



Stein Eye Institute

Stein Eye Institute

ANNUAL REPORT

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On the cover: Signature eyewear worn by philanthropists Edie and Lew Wasserman dominate the lobby of the Edie & Lew Wasserman Building, paying homage to the couple's infinite vision and long-standing commitment to preventing blindness and restoring eyesight.



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Dear Friends,

The 2014–2015 academic term stands as a banner year for the Stein Eye Institute.

A ceremonial ribbon cutting marked the moment our vision-science campus became fully realized. On October 28, 2014, we officially opened the doors of the Edie & Lew Wasserman Building, a spectacular example of green architecture that houses a state-of-the-art, outpatient surgical center, and expands the Institute's Oculoplastics and Orbital Division and the Cataract and Refractive Surgery Division. Patients now have the convenience of "one-stop-shopping," with exams, testing, and surgery all in the same facility.

We now focus on the final phase in the transformation of Stein Plaza, with renovation of the Jules Stein Building underway to modernize the infrastructure and reconfigure the interior space to further our knowledge of specific vision processes and eye diseases.

This academic year, we welcomed Doheny Eye Institute researchers and clinicians to the faculty roster of the David Geffen School of Medicine at UCLA, and formed a single, integrated UCLA Department of Ophthalmology—and the synergistic power of this historic Stein/Doheny affiliation was felt immediately. At the 2015 meeting of the American Glaucoma Society, everyone in the UCLA Department of Ophthalmology glaucoma service played an important role—from lecturing at the podium or in poster sessions, to serving on the program committee and chairing sessions. Our combined glaucoma service is active, thriving, and having a major impact on the present and future of glaucoma research and patient care.

Access to excellent eye care has never been easier with Stein and Doheny Eye Center UCLA locations open from the westside to the eastside and south to Orange County. But our dedication to community outreach goes far beyond our region. Anthony J. Aldave, MD, exemplifies the Stein Eye Institute's mission to preserve and restore vision. His non-profit organization Visionaries International is striving to eliminate corneal blindness in the developing world by "training the trainers."

I hope you enjoy the 2014–2015 *Annual Report* and learning about our activities this academic year. Thank you to our tremendous faculty and staff, and to our exceptional donors and friends, who share our mission and who contribute to our current and future accomplishments.

Sincerely,

Bartly J. Mondino, MD

Bradley R. Straatsma, MD, Endowed Chair in Ophthalmology
Director, Stein Eye Institute
Chairman, Department of Ophthalmology
David Geffen School of Medicine at UCLA

A Year in Review

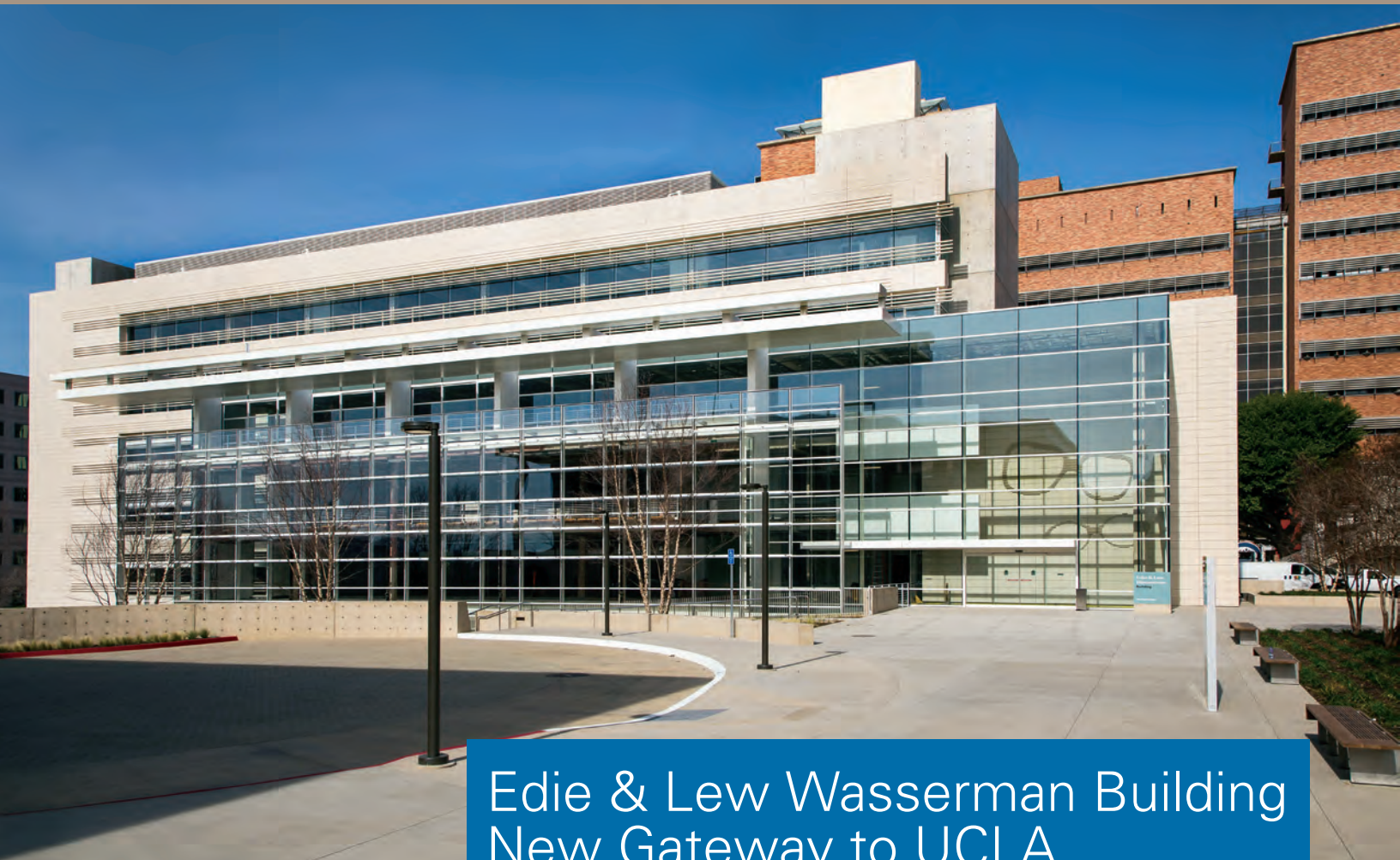
JULY 1, 2014–JUNE 30, 2015

This 2014–2015 academic year was highlighted by the opening of the Edie & Lew Wasserman Building and welcoming of new UCLA Department of Ophthalmology faculty. UCLA Department of Ophthalmology researchers made further inroads in vision-science investigations, increasing our knowledge of vision processes and eye diseases, and faculty members were recognized for their contributions to ophthalmology. 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. And recognizing that private funding is critical to the advancement of science and medicine, generous donors provided needed support for the sight-saving endeavors of the Stein Eye Institute.

“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

Stein Eye Institute



Edie & Lew Wasserman Building New Gateway to UCLA

Campus officials dedicated the Edie & Lew Wasserman Building at a ceremonial ribbon cutting on October 28, 2014, and in their remarks, described the landmark research and patient-care facility as “the new gateway to UCLA.” Dedicated to ophthalmology and synergistic programs between the Stein Eye Institute and Ronald Reagan UCLA Medical Center, the building’s name honors late philanthropists Edie and Lew Wasserman.

“With the opening of this third facility, the Stein Eye Institute’s physical transformation to a vision-science campus is complete,” said UCLA Chancellor **Gene Block**. “We’re here to celebrate the completion of a magnificent new building. Forged of steel, glass, and concrete, the Edie & Lew Wasserman Building reflects a generous couple’s 50-year commitment to vision sciences at UCLA, and will further enable physicians and scientists to advance critical research and treatment aimed at restoring and preserving eyesight.

At the podium, **Bartly J. Mondino, MD**, director of the Stein Eye Institute and chairman of the UCLA Department of Ophthalmology, remarked, “The added space this magnificent building offers will have an enormous impact on Stein Eye, enhancing the Institute’s continued evolution into the leading eye care, vision research, and educational center of the 21st century. The Edie & Lew Wasserman Building allows us to expand our existing facilities and faculty and enables us to create revolutionary new programs that will dramatically change the way we treat patients with eye diseases.”

“The Stein Eye Institute’s physical transformation to a vision-science campus is complete.”

**UCLA Chancellor
Gene Block**

Echoing the sentiments of UCLA leadership, Dr. Mondino expressed gratitude for the hard work and dedication of everyone involved, and he thanked Casey Wasserman for spearheading the planning and construction of the new building, as well as being the driving force in seeing the project through to fruition.

“The new Edie & Lew Wasserman Building is an architectural masterpiece and a fitting legacy to the Wasserman family,” said Dr. Mondino. “All of us at UCLA and the Stein Eye Institute are deeply grateful for the Wassermans’ extraordinary vision and devoted friendship, and Casey Wasserman’s commitment to construct a facility in his grandparents’ name.”

Casey was a UCLA senior in 1996 when he attended his first architectural meeting about the Edie & Lew Wasserman Building with his grandfather, and on October 14, 2010, he stood at his grandmother’s side as she broke ground on the new building. Poised to cut the ceremonial ribbon with his wife and children present, Casey said, “My grandparents were focused on making a measurable difference in the world. This building, along with its programs and promise, will carry their vision far into the future.”

A Work of Art

The Edie & Lew Wasserman Building has received three architectural awards, and it is a beautiful symbol of UCLA’s collaborative spirit and global impact.

Designed by Richard Meier and Partners Architects, the \$115.6 million project is a LEED gold-certified “green,” six-story building encompassing 100,000 square feet.



In developing the new facility dedicated to preserving and restoring sight, Dr. Bartly Mondino (right) found a crucial ally in Casey Wasserman (left), who spearheaded efforts to construct the building honoring his grandparents, Edie and Lew Wasserman.

It is a stunning example of modern architecture dominated by clean lines, white terracotta, and pale oak. The facility features floor-to-ceiling windows that flood the spacious rooms with natural light and reveal dramatic views of the campus.

Although contemporary in design, the building features a whimsical touch: inspired by the signature eyewear worn by Edie and Lew Wasserman, a sculpture of two oversized pairs of spectacles commands the spotlight in the building’s main lobby and pays homage to the couple’s infinite vision and long-standing commitment to preventing blindness and restoring eyesight.

A Shared Friendship and Vision

Colleagues and friends, Doris and Jules Stein and Edie and Lew Wasserman, revolutionized educational, cultural, and health care institutions across Los Angeles, and the Stein Eye Institute’s vision-science campus is a testament to their shared purpose. The Jules Stein Eye Institute opened its doors in 1966, and in 1989, Stein Plaza expanded with the creation of the Doris Stein Eye Research Center, named after Jules Stein’s wife.

Edie and Lew Wasserman were married for nearly 66 years when Mr. Wasserman passed away in 2002. And on October 14, 2010, with her grandson Casey by her side, Edie Wasserman symbolically broke ground on the building bearing her name. Edie died in 2011 at the age of 95, following the latest chapter in the legacy of her family’s support for the Institute.

Now a trio of buildings stand together in perpetuity—reflecting their namesakes’ decades-long friendship and shared dedication to one vision: restoring and preserving eyesight.

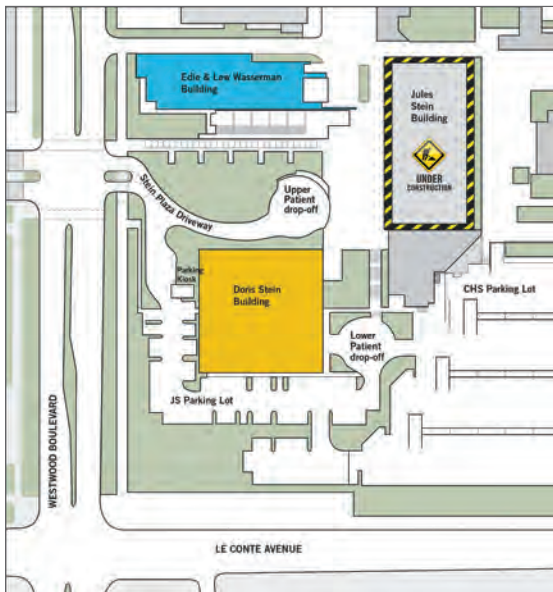


Jules Stein Building Renovation

With the opening of the Edie & Lew Wasserman Building, the Institute shifts to the final phase of construction in Stein Plaza, as renovation of the Jules Stein Building begins.

Built in 1966, the interior space of the Jules Stein Building is being reconfigured to meet twenty-first century needs. In addition to new examination rooms and renovation of two floors as modern wet labs for vision-science research, windows will be introduced into the west façade to bring in natural light. A three-story atrium lobby will provide a dramatic centerpiece that visually connects the B-Level entrance at Stein Plaza with the ophthalmology check-in lobby and clinic on the first floor. The flagship building's internal plumbing, cooling, heating, and electrical systems are also being modernized, and the facility is being upgraded seismically and made ADA compliant to meet accessibility guidelines.

With the temporary closure of the Jules Stein Building, all patient services have been moved to the Doris Stein Building and the Edie & Lew Wasserman Building. University Ophthalmology Associates and the Institute's Urgent Care Clinic have been relocated to the second floor of the Doris Stein Building. The renovation is expected to be complete in 2017.



Patient-care services are being conducted in the Doris Stein Building and the Edie & Lew Wasserman Building during the temporary closure of the Jules Stein Building.

Established in 1966, the Stein Eye Institute represents the culmination of a dream shared by ophthalmologist, businessman, and philanthropist Dr. Jules Stein and his wife Doris, of creating a world-renowned center dedicated to the preservation of vision and the prevention of blindness.

American Glaucoma Society Meeting Showcases Power of Stein/Doheny Affiliation

The UCLA Department of Ophthalmology newly doubled glaucoma service—forged by the 2013 affiliation of UCLA’s Stein Eye Institute and the Doheny Eye Institute—was on full display at the American Glaucoma Society’s 25th Annual Meeting, February 26–March 1, 2015, in Coronado, California.

Highlights of the meeting included physician-scientists from UCLA Stein Eye Institute and Doheny Eye Center UCLA discussing topics such as emerging surgical techniques, enhancing outcomes with traditional glaucoma-filtering surgery, and new basic-science imaging techniques that enhance the understanding of patients’ glaucoma anatomy and assist in developing more individually targeted medical and surgical treatment.

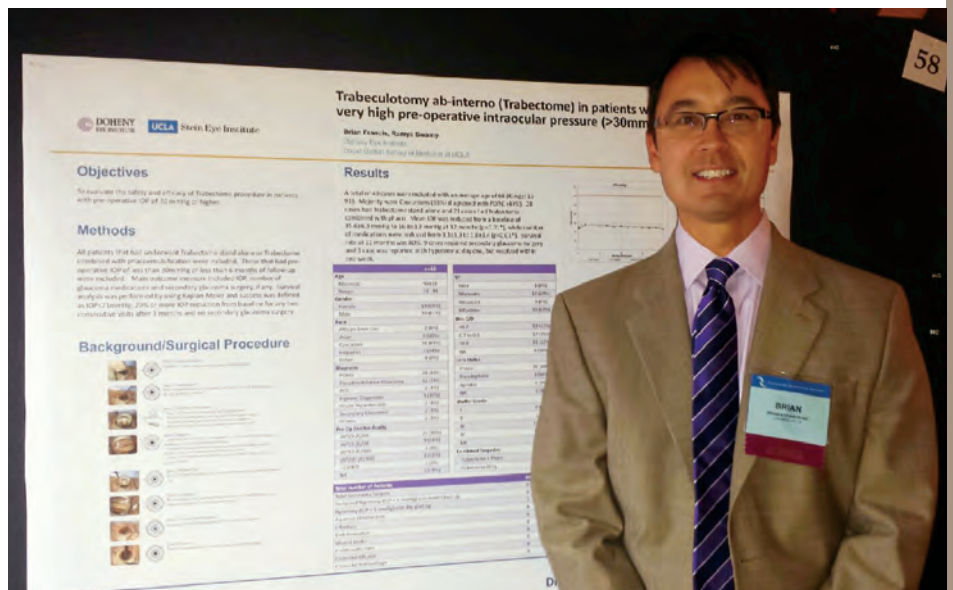
Showcasing the influence of the newly expanded glaucoma service, Doheny Eye Center UCLA ophthalmologist **Alex A. Huang, MD, PhD**, received the prestigious Young Physician Scientist Grant, while Stein Eye’s **Kouros Nouri-Mahdavi, MD, MSc**, received a Mid-Career Physician Scientist Award—an unheard of dual achievement for a single department in the same year.

Joseph Caprioli, MD, chief of the Stein Eye Institute’s Glaucoma Division, and **Brian A. Francis, MD, MS**, Glaucoma Division chief at Doheny, agree that while the meeting illustrated the many important current activities of the UCLA Department of Ophthalmology’s glaucoma faculty, the true power of the affiliation lies in the synergy created by the merging of two leading groups—with wide-ranging expertise and the ability to collaborate and benefit from each other’s knowledge.

The combined service now boasts leaders in areas ranging from basic-science research, diagnostic testing, traditional surgical methods, emerging techniques in minimally invasive glaucoma surgery; as well as epidemiology, outcome studies, and health-care policy issues pertaining to glaucoma.

Drs. Caprioli and Francis point out that, rather than individuals working on an island, the affiliation creates a vertically integrated research approach in which all the bases are covered—from basic science to diagnosis to clinical research to surgery—and everyone is sharing experiences. Through the affiliation, the UCLA Department of Ophthalmology glaucoma service is now exponentially stronger and better able to advance glaucoma care through wide-ranging expertise and the ability to collaborate and benefit from each other’s knowledge.

The true power of the Stein/Doheny affiliation lies in the synergy created by the merging of two leading groups—with wide-ranging expertise and the ability to collaborate and benefit from each other’s knowledge.



Dr. Brian Francis presents a poster at the 2015 meeting of the American Glaucoma Society.

IN REMEMBRANCE

Andrea L. Rich, PhD

Board of Trustees, Stein Eye Institute



Andrea L. Rich, PhD, a member of the Stein Eye Institute's Board of Trustees since 2007, died from acute myeloid leukemia at the Ronald Reagan UCLA Medical Center on July 28, 2014. She was 71.

Chairman of the UCLA Department of Ophthalmology and Director of the Stein Eye Institute, **Bartly J. Mondino, MD**, noted that Andrea was a wonderful colleague whose wisdom, advice, and support were greatly valued and appreciated.

The Stein Eye Institute Board of Trustees is responsible for the leadership and preservation of the Institute, and Dr. Rich provided her counsel to

ensure the Institute's orderly growth and development. Her invaluable contributions included participating in the 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.

Dr. Rich was a scholar of intercultural and interracial communications. In her nearly 30 years of service to UCLA, Dr. Rich rose from an assistant professorship to become UCLA's first female executive vice chancellor. Known for being a charismatic leader, Dr. Rich went on to become president and chief executive officer of the Los Angeles County Museum of Art.

New Faculty

John D. Bartlett, MD, health sciences assistant clinical professor of ophthalmology, was recruited to full-time faculty on November 1, 2014. Dr. Bartlett has an ongoing clinical interest in cataract surgery, particularly refractive cataract surgery, and he is involved with teaching these surgical techniques to Stein Eye residents.

Dr. Bartlett is also one of UCLA's physician informaticists, participating in the ongoing implementation and optimization of electronic health records (EHRs). Dr. Bartlett is interested in using EHRs to reach the "Triple Aim" of improved patient care and satisfaction, improved population health, and decreased cost of health care.

Jie J. Zheng, PhD, was appointed professor-in-residence of ophthalmology on January 5, 2015. Dr. Zheng's research is at the interface of biochemistry, computational biology, systems pharmacology, and drug discovery with an emphasis on therapeutic development in ophthalmology.

Aiming to establish new translational research within the vision research community at UCLA, the goal of Dr. Zheng's research is to develop novel therapies for retinal degenerative diseases, glaucoma, and corneal disorders.

UCLA Stein Eye Institute and Doheny Eye Institute Hold Joint Reception in Chicago

The UCLA Department of Ophthalmology held its annual alumni reception on October 19, 2014, at the American Academy of Ophthalmology meeting in Chicago, Illinois.

This year the occasion was all the more celebratory, as it marked the first time that the Stein and Doheny Eye Institutes co-hosted the event. Under terms of the historic alliance between the two Institutes, Doheny Eye Institute physicians and scientists are UCLA Department of Ophthalmology faculty.

Faculty members, residents, and fellow alumni from both Institutes attended the reception, renewing acquaintances, reconnecting with classmates, and interacting with colleagues from throughout the world.



Medical Director of the Doheny Eye Center UCLA Dr. John Irvine (left), Chairman of the UCLA Department of Ophthalmology Dr. Bartly Mondino (center), and Vice Chairman of the Doheny Eye Center UCLA Dr. Alfredo Sadun.

Stein Eye Alumnus Identifies Critical Gene as Cause of Blinding Eye Disease

The Stein Eye Institute's EyeSTAR (Specialty Training and Advanced Research) program, which combines an ophthalmology residency program with a PhD or postdoctoral fellowship in vision science research, began in 1995 with the purpose of training physician-scientists as future leaders in ophthalmology.

Now, thanks to the skilled efforts of Stein Eye Institute alumnus and EyeSTAR training program graduate, **Vinit B. Mahajan, MD, PhD**, multiple generations of an Iowa family who were blind, are blind, or who are going blind have new hope.

Members of the Jackson family have a rare genetic eye disease called autosomal dominant neovascular inflammatory vitreoretinopathy (ADNIV). Patients with ADNIV are normally sighted until their second decade when chronic autoimmune uveitis (damage to the eye's middle layer) begins and cataracts develop. Over the next five decades, angiogenesis, photoreceptor degeneration, retinal neovascularization, intraocular fibrosis, and retinal detachment occur, ending in loss of vision.

"Seven generations of the Jackson family had gone blind from inherited uveitis and vitreoretinopathy; half of the family was affected by a genetic disease of unknown cause," explains Dr. Mahajan. "I took care of them in clinic, and I took care of them in the operating room. Clearly, to optimize the families' treatment and save their sight, we had to take it into the lab." Thankfully, because of Dr. Mahajan's EyeSTAR training, he had the unique ability to do just that.

Dr. Mahajan and his research team recently identified that mutations in a gene known as *CAPN5* are the cause of ADNIV. His team's published results are the first time the *CAPN5* gene was implicated in eye disease, and it is the first gene to directly cause nonsyndromic uveitis and a new gene to cause retinitis pigmentosa.

Successful discovery of the *CAPN5* gene gave Dr. Mahajan and his team a key molecular target to understand and treat inflammatory eye diseases. And with that goal, Dr. Mahajan is working in close partnership with fellow EyeSTAR graduate **Stephen H. Tsang, MD, PhD**. "EYESTar has made a huge difference in allowing us to integrate laboratory science, clinical care, and surgical care for difficult-to-treat patients," says Dr. Mahajan, noting that the best hope for many patients is at an academic center where lab work conducted by physician-scientists can have immediate and long-lasting effects on rescuing vision.

Dr. Mahajan stresses the need for physician-scientists who are as comfortable in the laboratory as they are in the operating room. "Because of EyeSTAR," Dr. Mahajan affirms, "each week I am in the clinic, in the operating room, and in my own laboratory. I am thankful to all the Stein Eye faculty members who trained me; my accomplishments are a direct result of their dedication and excellence."

For the Jackson family, the invaluable work of trained physician-scientists like Dr. Mahajan has special urgency—protecting their grandchildren and future generations from experiencing a similar and heartbreaking loss of sight.



A new reason for hope: Stein Eye Institute alumnus and EyeSTAR graduate Dr. Vinit Mahajan isolated the gene responsible for causing generations of blindness in an Iowa family.

Honors and Awards



Dr. Dean Bok (left) and Neurobiology Department Chair, Dr. Thomas Otis

Symposium Honors Dr. Dean Bok

The UCLA Department of Neurobiology held a symposium to honor Stein Eye Institute Emeritus Faculty Member **Dean Bok, PhD**, Distinguished Professor, Departments of Neurobiology and Ophthalmology.

The October 8, 2014, vision-science symposium, “The Neurobiology of Vision,” and the reception that followed, commemorated Dr. Bok’s 46 years of service as a faculty member of the Department of Neurobiology. Symposium speakers included Dr. Bok and Stein Eye Institute faculty members **David S. Williams, PhD**, and **Alapakkam P. Sampath, PhD**, as well as other UCLA faculty members, who presented talks on their latest research, which encompassed both the retina and the brain.

Dr. Bok noted that this was the first symposium in the Neurobiology Department’s history to feature his chosen field of research and added that it was gratifying to participate with a group of young, dynamic vision scientists who work at the cutting edge of their discipline.

Faculty Honors

- ▶ **Anthony J. Aldave, MD**, Walton Li Chair in Cornea and Uveitis, received an American Academy of Ophthalmology Senior Achievement Award at the October 2014 American Academy of Ophthalmology annual meeting in Chicago, Illinois.

In addition, Dr. Aldave delivered the Dr. Diego Cuevas Cancino Lecture at the 52nd Actualization Course in Ophthalmology, organized by the Asociación para Evitar la Ceguera en México, on February 19, 2015, in Mexico City, Mexico.

Dr. Aldave also presented the Erin K. Jacobson Memorial Lecture at the Loma Linda University Medical Center Department of Ophthalmology Resident Research Symposium on May 22, 2015, in Loma Linda, California.

- ▶ **Anthony C. Arnold, MD**, Jerome and Joan Snyder Chair in Ophthalmology, was awarded the 2015 Parker J. Palmer Courage to Teach Award at the Accreditation Council for Graduate Medical Education (ACGME) Annual Educational Conference on February 27, 2015, in San Diego, California.
- ▶ **Joseph Caprioli, MD**, David May II Endowed Chair in Ophthalmology, received an American Academy of Ophthalmology Secretariat Award at the October 2014 American Academy of Ophthalmology annual meeting in Chicago, Illinois.
- ▶ **Anne L. Coleman, MD, PhD**, The Fran and Ray Stark Foundation Chair in Ophthalmology, received an American Academy of Ophthalmology Life Achievement Honor Award at the October 2014 American Academy of Ophthalmology annual meeting in Chicago, Illinois.
- ▶ **Joseph L. Demer, MD, PhD**, Leonard Apt Endowed Chair in Pediatric Ophthalmology, presented the William Gillies Lectureship at the Australia and New Zealand Strabismus Society, March 6–7, 2015, in Brisbane, Australia.

Dr. Demer also gave the Keynote Address at the Congress of the European Society of Ophthalmology, June 6–9, 2015, in Vienna, Austria.

- ▶ **Robert Alan Goldberg, MD**, Karen and Frank Dabby Endowed Chair in Ophthalmology, delivered the Plana Lecture at the XIX International Course on Plastic and Aesthetic Surgery on June 16, 2015, in Barcelona, Spain.
- ▶ **Lynn K. Gordon, MD, PhD**, Vernon O. Underwood Family Chair in Ophthalmology, received an American Academy of Ophthalmology Senior Achievement Award at the October 2014 American Academy of Ophthalmology annual meeting in Chicago, Illinois.
- ▶ **Gary N. Holland, MD**, Jack H. Skirball Chair in Ocular Inflammatory Diseases, was the recipient of the Golden Apple Award for Excellence in Teaching at the Class of 2017 Second Year Banquet, David Geffen School of Medicine at UCLA, on April 23, 2015, in Westwood, California. As the Golden Apple Award recipient, Dr. Holland also received special honors at the David Geffen School of Medicine at UCLA Hippocratic Oath Ceremony, June 5, 2015, in Westwood, California.

Dr. Holland was also a featured speaker before the United States Congress at the first-ever Congressional Briefing on Uveitis on June 3, 2015, in Washington, DC.
- ▶ **Kevin M. Miller, MD**, Kolokotronis Chair in Ophthalmology, presented the Om Prakash Oration at the Delhi Ophthalmological Society meeting on April 12, 2015, in New Delhi, India.
- ▶ **Bartly J. Mondino, MD**, Bradley R. Straatsma, MD Endowed Chair in Ophthalmology, was honored for ten years of service as Executive Vice President of the Association of University Professors of Ophthalmology at their January 2015 annual meeting in Tucson, Arizona.
- ▶ **Kouros Nouri-Mahdavi, MD, MSc**, Assistant Professor of Ophthalmology, received an American Academy of Ophthalmology Achievement Award at the October 2014 American Academy of Ophthalmology annual meeting in Chicago, Illinois.
- ▶ **Natik Piri, PhD**, Associate Professor of Ophthalmology, was recipient of the 2015 Spitzer Grant Research Program award for support of groundbreaking medical research at UCLA.
- ▶ **David Sarraf, MD**, Health Sciences Associate Clinical Professor of Ophthalmology, was awarded membership in the American Ophthalmological Society in May 2015 for his thesis, "Retinal pigment epithelial tears in the era of intravitreal pharmacotherapy: risk factors, pathogenesis, prognosis and treatment (an American Ophthalmological Society thesis)."
- ▶ **Steven D. Schwartz, MD**, holder of The Ahmanson Chair in Ophthalmology, was recognized by the American Society of Retina Specialists in 2014 for outstanding service to the Society's scientific and educational programs, original papers, panel discussions, and instructional courses.
- ▶ **David S. Williams, PhD**, Jules and Doris Stein Research to Prevent Blindness Professor of Ophthalmology, was presented with a Distinguished Service Award by the International Society for Eye Research on July 23, 2014, in San Francisco, California.



Dr. Gary Holland met with Representative Ted Lieu (D-33rd District, California) in his Washington office, following Dr. Holland's Congressional Briefing on Inflammatory Eye Diseases.

Institute Honors

Stein and Doheny Eye Institutes Best in the West for EYE Care

The recently affiliated Stein and Doheny Eye Institutes were honored as being among the top five eye care centers in the United States and the best in the Western United States, according to a ranking in *U.S. News & World Report's* "Best Hospitals 2014–2015."

UCLA's hospitals in Westwood and Santa Monica have again earned a place on the magazine's Honor Roll. UCLA Health is ranked No. 5 in the country and No. 1 in both California and the Los Angeles metropolitan area, and is among only 17 hospitals out of nearly 5,000 nationwide named to the Honor Roll.



Edie & Lew Wasserman Building Celebrated for Excellence in Design

The American Institute of Architects (AIA) presented Richard Meier & Partners Architects LLP an Honor Award for Architecture for their design of the Edie & Lew Wasserman Building.

This honor is the Edie & Lew Wasserman Building's third award for excellence in architecture and design: the building was named Best Medical Project at the Los Angeles Business Journal's 2013 Commercial Real Estate Awards, and a Community Impact Award was bestowed in 2011 at the Los Angeles Business Council's Los Angeles Architectural Awards. In addition, the Edie & Lew Wasserman Building has been awarded LEED (Leadership in Energy and Environment Design) Gold certification in recognition of the structure's environmental and health performance.



Stein Eye Institute Group Leads Fundamental Change in Muscle-Strengthening Strabismus Surgery in North America

Surgery to tighten and strengthen eye muscles is one of the bread-and-butter operations to correct misaligned eyes in patients with strabismus. Now a UCLA Stein Eye Institute group headed by **Joseph L. Demer, MD, PhD**, Leonard Apt Endowed Chair in Pediatric Ophthalmology and chief of Stein Eye's Pediatric Ophthalmology and Strabismus Division, is pioneering the North American introduction of an alternative muscle-strengthening approach and popularizing a fundamental change in the way strabismus surgery is performed.

The alternative method, known as plication, offers numerous advantages and virtually no disadvantages compared to the approach taught for many decades in the United States, says Dr. Demer. At UCLA Stein Eye Institute, plication is now the approach being taught to trainees, and Stein Eye surgeons have almost uniformly moved to its use for tightening muscles to treat strabismus.

One objective of strabismus surgery is to shorten an eye muscle so that it pulls harder—analogueous to shortening the length of a rubber band so that the elastic material, stretched over the same distance, exerts more tension. Eye muscle tightening has traditionally been accomplished through resection—cutting out the tendon and a portion of the front of the muscle, then sewing it back into the eye, with the shortened muscle pulling tighter along the same path as a result. Plication takes an alternative approach—placing sutures through the tendon or muscle an equivalent distance from the attachment point and farther back along the length of the muscle, then sewing those sutures to the wall of the eye at the original insertion point. “The muscle is tightened as much as in resection,” says Dr. Demer, “but instead of amputating the front part of the eye muscle and tendon, in plication the redundant front part is simply folded underneath and left in place.”

“This operation is less traumatic and more potentially reversible,” Dr. Demer explains. “It spares blood vessels, causes less inflammation and bleeding, and is technically easier to perform than resection. We are constantly looking for ways to optimize surgery and make it less invasive. The technical innovation of plication does that, while expanding the options surgeons have for treating strabismus.”

Much of the research done on eye movements at Stein Eye involves fundamental discoveries and complex technological applications that broadly but slowly improve the field worldwide,” Dr. Demer says. “But, we do not neglect smaller practical improvements that can quickly enhance the practice of ophthalmology. Plication is one innovative improvement that can be adopted overnight by any ophthalmologist who has ever learned to operate on the eye muscles.”

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.



Dr. Demer (left) and his team perform strabismus surgery.

Plication is one innovative improvement that can be adopted overnight by any ophthalmologist who has ever learned to operate on the eye muscles.

Orbital Vascular Disease Center

Establishing New Standards of Care for Challenging Disorders

Orbital vascular diseases—rare disorders of the eye socket characterized by abnormal blood vessel growth—can be devastating to patients, leading to both disfigurement and vision loss. They are also extremely challenging to treat.

The Stein Eye Institute's Orbital Vascular Disease Center, part of the UCLA Orbital Disease Center, has emerged as a leader in managing these complex cases. Using a multidisciplinary-team approach, the Center has adopted and developed innovative treatments that have become the standard of care at UCLA and other specialized centers—including surgical approaches to the orbital vasculature that enable direct access to the lesions for endovascular treatment, as well as nonsurgical interventions, such as the use of sclerosing injections and glues.



The Center's clinical faculty was recently bolstered by the recruitment of Dr. Jack Rootman (right), a world-renowned authority in orbital vascular diseases, shown teaching at the Stein Eye Institute's annual Aesthetic Eyelid and Facial Rejuvenation Course.

"Treatment of ocular vascular diseases has been challenging for several reasons, including that the majority of these processes don't respond well to traditional surgical treatment," says **Robert Alan Goldberg, MD**, Karen and Frank Dabby Endowed Chair in Ophthalmology, chief of the Orbital and Ophthalmic Plastic Surgery Division, and director of the UCLA Orbital Disease Center. "Standard surgical techniques can be hampered by concerns about intraoperative bleeding. In addition, the lesions are often spread throughout the normal tissues making them difficult to surgically remove. Finally, for reasons that are not entirely clear, the lesions often return even after surgery appears successful."

Through its research and clinical efforts, the UCLA Orbital Disease Center has developed new surgical and nonsurgical approaches. From the surgical standpoint, the Center has long featured advanced instrumentation and techniques to perform the delicate types of surgeries required to remove orbital vascular lesions. The program has pioneered minimally invasive, small-incision techniques that take advantage of advanced endoscopy and microsurgery to operate on the lesions through less-invasive approaches, often under local anesthesia.

To develop nonsurgical techniques, the Orbital Vascular Disease Center takes advantage of its multidisciplinary team. Interventional radiologists map the orbital vascular disorders using advanced techniques to provide a detailed

picture of the vascular anomalies. The Center has developed medical treatments based on this information, including sclerosing agents that effectively kill the inside of the abnormal vessels, causing them to collapse; and glues to seal off the inside of the lesion—often facilitating surgery to remove the rest of the lesion. "This is work that we started 15 years ago, and it has become standard treatment," Dr. Goldberg says. Researchers at the Center are currently investigating glues that would treat the lesions without the need for surgery, as well as sclerosing agents that are more specific to different types of vessels, as strategies for reducing side effects of the treatment.

Recognizing that the field is evolving toward nonsurgical, specific kinds of therapy, the Orbital Vascular Disease Center researchers are also exploring the potential use of biologic agents that could initially augment the current therapies and eventually replace the existing ones.

The Center brings together expert clinical faculty to make headway against this extremely complex group of disorders. The team features interventional radiologists known for innovative approaches to vascular lesions; head and neck surgeons and neurosurgeons who participate in the surgical management; basic scientists who are unraveling the molecular biologic features of orbital vascular diseases; and pediatricians, neurologists, dermatologists, and other specialists who are brought in as needed.

The Center is also training the next generation of leaders through a two-year fellowship program in orbital and ophthalmic plastic surgery that provides trainees with a unique experience in the multidisciplinary environment.

Annual Clinical and Research Seminar

Ophthalmologists gathered at the Stein Eye Institute on June 12, 2015, for the Institute's most prestigious annual academic event, the Clinical and Research Seminar. Sponsored by the UCLA 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, **Stuart L. Fine, MD**, visiting clinical professor, Department of Ophthalmology, University of Colorado School of Medicine in Aurora, Colorado, presented the 46th Jules Stein Lecture; **David M. Gamm, MD, PhD**, RRF Emmett A. Humble Distinguished Director, McPherson Eye Research Institute, and associate professor, Department of Ophthalmology and Visual Science, University of Wisconsin School of Medicine and Public Health in Madison, Wisconsin, gave the 13th Bradley R. Straatsma Lecture; and **Robert K. Maloney, MD**, director, Maloney Vision Institute, and clinical professor, Department of Ophthalmology, David Geffen School of Medicine at UCLA in Los Angeles, California, delivered the 13th Thomas H. Pettit Lecture.

In acknowledgment of their service, selected volunteer and clinical faculty received awards of distinction at the Clinical and Research Seminar. The S. Rodman Irvine Prize recognizing excellence in the Department of Ophthalmology faculty was given to **Thomas A. Hanscom, MD**. Senior Honor Awards were presented to **Calvin T. Eng, MD, David R. Fett, MD, Michael J. Groth, MD, Joan E. McFarland, MD, Michael Reynard, MD**, and **William C. Stivelman, MD**, distinguished volunteer faculty who have been members of the UCLA Department of Ophthalmology for at least 25 years.

The Faculty Teaching Award, honoring contributions to residency education, was presented to **Pradeep S. Prasad, MD**.

20th Annual Vision Science Conference

The 20th 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 10–12, 2014. More than 70 basic scientists and clinical researchers gathered at UCLA's Lake Arrowhead Conference Center to participate in scientific discussions and memorable networking events.

The Conference keynote address, "Origin Story: How (and When) the Animal Got its Eye," was given by **Todd Oakley, PhD**, professor and vice chairman of the Department of Ecology, Evolution and Marine Biology at the University of California, Santa Barbara.

The retreat culminated with a presentation by Founding Director of the Stein Eye Institute and Founding Chairman of UCLA Department of Ophthalmology, **Bradley R. Straatsma, MD, JD**, who reflected on the 20th Anniversary of the Stein Eye Institute Vision Science Conference and its future directions.

Attendees at the Stein Eye Institute 2014 Vision Science Conference



Education at the Stein Eye Institute is multifaceted—ranging from teaching medical students, residents, and fellows—to leading national conferences. In the course of their educational duties, faculty members mentor, counsel, lecture, and demonstrate. They are responsible for hundreds of clinical and scientific publications each year and are entrusted with developing and sharing new approaches to science and medicine that will ultimately result in improved patient care.

Comprehensive Ophthalmology Review Course

The Stein Eye Institute and the Doheny Eye Institute teamed up to sponsor the 10th Comprehensive Ophthalmology Review course February 19–22, 2015. The course co-directors, **Sherwin J. Isenberg, MD**, Laraine and David Gerber Chair in Ophthalmology at the Stein Eye Institute, and **John A. Irvine, MD**, medical director of the Doheny Eye Center UCLA, organized a program concentrating on the epidemiology, clinical presentation, diagnosis, and management of ophthalmological disease.

Aesthetic Eyelid and Facial Rejuvenation Course

The Orbital and Ophthalmic Plastic Surgery Division conducted its annual Aesthetic Periorbital and Facial Rejuvenation course August 1–2, 2014, at the Stein Eye Institute. The course, now in its 25th year, featured fast-paced, high-level, and interactive continuing medical education activities that combined cadaver dissection with didactic lectures.

Catherine J. Hwang, MD, assistant clinical professor of ophthalmology, was the program director, and the founding course directors, **Henry I. Baylis, MD**, and **Norman Shorr, MD**, along with **Robert Alan Goldberg, MD**, and **Jonathan A. Hoenig, MD**, headed up a team of instructors that drew heavily from UCLA volunteer faculty.

The Robert Axelrod, MD, Memorial Lecture was delivered by **John A. Long, MD**, who has practiced oculoplastic surgery in Birmingham, Alabama, since 1988. Dr. Long conducted both his residency and fellowship in orbital facial plastic and reconstructive surgery at the Stein Eye Institute.



(L to R) Drs. Henry I. Baylis, Robert Alan Goldberg, John A. Long, Catherine J. Hwang, and Norman Shorr.

Community Outreach

Much of the Stein Eye Institute's reputation springs from its first-class patient care, which includes care of those in underserved communities. The Institute is dedicated to the preservation and restoration of vision through its global programs and innovative research, quality patient care, and multidisciplinary, and integrative education, all with community outreach.

Training the Trainers in the Developing World

Grounded in the belief that everyone has a right to sight, **Anthony J. Aldave, MD**, professor of ophthalmology and chief of the Stein Eye Institute's Cornea and Uveitis Division, established the non-profit organization Visionaries International (VI), which is dedicated to eliminating corneal blindness worldwide.

A staggering 90% of individuals with corneal blindness live in the developing world. Two of the main barriers to treating corneal blindness are an inadequate number of trained corneal transplant surgeons and a lack of transplantable corneal tissue.

To combat these impediments, Dr. Aldave and colleagues, including UCLA Department of Ophthalmology faculty **Sophie X. Deng, MD, PhD**, and **Olivia L. Lee, MD**, have employed a model of surgical skills-transfer courses that focus on "training the trainers." VI's internationally recognized corneal specialists donate their time and expertise to train local surgeons in the latest forms of corneal transplant surgery. These trained local surgeons then teach their colleagues the same innovative procedures they have learned from VI specialists. Since its inception in 2008, VI has conducted over 30 training programs in 15 countries.

In September 2014, members of the VI team visited the eye bank at the Vietnam National Institute of Ophthalmology (VNIO) in Hanoi, Vietnam, which is the only domestic source of corneal tissue for 90 million people. Despite this great need for donor corneas, only around 150 corneal transplants are performed annually in Vietnam, compared to approximately 50,000 in the United States.

To address the lack of donor corneas, and the resultant inexperience of Vietnamese corneal transplant surgeons, VI partnered with VNIO to develop a program to increase donor cornea recoveries and to expand the surgical skills of the Institute's corneal specialists. A primary factor in the limited number of corneas recovered by VNIO was determined to be a lack of trained grief counselors who could approach families about donation. After identifying this problem, VI was awarded a grant to support the training of two VNIO eye bank technicians at Aravind Eye Hospital in Madurai, India. The subsequent grief training the VNIO eye bank technicians received in India represents the first step to building a successful hospital-based tissue recovery program in Hanoi.



Drs. Anthony Aldave and Rosalind Vo examine a child with corneal opacification at the Vietnam National Institute of Ophthalmology in Hanoi, Vietnam.



Dr. Anthony Aldave instructs corneal specialists at the Vietnam National Institute of Ophthalmology in Hanoi, Vietnam, on the performance of deep anterior lamellar keratoplasty during a skills-transfer course in September 2014.

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

Make Surgery Bearable Program

Two successful sponsorship drives were held this year for the JSEI Affiliates' *Make Surgery Bearable* program, an initiative that provides Dr. Teddy bears to each pediatric patient undergoing eye surgery at the Stein Eye Institute. The cuddly bears dressed in green scrubs and tagged with the name of the donor, help children feel comforted and secure during what could otherwise be a frightening time.



The Affiliates, in collaboration with the Pediatric Ophthalmology and Strabismus Division, introduced a Spanish version of their children's book *Making Eye Surgery Bearable*, which helps pediatric patients feel more comfortable with the surgical experience by providing age-appropriate information about what they can expect when they come to the Stein Eye Institute.

MagniVision Program

The Affiliates MagniVision program provides financial and volunteer support for the UCLA Vision Rehabilitation Center (VRC). Volunteers train low-vision patients on the use of magnifiers and various vision aids, and financial assistance from the Affiliates enables purchase of low-vision tools for the VRC lending library.

Preschool Vision Screening

The Affiliates Preschool Vision Screening program began 15 years ago with the inspiration and support of Mrs. Gloria Kaufman and under the supervision of the late Dr. Leonard Apt, founding chief of the Division of Pediatric Ophthalmology and Strabismus. During the 2014–2015 school year, 38 Affiliates volunteers, under the supervision of four retired optometrists, visited 29 preschools to screen 742 children between three and five years of age.

Shared Vision Program

The Affiliates Shared Vision program collected and recycled approximately 3,200 donated eyeglasses for those in need this year. 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 public school 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 is the dissection of a cow eye. VIS volunteers visited 26 classrooms this past year, presenting the curriculum to over 915 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 November 1, 2015, the Affiliates participated in the eighth annual Los Angeles Foundation Fighting Blindness Vision Walk, which was held at Woodley Park in the San Fernando Valley. The Stein Eye Team, "Volunteers with Vision," walked the five-kilometer route with approximately 400 other participants to raise awareness and more than \$100,000 to advance retinal eye disease research.

The Institute's volunteer arm, the Jules Stein Eye Institute (JSEI) Affiliates, is a broad-based network of volunteers, donors, staff, faculty, fellows, and residents who participate in vision education and patient-care programs throughout Los Angeles. Information about the JSEI Affiliates can be found at: www.jseiassociates.com; on Facebook: www.facebook.com/JSEIAffiliates; via email: affiliates@jsei.ucla.edu; or by calling 310-825-4148.

Endowed Chair Pays Tribute to Both Donor and Holder

The commitment to the mission of the Stein Eye Institute is elevated when represented through a gift of an endowment. Such gifts allow the University to hold the fund in perpetuity. By investing the fund principal for growth over time, the earnings are used to underwrite significant programs. An endowment, whether established during a lifetime or through a planned gift, provides a constant financial source and helps secure a program's future and continued success. Endowments may be named and serve as a lasting tribute to the donor. An endowed chair is one of the most important gifts to higher education.

In ancient times, chairs were rare and highly coveted pieces of furniture reserved for the exclusive use of royalty or religious leaders. The chair itself symbolized that its owner was an individual of high rank and prominence. Today, endowed chairs are reserved for those who have reached the pinnacle of academic achievement. They honor and recognize the distinction of superior faculty, while providing invaluable financial support, for use in research, teaching, and/or service activities. An endowed chair, which is the highest honor UCLA accords to scholarship, pays tribute to both the holder who has earned the distinction and the donor who has embraced the vision. It can memorialize or honor beloved family members, recognize the achievements of admired colleagues, and declare one's personal commitment to the excellence of, in this instance, UCLA's Stein Eye Institute.

The establishment of a permanent endowed chair is a special incentive to attract a scholar of distinction to Stein Eye or to retain gifted faculty whose teaching and research best exemplify UCLA's mission. Each is established with a \$2-million minimum gift, with the income supporting the scholar's research and teaching, as well as freedom to explore opportunities. The continuity of funding provided by a permanent-appointment chair, including an administrative chair, gives the incumbent financial flexibility in planning long-term research, more independence from outside agencies, and freedom to explore promising new areas. The activities supported by a chair will attract other distinguished faculty members, as well as the best and brightest fellows and students.

A term chair supports the teaching and research activities of a faculty member by underwriting graduate students and postdoctoral fellows, staff and services, and special projects. Moreover, a term chair is limited to a set period and supports the work of members of the faculty who show much promise in their field. A term chair is established with a \$1-million minimum gift.

The endowed-chair tradition started under the tenure of Founding Director of the Stein Eye Institute and Founding Chairman of the Department of Ophthalmology, **Bradley R. Straatsma, MD, JD**. The Stein Eye Institute continued to be the beneficiary of additional endowed chairs when **Bartly J. Mondino, MD**, assumed the leadership role as Stein Eye Director and Department Chairman in 1994. Dr. Mondino was involved in establishing 15 endowed chairs and converting five term chairs to permanent-appointment chairs.

"The Stein Eye Institute has flourished from the generosity of many friends, grateful patients, and supporters. We are most indebted and humbled by their tremendous commitment to and belief in Stein Eye and the work we do in research, patient care, education, and outreach activities."

Bartly J. Mondino, MD



The bronze sculpture commemorates the establishment of a named endowed chair and is given to both the donor and the newly appointed chair holder.

2013	Walton Li, MD, Chair in Cornea and Uveitis
2012	Joan and Jerome Snyder Chair in Cornea Diseases
2012	Mary Oakley Foundation Chair in Neurodegenerative Diseases
2008	Jerome and Joan Snyder Chair in Ophthalmology
2008	Jack H. Skirball Chair in Ophthalmology
2008	Ernest G. Herman Chair in Ophthalmology
2007	Arthur L. Rosenbaum, MD, Chair in Pediatric Ophthalmology (previously the Brindell and Milton Gottlieb Chair in Pediatric Ophthalmology)
2007	Karen and Frank Dabby Endowed Chair in Ophthalmology
2006	Ahmanson Chair in Ophthalmology
2004	Kolokotronis Chair in Ophthalmology
2003	Leonard Apt Endowed Chair in Pediatric Ophthalmology
2002	Oppenheimer Brothers Chair
2001	Karl Kirchgessner Foundation Chair in Vision Science
2000	Harold and Pauline Price Chair in Ophthalmology (converted to permanent chair in 2006)
1998	David May II Endowed Chair in Ophthalmology (converted to permanent chair in 2005)
1998	Laraine and David Gerber Chair in Ophthalmology (converted to permanent chair in 2006)
1995	Vernon O. Underwood Family Chair in Ophthalmology
1994	Bradley R. Straatsma, MD, Endowed Chair in Ophthalmology
1992	The Fran and Ray Stark Foundation Chair in Ophthalmology (converted to permanent chair in 2007)
1991	Grace and Walter Lantz Endowed Chair in Ophthalmology (converted to permanent chair in 2010)
1982	Jules Stein Chair in Ophthalmology
1982	Charles Kenneth Feldman Chair in Ophthalmology
1980	Dolly Green Chair of Ophthalmology
1977	Edith and Lew Wasserman Professor of Ophthalmology

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:

The Allergan Foundation
American Glaucoma Society
Arnold and Mabel Beckman Foundation
Andrea Bocelli Foundation
Anonymous
Leonard Apt Trust
Bruce Ford and Anne Smith Bundy Foundation
The Carl and Roberta Deutsch Foundation
Drabkin Family Foundation, Inc.
David R. Fett, MD
Carol and Timothy W. Hanneman
HCP, Inc.
John and Susan Hess
Katrina vanden Heuvel
The Frank D. Hintze Trust
William & Margaret Fern Holmes Family Foundation
The Karl Kirchgessner Foundation
Knights Templar Eye Foundation, Inc.
Wendy and Theo Kolokotronis
Jule D. Lamm, OD
Lavery Foundation
Lewis Robert Leis and Phyllis G. Leis Revocable Trust
David and Susan Leveton,
Ann C. Rosenfield Fund
Randi Levine
Bert O. Levy
Macula Vision Research Foundation
Wilbur May Foundation
Ruth and George E. Moss
The Nicholas Endowment
The Mary Oakley Foundation
Gerald Oppenheimer Family Foundation
Arlene E. Pinkerton
The Louis and Harold Price Foundation, Inc.
Reichert Technologies
Research to Prevent Blindness, Inc.
Albert Sarnoff
Mark Schulman and Esther Schulman Foundation
The Gerald Schwartz & Heather Reisman Foundation
The Simms/Mann Family Foundation
The Skirball Foundation
The Smotrich Family
Marvin and Mehry Smotrich
Thomas and Iris Smotrich
Jerome and Joan Snyder
Dr. and Mrs. Bradley R. Straatsma
Vision of Children Foundation,
Sam and Vivian Hardage, Co-Founders

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

In Honor of:

Richard Irwin Berg, CPA
Sandi Lyn Black
Mazie Bonfiglio
Teri Brown
Joseph Caprioli, MD
Joseph L. Demer, MD, PhD
Scott Feiler, MD
Lynn Kathryn Gordon, MD
Michael B. Gorin, MD, PhD
Theresa Kruger
Antoinette Kruger
Rosalie Amber Licht
Kevin M. Miller, MD
Faye Oelrich
Grant Palmer
Jack Rootman, MD
Bradley R. Straatsma, MD, JD

In Memory of:

Paul Sholem Amber
Sylvia Weider Amber
Robert S. Blees
William L. Carter
Alwyn Duffy
Charles B. Fiscus
Athena Kostas Kalpaxis
Reverend George E. Kalpaxis
Mary B. Larson
Oscar Leidenfrost
Allen Mann
Ethel O'Hara
Paul Hugo Orlopp
Leonard Rabinovitz
Maurine Reedy Ruzek
Stanley K. Rothstein
Kay Shimizu

Endowed Chairs and Fellowships

ENDOWED CHAIRS

The 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 Alan 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

Dolly Green Chair of Ophthalmology

Established in 1980 by Ms. Dorothy (Dolly) Green

Dean Bok, PhD
1984–Present

Ernest G. Herman 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 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 and Uveitis Division chief to further research and teaching activities

Anthony J. Aldave, MD
2014–Present

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

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

Arthur L. Rosenbaum, MD 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

Jack H. Skirball 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 Cornea Diseases

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
Professor of 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
2013–2014

**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
2013–2014

**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
2013–2014

Cooperman Fellowship Fund

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

Joshua Udoetuk, MD
2013–2014

**David and Randi Fett Orbital
and Ophthalmic Plastic Surgery
Fellowship Endowment**

Established in 2013 by Dr. David R. Fett and Ms. Randi Levine 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
2013–2014

**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
2013–2014

Elsa and Louis Kelton Fellowship

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

Payam Morgan, MD
2013–2014

**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

Wilbur D. May Fellowship

Established in 2013 by the May family as a tribute to Mr. Wilbur D. May, the beloved uncle of Mr. David May II.

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
2013–2014

**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
2013–2014

Sujit Itty, MD
2013–2014

**Abe Meyer Memorial
Fellowship Fund**

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

Saradha Iravavarapu, MD
2013–2014

**Adelaide Stein Miller Research
Fellowship**

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

Erica Oltra, MD
2013–2014

**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
2013–2014

**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
2013–2014

**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
2013–2014

Lee and Mae Sherman Fellowship Fund

Established in 1981 by the Sherman family to support postdoctoral fellows

Daniel Rootman, MD
2013–2014

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
2013–2014

Jules Stein Research Fellowship

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

Ryan Wong, MD
2013–2014

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
- William R. Payden Fund for Glaucoma Research
- Gerald Oppenheimer Family Foundation Center for the Prevention of Eye Disease Endowment Fund
- Jerome T. Pearlman, MD, 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 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 untold 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 Realty 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*
*Dr. Rich passed away July 28, 2014



The Executive Committee

The Executive Committee of the Stein Eye Institute and Department of Ophthalmology meets regularly during the year, with each member providing their unique expertise. The Executive Committee ensures the orderly growth and development of the Institute and Department. It is involved in fiscal planning for the Institute, space, recruitments, program development, and resolution of interdivisional issues.

Executive Committee

Director, Stein Eye Institute
Chairman, UCLA Department of Ophthalmology

Bartly J. Mondino, MD

Associate Directors, Stein Eye Institute

Wayne L. Hubbell, PhD

Gabriel H. Travis, MD

Vice-Chair, UCLA Department of Ophthalmology

Anne L. Coleman, MD, PhD

Chief Administrative Officer, Stein Eye Institute

Jonathan D. 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

Walton Li Chair in Cornea and Uveitis
Professor of Ophthalmology
Chief of the Cornea and Uveitis 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 identifying and elucidating the genetic basis of inherited corneal disorders, such as posterior polymorphous and Lisch corneal dystrophies.



Honors

Received an American Academy of Ophthalmology Senior Achievement Award at the October 2014 American Academy of Ophthalmology annual meeting in Chicago, Illinois.

Delivered the Dr. Diego Cuevas Cancino Lecture at the 52nd Actualization Course in Ophthalmology, organized by the Asociación para Evitar la Ceguera en México, on February 19, 2015, in Mexico City, Mexico.

Presented the Erin K. Jacobson Memorial Lecture at the Loma Linda University Medical Center Department of Ophthalmology Resident Research Symposium on May 22, 2015, in Loma Linda, California.

Public Service

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), 3/6/12–8/31/16

Anthony C. Arnold, MD

Jerome and Joan Snyder Chair in Ophthalmology
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 multi-center 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.



Honors

Awarded the 2015 Parker J. Palmer Courage to Teach Award at the Accreditation Council for Graduate Medical Education (ACGME) Annual Educational Conference on February 27, 2015, in San Diego, California.

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

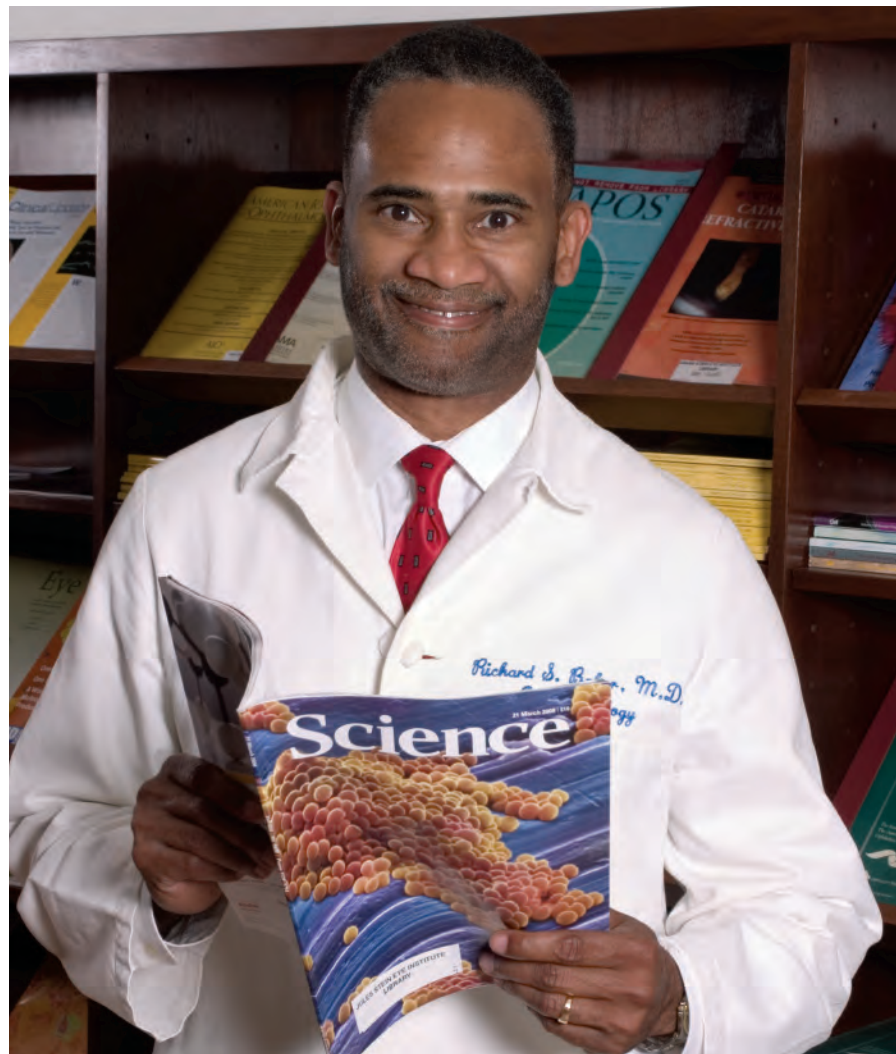
Member of the Stein Eye Institute

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 National
Institutes of Health and Agency for
Healthcare Research and Quality
Special Emphasis Panels

Reviewer for many scientific journals

Research Grants

National Institutes of Health:
NIH Diversity Program Consortium
Coordination and Evaluation Center
at UCLA, 09/26/14–06/30/15

John D. Bartlett, MD

Health Sciences Assistant Clinical Professor of Ophthalmology

RESEARCH SUMMARY

Cataract and Refractive Surgery

Dr. Bartlett has an ongoing clinical interest in cataract surgery, particularly refractive cataract surgery where the goal is to improve the focusing of the eyes and reduce dependence on glasses, while restoring vision potential. He is involved with teaching these surgical techniques to the Stein Eye residents, training the next generation of eye surgeons to deal with challenging cases.

Clinical Informatics

As one of UCLA's physician informaticists, Dr. Bartlett is involved in the ongoing implementation and optimization of electronic health records (EHRs). UCLA physician informaticists engage in all aspects of understanding and promoting effective organization, analysis, management, and use of clinical information. Dr. Bartlett is interested in using EHRs to reach the "Triple Aim" of improved patient care and satisfaction, improved population health, and decreased cost of health care.



Public Service

Ambulatory Practice Care Associate,
UCLA Health, Faculty Practice Group

Member, CareConnect
Ambulatory Operations Advisory Group,
UCLA Health

Quality Officer, Stein Eye Institute,
UCLA

Interim Medical Director,
University Ophthalmology Associates,
Stein Eye Institute

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 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 lens, and its post-natal expression correlating with the most prevalent form of early childhood lamellar cataracts. Dr. Bhat's group 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 have led Dr. Bhat's laboratory to the discovery of the secretion of α B-crystallin from the RPE in lipoprotein vesicles known as exosomes, and to initiate 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

Research Grants

National Eye Institute: Childhood
Cataractogenesis: Heterogeneity of
Gene Expression, 1/1/15–12/31/18

Joseph Caprioli, MD

David May II Endowed Chair in Ophthalmology
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.



Honors

Received an American Academy of Ophthalmology Secretariat Award at the October 2014 American Academy of Ophthalmology annual meeting in Chicago, Illinois.

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

Allergan Pharmaceutical Corp:
The Efficacy and Safety of
Bimatoprost Sr in Patients with
Open-Angle Glaucoma or Ocular
Hypertension, 4/22/15–1/31/2019

Heidelberg, Engineering: Multicenter
Study for Normal Database of Optic
Nerve Head, Retinal Nerve Fiber Layer,
and Macula Parameters, with the
Heidelberg Spectralis OCT,
9/25/13–9/24/15

Simms-Mann Family Foundation:
Clinical Research Program in Glaucoma,
7/1/14–6/30/16

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.



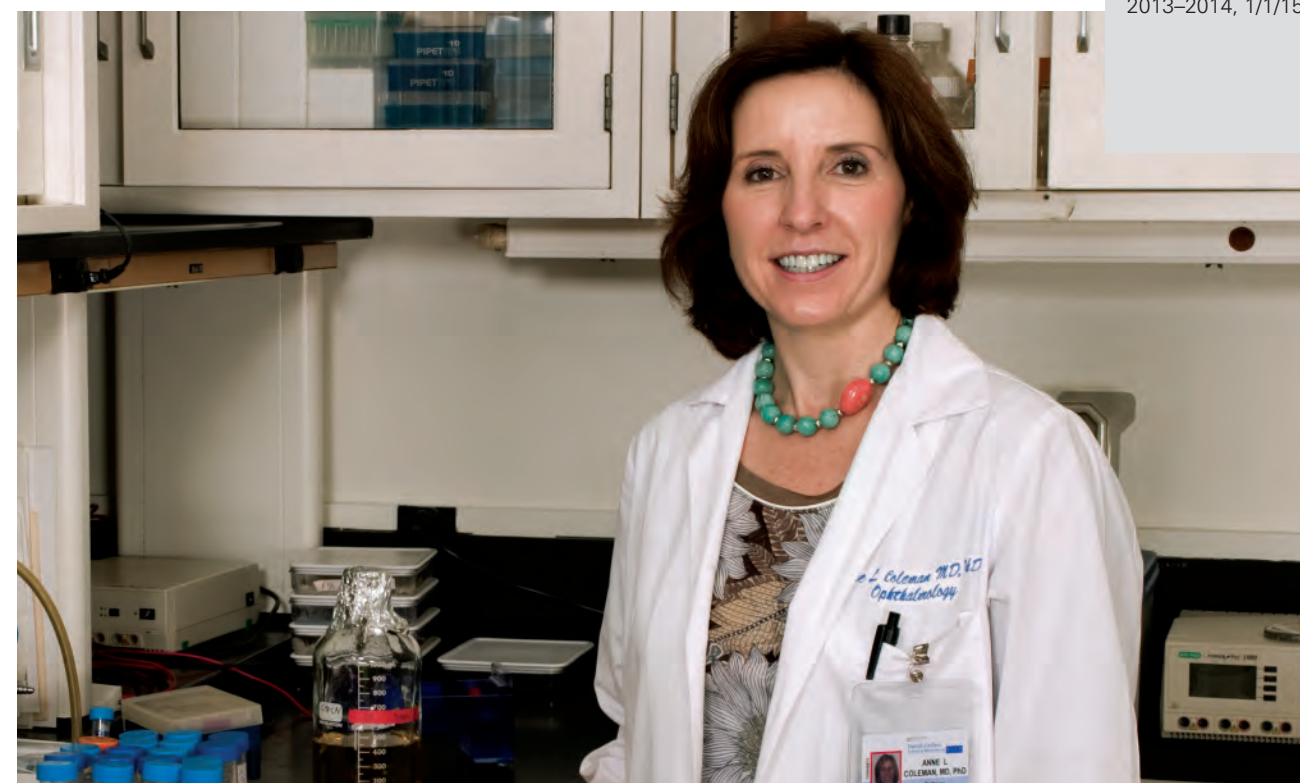
Anne L. Coleman, MD, PhD

The Fran and Ray Stark Foundation Chair in Ophthalmology
Professor of Ophthalmology
Professor of Epidemiology
Director of the Stein Eye Institute Centers for Community Outreach and Policy, 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

Received an American Academy of Ophthalmology Life Achievement Honor Award at the October 2014 American Academy of Ophthalmology annual meeting in Chicago, Illinois.

Public Service

Director/Trustee, St. John Jerusalem Eye Hospital Group

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

Member, Board of Trustees, Helen Keller International

Executive Editor, *American Journal of Ophthalmology*

Research Grants

Andrea Bocelli Foundation: UCLA Mobile Clinic Project and UCLA Mobile Eye Clinic, 2/6/14–12/31/15

LA County Children and Families First (First 5 LA): UCLA Mobile Eye Clinic Child Vision Program, 7/1/13–6/30/16

The Nicholas Endowment: Center for Community Outreach and Policy, Jules Stein Eye Institute at UCLA 2013–2014, 1/1/15–12/31/15

Joseph L. Demer, MD, PhD

Leonard Apt Endowed Chair in Pediatric Ophthalmology
Professor of 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

Presented the William Gillies Lectureship at the Australia and New Zealand Strabismus Society, March 6–7, 2015, in Brisbane, Australia.

Gave the Keynote Address at the Congress of the European Society of Ophthalmology, June 6–9, 2015, in Vienna, Austria.

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

Lecture presentation on pediatric ophthalmology and strabismus at Encampment of Knights Templar

Reviewer for many medical and scientific journals

Research Grants

National Eye Institute: Biomechanical Analysis in Strabismus Surgery, 5/1/11–4/30/16

Knights Templar Eye Foundation Inc.: Roland Tan: Training Mentors in Developing Countries (TMDC) Pediatric Ophthalmology Fellowship, 7/1/14–8/17/15

Sophie X. Deng, MD, PhD

Associate Professor of Ophthalmology

Member of the UCLA Jonsson Comprehensive Cancer Center

Member of the UCLA Broad Stem Cell Research 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 her ongoing clinical studies using laser scanning *in vivo* confocal microscopy in patients with limbal stem cell deficiency shows correlated cellular changes in the cornea and limbus. Damages to the limbal stem cells could be detected 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 *in vivo* confocal imaging, 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.

Dr. Deng's laboratory is also trying to achieve patient-specific therapy by regenerating autologous limbal stem cells in a xenobiotic-free culturing system for transplantation. They have

developed xenobiotic-free and feeder-free culture methods to expand autologous limbal stem cells in culture. Pre-clinical studies are ongoing to bring this stem cell therapy to restore vision in patients who suffer from limbal stem cell deficiency.

Cornea Endothelial Dysfunction

Another area of Dr. Deng's research is the development of cell therapy to treat endothelial dysfunction by regeneration of human corneal endothelial cells. Currently, her laboratory focuses on investigating the signature genes of cornea endothelial cells and the regulation of these quiescent cells. Another project aims to increase the efficiency of expansion of corneal endothelial cells in culture and derivation of these cells from pluripotent stem cells.



Public Service

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

Member, Association for Research in Vision and Ophthalmology Program Committee (Cornea Section)

Research Grants

California Institute for Regenerative Medicine (CIRM): Regeneration of Functional Human Corneal Epithelial Progenitor Cells, 3/1/11–4/30/15

Dompe Pharmaceutical: An 8-week Phase II, Multicenter, Randomized, Double-Masked, Vehicle Controlled Parallel Group Study with a 24 or 32 Week Follow-Up Period to Evaluate the Efficacy of a Formulation Containing Antioxidant of Recombinant Human Nerve Growth Factor, 3/17/15–3/16/17

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

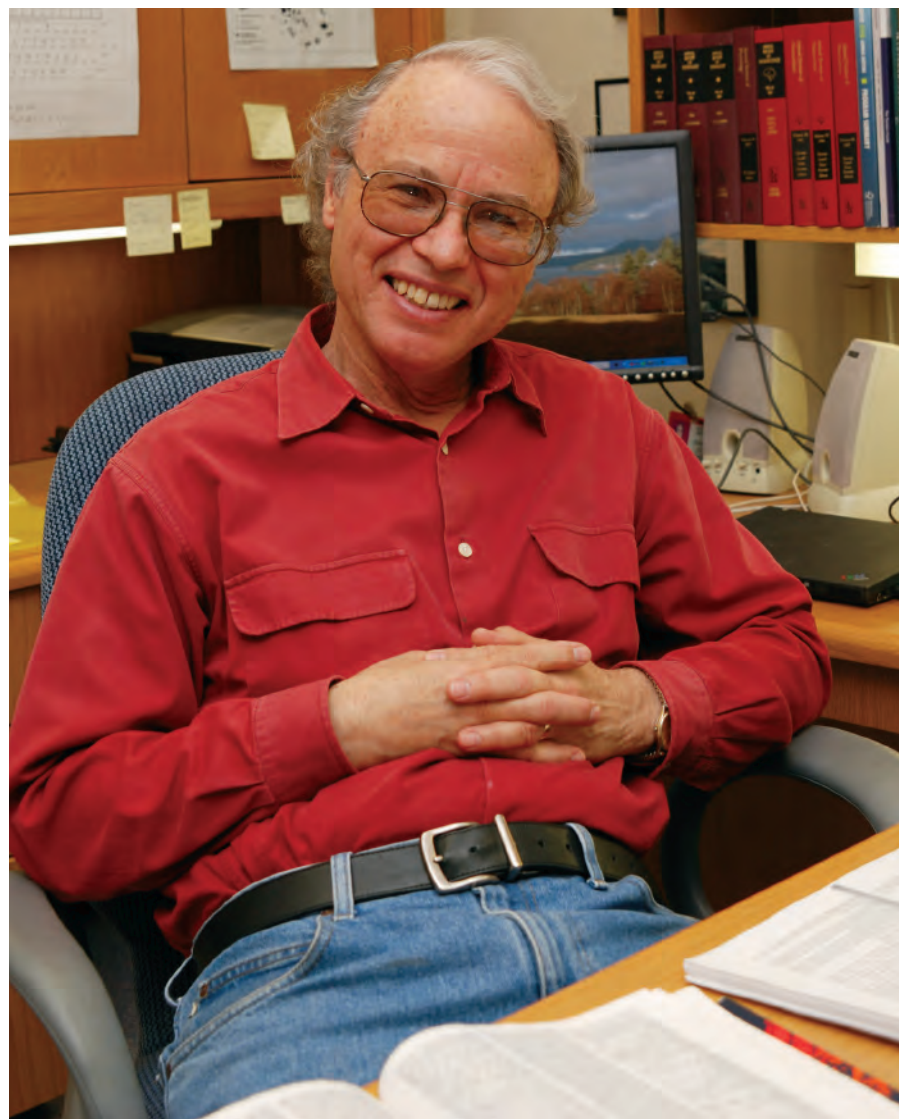
Member of the Stein Eye Institute

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.



Research Grants

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

Great Lakes Fishery Commission: Detection of Light by the Sea Lamprey *Petromyzon Marinus*, 1/14–12/16

Debora B. Farber, PhD, DPhhc

Karl Kirchgessner Foundation Chair in Vision Science

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 proteins that play a key role in vision, and that when mutated cause blinding diseases. These include the β -PDE gene (mutations cause blindness in *rd* mice and Irish setter dogs), and in one type of human autosomal recessive retinitis pigmentosa (arRP); the *RP1* gene (responsible for a type of autosomal dominant RP); the gene causing disease in *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*). Utilizing gene therapy methods, Dr. Farber and collaborators delivered the normal β -PDE gene to *rd* mouse retinas and rescued their photoreceptors.

Dr. Farber's group also worked on the mechanisms that regulate transcription and expression of retinal genes. They found that the transcription factor SP4 controls the activity of the β -PDE promoter and mutations in both SP4 and α -transducin cause digenic arRP and cone-rod dystrophy (arCRD). Other projects included the identification of the novel cone genes, *ZBED4* and *RHBDD2*, and of mutations in them causing arCRD and arRP, respectively; and the characterization of animal models of ocular albinism, which lack the *OA1* gene and are affected with permanent visual impairment. An important discovery related to this work is that specific activation

by *OA1* of *Gai3* is the first step in the cascade of events involved in RPE melanogenesis, which is abnormal in ocular albinism.

Lately, Dr. Farber's team pioneered the characterization of microvesicles released by embryonic stem cells (ESMVs), determined how they transfer their cargo to other stem cells or cells of other origin, and studied the effects that they have on cultured retinal progenitor Müller cells *in vitro*. These studies led them to investigate a totally unexplored possibility: the use of ESMVs in the rescue of damaged retinas. This work is currently the main focus of Dr. Farber's group.



Public Service

Scientific Advisory Board Member, The Foundation Fighting Blindness and Hope for Vision Scientific Advisor, The Vision of Children 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*

Grant Reviewer: National Eye Institute; The Foundation Fighting Blindness; The Vision of Children

Reviewer for many scientific journals

Research Grants

Retina International: Regeneration of functional retinas: treatment with human embryonic stem cell-released microvesicles, 8/1/14–1/31/15

JoAnn A. Giaconi, MD

Health Sciences Associate Professor of Ophthalmology

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

Co-Director of Medical Student 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

Faculty, Glaucoma section of American
Academy of Ophthalmology's
Basic and Clinical Science Course

Member, Surgical Advisory Board for
National Veterans Affairs

Vice President of Membership,
Women in Ophthalmology

Councilor, California Academy of
Eye Physicians and Surgeons

Past President, Los Angeles Society
of Ophthalmology

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.



Research Grants

National Eye Institute: Proteins in the
Molecular Mechanisms of Tear Film
Formation, 9/1/11-8/31/16

Robert Alan Goldberg, MD

Karen and Frank Dabby Endowed Chair in Ophthalmology
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 physiology and 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.

Outcomes of medical and surgical treatment of orbital and eyelid disorders are being studied in an organized, prospective fashion in order to better understand which treatments are most effective.



Honors

Delivered the Plana Lecture at the XIX International Course on Plastic and Aesthetic Surgery on June 16, 2015, in Barcelona, Spain.

Public Service

President-elect, American Society of Ophthalmic Plastic and Reconstructive Surgery

Assistant Vice President of Professional Education, California Academy of Ophthalmology

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

Research Grants

Premier Research International LLC: A Multicenter, Double-Masked, Placebo-Controlled, Efficacy & Safety Study of RV001, An Insulin-Like Growth Factor-1 Receptor (IGF-1R) Antagonist Antibody (Fully Human), Administered Every 3 Weeks (Q3W) By Intravenous (IV) Infusion in Patients Suffering from Active Thyroid Eye Disease (TED) Protocol TED01RV, 4/16/13–1/27/16

Lynn K. Gordon, MD, PhD

Vernon O. Underwood Family Chair in Ophthalmology
Professor of Ophthalmology
Senior 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 investigates the role for epithelial membrane protein 2 (EMP2) in controlling ocular pathologic responses. Dr. Gordon and her colleagues identified that EMP2 plays an important role in an *in vitro* model of proliferative vitreoretinopathy (PVR) and have evidence that EMP2 is highly expressed in human retinal diseases. In addition, they recently identified that EMP2 controls VEGF production in epithelial cells and in specific tumors. 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*. This antibody has now been successfully used to control pathologic neovascularization in a corneal burn model, achieving proof of principle for using this antibody to control disease.

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.



Honors

Received an American Academy of Ophthalmology Senior Achievement Award at the October 2014 American Academy of Ophthalmology annual meeting in Chicago, Illinois.

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

President, California Academy of Eye Physicians and Surgeons

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, 4/1/10–3/31/15

National Eye Institute: Pd-Ligand, A Paradoxical Role in Experimental Uveitis Pathogenesis and Therapy, 4/1/15–3/31/17

Quark Pharmaceuticals, Inc.: A Phase I Open Label, Dose Escalation Trial of QPI-1007 Delivered by a Single Intravitreal Injection to Patients with Optic Nerve Atrophy (Stratum I), 3/17/10–3/16/15

Michael B. Gorin, MD, PhD

Harold and Pauline Price Chair in Ophthalmology

Professor of Ophthalmology

Professor of Human Genetics

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 macular degeneration (AMD). 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. He continues to work on studies of the genetics of AMD, in particular the use of genetic risk profiles to test for clinical markers, including sensitive methods for detecting changes in retinal structure and function that precede the onset of clinical disease.

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 work 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

Member of the Clinical Research Governance Committee for UCLA

Reviewer for many scientific journals

Research Grants

Arnold and Mabel Beckman Foundation: Genetics-based testing of functional and structural endophenotypes for pre- and early-age-related macular degeneration (AMD), 7/1/14–6/30/16

David Rex Hamilton, MD, FACS

Health Sciences Associate Clinical Professor of Ophthalmology

Director of the UCLA Laser Refractive Center

Member of the Stein Eye Institute

RESEARCH SUMMARY

Advanced Intraocular Lenses

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 the clinical study of intraocular lenses (IOLs) for the treatment of high myopia (phakic IOLs), astigmatism (toric IOLs), and presbyopia (multifocal and accommodating 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, ASCRS Refractive Surgery/Cataract Clinical Subcommittee

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 Chair in Ocular Inflammatory Diseases

Professor of Ophthalmology

Director of the Ocular Inflammatory Disease Center

Director of the UCLA Department of Ophthalmology Clinical Research Center

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

Member of the Stein Eye Institute

RESEARCH SUMMARY

Uveitis and Cornea-External Ocular Diseases

Dr. Holland's research deals with infectious and inflammatory diseases of the eye, including ocular toxoplasmosis; HIV-related eye disease; chronic anterior uveitis in children; and birdshot chorioretinopathy. Clinical studies are being performed to identify populations at greatest risk for these ocular diseases and factors that influence disease severity. Studies also investigate the course of these diseases and response to new treatments. Better understanding of these conditions may lead to improved disease management.

Ocular toxoplasmosis, caused by a parasite, is the most common retinal infection in the general population. With investigators in North America, Brazil, and Europe, Dr. Holland is studying human and parasitic genetic factors that influence risk for ocular involvement among people infected with the parasite.

Dr. Holland continues to study cytomegalovirus (CMV) retinitis, the most serious eye problem among HIV-infected individuals, and still a major public-health problem in many areas

of the world because of the AIDS pandemic. He is also investigating HIV-related "neuroretinal disorder" (NRD), a degenerative condition that causes deterioration of vision and reduced quality of life, even among individuals whose immune function has improved because of antiretroviral drugs. NRD is also a marker of non-ocular, life-threatening diseases among HIV-infected people.

Chronic anterior uveitis is a common complication of juvenile idiopathic arthritis (JIA). Dr. Holland is studying risk factors for, and treatment of, vision-threatening complications of JIA-associated uveitis, including glaucoma, and he is interested in the psychosocial impact of uveitis on children and their families.

Birdshot chorioretinopathy is a chronic autoimmune disease of the eye. Dr. Holland is participating in several multicenter studies involving retinal imaging and electrophysiologic techniques to understand the basis for vision loss among people with the disease.



Honors

Featured speaker before the United States Congress at the first-ever Congressional Briefing on Uveitis on June 3, 2015, in Washington, DC.

Recipient of the Golden Apple Award for Excellence in Teaching at the Class of 2017 Second Year Banquet, David Geffen School of Medicine at UCLA, on April 23, 2015, in Westwood, California. As the Golden Apple Award recipient, Dr. Holland also received special honors at the David Geffen School of Medicine at UCLA Hippocratic Oath Ceremony, June 5, 2015, in Westwood, California.

Public Service

Associate Editor, *American Journal of Ophthalmology*

Editorial Board, *EyeNet* Magazine (American Academy of Ophthalmology), Section Editor, Uveitis

Executive Committee Member, American Uveitis Society

International Council Member, International Ocular Inflammation Society

Organizing and Protocol Committees, NEI/FDA Workshop on Clinical Trial Endpoints for Inflammatory Eye Diseases

Research Grants

Advanced Cell Technology, Inc.: ARO Agreement A Phase I/II, Open-Label, Multicenter, Prospective Study to Determine the Safety and Tolerability of Subretinal Transplantation...Patients with Stargardt Macular Dystrophy SMD, 4/25/11-12/12/16

Advanced Cell Technology, Inc.: ARO Agreement A Phase I/II, Open-Label, Multicenter, Prospective Study to Determine the Safety and Tolerability of Subretinal Transplantation...Patients with Advanced Dry AMD, 5/31/11-12/12/16

Advanced Cell Technology, Inc.: Monitoring of a Phase I/II, Open-Label, Prospective Study to Determine the Safety and Tolerability of Subretinal Transplantation ... Patients with Geographic Atrophy Secondary to Myopic Macular Degeneration, 3/31/14-3/31/16

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 Posterior or Panuveitis Currently Controlled with Systemic Treatment Protocol #X052131, 1/8/13-11/25/14

Xoma (US) LLC: A Randomized Double-Masked, Placebo-Controlled Study of the Safety and Efficacy of Gevokizumab in the Treatment of Active Noninfectious Intermediate Posterior or Panuveitis, 1/8/13-11/25/14

John Hopkins University: Multicenter Uveitis Steroid Treatment (MUST) Trial, 6/1/12-4/30/15

Johns Hopkins University (Prime NEI): Macular Edema Treatment Trials Associated with MUST (META-MUST), 9/30/14-7/31/15

Joseph Horwitz, PhD

Oppenheimer Brothers Chair

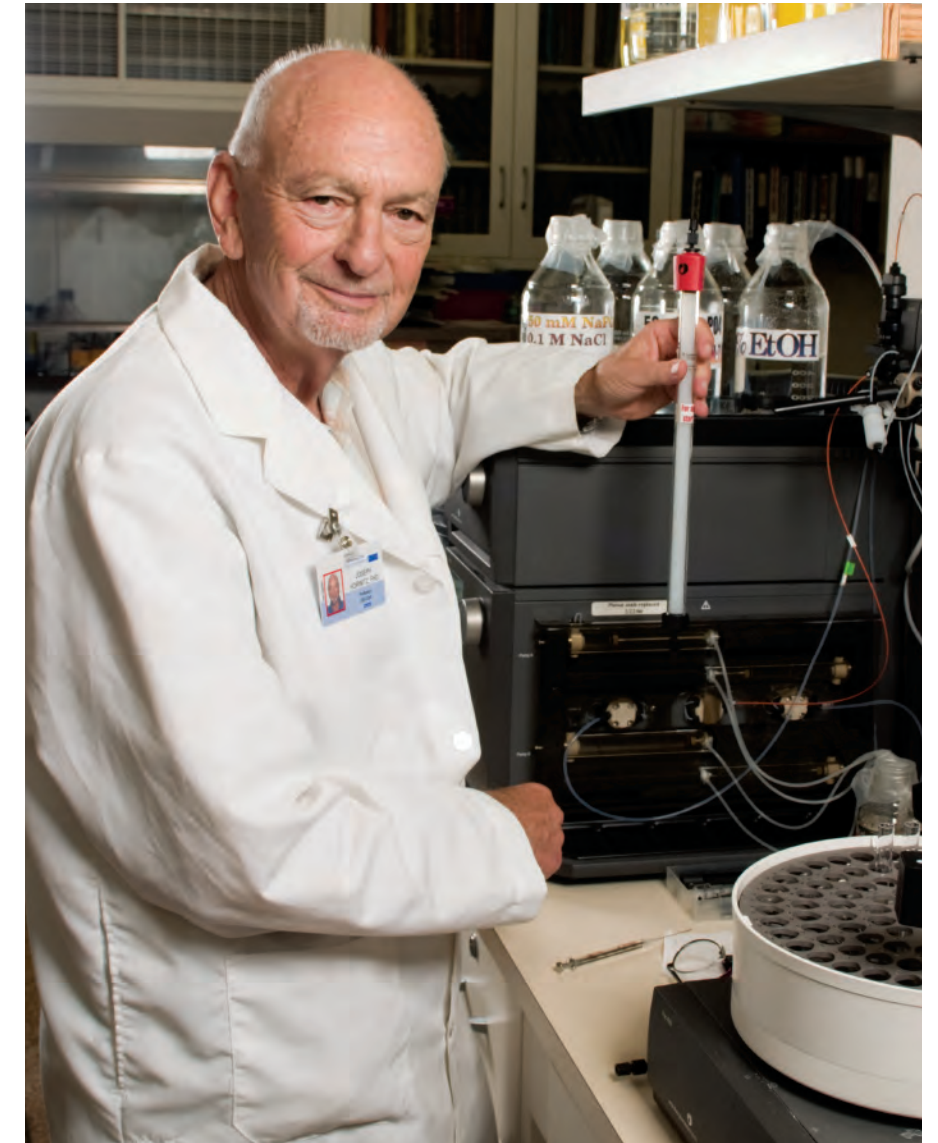
Distinguished Professor of Ophthalmology

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.



Research Grants

National Eye Institute: Analysis of Lens Crystallins and Cataractous Mutants at High Hydrostatic Pressure, 4/1/14-3/31/19

Wayne L. Hubbell, PhD

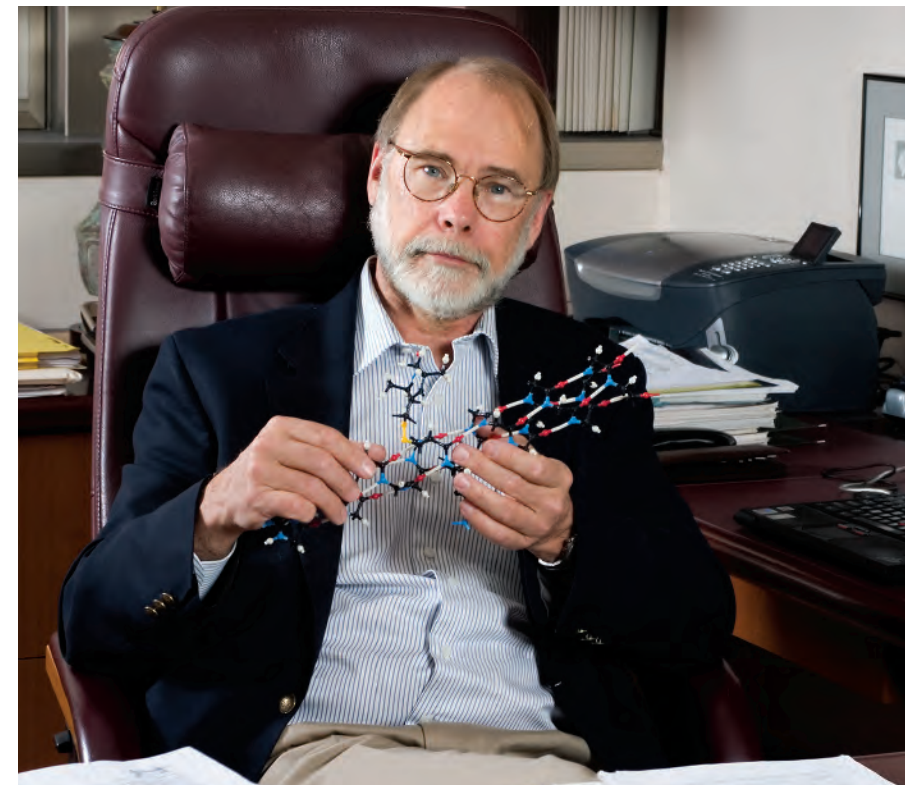
Jules Stein Chair in Ophthalmology
Distinguished Professor of Ophthalmology
Distinguished Professor of Chemistry and Biochemistry
Co-Chief of the Vision Science Division
Associate Director of the Stein Eye Institute

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, 5/1/15–4/30/20

National Eye Institute: Core Grant for Vision Research at the Stein Eye Institute, 3/1/10–6/30/15

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

National Eye Institute: Intraocular Robotic Interventional Surgical System for Cataract Surgery Project, 9/30/14–9/29/16

Lowry Medical Research Institute: A Ph 2 Multicenter Randomized Clinical Trial of Ciliary Neurotrophic Factor (CNTF) for Macular Telangiectasia Type 2 (Mac Tel), 8/6/14–6/30/18

Ophthotech Corporation: A Phase3, RDM, Controlled Trial to Establish the Safety and Efficacy of Intravitreal Administration of Fovista (Anti PDGF-B Pegylated Apramer) Administered... ARMD, 12/4/13–12/3/15

Thrombogenics, Inc.: Ocriplasmin Research to Better Inform Treatment, 7/16/14–7/15/16

Sherwin J. Isenberg, MD

Laraine and David Gerber Chair in Ophthalmology
Professor of 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, including: the type and source of bacteria of the external eye at birth; 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

Past-President, American Association for Pediatric Ophthalmology and Strabismus

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

Past President, Costenbader Pediatric Ophthalmology Society

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

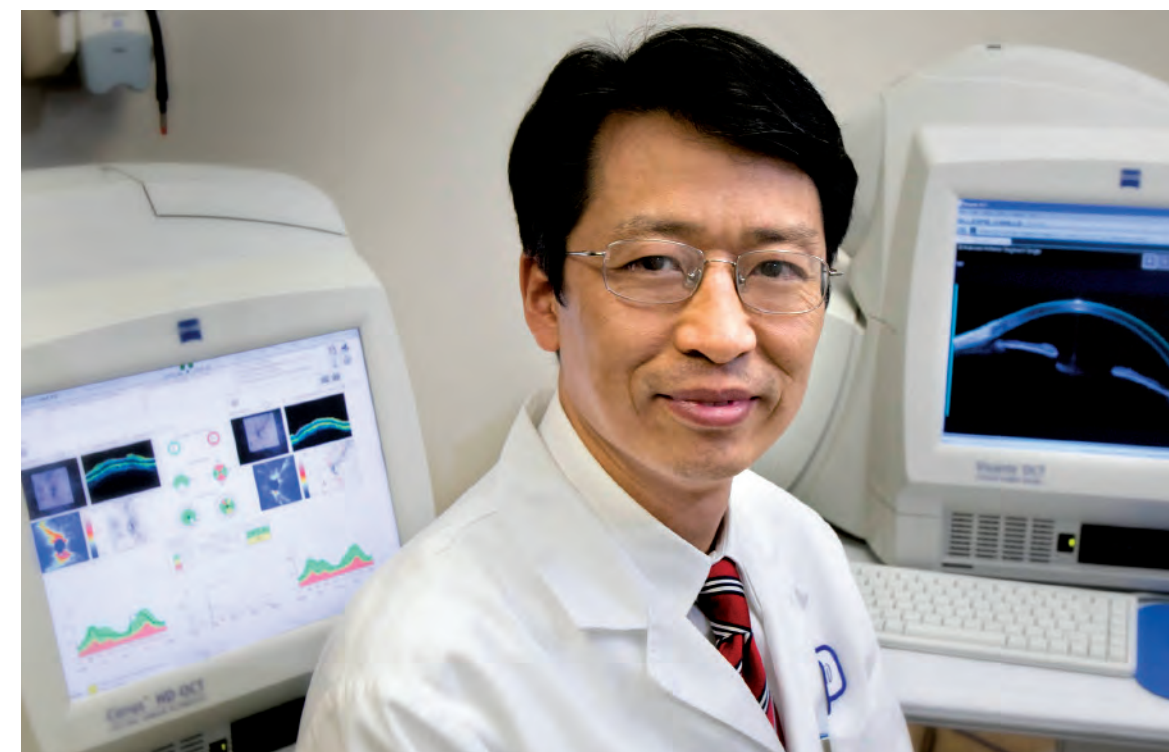
Dr. Law's principal research interest focuses on the structural appearance of the optic disc in different ocular diseases, including patients with high myopia. Assessment of optic disc size is an important component of the diagnostic evaluation for glaucoma. Patients with high myopia are at greater risk 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*

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, 12/1/08–12/1/14

Colin A. McCannel, MD

Professor of Clinical Ophthalmology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Vitreoretinal Surgery

Dr. McCannel has a longstanding interest in the management of vitreoretinal 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

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

Reviewer for many scientific journals

Tara A. McCannel, MD, PhD

Health Sciences Associate Clinical Professor of Ophthalmology
Director of the Ophthalmic Oncology Center
Member of the Stein Eye Institute

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.

Public Service

Reviewer for many scientific journals

Kevin M. Miller, MD

Kolokotronos Chair in Ophthalmology
Professor of Clinical Ophthalmology
Chief of the Cataract and Refractive Surgery 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

Presented the Om Prakash Oration at the Delhi Ophthalmological Society meeting on April 12, 2015, in New Delhi, India.

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

American Society of Cataract and Refractive Surgery, Retina Clinical Committee

World Congress of Ophthalmology 2014 Biannual Meeting Program Planning Committee, Cataract Section

American Society of Cataract and Refractive Surgery Skills Transfer Subcommittee

American Society of Cataract and Refractive Surgery, Cataract Clinical Committee

Faculty of 1000, Post-Publication Peer Review, Lens Disorders Section

International Editorial Board, *Oftalmologia Em Foco*

Column Editor, American Society of Cataract and Refractive Surgery, *EyeWorld Magazine*

Editorial Board, *Cataract and Refractive Surgery Today*

Editorial Board, American Academy of Ophthalmology, *EyeNet Magazine*

Reviewer for many scientific journals

Research Grants

Alcon Laboratories, Inc.: Post Approval Study of the Acrysof IQ Toric High Cylinder Power Intraocular Lens (IOL), 4/17/12–2/9/16

Calhoun Vision, Inc.: A Prospective Randomized Controlled Multicenter Clinical Study to Evaluate the Safety and Effectiveness of the Light Adjustable Lens, 7/26/12–10/21/15

Clinical Research Consultants, Inc.: Safety and Effectiveness of the Customflex Artificial Iris Prosthesis for the Treatment of Iris Defects (AI-001), 6/12/14–6/14/16

Bartly J. Mondino, MD

Bradley R. Straatsma, MD Endowed Chair in Ophthalmology
Distinguished 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.

Honors

Honored for ten years of service as Executive Vice President of the Association of University Professors of Ophthalmology at their January 2015 annual meeting in Tucson, Arizona.

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 and Vice President, National Alliance for Eye and Vision Research/Alliance for Eye and Vision Research

Research Grants

Research to Prevent Blindness: Departmental Unrestricted Grant Award (Annual), 1/1/12–12/31/15



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, and Dr. Nouri-Mahdavi is currently exploring the role of macular imaging for detection of glaucoma progression.

Dr. Nouri-Mahdavi is also interested in investigating the structure-function relationships using the aforementioned macular structural and functional measures. An ongoing study in the Glaucoma Division is aimed towards measuring the variability of macular OCT measurements in glaucoma patients and normal control subjects.



Honors

Received an American Academy of Ophthalmology Achievement Award at the October 2014 American Academy of Ophthalmology annual meeting in Chicago, Illinois.

Public Service

Member, American Academy of Ophthalmology Glaucoma Registry Measures Working Group

Member, American Glaucoma Society Patient Care Committee, Document Subcommittee

Glaucoma Section Editor, *Journal of Vision and Eye Research*

Member, Residency Program Evaluation Committee

Member, Stein Eye Institute Electronic Medical Record Implementation Committee

Member, Research Committee, American Glaucoma Society

Volunteer for EyeCare America

Provides ophthalmic patient screening at annual Los Angeles charity clinic events

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

Reviewer for many scientific journals

Research Grants

American Glaucoma Society: Intra-Session Variability of Regional Macular Thickness Measurements, 3/1/15–3/31/16

Fight for Sight, Inc. (Prevent Blindness America): Amini, Navid: Influence of the Disc Size on the Anatomical Relationship of the Clinical Disc Margin and Bruch's Membrane Opening, 7/1/14–6/30/15

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

Stacy L. Pineles, MD

Assistant Professor of Ophthalmology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Pediatric Neuro-Ophthalmology, Amblyopia, 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 amblyopia and 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

Secretary/Treasurer, UCLA Stein Eye Institute Alumni Association,
Department of Ophthalmology

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

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

Member, Adult Strabismus Task Force,
American Academy of Pediatric Ophthalmology and Strabismus

Member, Young Neuro-Ophthalmologists Committee,
North American Neuro-Ophthalmology Society

Member, Walsh Committee,
North American Neuro-Ophthalmology Society

Member, Ophthalmic Technology Assessment Committee Pediatric Ophthalmology and Strabismus,
American Academy of Ophthalmology

Reviewer and editorial board member for many scientific journals

Research Grants

Jaeb Center for Health Research:
Pediatric Eye Disease Investigator Group (PEDIG), 2/28/11–12/31/18

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

Research to Prevent Blindness, Inc.:
RPB Walt and Lily Disney Award for Amblyopia Research, 7/1/14–6/30/19

University of California, Riverside:
Integrating Perceptual Learning Approaches into Effective Therapies for Low Vision: 9/1/13–7/31/15

Natik Piri, PhD

Associate Professor of Ophthalmology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Retinal Ganglion Cell Biology, Glaucomatous Neurodegeneration, 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. 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.

Honors

Recipient of the 2015 Spitzer Grant Research Program award for support of groundbreaking medical research at UCLA.

Public Service

Editorial Board Member, *Journal of Synthesis Theory and Applications*, *Advances in Medicine: Ophthalmology*, and the *Journal of Neurophysiology and Neurological Disorders*

Reviewer for many scientific journals

Pradeep S. Prasad, MD

Health Sciences Assistant Clinical Professor
Chief, Division of Ophthalmology, Harbor-UCLA Medical Center
Member of the Stein Eye Institute

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 teleretinal screening for diabetic retinopathy, applications of wide field fundus photography for retinal vascular disease, and health care delivery for low-income populations. 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.

Public Service

Reviewer for the scientific journal *Ophthalmology*

Ophthalmology Clerkship Director at the UCLA School of Medicine



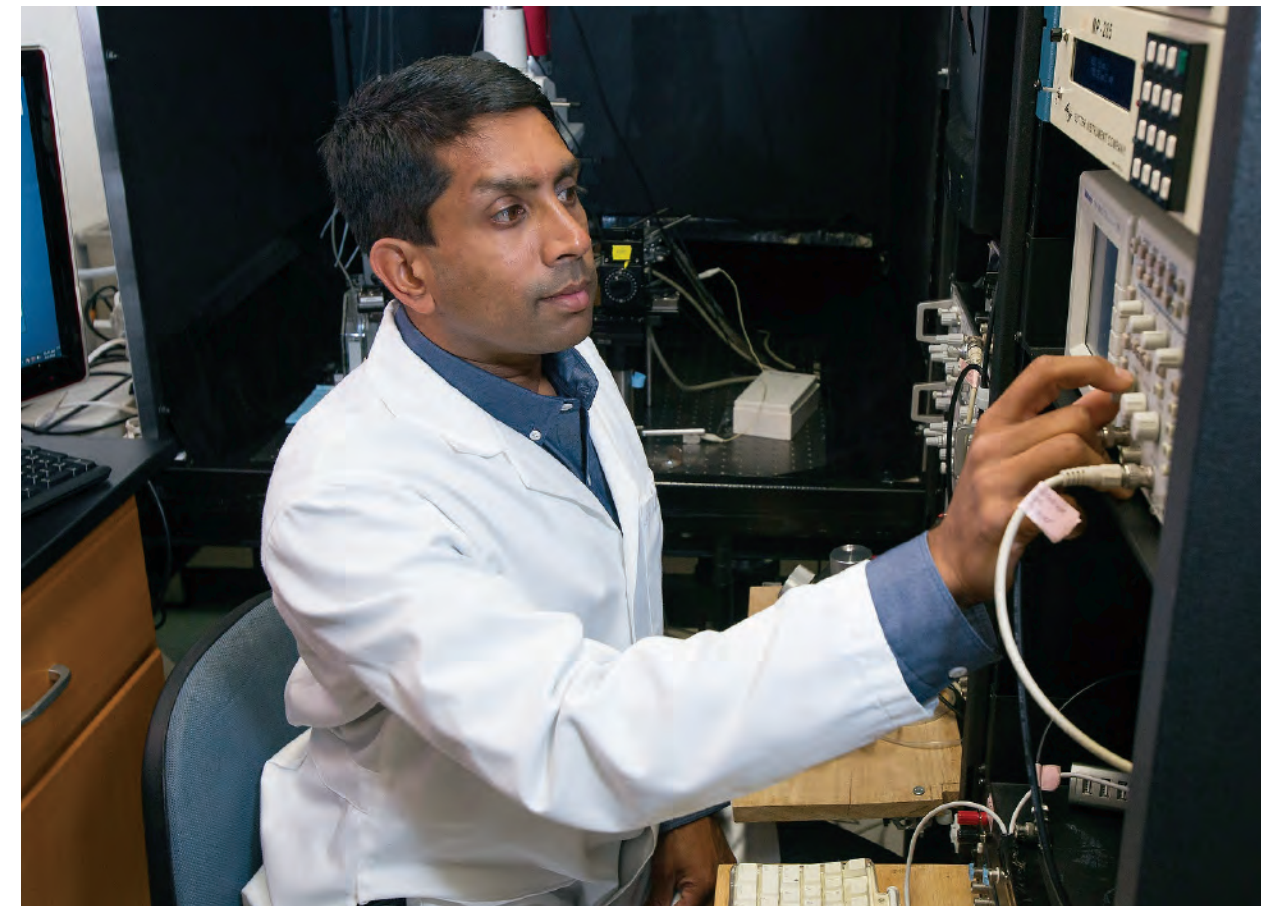
Alapakkam P. Sampath, PhD

Associate Professor of Ophthalmology
Member of the Stein Eye Institute

RESEARCH SUMMARY

Molecular Mechanisms Underlying Early Visual Processing

The Sampath laboratory is interested in understanding the molecular mechanisms underlying early visual processing. In particular, the focus of laboratory researchers has been on elucidating mechanisms that set the sensitivity of night vision. Night blindness, or nyctalopia, is a condition that results from abnormal signaling by the rod photoreceptors, or the retinal circuits that process rod-driven signals. Using physiological and genetic methods, the laboratory studies signal transmission in these retinal rod pathways to identify how these processes are optimized to allow our exquisite visual sensitivity.



Public Service

Member, Association for Research in Vision and Ophthalmology Publications Committee

Member, Neurotransmitters, Transporters, Receptors and Calcium Study Section, NIH

Research Grants

National Eye Institute: Functional Characteristics of Rod Pathways in the Retina, 2/1/14–7/31/16

University of Southern California: Experimental and Clinical Investigations of Retinal Stimulation, 10/1/13–2/28/15

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 100 research papers, case reports, reviews, and book chapters, and he has been awarded achievement and secretariat awards by the American Academy of Ophthalmology.

Dr. Sarraf's research focus is the dry and wet form of age-related macular degeneration (AMD), and he has published numerous papers studying the imaging of pigment epithelial detachment and retinal pigment epithelial tears in wet AMD and their response to therapy. Dr. Sarraf is principal investigator for the AMD study at the Stein Eye Institute evaluating the effect of lampalizumab to reduce the progression of geographic atrophy in

dry AMD and for the research trial to evaluate the new anti-VEGF drug Abicipar to treat wet AMD.

Dr. Sarraf has become a leading authority and researcher in retinal imaging, specifically optical coherence tomography (OCT), and was the first to describe ischemia of the deep retinal capillary plexus, as identified by spectral domain OCT, and its association with various retinal disorders including retinal venous and artery occlusion. Dr. Sarraf has also pioneered the clinical application of OCT angiography in the study of retinal vascular disease and wet AMD and is a world leader on this subject.



Honors

Awarded membership in the American Ophthalmological Society in May 2015 for his thesis, "Retinal pigment epithelial tears in the era of intravitreal pharmacotherapy: risk factors, pathogenesis, prognosis and treatment (an American Ophthalmological Society thesis)," published in the journal *Transactions of the American Ophthalmological Society* in July 2014.

Public Service

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

Editorial Board Member, *Retina*

Committee Member: BCSC Retina Committee, American Academy of Ophthalmology

Executive Committee and Chair of the Young Member's Committee, Macula Society

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

Gentech Inc.: A Phase III, Multicenter, Randomized, Double-Masked, Sham-Controlled Study to Assess the Efficacy and Safety of Lampalizumab Administered Intravitreally to Patients with Geographic Atrophy Secondary to Age-Related Macular Degeneration, 11/21/14–9/27/18

Southern California Desert Retina Consultants: Intravitreal Aflibercept Injection for the Treatment of Submacular Vascularized Pigment Epithelial Detachment (EVEN Study), 2/7/13–10/21/15

Steven D. Schwartz, MD

The Ahmanson Chair in Ophthalmology

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 further action.



Honors

Recognized by the American Society of Retina Specialists in 2014 for outstanding service to the Society's scientific and educational programs, original papers, panel discussions, and instructional courses.

Public Service

Program Committee Member, Association for Research in Vision and Ophthalmology

Diabetic Eye Disease Screening, Venice Family Clinic

Research Grants

Advanced Cell Technology, Inc.: A Phase I/II, Open-Label, Multicenter, Prospective Study to Determine the Safety and Tolerability of Subretinal Transplantation...in Patients with Stargardt Macular Dystrophy (SMD), 3/23/11–2/24/16

Advanced Cell Technology, Inc.: A Phase I/II, Open-Label, Multicenter, Prospective Study to Determine the Safety and Tolerability of Subretinal Transplantation...in Patients with Advanced Dry (AMD) 4/5/11–2/24/16

Advanced Cell Technology, Inc.: Research with Retinal Cells Derived from Stem Cells for Geographic Atrophy Secondary to Myopic Macular Degeneration, 4/10/14–9/1/16

Gen Vec, Inc.: Long Term Follow-Up Protocol for Genvec Inc. Gene Transfer Product Candidates in Clinical Development..., 2/27/09–2/26/24

Neurotech Pharmaceuticals, Inc.: Phase I Multicenter Open Label Safety and Tolerability Clinical Trial of Ciliary Neurotrophic Factor (CNTF) in Patients with Macular Telangiectasis Type 2, 7/19/11–7/18/17

Lowy Medical Research Institute: A Natural History of Macular (Parafoveal) Telangiectasia, 9/1/05–12/31/15

Genentech, Inc.: A Phase III, Multicenter, Randomized Double-Masked, Sham-Controlled Study to Assess the Efficacy and Safety of Lampalizumab Administered Intravitreally to Patients with Geographic Atrophy Secondary to ARMD, 11/18/14–9/27/18

Hui Sun, PhD

Professor of Physiology and Ophthalmology

Howard Hughes Medical Institute

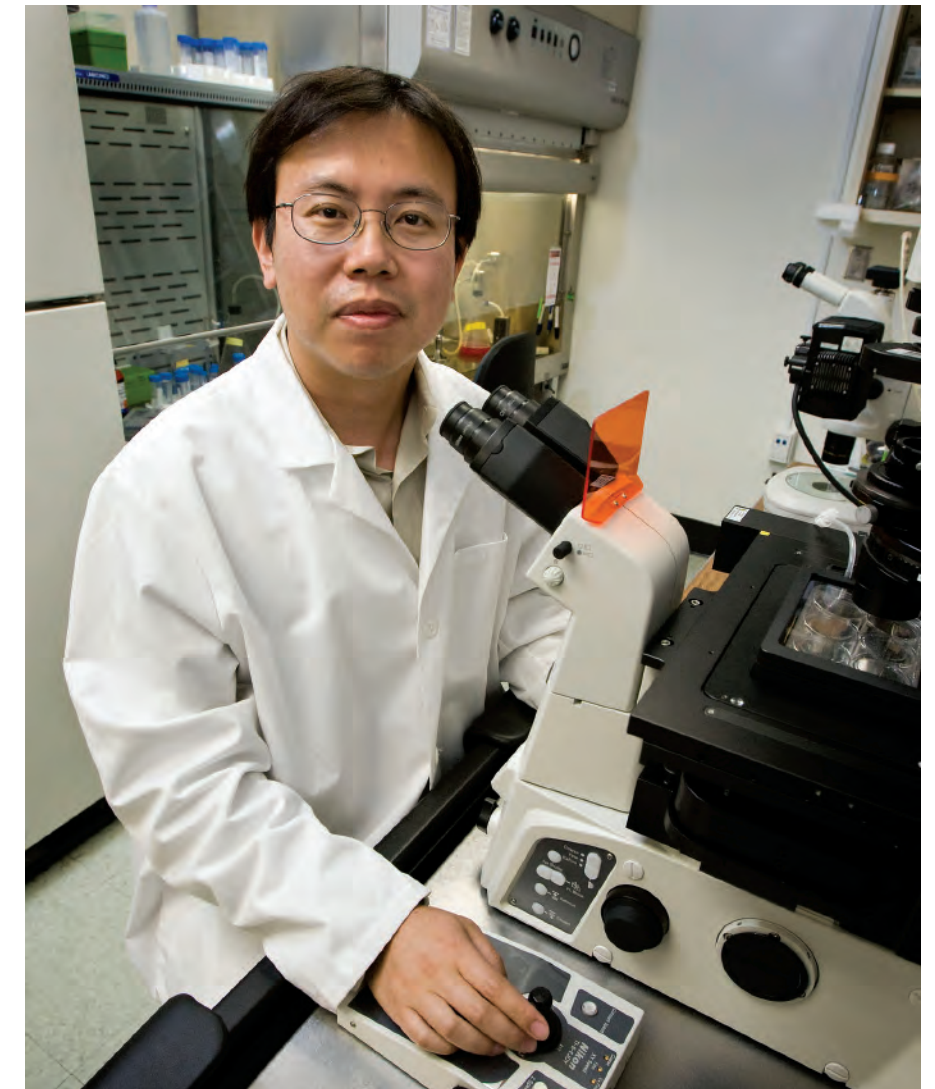
Member of the Stein Eye Institute

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 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. His laboratory is using a variety of techniques to study this membrane transport system.

Dr. Sun is also identifying new therapeutic targets. Specifically, his laboratory recently identified new factors that protect cone photoreceptor cells and membrane receptors for a factor that has broad therapeutic value. The overall goal is to uncover novel mechanisms that protect retina and photoreceptor cells as strategies in treating blinding diseases.



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, 12/1/13–11/30/17

Howard Hughes Medical Institute: Early Career Scientist Award, 9/1/09–8/31/15

Research to Prevent Blindness: Ophthalmic Research Award, 1/1/12–12/31/14

Gabriel H. Travis, MD

Charles Kenneth Feldman Chair in Ophthalmology
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.



Public Service

Scientific Advisory Panel Member, the Karl Kirchgessner 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

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

National Eye Institute: The Role of Müller Cells in Visual Pigment Regeneration, 7/1/15–6/30/18

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

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.

Irena Tsui, MD

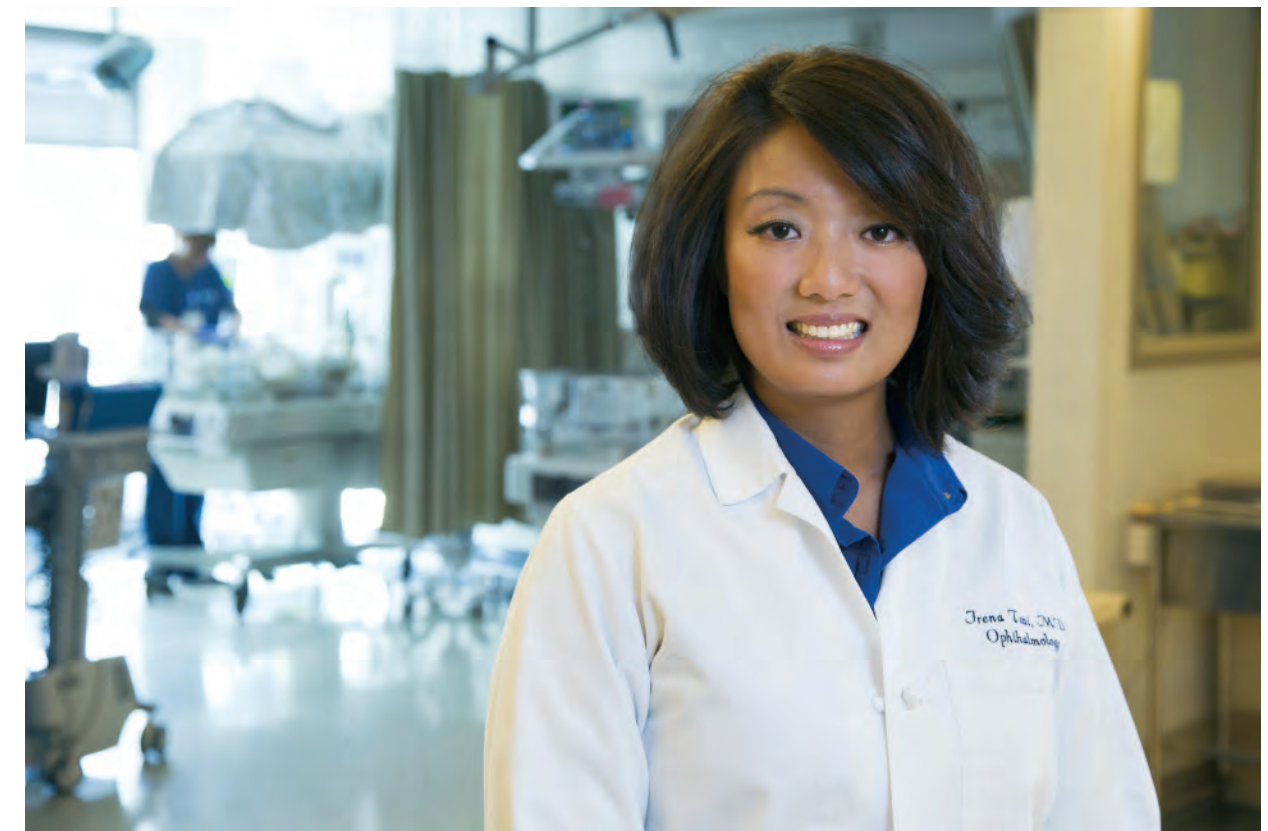
Assistant Professor of Ophthalmology
Member of the Stein Eye Institute

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 veterans.

In addition to providing patient care at the Stein Eye Institute in Westwood, Dr. Tsui also sees patients at the Doheny Eye Center UCLA–Arcadia.



Public Service

Committee Member, UCLA Women in Medicine and Science

Care Harbor LA Free Clinic

Reviewer for many scientific journals

Federico G. Velez, MD

Health Sciences Associate 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 immunodeficiency virus. He provides patient care at the Stein Eye Institute in Westwood and the Doheny Eye Center UCLA-Orange County.



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

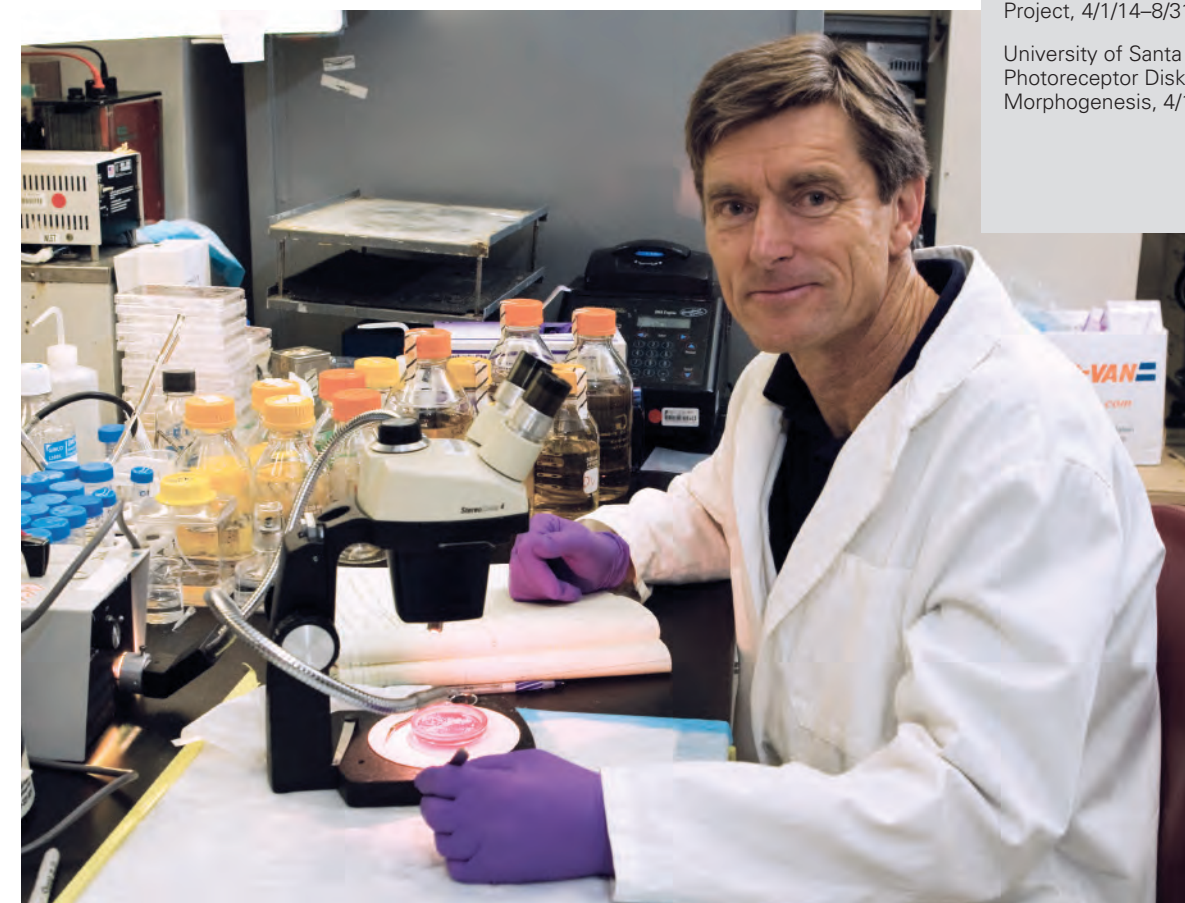
David S. Williams, PhD

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 and macular degeneration. A translational area of his research involves gene therapy experiments aimed at preventing the blindness that ensues from Usher syndrome type 1B.



Honors

Presented with a Distinguished Service Award by the International Society for Eye Research on July 23, 2014, in San Francisco, California.

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, 7/1/09–6/30/15

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

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

University of Pennsylvania: Degradative Processes in RPE-Photoreceptor Renewal, 2/1/14–1/31/16

UCLA Broad Stem Cell Research Center: IPSC-JSEI Collaboration Project, 4/1/14–8/31/15

University of Santa Barbara: Photoreceptor Disk Membrane Morphogenesis, 4/1/15–3/31/16

Xian-Jie Yang, PhD

Ernest G. Herman Chair in Ophthalmology
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 National 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

Jie J. Zheng, PhD

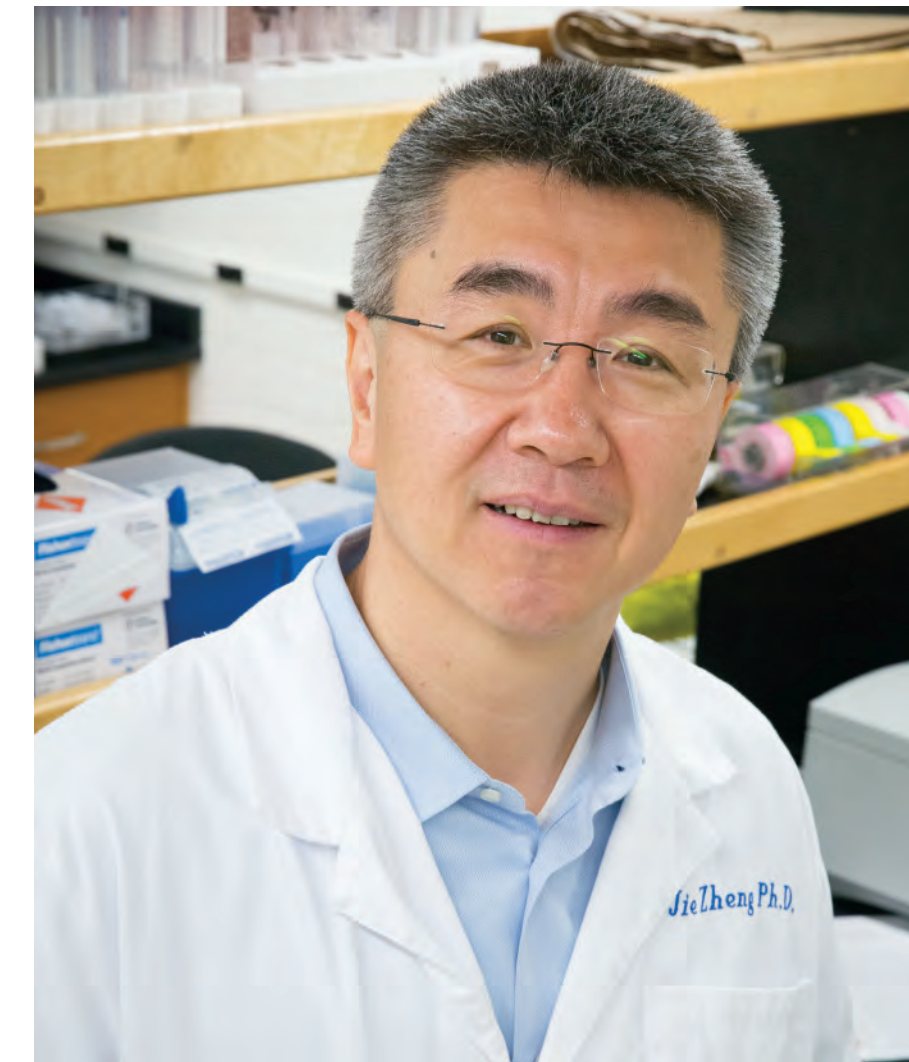
Professor of Ophthalmology

RESEARCH SUMMARY

Therapeutic Development in Ophthalmology

Dr. Zheng's research is at the interface of biochemistry, computational biology, systems pharmacology, and drug discovery with an emphasis on therapeutic development in ophthalmology. Taking advantage of increasing computer capability, Dr. Zheng's research group finds that the combination of experimental and computational studies gives them a unique strength, and on the basis of this strength, Dr. Zheng's laboratory has achieved great successes.

The current focus of the laboratory is to develop proteins and small molecules that can modulate signal transduction pathways, such as Wnt, Hedgehog, BMP, and Hippo pathways, in an effort to better understand the biological functions of these signaling pathways and to explore the therapeutic potential of these compounds and proteins. Aiming to establish new translational research within the vision research community at UCLA, the goal of Dr. Zheng's research is to develop novel therapies for retinal degenerative diseases, glaucoma, and corneal disorders.



Public Service

Ad hoc Member, Program Project Review Committee, NIH National Heart, Lung, and Blood Institute

Editorial Board Member, *Cell Communication and Signaling*

Research Grants

National Institute of General Medical Sciences, R01 GM100909, Structural Investigation of Focal Adhesion Formation and Disassembly, 5/1/2012-4/30/2016

Faculty Doheny Eye Center UCLA

Through the historic alliance between the UCLA Stein Eye Institute and the Doheny Eye Institute, Doheny physician scientists are now faculty members in the UCLA Department of Ophthalmology.

The affiliation introduced the Doheny Eye Center UCLA, which provides comprehensive eye care covering the full disease spectrum. The Doheny Eye Center UCLA locations in Arcadia, Orange County, and Pasadena offer neighborhood convenience and expanded ties with patients, community ophthalmologists, and local physicians whose patients require ophthalmic care.



Vikas Chopra, MD

Health Sciences
Associate Clinical Professor

Medical Director,
Doheny Eye Center UCLA–Pasadena

RESEARCH SUMMARY

Glaucoma

Dr. Chopra specializes in glaucoma, and his research activities include advanced optic nerve and retinal nerve fiber layer imaging for early glaucoma detection, as well as development and validation of novel parameters for use in anterior segment optical coherence tomography devices as principal investigator at the Doheny Image Reading Center. Dr. Chopra also evaluates laser and surgical techniques for the management of glaucoma.

PRACTICE LOCATIONS

Doheny Eye Center UCLA–Arcadia

Doheny Eye Center UCLA–Pasadena



Brian A. Francis, MD, MS

Health Sciences Clinical Professor

Medical Director, Doheny Eye Center
UCLA–Orange County

RESEARCH SUMMARY

Glaucoma

Dr. Francis' clinical specialties are glaucoma and cataract. His research activities include: innovative glaucoma surgeries, minimally invasive glaucoma surgery, novel visual field techniques, glaucoma diagnostic and functional imaging, anterior segment imaging (ultrasound biomicroscopy and Fourier domain optical coherence tomography), and glaucoma laser surgery.

Research Grants

Quark Pharmaceuticals Inc.: Phase IIA Double-Masked Randomized Sham Controlled Trial Of Qpi-1007 Delivered by a Single Intravitreal Injection to Subjects with Acute Primary Angle-Closure Glaucoma (APACG), 9/25/14–9/24/16

PRACTICE LOCATIONS

Doheny Eye Center UCLA–Arcadia

Doheny Eye Center UCLA–
Orange County

Doheny Eye Center UCLA–Pasadena



Gad Heilweil, MD

Clinical Instructor of Ophthalmology

RESEARCH SUMMARY

Degenerative Retinal Disease

Dr. Heilweil's research activities include stem-cell therapy for degenerative retinal disease; retinal and uveal drug toxicity; and pharmacokinetics of intravitreal drugs. In addition to providing patient care at the Doheny Eye Center UCLA, Dr. Heilweil sees patients at the Stein Eye Institute in Westwood.

PRACTICE LOCATIONS

Doheny Eye Center UCLA–Arcadia

Doheny Eye Center UCLA–
Orange County

Doheny Eye Center UCLA–Pasadena



Hugo Y. Hsu, MD

Health Sciences
Associate Clinical Professor

RESEARCH SUMMARY

Cornea and External Diseases

Dr. Hsu specializes in corneal infection and inflammation, corneal transplantation, anterior segment reconstruction, and cataract surgery. His research interests include corneal infection, ophthalmic antibiotics, and cataract extraction.

PRACTICE LOCATIONS

Doheny Eye Center UCLA–Arcadia

Doheny Eye Center UCLA–
Orange County

Doheny Eye Center UCLA–Pasadena



Alex A. Huang, MD, PhD

Assistant Professor

RESEARCH SUMMARY

Glaucoma

Dr. Huang's clinical specialties include glaucoma, minimally invasive glaucoma surgery, trabeculectomy, glaucoma drainage devices, cyclodestruction, and complex cataracts. His research activities involve characterizing post-trabecular meshwork and scleral changes in glaucoma, optical coherence tomography visualization of aqueous humor outflow pathways in the eye, and angiographic visualization of aqueous humor outflow in the eye. His goal is to provide the most individual centric care, and through the use of research, develop means to customize glaucoma management and surgery for each patient.

Research Grants

American Glaucoma Society: Real-time Imaging of Aqueous Humor Outflow, 1/1/15–12/31/15

National Eye Institute: Discovery and Characterization of Anterior Sclera Pathology in Glaucoma, 9/30/14–9/29/19

PRACTICE LOCATION

Doheny Eye Center UCLA–Pasadena



The Huntington Pavilion is home to the Doheny Eye Center UCLA–Pasadena.



John A. Irvine, MD

Health Sciences
Clinical Professor

Medical Director,
Doheny Eye Center UCLA

RESEARCH SUMMARY

Cornea and External Diseases

Dr. Irvine's clinical specialties are cornea and external diseases (eg, tumors, infections), anterior segment surgical consultation, and prosthetic replacement of the ocular surface ecosystem (PROSE). His research activities focus on ocular infections.

PRACTICE LOCATIONS

Doheny Eye Center UCLA–Arcadia

Doheny Eye Center UCLA–Orange County

Doheny Eye Center UCLA–Pasadena



Anne R. Kao, MD

Health Sciences
Assistant Clinical Professor

RESEARCH SUMMARY

Orbit and Ophthalmic Plastic Surgery; Neuro-Ophthalmology

Dr. Kao specializes in orbit and ophthalmic plastic surgery, and neuro-ophthalmology. Her clinical specialties include ptosis (drooping eyelids), eyelid tumors, orbital tumors, thyroid eye disease, blepharospasm, optic nerve sheath fenestration, strabismus (ie, eye muscle disorders), and strabismus surgery.

PRACTICE LOCATIONS

Doheny Eye Center UCLA–Orange County

Doheny Eye Center UCLA–Pasadena



Olivia L. Lee, MD

Health Sciences
Assistant Clinical Professor

RESEARCH SUMMARY

Cornea/External Diseases and Uveitis; Corneal Imaging

Dr. Lee practices two subspecialties of ophthalmology: cornea/external diseases and uveitis. She has particular interest in inflammatory ocular surface disease, corneal melts, pterygia, and anterior segment complications of uveitis. Dr. Lee performs all types of corneal transplants (eg, penetrating, lamellar, endothelial and femto-second laser-assisted keratoplasty), as well as complex cataract surgery in uveitic eyes.

Dr. Lee's research interests focus on anterior segment imaging applied to the tear film, cornea, and conjunctiva. With her expertise in corneal imaging, a specular microscopy reading center was developed at the Doheny Image Reading Center, where she serves as an investigator.

RESEARCH GRANTS

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 Posterior or Pan-Uveitis Currently Controlled with Systemic Treatment, 1/8/13–12/10/15

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, 1/8/13–12/10/15

PRACTICE LOCATIONS

Doheny Eye Center UCLA–Arcadia

Doheny Eye Center UCLA–Orange County

Doheny Eye Center UCLA–Pasadena



Kenneth L. Lu, MD

Health Sciences
Associate Clinical Professor

Medical Director, Doheny Eye Center
UCLA–Arcadia

RESEARCH SUMMARY

Cataract and Refractive Surgery

Dr. Lu specializes in cataract and refractive surgery, and his research activities are focused in the same areas.

Practice Location

Doheny Eye Center UCLA–Arcadia



Peter A. Quiros, MD

Health Sciences
Associate Clinical Professor

RESEARCH SUMMARY

Neuro-Ophthalmology

Specializing in neuro-ophthalmology, the clinical specialties of Dr. Quiros are: optic nerve disease, including optic neuritis and multiple sclerosis; double vision and adult strabismus; eye pain, headache, and idiopathic intracranial hypertension; Graves disease; orbital inflammatory syndromes; and stroke. Dr. Quiros' research activities include idiopathic intracranial hypertension, headache, ocular myasthenia gravis, Graves disease, optic neuritis and multiple sclerosis, and visual rehabilitation after stroke. Dr. Quiros was the principal investigator for the recently completed idiopathic intracranial hypertension treatment trial and is currently the principal investigator for the longitudinal idiopathic intracranial hypertension treatment trial. Dr. Quiros is also a member of the Neuro-Ophthalmology Researcher and Disease Investigators Consortium (NORDIC) and is the local NORDIC director.

RESEARCH GRANTS

National Eye Institute: Long-Term Follow-up of the Cohort from a Multicenter, Double-Masked, Randomized, Placebo-Controlled Study of Weight-Reduction and/or Low-Sodium Diet Plus Acetazolamide vs. Diet plus Placebo in Subjects with Idiopathic Intracranial Hypertension with Mild Visual Loss, 1/7/14–1/31/15

PRACTICE LOCATIONS

Doheny Eye Center UCLA–Orange County

Doheny Eye Center UCLA–Pasadena



Daniel B. Rootman, MD, MS

Assistant Professor

RESEARCH SUMMARY

Orbit and Ophthalmic Plastic Surgery

Dr. Rootman is an orbit and ophthalmic plastic surgery specialist. His clinical expertise includes Graves disease, orbital surgery, orbital tumors, ptosis, lacrimal disorders, blepharoplasty, blepharospasm, Botox®, cosmetic dermal fillers, endoscopic eyebrow lift, eyelid surgery, eyelid tumors, and trauma. Research activities are on developing and refining patient-centered outcome measures for surgical care; randomized clinical trials in surgery, including ptosis, Graves orbitopathy and lacrimal disease; health economics of eyelid and facial surgery; sociodemographics of facial trauma; physiology and pathobiology of ptosis; new approaches to surgery; and measurement and assessment in medical education. In addition to providing patient care at the Doheny Eye Center UCLA, Dr. Rootman sees patients at the Stein Eye Institute in Westwood.

PRACTICE LOCATIONS

Doheny Eye Center UCLA–Orange County

Doheny Eye Center UCLA–Pasadena

Stein Eye Institute–Westwood



The Doheny Eye Center UCLA–Orange County.



Patient suites at the Doheny Eye Center UCLA–Arcadia.



Srinivas R. Sadda, MD

Professor
President and Chief Scientific Officer,
Doheny Eye Institute

RESEARCH SUMMARY

Retinal and Macular Diseases

Dr. Sadda specializes in age-related macular degeneration, hereditary retinal degenerations, diabetic retinopathy, venous occlusive disease, telemedicine screening and consultation programs, as well as retinal disease diagnosis and classification. His research activities include: quantitative, automated retinal image analysis; retinal substructure assessments; advanced retinal imaging technologies; genotype-phenotype correlative studies; and vision restoration technologies, such as stem cells and prosthetic vision.

PRACTICE LOCATIONS

Doheny Eye Center UCLA–Arcadia
Doheny Eye Center UCLA–Pasadena



Alfredo A. Sadun, MD, PhD

Flora Thornton Chair of
Vision Research
Vice Chairman, Doheny Eye Center
UCLA

RESEARCH SUMMARY

Neuro-Ophthalmology

Clinical specialties of Dr. Sadun include neuro-ophthalmology, optic nerve, optic neuropathies (eg, posterior ischemic optic neuropathy, anterior ischemic optic neuropathy, and traumatic optic neuropathy), Leber hereditary optic neuropathy, toxic and nutritional optic neuropathies, vision in Alzheimer's, AIDS, and other central nervous system disorders. Dr. Sadun's research activities focus on human visual neuroanatomy; retinal ganglion cell degeneration and regeneration; axon populations in the human optic nerve in development, aging, and disease; and mitochondrial impairments as a cause of optic neuropathy and other forms of neurodegeneration.

PRACTICE LOCATION

Doheny Eye Center UCLA–Pasadena



Deming Sun, MD

Professor

RESEARCH SUMMARY

Research Scientist

Dr. Sun is a researcher whose primary areas of investigation include uveitis, autoimmune diseases, optic neuritis, animal disease models, and T-cell biology.



James C. Tan, MD, PhD

Associate Professor

RESEARCH SUMMARY

Glaucoma

Dr. Tan is a dual fellowship-trained glaucoma specialist. He treats the full spectrum of cataract and glaucoma conditions, ranging from mild to complex. His treatments and surgeries focus on safe and effective outcomes using advanced techniques. Dr. Tan has authored over 100 scientific papers, abstracts, book chapters, and books. His research addresses advanced imaging, molecular pathogenesis, drug development, and surgical techniques. He has received awards from the National Institutes of Health, Research to Prevent Blindness, and the American Glaucoma Society.

RESEARCH GRANTS

National Eye Institute Role of Trabecular Meshwork Contractility in Modulating Outflow Resistance, 9/1/14–8/31/15

PRACTICE LOCATIONS

Doheny Eye Center UCLA–Arcadia
Doheny Eye Center UCLA–Pasadena

**UCLA Ophthalmology
LA and Beyond**

From the westside to the eastside and south to Orange County, access to the UCLA Department of Ophthalmology physicians you know and trust has never been easier.

Map locations include: Olive View-UCLA Medical Center SYLMAR, Doheny Eye Center UCLA PASADENA, Stein Eye Institute UCLA WESTWOOD, Doheny Eye Center UCLA ARCADIA, Stein Eye Center UCLA SANTA MONICA, Veteran's Affairs Healthcare Center WEST LOS ANGELES, Harbor-UCLA Medical Center TORRANCE, and Doheny Eye Center UCLA ORANGE COUNTY.

STEIN EYE INSTITUTE MEMBERS BASED AT OTHER SITES

James W. Bisley, PhD

Associate 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 neuropeptides 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 photoreceptor 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 that 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.

Navid Amini, PhD

Assistant Research Ophthalmologist

RESEARCH SUMMARY

Mobile Health

Dr. Amini's research interests lie in the area of mobile health. He develops signal-processing techniques in ophthalmic research, and more specifically, he utilizes such techniques in quantitative assessment of major ocular diseases, including glaucoma. In addition, Dr. Amini investigates the behavior of non-visual sensory systems and the effects of low vision on activities of daily living.

Dr. Amini was recipient of the April 2015 Chancellor's Award. The Honorary Mention acknowledges achievements in postdoctoral research at UCLA.

Barry L. Burgess, BS

Research Specialist I

RESEARCH SUMMARY

Degenerative Retinal Disease Research

Mr. Burgess provides research support for the Photoreceptor/RPE Cell Biology Laboratory of Dr. David Williams. Research interests include production of differentiated RPE cells from human stem cell precursors and developing *in vitro* models of oxidative stress involved in degenerative retinal disease progression.

Rajendra Gangalum, PhD

Assistant Research Specialist III

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 non-ocular tissues. α B-crystallin has been shown to associate with pathologies such as cataracts, cancer, age-related macular degeneration (AMD), and various 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 is using a gene silencing approach and knock-out mouse model to investigate the function of α B-crystallin. His recent findings have demonstrated that α B-crystallin silencing (α BshRNA) in retinal pigment epithelial cells inhibits secretion and enhances endo-lysosomal fusion. Dr. Gangalum has also generated the transgenic mice model of childhood lamellar cataract. Cataracts in infants are debilitating because opacities in the fiber cells are confined to the lens nucleus that hinder the transmission of light to the retina, which impairs the development of visual cortex in the brain. Dr. Gangalum is using next generation sequencing, cell and molecular biology approaches to understand the molecular basis of lamellar cataract pathology in single lens fiber cells. This model system is the only paradigm available for future investigations on early childhood cataracts.

Sonia Guha, PhD

Assistant Project Scientist

RESEARCH SUMMARY

Unraveling New Therapeutic Targets for Ocular Albinism

Dr. Guha's research aims to study the genes that may be associated with the misrouting of retinal ganglion cell (RGC) axons at the brain's optic chiasm in individuals affected with X-linked Ocular albinism type 1 (*OA1*). This disease, caused by mutations in the *OA1* gene that is mainly expressed in the retinal pigment epithelium (RPE), is also characterized by hypopigmentation and presence of macromelanosomes in the RPE. How the reduced pigmentation of *OA1* RPE exerts its effects on the RGCs to influence the misrouting of their axons at the optic chiasm remains unsolved. Thus, Dr. Guha's research findings have the potential to unravel new therapeutic targets for *OA1*.

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

Associate Research Ophthalmologist

RESEARCH SUMMARY

Neural and Molecular Basis of Photoallodynia

Dr. Matynia is investigating the mechanisms of photoallodynia, 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.

Charles "Dutch" Ratliff, PhD

Assistant Project Scientist

RESEARCH SUMMARY

Information Processing and Metabolism in the Retina

Dr. Ratliff investigates the mechanisms by which the retina creates a metabolically efficient representation of visual information. This work combines techniques from patch-clamp electrophysiology, mathematical modeling, and molecular simulations.

Alberto C. Ruiz-Morales

Research Specialist IV

RESEARCH SUMMARY

Visual Cycle

Mr. Ruiz is a molecular biologist who has been directly involved in the cloning and characterization of important enzymes critical for the proper functioning of the visual cycle, such as the lecithin retinol acyltransferase (LRAT) enzyme. Another area of investigation is the generation and evaluation of knock-out mouse models for LRAT and a second visual cycle enzyme, the retinol binding protein receptor STRA6. Currently, Mr. Ruiz is analyzing genes, such as *ARMS2* and *HTRA1*, which are thought to be involved in age-related macular degeneration.

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 photoreceptor, 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.

Alejandra Young, PhD

Assistant Project Scientist

RESEARCH SUMMARY

Ocular Albinism

Dr. Young's research is focused on the study of the molecular mechanisms that cause ocular albinism type 1 (*OA1*), a disease caused by mutations in the *OA1* gene and characterized by hypopigmentation of the retinal pigment epithelium and abnormal crossing of the optic axons at the optic chiasm. She is investigating the potential therapeutic use of

engineered human embryonic stem cell-derived microvesicles enriched in *OA1* mRNA/protein for the treatment of ocular albinism.

PROFESSIONAL CLINICAL SERIES

Gavin G. Bahadur, MD

Associate Physician Diplomate

Clinical Instructor of Ophthalmology

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 Diplomate

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

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.

Karen Hendler, MD

Clinical Instructor of Ophthalmology

UCLA Mobile Eye Clinic

Dr. Hendler works with the UCLA mobile eye clinic providing services to the underserved children of Los Angeles County as part of the Center for Community Outreach and Policy at UCLA. The goal is to determine the need for prescriptive lenses in preschool children and to detect the presence of amblyopia or other eye conditions or diseases. Dr. Hendler is also participating in epidemiologic studies on the outcome of screening of preschool children.

Hamid Hosseini, MD

Clinical Instructor of Ophthalmology

Retinal and Macular Eye Disease

Dr. Hosseini is a clinician and vitreo-retinal surgeon with special interest in retinal and macular conditions, such as macular degeneration, diabetic retinopathy, and retinal detachment. He participates in all activities of the Retina Division, including research, education, and clinical care.

Catherine J. Hwang, MD, MPH

Associate Physician Diplomat

Assistant Clinical Professor of Ophthalmology

Thyroid Eye Disease, Ocular Surface Disease, and 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.

Batool Jafri, MD

Associate Physician Diplomat

Assistant Clinical Professor of Ophthalmology

Cornea/External Disease/ Refractive Surgery

Dr. Jafri provides patient care as well as supervision to resident physicians and cornea fellows at the Stein Eye Institute. Her focus is medical and surgical treatment of diseases of the cornea, external disease, and refractive conditions like near and far sightedness. She also provides general ophthalmic care and offers cataract surgery with premium intraocular lens implants.

Monica R. Khitri, MD

Associate Physician Diplomat

Pediatric Ophthalmic Diseases and Strabismus

Dr. Khitri specializes in the evaluation and treatment of pediatric ophthalmic diseases as well as childhood and adult strabismus. She teaches residents and fellows at both the Stein Eye Institute and Harbor-UCLA Medical Center, where she heads the pediatric ophthalmology service. Dr. Khitri is also actively involved with the UCLA Mobile Eye Clinic, bringing high quality eye care to children with otherwise poor access to ophthalmic providers.

Tania Onclinx, MD

Clinical Instructor of Ophthalmology

Associate Physician Diplomat

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.

Susan S. Ransome, MD

Associate Physician Diplomat

Clinical Instructor of Ophthalmology

Cytomegalovirus Retinitis

Dr. Ransome is participating in a clinical research study involving HIV-infected patients 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 Diplomat

Assistant Clinical Professor of Ophthalmology

Co-Director of the Ophthalmology Inpatient Consultation Service

Comprehensive Ophthalmology

Dr. Shapiro-Tuchin provides clinical supervision to resident physicians. She functions as Co-Director of the Ophthalmology Inpatient Consultation Service, assisting resident physicians in their evaluation of inpatients admitted to the Ronald Reagan UCLA Medical Center and the UCLA Medical Center, Santa Monica.

Mehryar "Ray" Taban, MD, FACS

Assistant Clinical Professor of Ophthalmology

Associate Physician Diplomat

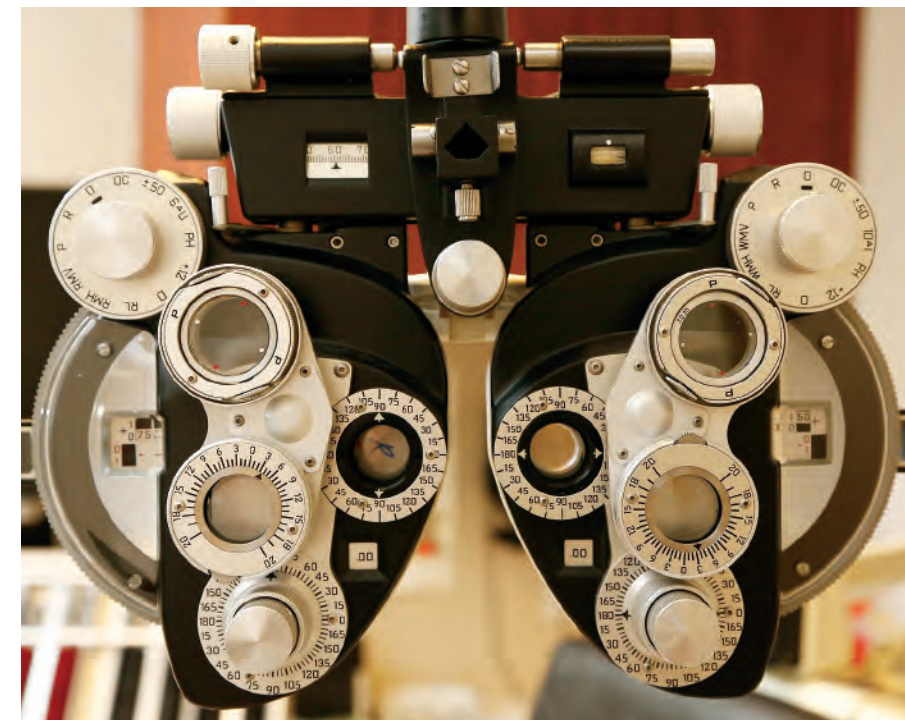
Aesthetic and Reconstructive Oculoplastic Surgery

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.

LECTURER

Kathleen L. Boldy, VMD

Lecturer in Ophthalmology



STEIN EYE INSTITUTE EMERITUS FACULTY

Dean Bok, PhD

Dolly Green Chair of Ophthalmology

Professor of Ophthalmology Emeritus (Active Recall)

Distinguished Research Professor of Neurobiology

Member of the Brain Research Institute

Member of the Stein Eye Institute

Michael O. Hall, PhD

Professor of Ophthalmology Emeritus

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





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. Skilled optometrists, orthoptists, technicians, and nurses support institute ophthalmologists in their efforts. Care is delivered in distinctive subspecialty treatment centers, service areas, and clinical laboratories, as well as in specially equipped ophthalmic surgical suites. In addition, the Stein Eye Center–Santa Monica and the Doheny Eye Center UCLA offer premier eye care services in convenient neighborhood locations.

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 kind, 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.

The award-winning Edie & Lew Wasserman Building houses the Institute's expanded surgery center, which enables the Stein Eye Institute to provide a greater number of surgical services to patients in need.

Six operating suites, a sterile processing area, procedure treatment units, and postoperative areas serve all ophthalmic specialties, including retina, glaucoma, cataract, strabismus, cornea, and oculoplastics. In addition, there are three procedure rooms for physicians to perform minor laser treatments and ophthalmologic surgical procedures.

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 Institute, Westwood

100 Stein Plaza, UCLA
Los Angeles, CA 90095
Referral Service: (310) 794-9770
Emergency Service: (310) 825-3090
After-Hours Emergency Service:
(310) 825-2111

Stein Eye Center–Santa Monica

The Stein Eye Center–Santa Monica, 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–Santa Monica features well-equipped exam rooms, an optical shop, 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 Institute's main facility in Westwood.

Stein Eye Center–Santa Monica

1807 Wilshire Boulevard, Suite 203
Santa Monica, CA 90403
Telephone: (310) 829-0160
Fax: (310) 829-0170

Doheny Eye Center UCLA

The UCLA Department of Ophthalmology and the Doheny Eye Institute formed a historic affiliation in 2014, and patient access to eye care was immediately broadened across Los Angeles and into Orange County, with the opening of three Doheny Eye Center UCLA locations: Arcadia, Orange County, and Pasadena. The Doheny and Stein Eye Institutes share a long tradition of excellence, and through this partnership, the respective strengths that gained each Institute an international reputation have been combined. The board-certified Doheny ophthalmologists that patients and referring physicians know and trust are now members of the UCLA Department of Ophthalmology. The Doheny Eye Center UCLA is under the supervision of Vice Chairman **Dr. Alfredo A. Sadun** and Medical Director **Dr. John A. Irvine. Dr. Srinivas R. Sadda** is the president and chief scientific officer of the Doheny Eye Institute.

Doheny Eye Center UCLA–Arcadia

As Medical Director of the Doheny Eye Center UCLA–Arcadia, **Dr. Kenneth L. Lu** oversees a renovated office that includes 12 exam rooms, dedicated diagnostic equipment, and attractive patient areas. The Center provides comprehensive ophthalmology, and nearly all subspecialty services, including glaucoma, retina, and cornea.

The Doheny Eye Center UCLA–Arcadia, which opened April 1, 2014, serves patients in the broader Arcadia region and San Gabriel area, expanding the UCLA Department of Ophthalmology's reach in Los Angeles County. The Arcadia Center is easily accessible from two freeways and provides on-site, free parking.

Doheny Eye Center UCLA–Arcadia

622 W. Duarte Road, Suite 101
Arcadia, CA 91007
Telephone: (626) 254-9010
Fax: (626) 254-9019

Doheny Eye Center UCLA–Orange County

The Doheny Eye Center UCLA–Orange County opened on May 15, 2014, in the Orange Coast Memorial Medical Center, broadening the reach of the UCLA Department of Ophthalmology south to Orange County.

Newly renovated, the Orange County location, overseen by Medical Director **Dr. Brian A. Francis**, offers comprehensive ophthalmology, as well as glaucoma, retina, and cornea subspecialty services. The Doheny Eye Center UCLA–Orange County includes 12 exam rooms, dedicated diagnostic equipment, and inviting patient areas.

Doheny Eye Center UCLA–Orange County

Orange Coast Memorial
Medical Center
18111 Brookhurst St., Suite 6400
Fountain Valley, CA 92708
Telephone: (714) 963-1444
Fax: (714) 963-1234



Doheny Eye Center UCLA–Pasadena

The Doheny Eye Center UCLA–Pasadena, which opened on July 1, 2014, serves as the primary hub of the Doheny Eye Center UCLA. Located on the second floor of the Huntington Pavilion, the Doheny Eye Center UCLA–Pasadena provides expanded vision care services and clinics devoted to retina and cornea; comprehensive ophthalmology and oculoplastics; neuro-ophthalmology; and glaucoma. Each subspecialty clinic has dedicated, state-of-the-art diagnostic laser suites, as well as in-office procedure rooms. More complex procedures are performed at the Huntington Pavilion Surgical Suites, which are located on the building's third floor.

The Huntington Pavilion is home to a wide variety of medical practitioners, which provides physicians with ease of referral for patients requiring specialized eye care and provides patients with the added convenience of seeing their doctors and having any necessary services all in one location. The Medical Director of the Doheny Eye Center UCLA–Pasadena is **Dr. Vikas Chopra**.

Doheny Eye Center UCLA–Pasadena

Huntington Pavilion
625 S. Fair Oaks Blvd., 2nd Floor
Pasadena, CA 91105
Telephone: (626) 817-4747
Fax: (626) 817-4748

Summary of Patient Care Statistics

	2013–2014	2014–2015
Faculty Consultation Service		
Patient visits	101,807	
University Ophthalmology Associates		
Patient visits	28,170	
Inpatient Consultation Service		
Patient evaluations	424	
Clinical Laboratories		
Procedures	51,278	
Surgery Services		
Number of procedures	27,750	
Mobile Eye Clinic		
Number of patients seen	16,791	
Ocular abnormalities	16%	
Number of trips	427	

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 **Daniel B. Rootman** 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 skin treatment, as well as dermal filler and other cosmetic injections to smooth facial lines. Minimally invasive approaches are utilized to provide the optimal aesthetic result. A major goal of the Center is to conduct research focused on improving understanding of facial aging, surgical healing, and on developing new techniques for aesthetic surgery. Center physicians have pioneered minimal incision surgical techniques to enhance the normal function and appearance of the eyes and face, and often receive referrals for complex and re-operative plastic surgery cases.

Center for Community Outreach and Policy

The Stein Eye Institute's Center for Community Outreach and Policy, 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 has supported patient care and screening programs in neighborhoods where poverty and vision disabilities intersect. The dedication and hard work of UCLA Mobile Eye Clinic ophthalmologists, technicians, and volunteers have touched the lives of hundreds of thousands of individuals.

The UCLA Mobile Eye Clinic, a 39-foot-long bus specially outfitted with eye examination equipment, is supported by charitable contributions to the Stein Eye Institute. The UCLA Mobile Eye Clinic's staff of trained ophthalmic personnel provides general eye care to over 20,000 underserved adults and children annually throughout Southern California. Services include vision screening, 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 **Drs. 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 an extremely 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 collaboration between basic scientists and clinicians, including **Drs. Debora Farber, Jean-Pierre Hubschman, Steven D. 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 UCLA Department of Ophthalmology 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 working with full-time administrator, **Ms. Ellen Pascual**, and a Board of Directors composed of Department of Ophthalmology faculty members. The CRC has an in-house statistician, **Fei Yu, PhD**. 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 for investigators at both the UCLA Stein Eye Institute and the Doheny Eye Institute.

Institute faculty members are currently conducting more than 75 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 Phan Shibayama**, 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, corneal transplants, corneal scarring, postrefractive surgery ectasia, ocular surface disease, and aphakia. Dr. Shibayama 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. Shibayama's clinical research is focused on keratoconus 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. Expertise is provided for both urgent primary repair and scheduled secondary repair.

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. Giaconi, Jacky M. K. Kwong, Simon K. Law, Kouros Nouri-Mahdavi, and Natic 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 trials that have furthered the understanding and treatment of these diseases.

Center faculty members were the first to describe cytomegalovirus retinitis as an ophthalmic manifestation of AIDS; today the Center is a nationally recognized site of expertise for AIDS-related ophthalmic disease. Other special clinical and research programs have been developed in the following areas: ocular toxoplasmosis, uveitis in children, birdshot chorioretinopathy, immunogenetics of inflammatory eye diseases, unusual corneal infections, and 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 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 **Drs. Daniel B. Rootman** and **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. The team performs procedures that are not usually available in the community, including orbital decompression microsurgery for orbital apical tumors, optic canal decompression, combined interventional neuro-radiology procedures for vascular tumors, and bony reconstruction to address traumatic or congenital defects. The Center has an active program in thyroid eye 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 the 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, under the direction of **Dr. Melissa W. Chun** with **Dr. Steven D. Schwartz** as medical advisor, 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 devices 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 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 patients to assist the ophthalmologist in the management of patients with glaucoma. 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 Nusinowitz**, 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. Predoctoral 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 UCLA Department of Ophthalmology and the Institute extend instruction to UCLA medical students in their second, third, and fourth years of instruction. Through lectures, small group discussions, and clinical experience, all students have numerous training sessions from which to gain knowledge about eye diseases and develop eye examination skills that should be known by all physicians, regardless of their specialties. Those students who are interested in ophthalmology as a career have additional learning opportunities in elective courses.

In their second year of instruction, all medical students attend a series of lectures covering various topics related to eye diseases distributed throughout their yearlong Human Biology and Disease course. Students

also attend several afternoon workshops during which they learn eye examination skills and treatments for eye problems that can be managed by non-ophthalmologists. During their third year of instruction, medical students interested in additional training and experience can elect to spend two weeks of their surgical clerkship on the Ophthalmology Service, examining patients in clinic and observing eye surgeries. During the fourth year of instruction, a series of advanced clinical electives are available to medical students who plan eventually to practice ophthalmology as their specialty.

UCLA Medical Student Research Program

At the Stein Eye Institute, medical students have taken laboratory and clinical 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 six to 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, and 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. Residents 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.

Fellowship in Cornea–External Ocular Diseases and Refractive Surgery

Under the direction of **Drs. Anthony J. Aldave, Sophie X. Deng, David Rex Hamilton, Batool Jafri, 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 provide medical and surgical care to patients at the Veterans Affairs Greater Los Angeles Healthcare System at West Los Angeles and Sepulveda and at Harbor-UCLA Medical 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. Giacon, 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. Fellows gain clinical experience by examining patients in the consultation suite and participating in the clinical and surgical management of patients. 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. Fellows 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 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 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 neuro-radiology. 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 neuro-radiology 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. 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 two-year fellowship program is approved by the American Society of Ophthalmic Plastic and Reconstructive 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. International research 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 Service, 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 **Dr. Gary N. Holland**, offers comprehensive training in the evaluation and management of uveitis and other inflammatory eye diseases. Fellows participate in the practices of Drs. Holland and **Ralph D. Levinson** at the UCLA Stein Eye Institute and the practice of **Dr. Olivia L. Lee** at the Doheny Eye Center UCLA in Pasadena. In addition, fellows see patients in the Uveitis Clinic at the Harbor-UCLA Medical Center, under the supervision of **Dr. Michael A. Kapamajian**. They assist with diagnostic evaluations, emergency cases, management of immunomodulatory therapies, and peri-operative care of patients undergoing surgical procedures. Fellows also interact closely with members of other clinical services who are involved in the care of patients with inflammatory eye diseases and related conditions (ie, Retina, Glaucoma, Cornea, and Pediatric Ophthalmology Services; Adult and Pediatric Rheumatology Services; Infectious Disease Service).

Research is an integral part of the fellowship program. Fellows may become involved in patient-based or laboratory-based projects, including the special research programs of the Ocular Inflammatory Disease Center and collaborations with investigators at other institutions. Fellows typically complete and publish one or two original research articles, frequently prepare a book chapter or review on a subject of interest, and present their research results at national academic meetings. 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. Clinical, laboratory, or translational research is encouraged. Other activities include teaching of vitreoretinal diseases at the Stein Eye Institute and affiliated institutions and case presentations at teaching sessions. The program also includes the participation of several international fellows.

Fellowship in Vision Science

Predocutorial 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**.

Predocutorial 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 Professors of Ophthalmology

J. Bronwyn Bateman, MD
Henry I. Baylis, MD
Founding Chief of the Orbital and Ophthalmic Plastic Surgery Division
Bruce B. Becker, MD
Michael S. Berlin, MD
Norma Byer, MD (Senior Status)
William P. Chen, MD
Paul Deiter, MD (Senior Status)
Donald Dickerson, MD (Senior Status)
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
Jeremy Levenson, MD (Senior Status)
Ezra Maguen, MD
Robert K. Maloney, MD
Samuel Masket, MD
Albert T. Milauskas, MD
Anthony B. Nesburn, MD
Leon G. Partamian, MD
George Primbs, MD (Senior Status)
Yaron S. Rabinowitz, MD
Teresa O. Rosales, MD
Robert J. Schechter, MD (Senior Status)
Stephen Seiff, MD (Senior Status)
Alan L. Shabo, MD
Norman Shorr, MD
Robert Sinsky, MD (Senior Status)
Roger W. Sorenson, MD (Senior Status)

Associate Clinical Professors of Ophthalmology

Charles Barnes, MD (Senior Status)
Gerrald Barron, MD (Senior Status)
Arnold Barton, MD (Senior Status)
Kevin J. Belleville, MD
Louis Bernstein, MD (Senior Status)
W. Benton Boone, MD
Harvey Brown, MD
Andrew E. Choy, MD
Melissa W. Chun, OD
Peter J. Cornell, MD
Bernard Davidord, MD (Senior Status)
Uday Devgan, MD
Chief of Ophthalmology
Olive View—UCLA Medical Center
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
Stanley Kopelow, MD (Senior Status)
Joseph Lambert, MD (Senior Status)
Brian L. Lee, MD
Jonathan I. Macy, MD
Gene Matzkin, MD (Senior Status)
Joan E. McFarland, MD
James McKinzie, MD (Senior Status)
Alan Norton, MD (Senior Status)
John F. Paschal, MD (Senior Status)
Sidney Penn, MD (Senior Status)
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
Rosalind C. Vo, MD
Kamal A. Zakka, MD

Assistant Clinical Professors of Ophthalmology

David H. Aizuss, MD
Malvin B. Anders, MD
Richard K. Apt, MD
Reginald G. Ariyasu, MD, PhD
Arthur A. Astorino, 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 (Senior Status)
W. James Gealy, Jr., MD
Damien Goldberg, MD
Lawrence "Tim" Goodwin, MD
Lawrence H. Green, MD (Senior Status)
Richard Havunjian, MD
Man M. Singh Hayreh, MD
Matthew L. Hecht, MD
Jonathan A. Hoenig, MD
Jeffrey Hong, MD
Catherine J. Hwang, MD, MPH
Morton P. Israel, MD
Steven J. Jacobson, MD
Batool Jafri, MD
Véronique H. Jotterand, MD
J. David Karlin, MD
David S. Katzin, MD
James F. Kleckner, MD (Senior Status)
Jerome R. Klein, MD
Craig H. Kliger, MD
Howard E. Lazerson, MD (Senior Status)
Steven Leibowitz, MD
Robert T. Lin, MD
Joanne E. Low, MD
Bryant J. Lum, MD

Assistant Clinical Professors of Ophthalmology continued

Michael C. Lynch, MD
M. Polly McKinstry, MD
Ashish M. Mehta, MD
Kenneth J. Miller, MD (Senior Status)
David R. Milstein, MD
Ronald L. Morton, MD
Lee T. Nordan, MD (Senior Status)
Roger L. Novack, MD, PhD
Alpa A.S. Patel, MD
James H. Peace, MD
Gilbert Perlman, MD (Senior Status)
Cheryl J. Powell, MD
John R. Privett, MD (Senior Status)
Firas Rahhal, MD
Laurence N. Roer, MD
Gerald Sanders, MD (Senior Status)
Barry S. Seibel, MD
Meryl Shapiro-Tuchin, 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, FACS
Robert C. Tarter, MD
Debra G. Tennen, MD
Teddy Y. Tong, MD
Sterling M. Trenberth, MD (Senior Status)
Robert C. Tudor, MD (Senior Status)
Henry E. Ullman, MD
Tay J. Weinman, MD (Senior Status)
Irwin S. Weiss, MD (Senior Status)
Sidney J. Weiss, MD
Scott Whitcup, MD
David L. Williams, MD (Senior Status)
Jeffrey V. Winston, MD
David M. Winters, MD (Senior Status)
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
Peter D. Zeegen, MD (Senior Status)

Clinical Instructors 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
Jason Jun, 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 S. 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
Homayoun Tabandeh, MD
Dana P. Tannenbaum, MD
William L. Trotter, MD
Mark Volpicelli, 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
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 and Physician in Chief Neuropsychiatric Institute

Residents and Fellows

Residents

Third-Year Residents 2012–2015

Jamie K. Alexander, MD
Melinda Y. Chang, MD
Robert A. Lalane, MD
Wenjing Liu, MD
Aaron Nagiel, MD, PhD
P. James Sanchez, MD

Second-Year Residents 2013–2016

Jenny Chen, MD
Xuejing Chen, MD
Diana Katsman, MD, PhD (EyeSTAR)
Wonchon Liu, MD
Grant Moore, MD
Mitra Nejad, MD
Julia Nemiroff, MD
Christian Sanfilippo, MD
Mauricio E. Vargas, MD, PhD (EyeSTAR)

First-Year Residents 2014–2017

Joseph Christenbury, MD
Melinda Fry, MD
Janet Lee, MD
Theodor Sauer, MD
Daniel Su, MD
Andrew Tye, MD
Rany Woo, MD
Chengjie Zheng, MD

EyeSTAR Trainees

Diana Katsman, MD, PhD
Tamara L. Lenis, MD
David Stark, MD, PhD
Victoria Tseng, MD
Mauricio E. Vargas, MD, PhD

Clinical Fellows

Corneal and External Ocular Diseases and Refractive Surgery

Anjali Tannan, MD
Neil Vyas, MD

Glaucoma

Peng Lei, MD
Grace Richter, MD, MPH

Medical Retina and Ophthalmic Genetics

Michael Fikhman, MD

Orbital and Ophthalmic Plastic Surgery

Erin Lessner, MD
Payam Morgan, MD

Pediatric Ophthalmology and Strabismus

Jieun Anna Kim, MD

Uveitis and Inflammatory Eye Disease

Jonathan P. Heston, MD

Vitreoretinal Diseases and Surgery

Sujit Itty, MD
Michael Klufas, MD
Elizabeth Richter, MD
Ryan Wong, MD

International Fellows

Cornea Research

Somporn Chantra, MD
Thailand
Andres Codriansky Berdichewsky, MD
Chile
JaeWoong Koh, MD
South Korea
Chulaluck Tangmonkongvoragul, MD
Thailand

Comprehensive Ophthalmology/ Cataract

None

Glaucoma

Eun Ah Kim, MD
South Korea
Ji Woong Lee, MD
South Korea
Arezoo Miraftabi, MD
Iran
Sara Nowroozizadeh, MD
Iran
Farideh Sharifipour, MD
Iran

Orbital and Ophthalmic Plastic Surgery

Shani Golan, MD
Israel

Pediatric Ophthalmology

Rui Hao, MD
China
Roland Joseph Tan, MD
Philippines
Soh Youn Suh, MD
South Korea

Pathology (Eye)

None

Uveitis

None

Visual Physiology

None

Vitreoretinal Diseases and Surgery

Tatsuhiko Sato, MD
Japan
Gavin Tan, MBBS
Singapore

Postdoctoral Research Fellows

Negin Ashki Ghouravan, MD, PhD
Abhishek Chadha, PhD
Doug Chung, PhD
Jeremy Cook, PhD
Matthias Elgeti, PhD
Julian Esteve-Rudd, PhD
Sheyla Gonzalez-Garrido, PhD
Lei Gu, PhD
Sonia Guha, PhD
Mei Jiang, PhD
Justyna Kanska, PhD
Vanda Lopes, PhD
Carlos Lopez, PhD
Hua Mei, PhD
Johan Pahlberg, PhD
Yu “Christie” Qin, PhD
Kwang Sup “Andrew” Shin, PhD
Kaushali Thakore-Shah, PhD
Stefanie Volland, PhD
Hongxing Wang, PhD
Yanjie Wang, PhD
Zhongyu Yang, PhD
Jang “Lawrence” Yoo, PhD
Chi Zhang, PhD

Predocutorial Research Fellows

Guo Cheng
Austin Dean
Jun Deng
Kevin Eden
Katherine Fehlhaber
Roni Hazim
Yifeng Ke
Margaux Kreitman
Alan Le
Michael Lerch
Joseph Park
Yingqian Peng
Allison Sargoy
Helen Young
Wei Wang
Tongzhou Xu

Educational Offerings

Ophthalmology and Vision Science Training Programs

Ophthalmology Basic and Clinical Science Course

Course Chairman:

Bartly J. Mondino, MD

This course is a major segment of the educational 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 2014–2015, the following course components were offered:

Retina

Steven D. Schwartz, MD

September 3, 2014–November 5, 2014

Pediatrics

Joseph L. Demer, MD, PhD

November 12, 2014–January 21, 2015

Optics

Kevin M. Miller, MD

January 28, 2015–February 18, 2015

Neuro-Ophthalmology

Anthony C. Arnold, MD

February 25, 2015–April 22, 2015

Uveitis

Gary N. Holland, MD

April 29, 2015–June 10, 2015

Phacoemulsification Course

September 27, 2014

May 9, 2015

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.

20th Annual Vision Science Conference

October 10–12, 2014

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 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.

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.

Retinal Imaging 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.

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.

Continuing Education Programs

Aesthetic Eyelid and Facial Rejuvenation Course

August 1–2, 2014

Coordinators:

Henry I. Baylis, MD
Robert Alan Goldberg, MD
Jonathan A. Hoenig, MD
Catherine J. Hwang, MD
Norman Shorr, MD

The Orbital and Oculoplastic Surgery Division held its annual Aesthetic Eyelid and Facial Rejuvenation course at the Stein Eye Institute. The event attracted ophthalmologists, dermatologists, and cosmetic surgeons from around the world. The two-day event combined surgical demonstrations, a cadaver dissection, and didactic lectures that informed participants of the latest advances in the field of aesthetic and reconstructive surgery for the eyelids and face.

Comprehensive Ophthalmology Review Course

February 19–22, 2015

Course Directors:

Sherwin Isenberg, 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 12, 2015

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.

46th Jules Stein Lecturer

Stuart L. Fine, MD
Visiting Clinical Professor
Department of Ophthalmology
University of Colorado
School of Medicine
Aurora, CO

13th Bradley R. Straatsma Lecturer

David M. Gamm, MD, PhD
RRF Emmett A. Humble
Distinguished Director
McPherson Eye Research Institute
Associate Professor
Department of Ophthalmology
and Visual Science
University of Wisconsin
School of Medicine and Public Health
Madison, WI

13th Thomas H. Pettit Lecturer

Robert K. Maloney, MD
Director
Maloney Vision Institute
Clinical Professor
Department of Ophthalmology
David Geffen School of Medicine
at UCLA
Los Angeles, CA

Research Contracts and Grants July 1, 2014–June 30, 2015

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

\$245,000

Genetic Factors in Keratoconus
National Eye Institute
Sub-award from Cedar Sinai Medical Center
Duration: 12/1/14–11/30/15

\$5,400

Suraj P. Bhat, PhD

Childhood Cataractogenesis: Heterogeneity of Gene Expression
National Eye Institute
Duration: 1/1/15–12/31/18

\$250,000

Dean Bok, PhD

Identification and Cellular Localization of Gene Products that
Affect Photoreceptor Survival in Inherited Retinal Degeneration
Macula Vision Research Foundation
Duration: 4/1/08–3/31/16

\$50,000

Joseph Caprioli, MD

The Efficacy and Safety of Bimatoprost Sr in Patients with
Open-Angle Glaucoma or Ocular Hypertension
Allergan Pharmaceutical Corp.
Duration: 4/22/15–1/31/19

\$323,745

Clinical Research Program in Glaucoma
Simms-Mann Family Foundation
Duration: 7/1/14–6/30/16

\$93,500

Anne L. Coleman, MD, PhD

UCLA Mobile Eye Clinic Child Vision Program
LA County Children and Families First (First 5 LA)
Duration: 7/1/13–6/30/16

\$866,000

Center for Community Outreach
Jules Stein Eye Institute at UCLA 2014–2015
The Nicholas Endowment
Duration: 1/1/15–12/31/15

\$97,143

UCLA Mobile Clinic Project and UCLA Mobile Eye Clinic
Andrea Bocelli Foundation
Duration: 2/6/14–12/31/15

\$25,000

Joseph L. Demer, MD, PhD

Biomechanical Analysis in Strabismus Surgery
National Eye Institute
Duration: 5/1/11–4/30/16

\$370,732

Training Mentors in Developing Countries Pediatric Ophthalmology Fellowship
(Roland Tan, MD, Fellow)
Knights Templar Eye Foundation Inc.
Duration: 7/1/14–8/17/15

\$60,000

Sophie X. Deng, MD, PhD

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

\$245,000

Regeneration of Functional Human Corneal Epithelial Progenitor Cells
 California Institute for Regenerative Medicine (CIRM)
 Duration: 3/1/11–4/30/15

\$455,718

Debora B. Farber, PhD, DPhhc

Regeneration of Functional Retinas: Treatment with Human
 Embryonic Stem Cell-Delivered Microvesicles
 Retina International
 Duration: 8/1/14–1/31/15

\$10,000

Lynn K. Gordon, MD, PhD

Pd-Ligand, A Paradoxical Role in Experimental Uveitis
 Pathogenesis and Therapy
 National Eye Institute
 Duration: 4/1/15–3/31/17

\$150,000

Michael B. Gorin, MD, PhD

Genetics-based Testing of Functional and Structural Endophenotypes
 for Pre- and Early-Age-Related Macular Degeneration (AMD)
 Arnold and Mabel Beckman Foundation
 Duration: 7/1/14–6/30/16

\$100,000

Gary N. Holland, MD

Multicenter Uveitis Steroid Treatment (MUST) Trial
 National Eye Institute
 Sub-award from Johns Hopkins University
 Duration: 6/1/12–4/30/15

\$30,434

Macular Edema Treatment Trials Associated with MUST (META-MUST)
 National Eye Institute
 Sub-award from Johns Hopkins University
 Duration: 9/30/14–7/31/15

\$5,000

Joseph Horwitz, PhD

Analysis of Lens Crystallins and Cataractous Mutants
 at High Hydrostatic Pressure
 National Eye Institute
 Duration: 4/1/14–3/31/19

\$147,000

Alex A. Huang, MD, PhD

Discovery and Characterization of Anterior Sclera Pathology in Glaucoma
 National Eye Institute
 Duration: 9/30/14–9/29/19

\$203,981

Real-time Imaging of Aqueous Humor Outflow
 American Glaucoma Society
 Mentoring for Advancement of Physician-Scientists (MAPS) Award
 Duration: 1/1/15–12/31/15

\$10,000

Wayne L. Hubbell, PhD

Molecular Basis of Membrane Excitation
 National Eye Institute
 Duration: 5/1/15–4/30/20

\$352,182

Core Grant for Vision Research for all Researchers at the Stein Eye Institute
 National Eye Institute
 Duration: 3/1/10–6/30/15

\$453,566

Jean-Pierre Hubschman, MD

Intraocular Robotic Interventional Surgical System for Cataract Surgery Project
National Eye Institute
Duration: 9/30/14–9/29/16

\$30,049

Bartly J. Mondino, MD

RPB Unrestricted Grant
Research to Prevent Blindness, Inc.
Duration: 1/1/12–12/31/15

\$115,000

Kouros Nouri-Mahdavi, MD

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

\$212,166

Influence of the Disc Size on the Anatomical Relationship of the
Clinical Disc Margin and Bruch's Membrane Opening
(Navid Amini, PhD, Postdoctoral Fellow)
Fight for Sight, Inc. (Prevent Blindness America)
Duration: 7/1/14–6/30/15

\$20,000

Intra-Session Variability of Regional Macular Thickness Measurements
American Glaucoma Society
Duration: 3/1/15–3/31/16

\$40,000

Stacy L. Pineles, MD

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

\$200,237

Integrating Perceptual Learning Approaches into Effective Therapies
for Low Vision
National Eye Institute
Sub-award from University of California Riverside
Duration: 8/1/13–7/31/15

\$28,197

RPB Walt and Lily Disney Award for Amblyopia Research
Research to Prevent Blindness, Inc.
Duration: 7/1/14–6/30/19

\$100,000

Alappakam P. Sampath, PhD

Functional Characteristics of Rod Pathways in the Retina
National Eye Institute
Duration: 2/1/14–7/31/16

\$245,000

Experimental and Clinical Investigations of Retinal Stimulation
National Eye Institute
Sub-award from University of Southern California
Duration: 10/1/13–2/28/15

\$91,889

Gabriel H. Travis, MD

The Role of Müller Cells in Visual Pigment Regeneration
National Eye Institute
Duration: 7/1/15–6/30/18

\$319,829

Vision Science Training Grant to Researchers at the Stein Eye Institute
National Eye Institute
Duration: 9/30/11–9/29/16

\$227,365

Instrumentation Grant for Stein Eye Investigators
Bruce Ford and Anne Smith Bundy Foundation
Duration: 8/16/11–8/15/15

\$100,029

David S. Williams, PhD

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

\$245,000

Degradative Processes in RPE-Photoreceptor Renewal
 National Eye Institute
 Sub-award from University of Pennsylvania
 Duration: 2/1/14–1/31/16

\$24,500

IPSC-JSEI Collaboration Project
 UCLA Broad Stem Cell Research Center
 Duration: 4/1/14–8/31/15

\$37,000

Photoreceptor Disk Membrane Morphogenesis
 National Eye Institute
 Sub-award from University of California, Santa Barbara
 Duration: 4/1/15–3/31/16

\$125,000

Jie Zheng, PhD

Structural Investigation of Focal Adhesion Formation and Disassembly
 National Institute of General Medical Sciences
 Duration: 5/1/12–3/31/16

\$190,000

Professional Research Series**Roxana Radu, PhD**

Gene Therapy to Prevent Visual Loss in Macular Degenerations
 by Increasing Expression of Complement Negative-Regulatory Proteins
 in the RPE
 Macula Vision Research Foundation
 Duration: 10/1/13–9/30/16

\$100,000

Alejandra Young, PhD

Stem Cell Derived, OA1-Enriched, Microvesicles:
 Do They Rescue Ocular Albinism?
 The Vision of Children
 Duration: 11/1/13–10/31/16

\$179,962

Sonia Guha, PhD

Role of Doublecortin in Axonal Misrouting in Oal Mice
 Vision of Children
 Duration: 7/1/14–6/30/16

\$93,219

Clinical Trials**Sophie X. Deng, MD, PhD**

An 8-week Phase II, Multicenter, Randomized, Double-Masked,
 Vehicle Controlled Parallel Group Study with a 24 or 32 Week
 Follow-Up Period to Evaluate the Efficacy of a Formulation
 Containing Antioxidant of Recombinant Human Nerve Growth Factor
 Dompe Pharmaceutical
 Duration: 3/17/15–3/16/17

\$64,828

Brian Francis, MD

Phase IIA Double-Masked Randomized Sham-Controlled Trial of
 QPI-1007 Delivered By a Single Intravitreal Injection to Subjects with
 Acute Primary Angle-Closure Glaucoma
 Quark Pharmaceuticals, Inc.
 Duration: 9/25/14–9/24/16

\$64,609

Jean-Pierre Hubschman, MD

Ocriplasmin Research to Better Inform Treatment
(ORBIT-Protocol# TG-MV-018)
Thrombogenics, Inc. (Belgium)
Duration: 7/16/14–7/15/16

\$6,040

A Ph 2 Multicenter Randomized Clinical Trial of Ciliary Neurotrophic Factor (CNTF)
for Macular Telangiectasia Type 2 (Mac Tel)
Lowry Medical Research Institute
Duration: 8/6/14–6/30/18

\$75,848

Peter Quiros, MD

Long-Term Follow-up of the Cohort from a Multicenter, Double-Masked
Randomized Placebo-Controlled Study of Weight-Reduction
and/or Low-Sodium Diet plus Acetazolamide vs. Diet plus Placebo in
Subjects with Idiopathic Intracranial Hypertension with Mild Visual Loss
National Eye Institute
Sub-contract from St. Luke's
Roosevelt Institute for Health Sciences
Duration: 11/7/14–1/31/15

\$1,116

Alfredo A. Sadun, MD, PhD

Emergency Administration of EPI-743 to a Single Patient
with Leber's Hereditary Optic Neuropathy (LHON)
Edison Pharmaceuticals, Inc.
Duration: 10/17/14–10/17/16

\$55,860

David Sarraf, MD

A Phase III, Multicenter, Randomized Double-Masked Sham-Controlled Study
to Assess the Efficacy and Safety of Lampalizumab Administered Intravitreally to
Patients with Geographic Atrophy Secondary to ARMD
Genentech, Inc.
Duration: 11/21/14–9/27/18

\$298,606

Steven D. Schwartz, MD

A Phase III, Multicenter, Randomized Double-Masked, Sham-Controlled
Study to Assess the Efficacy and Safety of Lampalizumab Administered
Intravitreally to Patients with Geographic Atrophy Secondary to ARMD
Genentech, Inc.
Duration: 11/18/14–9/27/18

\$296,281

A Phase 1 Multicenter Open Label Safety and Tolerability
Clinical Trial of Ciliary Neurotrophic Factor (CNTF) in Patients with
Macular Telangiectasis Type 2
Neurotech Pharmaceuticals, Inc.
Duration: 7/19/11–8/18/17

\$40,372

Contracts and Grants of Faculty Administered by Doheny Eye Center UCLA

Vision Science Grants

Alex A. Huang, MD, PhD

Structure and Function of Aqueous Humor Outflow
American Glaucoma Society and Allergan
Young Clinician Scientist Award
Duration: 3/17/15–3/16/16

\$20,000

SriniVas R. Sadda, MD

Multimodal Image Analysis in Age-Related Macular Degeneration
Macula Vision Research Foundation
Duration: 1/1/15–12/31/18

\$100,000/year

Advanced Image Analysis Tools for Diabetic Retinopathy
Eyenuk, Inc.
Sub-award on NIBI EB013585
Duration: 07/15/14–06/30/17

\$48,581

Automated Image-Based Biomaker Computation Tools for Diabetic Retinopathy
Eyenuk, Inc.
(Sub-award on NCATS Grant TR000377)
Duration: 9/26/14–6/30/17

\$101,147

Deming Sun, MD

Regulation by Gamma/Delta T Cells of Autoimmune Uveitis
National Eye Institute
Duration: 5/1/12–4/30/16

\$147,000

James C.H. Tan, MD, PhD, FRCOphth

Karl Kirchgessner Foundation Vision Research Grant
The Karl Kirchgessner Foundation
Duration: 10/17/09–Open

\$50,000

Clinical Trials

SriniVas R. Sadda, MD

Genetic Epidemiology of Age-Related Macular Degeneration
in the Older Order Amish
University of Pennsylvania
(Sub-award on NEI Grant EY023164)
Duration: 2/1/13–1/31/18

\$59,568

Grants Still Active: Totals Reported in Previous Years

Vision Science Grants

Anthony J. Aldave, MD

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

Joseph Caprioli, MD

Multicenter Study for Normal Database of Optic Nerve Head,
Retinal Nerve Fiber Layer, and Macula Parameters, with the Heidelberg Spectralis
Heidelberg Engineering
Duration: 9/25/13–9/24/15

Lynn K. Gordon, MD, PhD

Novel Therapies to Prevent Blindness Caused by Proliferative Vitreoretinopathy
National Eye Institute
Duration: 4/1/10–3/31/15

Stacy L. Pineles, MD

Pediatric Eye Disease Investigator Group (PEDIG)
JAEB Center for Health Research
Duration: 2/28/11–12/31/18

James C.H. Tan, MD, PhD, FRCOphth

Role of Trabecular Meshwork Contractility in Modulating Outflow Resistance
National Eye Institute
Duration: 6/16/14–8/31/15

David S. Williams, PhD

RPE Cell Biology of Myosin VIIa
National Eye Institute
Duration: 7/1/09–6/30/15

Clinical Trials

Robert Alan Goldberg, MD

A Multicenter Double-Masked Placebo-Controlled Efficacy and Safety Study
of RV001, an Insulin-like Growth Factor-1 Receptor Antagonist Antibody
(Fully Human), Administered Every 3 Weeks by Intravenous Infusion
in Patients Suffering from Active Thyroid Eye Disease
Premier Research International, LLC
Duration: 4/16/13–4/16/15

Lynn K. Gordon, MD, PhD

A Phase I Open Label, Dose Escalation Trial of QPI-1007 Delivered by a
Single Intravitreal Injection to Patients with Optic Nerve Atrophy (Stratum I)
Quark Pharmaceuticals, Inc.
Duration: 3/17/10–3/16/15

Gary N. Holland, MD

A Phase I/II Open-Label, Multicenter, Prospective Study to Determine the Safety and Tolerability of Subretinal Transplantation of Human Embryonic Stem Cell-Derived Retinal Pigmented Epithelium Cells in Patients with Stargardt Macular Dystrophy (SMD)
Advanced Cell Technology
Duration: 1/7/14–12/12/16

A Phase I/II Open-Label, Multicenter, Prospective Study to Determine the Safety and Tolerability of Subretinal Transplantation of Human Embryonic Stem Cell-Derived Retinal Pigmented Epithelial Cells in Patients with Advanced Dry Age-Related Macular Degeneration (AMD)
Advanced Cell Technology
Duration: 5/31/13–12/12/16

A Phase I/II Open-Label, Prospective Study to Determine the Safety and Tolerability of Subretinal Transplantation of Human Embryonic Stem Cell-Derived Retinal Pigmented Epithelial Cells in Patients with Geographic Atrophy Secondary Myopic Macular Degeneration
Advanced Cell Technology
Duration: 3/31/14–3/31/16

Jean-Pierre Hubschman, MD

A Phase 3, Randomized, Double-Masked, Controlled Trial to Establish the Safety and Efficacy of Intravitreal Administration of Fovista (Anti-PDGF-B Pegylated Aptamer)...ARMD
Ophthotech Corporation
Duration: 12/4/13–12/3/15

Olivia L. Lee, MD

A Randomized, Double-Masked, Placebo-Controlled Study of the Safety and Efficacy of Gevokizumab in the Treatment of Subjects with Noninfectious Intermediate Posterior or Pan-Uveitis Currently Controlled with Systemic Treatment
Xoma (US) LLC
Duration: 1/8/13–12/10/15

A Randomized Double-Masked, Placebo-Controlled Study of the Safety and Efficacy of Gevokizumab in the Treatment of Active Noninfectious Intermediate, Posterior, or Pan-Uveitis
Xoma (US) LLC
Duration: 1/8/13–12/10/15

Kevin M. Miller, MD

Safety and Effectiveness of the Customflex Artificial Iris Prosthesis for the Treatment of Iris Defects
Clinical Research Consultants, Inc.
Duration: 6/12/14–6/14/16

A Prospective Randomized Controlled Multi-Center Clinical Study to Evaluate the Safety and Effectiveness of the Light Adjustable Lens in Subjects with Pre-Existing Corneal Astigmatism
Calhoun Vision, Inc.
Duration: 7/26/12–10/21/15

Post Approval Study of the Acrysof IQ Toric High Cylinder Power Intraocular Lens
Alcon Laboratories, Inc.
Duration: 4/17/12–2/9/16

David Sarraf, MD

Intravitreal Aflibercept Injection for the Treatment of Submacular Vascularized Pigment Epithelial Detachment (EVEN Study)
Southern California Desert Retina Consultants
Duration: 2/7/13–7/21/16

Steven D. Schwartz, MD

A Phase I/II, Open-Label, Multi-Center, Prospective Study to Determine the Safety and Tolerability of Subretinal Transplantation of Human Embryonic Stem Cell Derived Retinal Pigment Epithelial Cells in Patients with Stargardt Macular Dystrophy
Advanced Cell Technology
Duration: 3/23/11–2/24/16

A Phase I/II, Open-Label, Multi-Center, Prospective Study to Determine the Safety and Tolerability of Subretinal Transplantation of Human Embryonic Stem Cell Derived Retinal Pigment Epithelial Cells in Patients with Advanced Dry AMD
Advanced Cell Technology
Duration: 4/5/11–2/24/16

A Phase I/II, Open-Label, Prospective Study to Determine the Safety and Tolerability of Subretinal Transplantation of Subretinal Pigmented Epithelial Cells in Patients with Geographic Atrophy Secondary to Myopic Macular Degeneration
Advanced Cell Technology
Duration: 4/10/14–9/1/16

A National History of Macular (Parafoveal) Telangiectasia
Lowy Medical Research Institute
Duration: 9/1/05–12/31/15

Faculty, Doheny Eye Center UCLA**Vision Science Grants****Alex A. Huang, MD, PhD**

Anterior Sclera Pathology in Glaucoma
American Glaucoma Society
Mentoring for Advancement of Physician-Scientists (MAPS) Award
Duration: 3/1/14–3/1/15

Deming Sun, MD

Core Grant for Vision Research
National Eye Institute
Duration: 9/30/97–4/30/15

Role of IL-17+ Autoreactive T Cells in Experimental Autoimmune Uveitis
National Eye Institute
09/01/09–08/31/14

Role of Trabecular Meshwork Contractility in Modulating Outflow Resistance
National Eye Institute
Duration: 9/30/10–8/31/14

Clinical Research Studies

Cornea and External Eye

A Clinical Trial to Evaluate the Efficacy of an Investigational Drug for the Treatment of State 2 and 3 Neurotrophic Keratitis

The purpose of this study is to find out the effectiveness of a formulation containing anti-oxidant of recombinant human nerve growth factor (rhNGF) eye drops solution in healing the corneal epithelium or corneal ulcers in patients with neurotrophic keratitis. Investigators: Anthony J. Aldave, MD, and Sophie X. Deng, MD, PhD

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: Anthony J. Aldave, MD, and Sophie X. Deng, MD, PhD

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

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 corneal) transplantation for visual rehabilitation in patients with corneal opacification. Investigators: Anthony J. Aldave, MD, and Gary N. Holland, MD

Eye Infections and Inflammations

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

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: Gary N. Holland, MD, and Steven Nusinowitz, PhD

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: Joseph Caprioli, MD, JoAnn A. Giacomi, MD, Gary N. Holland, MD, Simon K. Law, MD, PharmD, 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

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

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

Glaucoma

A Clinical Trial to Evaluate an Investigational Injection for Patients with Acute Primary Angle-Closure Glaucoma

This study will evaluate an investigational medication in patients with an attack of primary angle-closure glaucoma. Acute primary angle-closure glaucoma represents an ocular emergency in which the outflow of aqueous humor through the anterior chamber angle is blocked. As a result, intraocular pressure (IOP) rises to levels high above normal, causing pain, edema, iris ischemia, and ocular tissue damage. Ocular damage can involve damage to the lens, increased risk of ischemic damage to the retina and the optic nerve, and increased risk of reduced blood flow to the retina. Investigators: Brian Francis, MD, Gad Heilweil, MD, Alex Huang, MD, PhD, and SriniVas Sadda, MD

A Clinical Trial to Evaluate the Efficacy and Safety of an Investigational Eye Drop in Patients with Open-Angle Glaucoma or Ocular Hypertension

The study objective is to evaluate the intraocular pressure-lowering efficacy and safety of two dose strengths of an investigational eye drop in patients with open-angle glaucoma or ocular hypertension after initial and repeated administrations. Investigators: Joseph Caprioli, MD, Anne L. Coleman, MD, PhD, JoAnn A. Giaconi, MD, Simon K. Law, MD, PharmD, and Kouros Nouri-Mahdavi, MD

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: Joseph Caprioli, MD, Anne L. Coleman, MD, PhD, JoAnn A. Giaconi, MD, and Simon K. Law, MD, PharmD

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

Eye Health Imaging Study

The purpose of this study is to expand the normative database for the Heidelberg Spectralis OCT by collecting ophthalmic data from healthy eyes of people of Hispanic/Latino, Asian, and African American descent. Investigators: Joseph Caprioli, MD, and Kouros Nouri-Mahdavi, MD

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: Joseph Caprioli, MD, Anne L. Coleman, MD, PhD, JoAnn A. Giaconi, MD, 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: Joseph Caprioli, MD, and Kouros Nouri-Mahdavi, MD

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 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: Joseph Caprioli, MD, Anne L. Coleman, MD, PhD, Simon K. Law, MD, PharmD, and Kouros Nouri-Mahdavi, MD

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

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: Joseph Caprioli, MD, Anne L. Coleman, MD, PhD, JoAnn A. Giaconi, MD, Simon K. Law, MD, PharmD, and Kouros Nouri-Mahdavi, MD

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: Joseph Caprioli, MD, Anne L. Coleman, MD, PhD, JoAnn A. Giaconi, MD, and Simon K. Law, MD, PharmD

Lens and Cataract

Post-Approval Study of ACRYSOFF[®] 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: D. Rex Hamilton, MD, and 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: Anthony J. Aldave, MD, D. Rex Hamilton, MD, and Kevin M. Miller, MD

Safety and Effectiveness of the CustomFlex Artificial Iris Prosthesis for the Treatment of Iris Defects

This study is being conducted to evaluate the safety and effectiveness of an artificial iris prosthesis for the treatment of full or partial aniridia resulting from congenital aniridia, acquired iris defects (including traumatic iris defects and mydriasis), or conditions associated with full or partial aniridia, such as ocular or oculocutaneous albinism and iridocorneal endothelial (ICE) syndrome, and iris coloboma. Investigators: Anthony J. Aldave, MD, and Kevin M. Miller, 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

A Phase 2 Clinical Trial to Assess the Efficacy and Safety of an Investigational Drug for Patients with Geographic Atrophy Secondary to Age-Related Macular Degeneration

Investigators are currently evaluating intravitreal injection for patients with geographic atrophy secondary to age-related macular degeneration. Investigators: Michael Gorin, MD, PhD, Jean-Pierre Hubschman, MD, Colin McCannel, MD, David Sarraf, MD, and Steven D. Schwartz, 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: Jean-Pierre Hubschman, MD, Allan E. Kreiger, MD, and Steven D. Schwartz, MD

A Study to Assess the Efficacy and Safety of Lampalizumab Administered Intravitreally to Patients with Geographic Atrophy Secondary to Age-Related Macular Degeneration

This study is a Phase III, double-masked, multicenter, randomized, sham injection-controlled study evaluating the efficacy and safety of lampalizumab administered every four weeks or every six weeks by intravitreal injections for approximately a two-year (96-week) treatment period in patients with geographic atrophy of the retina resulting from age-related macular degeneration. Investigators: David Sarraf, MD, and Steven D. Schwartz, MD

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

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: Debora B. Farber, PhD, DPhhc, Michael B. Gorin, MD, PhD, 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: Allan E. Kreiger, MD, Tara A. McCannel, MD, PhD, and Steven D. Schwartz, 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

Lucentis and Fovista Combination Therapy for Wet AMD Compared to Lucentis Only

The purpose of this study is to evaluate the safety and efficacy of Fovista™ intravitreal administration when administered in combination with Lucentis® compared to Lucentis monotherapy in subjects with subfoveal choroidal neovascularization secondary to age-related macular degeneration. Investigator: Jean-Pierre Hubschman, MD

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

This study evaluates 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

Modified Retinal Fundus Camera

This study evaluates a modified retinal fundus camera to see if significant differences can be found in patients with choroidal melanoma, age-related macular degeneration, or diabetic retinopathy. Investigator: Irena Tsui, 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: Bradley R. Straatsma, MD, JD, and Irena Tsui, 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: Michael B. Gorin, MD, PhD, Jean-Pierre Hubschman, MD, Allan E. Kreiger, MD, Tara A. McCannel, MD, PhD, David Sarraf, MD, and Steven D. Schwartz, MD

Natural History of the Progression of Choroideremia

This is a one-year natural history, observational study to characterize the visual function and retinal structural changes associated with X-linked choroideremia with the intention of determining the best means of measuring disease progression and the rate of natural progression for this condition. Investigators: Michael B. Gorin, MD, PhD, and Steven Nusinowitz, PhD

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: Jean-Pierre Hubschman, MD, Allan E. Kreiger, MD, Tara A. McCannel, MD, PhD, and Steven D. Schwartz, MD

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

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: Jean-Pierre Hubschman, MD, Allan E. Kreiger, MD, and Steven D. Schwartz, MD

Research with Retinal Cells Derived from Stem Cells for Myopic Macular Degeneration

The aim of this study is to determine the safety and tolerability of subretinal transplantation of human embryonic stem cell derived retinal pigmented epithelial (MA09-hRPE) cells in patients with geographic atrophy secondary to myopic macular degeneration. Investigators: Jean-Pierre Hubschman, MD, Allan E. Kreiger, MD, and Steven D. Schwartz, 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: Jean-Pierre Hubschman, MD, Allan E. Kreiger, MD, and Steven D. Schwartz, 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: Jean-Pierre Hubschman, MD, and Steven D. Schwartz, MD

Study of Macular Disease Using Spectral Domain Optical Coherence Tomography Angiography (SD-OCTA)

The RTVue XR 100 Avanti with SSADA will be used to screen patients with macular disease (eg, vitreomacular disorders, diabetic retinopathy, retinal vascular disease, retinal toxicity, age-related macular degeneration, or any other retinal or macular disorder) as detected with clinical examination or ancillary testing, such as with standard OCT or with color fundus photography or fluorescein angiography (FA) or fundus autofluorescence. Investigators: Michael B. Gorin, MD, PhD, Colin A. McCannel, MD, David Sarraf, MD, and Steven D. Schwartz, 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

Neuro-Ophthalmology

Analysis of Samples from Patients with Rhegmatogenous Retinal Detachment (RRD) to Identify Potential Biochemical Markers of Retinal Stress

Vision loss from a retinal detachment is due in part to ischemia that occurs when the retina moves away from the choroidal vessels that supply oxygen and nutrition to the outer two-thirds of the retina. Studying the biochemical mechanisms of retinal stress and death can be useful in understanding the cellular mechanisms and timeline of vision loss, leading to new ways to improve vision. The aim of the study is to identify biomarkers for rhegmatogenous retinal detachment in aqueous (the fluid in the front of the eye), vitreous (the gel filling the center of the eye), and blood. Investigators: Brian Francis, MD, and Alfredo Sadun, MD, PhD

A Protocol to Follow-up with Patients on Emergency Administration of EPI-743 with Leber Hereditary Optic Neuropathy [LHON]

EPI-743 is a new experimental drug that may improve mitochondrial function. EPI-743 is a form of vitamin E that has been changed to a new compound in the laboratory. The experimental drug EPI-743 was selected because the mitochondrial disease manifestations appeared to improve when the drug was given to cells from a patient with LHON, which were grown in the laboratory. Investigator: Alfredo Sadun, MD, PhD

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: Lynn K. Gordon, MD, PhD, Tara A. McCannel, 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

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

Characteristics of the Brow–Eyelid Margin Relationship

The purpose of this study is to determine if changing the effect of gravity has an effect on eyelid position. Investigator: Robert Alan Goldberg, MD

Hyaluronic Acid Gels for Upper Lid Retraction in Active Stage Thyroid Eye Disease

The purpose of this study is to determine if hyaluronic acid gel (HAG) can be used reliably and reproducibly to correct upper eyelid retraction, improve dry eye related symptoms, aesthetic appearance, and quality of life in active stage thyroid eye disease (TED). The study also aims to determine the long-term outcome of TED and how long the effects of HAG can last. Investigator: Catherine J. Hwang, MD

Pro-Inflammatory Cytokines, Dry Eye, and Thyroid Eye Disease

The purpose of this study is to determine whether there are specific inflammatory proteins in tears of patients with active stage thyroid eye disease (TED). If these inflammatory proteins exist, the study aims to determine whether they can be used to predict dry eye symptomatology and if they can be used to predict TED activity. Investigators: Robert Alan Goldberg, MD, and Daniel Rootman, 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

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

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

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 etiological and pathogenetic mechanisms involved. Investigator: Robert Alan Goldberg, MD

Pediatrics and Strabismus

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

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

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

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

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 for many 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

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

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

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

Sensory Processing and Learning

This study evaluates amblyopic patients, who are traditionally thought to be beyond the critical period for treatment. Those subjects will be enrolled and randomized to one of the two amblyopia therapies using a perceptual learning technique. Investigator: Stacey L. Pineles, 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: Joseph L. Demer, MD, PhD, Sherwin J. Isenberg, MD, Stacey L. Pineles, MD, and Federico G. Velez, MD

Publications of the Full-Time Faculty

Publications are ordered chronologically July 1, 2014–June 30, 2015

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