalmology Conference

This conference meets bimonthly and includes full-time and volunteer clinical faculty and visitors from the community who discuss neuro-ophthalmology cases presented by fellows and residents. The coordinator for the year was Anthony C. Arnold, MD.

Oculoplastics Conference

This conference meets bimonthly and includes full-time and volunteer clinical faculty and visitors from the community who discuss oculoplastics and orbital cases presented by fellows and residents. The coordinator for the year was Robert Alan Goldberg, MD.

Ophthalmic Pathology Conference

Faculty and residents meet daily to review pathological findings from current ophthalmology cases. The coordinator for the year was Ben J. Glasgow, MD.

Pediatric Ophthalmology and Strabismus Conference

At monthly meetings rotating among Harbor-UCLA Medical Center, Olive View-UCLA Medical Center, and the Stein Eye Institute, difficult pediatric ophthalmology and strabismus cases are presented and discussed. These conferences were coordinated for the year by Sherwin J. Isenberg, MD, at Harbor-UCLA Medical Center, Federico Velez, MD, at Olive View-UCLA Medical Center, and Joseph L. Demer, MD, PhD, at the Stein Eye Institute.

Pediatric Rheumatology and Uveitis Conference

Members of the Uveitis Service meet each week with members of the Rheumatology Service from the Department of Pediatrics to discuss patient-care issues and research topics of mutual interest. The conference is attended by faculty, clinical fellows from the Departments of Ophthalmology and Pediatrics, and research staff. The conference is coordinated by Gary N. Holland, MD.

Continuing Education Programs

International Retinal Imaging Symposium (IRIS)

February 26, 2013

Director:

David Sarraf, MD

Co-Directors:

Vas Satta, MD
Stephen Tsang, MD, PhD

The Stein Eye Institute hosted the first International Retinal Imaging Symposium (IRIS), which brought together world-class ophthalmologists who delivered lectures on the novel basic science and clinical innovations of retinal imaging and their critical importance in the understanding, evaluation, and management of retinal disorders.

Comprehensive Ophthalmology Review Course

March 7–10, 2013

Course Directors:

David Sarraf, MD
John Irvine, MD

The Stein Eye Institute and the Doheny Eye Institute sponsored the Eighth Annual Comprehensive Ophthalmology Review Course. Developed to serve ophthalmology-training programs in Southern California, the program concentrated on the epidemiology, clinical presentation, diagnosis, and management of ophthalmological disease.

Stein Eye Institute Clinical and Research Seminar

June 14, 2013

Coordinators:

Anthony C. Arnold, MD
Robert Alan Goldberg, MD
Bartly J. Mondino, MD
Xian-Jie Yang, PhD

Geared to physicians and basic scientists, this seminar is an intensive course in which UCLA and guest faculty present current concepts and recent advances in ophthalmology. The Jules Stein Lecture, the Bradley R. Straatsma Lecture, and the Thomas H. Pettit Lecture, which commemorate each doctor's contributions to ophthalmic science at UCLA and throughout the United States, are held in conjunction with this seminar and are among the academic highlights of the year.

44th Jules Stein Lecturer

Randall J. Olson, MD
CEO Moran Eye Center
Professor and Chairman
Department of Ophthalmology and Visual Sciences
University of Utah
Salt Lake City, Utah

11th Bradley R. Straatsma Lecturer

Stephen H. Tsang, MD, PhD
Associate Professor of Ophthalmology
Columbia University Medical Center
New York, New York

11th Thomas H. Pettit Lecturer

Gregg T. Kokame, MD
Clinical Professor of Ophthalmology
University of Hawaii
Honolulu, Hawaii





Research Contracts and Grants Fiscal Year 2012–2013

Vision Science Grants

Total Award

Anthony J. Aldave, MD

Identification and Characterization of the Genetic Basis of PPCD
National Eye Institute
Duration: 12/1/12–11/30/17 \$250,000

Effect of Corneal Preservation Time on Long-Term Graft Success (CPTS)
JAEB Center for Health Research
Duration: 3/6/12–8/31/16 \$82,750

Dean Bok, PhD

Identification and Cellular Localization of Gene Products that Affect
Photoreceptor Survival in Inherited Retinal Degeneration
Macula Vision Research Foundation
Duration: 4/1/08–3/31/14 \$50,000

Joseph Caprioli, MD

Comparing the Effectiveness of Treatment Strategies for
Primary Open-Angle Glaucoma
Outcome Sciences, Inc.
Duration: 4/29/11–4/28/13 \$75,300

Anne L. Coleman, MD, PhD

Immune Response Gene Polymorphisms and AMD:
Examining HLA-KIR Epistasis
California Pacific Medical Center Research Institute
Duration: 7/1/12–6/30/13 \$63,647

ARRA: Evidence Development for Topics Identified as National Priorities for
Comparative Effectiveness Research
Outcome Sciences, Inc.
Duration: 7/19/10–7/18/14 \$69,189

UCLA Mobile Eye Clinic Child Vision Program
LA County Children and Families First (AKA First 5 LA)
Duration: 10/1/12–6/30/13 \$369,080

Joseph L. Demer, MD, PhD

Biomechanical Analysis in Strabismus Surgery
National Eye Institute
Duration: 5/1/13–4/30/16 \$378,298

Sophie X. Deng, MD, PhD

Regeneration of Functional Human Corneal Epithelial Progenitor Cells
California Institute for Regenerative Medicine
Duration: 3/1/11–2/28/14 \$320,269

Ex Vivo Expansion of Human Limbal Stem Cells for Transplantation
National Eye Institute
Duration: 9/1/12–8/31/17 \$250,000

Lynn K. Gordon, MD, PhD

Novel Therapies to Prevent Blindness Caused by Proliferative Vitreoretinopathy
National Eye Institute
Duration: 4/1/10–3/31/14 \$262,116

Michael B. Gorin, MD, PhD

Clinical and Genetic Characterization of Stargardt and Stargardt-like Macular Dystrophies: The Potential Role of AMD Risk Factors on the Severity and Progression of These Macular Dystrophies

Foundation Fighting Blindness

Duration: 7/1/10–6/30/13

\$104,827

Phase 2—Developing a Noninvasive Method and Device for Assessing the Degree of Midperipheral Retinal Ischemia in Diabetic Retinopathy

Neuro Kinetics Inc.

Duration: 2/1/11–1/31/14

\$190,230

Gary N. Holland, MD

Studies of Ocular Complications of AIDS (SOCA)

Johns Hopkins University

Duration: 8/1/05–7/31/14

\$227,439

Multicenter Uveitis Steroid Treatment (MUST) Trial

National Eye Institute

Duration: 5/1/06–4/30/17

\$47,012

UCLA/AUPO Introduction to Clinical Research Course

National Eye Institute

Duration: 5/1/12–4/30/14

\$48,680

Academic Research Organization for Research with Retinal Cells

Derived from Stem Cells for Stargardt Macular Dystrophy

Advanced Cell Technology

Duration: 4/25/11–1/7/14

\$162,402

Academic Research Organization for Research with Retinal Cells

Derived from Stem Cells for Age-Related Macular Degeneration

Advanced Cell Technology

Duration: 5/31/11–5/30/13

\$162,402

A Randomized, Double-Masked, Placebo-Controlled Study of the Safety and Efficacy of Gevokizumab in the Treatment of Subjects with Non-Infectious Intermediate Posterior or Pan-Uveitis Currently Controlled with Systemic Treatment

Protocol#X052131

Xoma (US) LLC

Duration: 1/8/13–1/7/14

\$57,336

A Randomized Double-Masked, Placebo-Controlled Study of the Safety and Efficacy of Gevokizumab in the Treatment of Active Non-Infectious Intermediate Posterior, or Pan-Uveitis

Xoma (US) LLC

Duration: 1/8/13–1/7/14

\$84,394

Wayne L. Hubbell, PhD

Molecular Basis of Membrane Excitation

National Eye Institute

Duration: 5/1/10–4/30/15

\$325,732

Core Grant for Vision Research at the Jules Stein Eye Institute

National Eye Institute

Duration: 3/1/10–2/28/15

\$340,177

Molecular Basis of Selective P450 3A Function

University of San Diego

Duration: 3/1/11–2/28/15

\$29,635

Ralph D. Levinson, MD

Immunologic and Clinical Studies of Eye Disease at the Jules Stein Eye Institute

MacDonald Family Foundation

Duration: 12/1/08–12/01/13

\$100,000

Kevin M. Miller, MD	
A Prospective Randomized Controlled Multi-Center Clinical Study to Evaluate the Safety and Effectiveness of the Light Adjustable Lens Calhoun Vision, Inc. Duration: 7/26/12–7/26/14	\$149,675
Bartly J. Mondino, MD	
RPB Unrestricted Grant Research to Prevent Blindness, Inc. Duration: 1/1/13–12/31/13	\$110,000
Kouros Nouri-Mahdavi, MD	
Detection of Glaucoma Progression with Macular OCT Imaging National Eye Institute Duration: 7/1/12–6/30/17	\$212,166
Steven Nusinowitz, PhD	
Evaluating Rod and Cone Function in Relation to Co-localized Retinal and RPE Structure to Define Different Phenotypes of Early AMD Retina Foundation of the Southwest Duration: 7/1/12–6/30/13	\$10,000
Stacy L. Pineles, MD	
Binocular Summation in Strabismus NIH/National Eye Institute Duration: 9/01/11–8/31/16	\$200,237
Natik I. Piri, PhD	
The Neuroprotective Effect of HSP72 Induction in Experimental Glaucoma National Eye Institute Duration: 9/30/09–8/31/14	\$166,320
David Sarraf, MD	
Intravitreal aflibercept injection for the treatment of submacular Vascularized pigment epithelial detachment (EVEN Study) Southern California Desert Retina Consultants Duration: 2/7/13–12/31/14	\$75,070
Hui Sun, PhD	
RPB Ophthalmic Research Award Identification of the Cone Receptor for Rod-Derived Cone Variability Factor Research to Prevent Blindness, Inc. Duration: 1/1/12–12/31/13	\$100,000
Gabriel H. Travis, MD	
The Role of Muller Cells in Visual Pigment Regeneration National Eye Institute Duration: 3/1/08–12/31/13	\$237,600
Vision Science Training Grant to Researchers at the Jules Stein Eye Institute National Eye Institute Duration: 9/30/11–9/29/16	\$224,437
Bruce Ford and Anne Smith Bundy Foundation Grant Bruce Ford and Anne Smith Bundy Foundation Duration: 8/16/11–8/15/13	\$100,000
Development of a Stem Cell-Based Transplantation Strategy for Treating Age-Related Macular Degeneration California Institute for Regenerative Medicine Duration: 11/01/09–10/31/12	\$1,199,316

David S. Williams, PhD

Doris and Jules Stein Research to Prevent Blindness Professorship
 Research to Prevent Blindness
 Duration: 1/1/08–12/31/14 \$125,000

MY07A Gene Therapy for Usher 1B-UCLA
 National Neurovision Research Institute
 Foundation Fighting Blindness, Inc.
 Wynn-Gund Translational Research Acceleration Program Award
 Duration: 7/1/08–6/30/13 \$25,000

RPE Cell Biology of Myosin VIIa
 National Eye Institute
 Duration: 7/1/09–6/30/14 \$237,600

The Photoreceptor Cilium
 National Eye Institute
 Duration: 5/1/13–4/30/18 \$250,000

Xian-Jie Yang, PhD

Hedgehog Signaling in Photoreceptor Differentiation and Maintenance
 National Eye Institute
 Duration: 12/1/09–11/30/13 \$228,000

Postdoctoral Fellow Grants**Alejandra Young, PhD****Debora B. Farber, PhD, DPhhc (Mentor)**

Interactions of the Melanosomal G-Protein-Coupled Receptor
 OA1 and Gai Proteins in the Retinal Pigment Epithelium
 Vision of Children Foundation
 Duration: 6/1/10–7/31/13 \$113,815

Clinical Trials**Jean-Pierre Hubschman, MD**

A Phase III, Multicenter, Randomized, Double-Masked Study Comparing
 the Efficacy and Safety of 0.5 mg and 2.0 mg of Ranibizumab
 Genentech
 Duration: 10/13/09–3/1/13 \$223,710

Steven D. Schwartz, MD

Research with Retinal Cells Derived from Stem Cells for
 Stargardt Macular Dystrophy
 Advanced Cell Technology
 Duration: 3/23/11–3/22/13 \$201,763

Research with Retinal Cells Derived from Stem Cells for
 Age-Related Macular Degeneration
 Advanced Cell Technology
 Duration: 4/5/11–4/5/13 \$221,210

Applicator System in the Treatment of Patients with Diabetic Macular Edema
 Allergan Sales, LLC
 Duration: 8/25/05–12/31/13 \$203,112

Resolution of Vitreomacular Adhesion Associated with Neovascular
 Age-Related Macular Degeneration with Intravitreal Microplasmin
 ThromboGenics, Inc.
 Duration: 6/30/09–9/1/13 \$20,448

Phase 1 Multi-Center Open Label Safety and Tolerability Clinical Trial of Ciliary
 Neurotrophic Factor (CNTF) in Patients with Macular Telangiectasis Type 2
 Neurotech Pharmaceuticals, Inc. (Neurotech)
 Duration: 7/19/11–7/18/14 \$30,052



Clinical Research Studies

Cornea and External Eye

Analysis of the Corneal and Limbal Epithelial Changes in Limbal Stem Cell Deficiency using In Vivo Confocal Microscopy

Investigators are working to establish a system for diagnosing limbal stem cell deficiency at a cellular level by correlating the information from impression cytology tests, confocal microscopy pictures, and medical records. Investigators: Sophie X. Deng, MD, PhD, and Anthony J. Aldave, MD

Genetic Basis of Posterior Polymorphous Corneal Dystrophy

Funded by the National Eye Institute, this study seeks to identify the gene(s) responsible for posterior polymorphous dystrophy, an inherited corneal endothelial disorder that may result in irreversible corneal swelling and loss of vision. Investigators: Anthony J. Aldave, MD, and Gary N. Holland, MD

Identifying Novel Genes for Fuchs Corneal Endothelial Dystrophy

In this multicenter study, investigators are working to identify the gene(s) responsible for Fuchs corneal endothelial dystrophy, an inherited disorder that may result in irreversible corneal swelling and loss of vision. Investigators: Anthony J. Aldave, MD, Gary N. Holland, MD, and Bartly J. Mondino, MD

Keratoprosthesis Implantation in Patients with Corneal Opacification

This study aims to determine the success rate of keratoprosthesis (artificial cornea) transplantation for visual rehabilitation in patients with corneal opacification. Investigators: Anthony J. Aldave, MD, and Gary N. Holland, MD

Effect of Corneal Preservation Time on Long-Term Graft Success

The purpose of this study is to evaluate the effect of preservation time on corneal transplants. It will compare the preservation time up to the FDA limit of 14 days and hopes to determine that longer preservation time does not adversely impact graft success and endothelial cell density. Investigators: Anthony J. Aldave, MD, and Sophie X. Deng, MD, PhD

Eye Infections and Inflammations

Corneal Endothelial Cell Changes in Patients with Uveitis

The purpose of this study is to analyze the involvement of the corneal endothelium in uveitis and the effect of various types of keratic precipitates on the corneal endothelium. Investigators: Gary N. Holland, MD, Anthony J. Aldave, MD, Joseph Caprioli, MD, and Ralph D. Levinson, MD

Factors Related to the Severity of Ocular Toxoplasmosis

Toxoplasmosis is a common parasitic disease that can cause a vision-threatening infection of the retina. Individuals with and without ocular toxoplasmosis are being evaluated with a blood test to determine whether (1) people can have a genetic predisposition to severe disease when infected with the parasite, or (2) there is a particular strain of parasite that causes more severe disease than others. Investigators: Gary N. Holland, MD, and Ralph D. Levinson, MD

Longitudinal Studies of the Ocular Complications of AIDS (LSOCA)

LSOCA is a multicenter, National Eye Institute supported, epidemiological study designed to investigate the nature of HIV-related eye diseases since the introduction of potent anti-retroviral therapies. More than 2,000 people with AIDS are being followed nationwide. Investigator: Gary N. Holland, MD

Multicenter Uveitis Steroid Treatment (MUST)

Investigators are comparing two currently available treatments for uveitis. Systemic treatment utilizing medications taken orally, by injection, or by intravenous infusion is being compared to treatment with an intraocular implant containing corticosteroid. Investigators: Gary N. Holland, MD, Jean-Pierre Hubschman, MD, and Ralph D. Levinson, MD

Natural Killer Cell Receptor Genes and AIDS-Related CMV Retinitis

Institute faculty members are studying why some people with AIDS develop CMV retinitis, an infection of the retina, while others do not. This study aims to determine whether KIR genes, which control natural killer cell activities and other immune functions, differ between HIV-infected individuals who develop CMV retinitis and those who do not, despite similar risk factors. Investigators: Gary N. Holland, MD, and Ralph D. Levinson, MD

A Comprehensive Analysis of Visual Function in Patients Diagnosed with HIV

The main goal of this study is to determine the sequence of events that lead to visual disturbances in HIV-infected patients. Investigators will obtain measures of visual function with a series of established clinical electrophysiological and psychophysical tests commonly used to evaluate the function at different sites within the retina. Results of this study may enable better understanding and measurements of how vision is affected in subjects diagnosed with HIV. Investigators: Steven Nusinowitz, PhD, and Gary N. Holland, MD

Corneal Endothelial Cell Changes in Children with Uveitis

This is a prospective study to evaluate the cornea, specifically endothelial cells, in children with uveitis. Uveitis is a general term meaning inflammation inside the eye. Investigators will be comparing these changes for children with anterior uveitis who have received a glaucoma drainage tube and those who have not. Investigators: Gary N. Holland, MD, Joseph Caprioli, MD, JoAnn Giacconi, MD, Simon K. Law, MD, PharmD, and Ralph D. Levinson, MD

A Comprehensive Analysis of Visual Function in Patients Diagnosed with Birdshot Chorioretinopathy

The main goal in this study is to investigate the relationship between vision dysfunction (eg, symptoms, visual field changes, contrast sensitivity, and color vision changes) experienced by patients diagnosed with birdshot chorioretinopathy and the location of defects in the retina as identified by electrophysiological testing. Investigators: Gary N. Holland, MD, Ralph D. Levinson, MD, and Steven Nusinowitz, PhD

Studies Evaluating a New Drug in the Treatment of Patients with Uveitis

Uveitis is caused by inflammation of the middle layer of the eye. The purpose of this study is to find out more about how the drug works, and if it is effective for treating uveitis by limiting one of the proteins that causes inflammation. Investigators: Gary N. Holland, MD, and Ralph D. Levinson, MD

General Ophthalmology

Clinical Testing of the Tracking Adaptive Scanning Laser Ophthalmoscope (TASLO)

This clinical study evaluates the capabilities of the TASLO in eye health and disease. This may lead to earlier detection of eye disease and a better understanding of anatomy and abnormal conditions of the eye. Investigators: Kevin M. Miller, MD, and Michael B. Gorin, MD, PhD

Glaucoma and Optic Nerve

Clinical Measurements of the Optic Nerve in Glaucoma

The goal of this study is to develop novel structural measures of the optic nerve and nerve fiber layer, which are sensitive and specific for early and progressive glaucomatous optic nerve damage. Investigators: Joseph Caprioli, MD, Anne L. Coleman, MD, PhD, and Simon K. Law, MD, PharmD

Earlier Intraocular Pressure Control after Ahmed Glaucoma Valve Implantation

The purpose of this study is to evaluate the occurrence rate of the high pressure phase and the final pressure outcomes between subjects treated with glaucoma medications prior to the onset of the high pressure phase and subjects who start glaucoma medications at the onset of the high pressure phase. Investigators: Simon K. Law, MD, PharmD, Joseph Caprioli, MD, Anne L. Coleman, MD, PhD, and JoAnn Giaconi, MD

Effect of Yoga on Glaucoma

The purpose of this study is to examine the practice of yoga and its ability to improve a patient's vision by relieving stress and reducing eye pressure. Investigator: Anne L. Coleman, MD, PhD

Glaucoma Drainage Devices and Filtering Surgery with Antimetabolites

This study looks at the effect of two surgical procedures—glaucoma implant surgery and filtering surgery with antimetabolites—on the corneal endothelium. It evaluates the possibility of surgical damage to the corneal endothelium, which may result in loss of corneal clarity. Investigators: Anne L. Coleman, MD, PhD, Joseph Caprioli, MD, JoAnn Giaconi, MD, and Simon K. Law, MD, PharmD

Glaucomatous Cupping and Visual Field Abnormalities in Chinese Young Adults

The glaucoma-like syndrome is a condition where patients appear to have signs of glaucoma but are actually normal. This glaucoma-like syndrome is unusually common in young adult Chinese patients who normally would not be expected to show signs of eye disease. The purpose of the study is to determine the prevalence and characteristics of the glaucoma-like syndrome in Chinese young adults. Investigator: Simon K. Law, MD, PharmD

Ocular Hypertension Treatment Study

Since topical hypotensive medications are safe and effective in delaying or preventing primary open angle glaucoma, this study is examining whether other forms of treatment can be deferred with little or no penalty. Investigator: Anne L. Coleman, MD, PhD

Optic Nerve Appearance in Age-Related Macular Degeneration

In order to evaluate the relationship between macular degeneration and optic nerve change, digital imaging technology and photography are being used to assess the structural appearance of the optic nerve in patients with age-related macular degeneration. Investigator: Simon K. Law, MD, PharmD

Vision-Related Quality of Life and Ocular Dominance

This study is designed to evaluate how quality of life is impacted by glaucoma in relation to eye dominance. It aims to determine whether quality of life is affected more by glaucoma if it primarily affects the dominant eye. Investigators: Simon K. Law, MD, PharmD, Joseph Caprioli, MD, Anne L. Coleman, MD, PhD, and JoAnn Giaconi, MD

Ocular Biometric Measurements in Angle-Closure Glaucoma

The purpose of this study is to determine the potential contributing factors in angle closure patients of different ethnicities and to determine predictive factors for this type of glaucoma. Investigators: Kouros Nouri-Mahdavi, MD, Joseph Caprioli, MD, Anne L. Coleman, MD, PhD, and Simon K. Law, MD, PharmD

Glaucoma Imaging Study

This study is evaluating different imaging techniques and their use in improving open-angle glaucoma detection. Investigators: Kouros Nouri-Mahdavi, MD, and Joseph Caprioli, MD

Role of Pattern Electroretinogram (PERG) in Glaucoma

This study is researching an electrophysiological test called pattern electroretinogram (PERG). The goal is to determine the role of PERG in estimating the risk of future glaucoma progression and the reversibility of glaucomatous damage after treatment. The latter could help clinicians better determine to what extent eye pressure needs to be lowered to prevent disease progression. Investigators: Kouros Nouri-Mahdavi, MD, Joseph Caprioli, MD, Anne L. Coleman, MD, PhD, JoAnn Giaconi, MD, and Simon K. Law, MD, PharmD

Lens and Cataract

Post-Approval Study of ACRYSOF® IQ Toric High Cylinder Power Intraocular Lens

This is a post-approval study of an intraocular lens. The primary objective of this study is to evaluate an FDA-approved intraocular lens (**Models SN6AT6-SN6AT9**) for patients with corneal astigmatism. Investigators: Kevin M. Miller, MD, and D. Rex Hamilton, MD

Morcher Iris Diaphragm

After obtaining a compassionate use Individual Device Exemption from the U.S. Food and Drug Administration to use the Morcher Iris Diaphragm implant in patients with partial or complete aniridia, the Institute is now evaluating its preliminary effectiveness. The implant is designed to limit the amount of light coming into the eye, similar to a natural iris, reducing symptoms of light sensitivity and glare. Investigator: Kevin M. Miller, MD

Ophtec Iris Reconstruction Lens

The Institute is participating in a multicenter clinical investigation designed to evaluate the safety and effectiveness of the Ophtec Model 311 Iris Reconstruction Lens for the treatment of visual disturbances related to the absence of a portion of, or the entire, human iris. Investigator: Kevin M. Miller, MD

Safety and Effectiveness of the Calhoun Vision Light Adjustable Lens for Treating Postoperative Sphere and Cylinder

This is a prospective, randomized controlled multicenter clinical study to evaluate the safety and effectiveness of Light Adjustable Lens in subjects with preoperative corneal astigmatism. Investigators: Kevin M. Miller, MD, Anthony J. Aldave, MD, and D. Rex Hamilton, MD

Macula, Retina, and Vitreous

Air, Perfluoropropane, and Sulfur Hexafluoride Gas Disappearance Variability after Vitrectomy

The purpose of this study is to evaluate different gases used in vitrectomy surgeries and to understand why there is variability in the time that the different gases remain in the eye after vitrectomy surgery. Investigators: Jean-Pierre Hubschman, MD, and Steven D. Schwartz, MD

Clinical Characterization, Genetic Testing, and Visual Function in Patients with Stargardt Disease

Investigators are doing a comprehensive analysis of visual function in patients diagnosed with Stargardt disease, an early onset form of macular degeneration caused by a number of mutations in the *ABCR* gene. They are performing molecular genetic testing to confirm the Stargardt diagnosis and better understand the diversity of the condition. Investigators: Michael B. Gorin, MD, PhD, Debora B. Farber, PhD, DPhhc, Steven Nusinowitz, PhD, and Maria Carolina Ortube, MD

Dexamethasone Injections in the Treatment of Diabetic Macular Edema

Faculty members are participating in a study to assess the safety and efficacy of 70 mg and 350 mg dexamethasone posterior segment drug delivery systems in the treatment of patients with diabetic macular edema. Investigators: Steven D. Schwartz, MD, Allan E. Kreiger, MD, and Tara A. McCannel, MD, PhD

Genetics of Age-Related Maculopathy (GARM I)

In this multicenter study with the University of Pittsburgh, investigators are evaluating the genetic and environmental risks that contribute to age-related maculopathy (ARM). The study is designed to identify genes that alter susceptibility to ARM and determine the extent to which variants in these genes and other factors affect one's risk of developing the condition. Investigators: Michael B. Gorin, MD, PhD, and Maria Carolina Ortube, MD

Genetics of Age-Related Maculopathy (GARM II)

The purpose of this study is to identify the hereditary and exposure risk factors that lead to the development of age-related maculopathy (ARM) in a cohort with a family history of the disease. The study is intended for individuals (49 and older) who have at least one parent with this condition, the spouses or partners of these individuals, and the parents themselves. Investigators: Michael B. Gorin, MD, PhD, and Maria Carolina Ortube, MD

Heavy Metals in Surgically Removed Human Ocular Tissue

Faculty members are examining the concentration of heavy metals in ocular tissue compared to blood concentrations. High volumes of specific heavy metals in the vitreous have been found to cause toxicity in the retina. Information about the concentrations of heavy metals in common vitreoretinal diseases could lead to a new physiopathological approach. Investigators: Jean-Pierre Hubschman, MD, and Steven D. Schwartz, MD

Incidence of Late Macular Degeneration in Older Women

The goal of this research is to determine the incidence of late age-related macular degeneration (AMD), the rate of progression of AMD, and the association of specific risk factors such as diabetes mellitus and prior cataract surgery with late AMD and its progression in older women. Investigator: Anne L. Coleman, MD, PhD

A Study to Evaluate the Treatment of Subfoveal Pigment Epithelial Detachment Associated with Choroidal Neovascularization

The aim of this study is to see if the treatment of pigment epithelial detachment is safe and effective with the regular dose of intravitreal aflibercept injection. This study is being performed in collaboration with Southern California Desert Retina Consultants. Investigator: David Sarraf, MD

Natural History Study of Macular Telangiectasia

Investigators are collecting data about macular telangiectasia with the goal of acquiring more knowledge of and developing a treatment for this rare retinal disease. Investigators: Steven D. Schwartz, MD, Michael B. Gorin, MD, PhD, Jean-Pierre Hubschman, MD, Allan E. Kreiger, MD, Tara A. McCannel, MD, PhD, and David Sarraf, MD

Ocular Hazards from Currently Available Light Curing Units

The purpose of this study is to assess the potential of currently available curing lights to cause retinal damage to dental personnel, to evaluate the amount of exposure to curing lights by dental personnel, and to assess current levels of retinal degenerative changes in dental workers that are possibly induced by curing lights. Investigators: Jean-Pierre Hubschman, MD, and Steven D. Schwartz, MD

P200CAF Autofluorescence Ultra-Widefield Scanning Laser Ophthalmoscope in Subjects with Vitreoretinal Disease

This study utilizes an ultra-widefield scanning laser ophthalmoscope with autofluorescence (SLO-AF) to take pictures of the retina in a noninvasive way. Images acquired with the SLO-AF are compared with those from other currently available instruments to evaluate the potentially improved resolution for diagnosis of retinal eye diseases. Investigators: Steven D. Schwartz, MD, Jean-Pierre Hubschman, MD, Allan E. Kreiger, MD, and Tara A. McCannel, MD, PhD

Pars Plana Vitrectomy with and without ILM Peel

This study is evaluating and comparing possible differences in the vision, as well as the thickness and shape of the back of the eye, following pars plana vitrectomy surgery with and without internal limiting membrane peeling in patients with complications of diabetic retinopathy. Investigator: Jean-Pierre Hubschman, MD

Rapid, Noninvasive, Regional Functional Imaging of the Retina

In this study funded by the NIH, Institute investigators are monitoring the responses of the pupil to light as a method for detecting regional losses of function of the retina. The ultimate goal of this research is to develop a simple, noninvasive, rapid method for widespread screening of diabetics in order to identify those who may require medical attention and/or therapy for diabetic retinopathy. Investigators: Michael B. Gorin, MD, PhD, and Maria Carolina Ortube, MD

Resolution of Vitreomacular Adhesion Associated with Neovascular Age-Related Macular Degeneration with Intravitreal Microplasmin

Faculty members are evaluating the safety and efficacy of intravitreal injection of microplasmin on age-related macular degeneration (AMD) with focal vitreomacular adhesion (VMA). Previous research has shown that intravitreal microplasmin may offer physicians a safe agent for resolution of focal VMA in AMD patients without surgery. Investigators: Steven D. Schwartz, MD, and Jean-Pierre Hubschman, MD

Understanding the Genetics of Inherited Eye Disorders

The Institute is participating in a study to search for the gene(s) responsible for inherited disorders that are either specific to the eye or have eye findings as part of the medical condition. This study provides for the clinical characterization of affected individuals and at-risk family members, in conjunction with molecular genetic testing, to identify the causative genes and mutations. Investigators: Anthony J. Aldave, MD, Michael B. Gorin, MD, PhD, and Maria Carolina Ortube, MD

Vitamin Supplementation as Treatment for Dry Age-Related Macular Degeneration

This study explores the effects of oral supplementation of lutein and zeaxanthin and/or omega 3 long chain polyunsaturated fatty acids, called DHA and EPA, on the development of age-related macular degeneration and vision loss. Investigators: Steven D. Schwartz, MD, Michael B. Gorin, MD, PhD, Jean-Pierre Hubschman, MD, Allan E. Kreiger, MD, Tara A. McCannel, MD, PhD, and David Sarraf, MD

Research with Retinal Cells Derived from Stem Cells for Dry Age-Related Macular Degeneration (AMD)

This study is evaluating the safety of surgical procedures used to implant MA09-hRPE cells, assessing the number of cells to be transplanted in future studies, and evaluating measures for determining the effectiveness of future stem cell therapy for AMD. Investigators: Steven D. Schwartz, MD, Jean-Pierre Hubschman, MD, and Allan E. Kreiger, MD

Research with Retinal Cells Derived from Stem Cells for Stargardt Macular Dystrophy

This study is evaluating the safety of surgical procedures used to implant MA09-hRPE cells, assessing the number of cells to be transplanted in future studies, and evaluating measures for determining the effectiveness of future stem cell therapy for Stargardt macular dystrophy. Investigators: Steven D. Schwartz, MD, Jean-Pierre Hubschman, MD, and Allan E. Kreiger, MD

A Safety and Tolerability Trial of CNTF in Patients with MacTel Type 2

This study is assessing the safety of the NT-501 implant in patients with macular telangiectasia type 2. The device, an implant, is a small capsule of cells that is placed inside the eye. This allows a controlled, sustained release of CNTF directly to the retina. Investigators: Steven D. Schwartz, MD, Jean-Pierre Hubschman, MD, and Allan E. Kreiger, MD

Microcystic Maculopathy Associated with Tamoxifen, Paclitaxel, and Docetaxel Therapy Using Spectral-Domain Optical Coherence Tomography Imaging

We are evaluating chemotherapeutics used in the treatment of breast, lung, stomach, and prostate cancer for eye complications. They are given via injection and work by preventing microtubule function thus arresting mitotic division. These drugs have been associated with microcystic maculopathy. These findings have only been noted in sporadic case reports and this will be a prospective cohort study to define this complication. Investigator: David Sarraf, MD

Mobile Application to Enhance Diabetic Care

This study is being conducted to determine whether use of an Internet application to record and coordinate diabetes management by the diabetic patient, diabetes medical care team, and ophthalmology vision care team results in improved control of diabetes and decreased risk of eye complications. Investigators: Irena Tsui, MD, and Bradley R. Straatsma, MD

Neuro-Ophthalmology

Exposure as a Potential “Trigger Factor” for Acute NAION

The objective for this study is to examine whether the use of PDE5 inhibitors trigger the onset of acute nonarteritic anterior ischemic optic neuropathy (NAION), a rare visual disorder believed to be a consequence of disruption in optic nerve perfusion, presenting as partial loss of vision. Investigators: Lynn K. Gordon, MD, PhD, Gary N. Holland, MD, and Ralph D. Levinson, MD

Idiopathic Intracranial Hypertension (IIH) with Mild Visual Loss

Several treatments are used to treat IIH, including medication, a supervised dietary program, and surgery. Because these treatments have never been systematically studied, it is not known which are truly effective. This study will test the effectiveness of two treatments of IIH: a supervised dietary program with acetazolamide and a dietary program with a placebo. Investigators: Stacy L. Pineles, MD, Lynn K. Gordon, MD, PhD, and Laura Bonelli, MD

Ocular Melanoma

Molecular and Cytogenetic Studies of Ocular Melanoma

The goal of this research is to study ocular melanoma tumor tissue and to identify key molecular and genetic features that could help predict those patients who may be at high risk for metastasis. Investigators: Tara A. McCannel, MD, PhD, Lynn K. Gordon, MD, PhD, and Bradley R. Straatsma, MD, JD

Optical Coherence Tomography of Regional Abnormalities Associated with Choroidal Nevus, Choroidal Melanoma, and Choroidal Melanoma Treated with Iodine-125 Brachytherapy

In this study, optical coherence therapy (OCT) imaging is performed during regularly scheduled visits on patients with choroidal nevus, choroidal melanoma, and choroidal melanoma treated with iodine-125 brachytherapy. The purpose is threefold: to study the structure and function of the retina overlying the tumor and the macula, to evaluate the effects of radiation on the retina, and to compare OCT imaging to other imaging procedures. Investigators: Tara A. McCannel, MD, PhD, and Bradley R. Straatsma, MD, JD

PET/CT Imaging for Early Detection of Ocular Melanoma

This research involves the use of combined positron emission tomography (PET)/computed tomography (CT) scans in subjects with ocular melanoma. It may ultimately provide new knowledge that will be used to develop better ways of monitoring for tumor spread and allow for early treatment if metastasis is found. Investigators: Tara A. McCannel, MD, PhD, and Bradley R. Straatsma, MD, JD

Orbital and Ophthalmic Plastic Surgery

Volumetric Analysis of Orbital Images (CT and MRI Sequences) with Mimics Image Processing Software

This study is evaluating the volumetric changes of orbital tissues using a validated 3D image processing software. Orbital diseases such as thyroid eye disease, myositis, inflammatory and neoplastic conditions are characterized by significant soft tissue changes. Their assessment with Mimics software is helpful in understanding the clinical course of these diseases, as well as defining the etiologic and pathogenetic mechanisms involved. Investigator: Robert Alan Goldberg, MD

Ultrasound Study of Eyelid Mobility Before and After Blepharoplasty and Injectable Fillers

This study uses a high-resolution ultrasound machine to capture real-time films of the tissues immediately surrounding the eye. Patients in each of the following three arms are being studied: pre/post botulinum toxin injection, pre/post synthetic filler injection, and pre/post periocular cosmetic surgery, including fat repositioning or fat transfer. Data gathered is being used to study the dispersion of filler injections, to gain more detailed and accurate insight into this cosmetic field. Investigator: Robert Alan Goldberg, MD

Studies on Tissue in Autoimmune Diseases

This study aims to determine the cause of eye problems in Graves disease and other autoimmune diseases. Examination is being done of material removed from orbits during surgical therapy for Graves disease or other problems requiring surgery on the tissue surrounding the eyes, of thyroid tissue removed during the course of surgical therapy, or of blood drawn for laboratory tests. Investigator: Robert Alan Goldberg, MD

Quality of Life Study in Patients with Graves Disease

This study is assessing the quality of life in patients with Graves disease orbitopathy before and after medical treatment or medical procedures. Investigator: Robert Alan Goldberg, MD

A Research Study Evaluating a New Drug for the Treatment of Thyroid Eye Disease

The purpose of this study is to obtain information on the safety and effectiveness of an investigational drug to treat thyroid eye disease (TED). People with TED experience eye problems often due to an overactive thyroid caused by Graves' disease. Investigator: Robert Alan Goldberg, MD

Pediatrics and Strabismus

Biomechanical Analysis in Strabismus Surgery

This study aims to develop new diagnostic tests and computer models that will lead to improvements in strabismus surgery. Tests of binocular alignment and eye movements, as well as magnetic resonance imaging of the extraocular muscles, are being performed in the Institute's Clinical and Basic Science Ocular Motility Laboratory before and after strabismus surgery. To date, this research has fundamentally contributed to the knowledge of the functional anatomy of the extraocular muscles and connective tissues, and allowed discovery of causes of common strabismus and development of new types of surgeries. Investigator: Joseph L. Demer, MD, PhD

Contact Lens Study

The purpose of this study is to identify rates of complications and correlations to modality of wear, care system, hygiene, or other factors associated with contact lens complications. Investigators: Vivian Phan, OD, Sharon Y. Lee, OD, and Bartly J. Mondino, MD

Genetic and Anatomic Studies of Eye Movement Disorders

This collaborative National Eye Institute-funded study is conducting magnetic resonance imaging of the extraocular muscles. This procedure clarifies the phenotypes and mechanisms of congenital cranial dysinnervation syndromes whose hereditary properties have been characterized using modern molecular genetics. Patients with these syndromes have severe forms of strabismus. Investigator: Joseph L. Demer, MD, PhD

Optic Nerve in Amblyopia

Amblyopia is a major cause of childhood visual loss. This study uses high resolution, surface-coil magnetic resonance imaging to study optic nerve size in amblyopia. It tests the theory that the optic nerve is smaller than normal in amblyopia and that optic nerve size may be a limiting factor in restoration of vision by amblyopia treatment. Investigator: Joseph L. Demer, MD, PhD

A Randomized Clinical Trial of Observation Versus Occlusion Therapy for Intermittent Exotropia

Although occlusion treatment, or patching of the eye, is a widely used treatment for intermittent exotropia (IXT), there have been no randomized clinical trials evaluating its effectiveness. This study is being conducted to assess the natural history of IXT and to establish the effectiveness of patching in its treatment. Investigators: Stacey L. Pineles, MD, and Federico G. Velez, MD

Sweep Visual Evoked Potential for Use in Amblyopia and Pediatric Optic Nerve Disorders

Using a new technique, investigators are measuring vision in preverbal children to diagnose and follow optic nerve diseases. Currently, treatment decisions are based on clinical examinations that are insensitive and reveal vision loss well after permanent damage has taken place. This technique allows more accurate examinations, leading to provision of treatments at the first signs of vision loss, thereby decreasing the risk of permanent damage. Investigators: Stacey L. Pineles, MD, Joseph L. Demer, MD, PhD, Sherwin Isenberg, MD, and Federico G. Velez, MD

Prospective Study to Determine the Proportion of Patients with Isolated Third, Fourth, and Sixth Nerve Palsies of Microvascular Versus Nonmicrovascular Etiology

Currently, magnetic resonance imaging scanning is only recommended in atypical cases (ie, young age, no vascular risk factors). The purpose of this multicenter study is to determine whether central nervous system abnormalities are detected in patients who otherwise would not have neuroimaging. Investigator: Stacey L. Pineles, MD

Optical Coherence Tomography in the Newborn Eye

The purpose of this study is to better characterize the retina and optic nerve in newborns using spectral-domain optical coherence tomography (SD-OCT). SD-OCT has been used by doctors for more than five years to help diagnose and treat adults with eye diseases, but it has never been studied in newborns, where it could potentially help in the diagnoses of glaucoma, optic nerve hypoplasia, foveal hypoplasia, and colobomata, among many other disorders. Investigator: Sherwin J. Isenberg, MD

Prevention of Visual Impairment in School-Age Children

In this community-based participatory intervention to promote the use of eyeglasses in schools, first- and second-grade students with refractive errors receive two pairs of eyeglasses, with one pair staying at home and the other in the classroom. School nurses collaborate with teachers in monitoring the use of eyeglasses in the classroom, and parents receive eye care education. Investigator: Anne L. Coleman, MD, PhD

A Randomized Trial of Levodopa as Treatment for Residual Amblyopia (ATS17)

The objective of this study is to compare the efficacy and safety of oral levodopa and patching versus oral placebo and patching in children 7 to <13 years for residual amblyopia. Investigators: Stacy L. Pineles, MD, and Federico G. Velez, MD

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