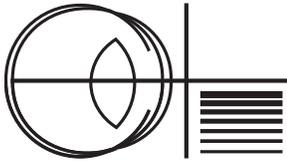


# Jules Stein Eye Institute

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2003 – 2004

DAVID GEFLEN SCHOOL OF MEDICINE AT UCLA  
UNIVERSITY OF CALIFORNIA, LOS ANGELES



*The emblem of the Jules Stein Eye Institute is adapted from the schematic eye used by Sir Isaac Newton in his classic treatise on human vision—"Opticks"—published in 1704. The horizontal lines extending from the surface of the eye represent the Newton concept of the major colors that are in the spectrum of light.*

*Jules Stein Eye Institute  
2003–2004*

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*Cover: This artwork by Andrew Lakey, which is hung in the Doris Stein Eye Research Center, is designed to be touched by children who are vision-impaired or blind.*

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*This report covers the period July 1, 2003, through June 30, 2004.*

*Requests for additional copies of the  
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2003–2004 may be sent to*

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Institute, see our website:  
<<http://www.jsei.org>*

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Archives of the Jules Stein Eye Institute

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 JULES STEIN EYE INSTITUTE WAS ESTABLISHED AS A RESULT OF THEIR PHILANTHROPY.

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## 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 PhD from the University of Chicago at age 18 followed by a MD degree from Rush Medical College. After completing post-graduate studies at the University of Vienna and Chicago's Cook County Hospital, he began medical practice and was certified by the American Board of Ophthalmology.

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

Throughout his phenomenally successful career, Jules Stein maintained a strong interest and emotional investment in medicine, particularly his own field of ophthalmology. In the late 1950s, urged by his wife, Doris, he chose to

direct his considerable talents to blindness prevention. The result was a concert of ideas and achievements that encompassed philanthropy, government and academic medicine.



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

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

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## 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.

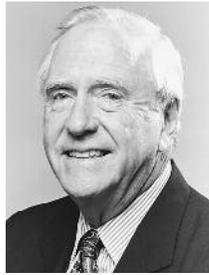
## Board of Trustees

The Jules 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



**Robert H. Ahmanson**  
President, The Ahmanson Foundation  
1992–present



**Hon. W. Matthew Byrne, Jr.**  
Judge of the United States District Court  
1977–present

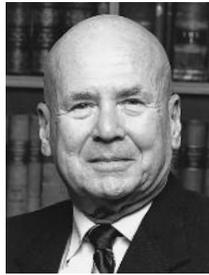


Adam Braus Photography

**Bartly J. Mondino, MD**  
Director, Jules Stein Eye Institute  
1994–present



**Ronald L. Olson, Esq.**  
Partner, Munger, Tolles, and Olson  
1995–present



**Gerald H. Oppenheimer**  
President, Gerald Oppenheimer  
Family Foundation  
President, Systems Design Associates  
1992–present



**Nelson C. Rising, Esq.**  
President and Chief Executive Officer,  
Catellus Development Corporation



**George A. Smith, Esq.**  
Consultant  
1992–present



**Katrina vanden Heuvel**  
Editor, *The Nation Magazine*  
1984–present



**Casey Wasserman**  
President and Chief Operating  
Officer, The Wasserman Foundation  
1998–present

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## Executive Committee of the Jules Stein Eye Institute

Director, Jules Stein Eye Institute  
Chairman, UCLA Department of Ophthalmology  
**Bartly J. Mondino, MD**

Associate Directors, Jules Stein Eye Institute  
**Debra B. Farber, PhD, DPhhc**  
**Wayne L. Hubbell, PhD**

Vice-Chairmen, UCLA Department of Ophthalmology  
**Sherwin J. Isenberg, MD**  
**Arthur L. Rosenbaum, MD**

Chief Operating Officer  
**Jonathan D. Smith**



Jules Stein Eye Institute Executive Committee: sitting from left are Drs Bartly Mondino, Debra Farber, and Wayne Hubbell; standing from left are Drs Arthur Rosenbaum and Sherwin Isenberg, and Jonathan Smith.

## JSEI Affiliates

The JSEI Affiliates was launched in 1990 as a broad-based volunteer network “to support the programs of the Jules Stein Eye Institute and provide outreach to the Greater Los Angeles community through vision education and patient services.” Children are the priority for much of the Affiliates’ programming. The preciousness of sight is especially true for children whose ability to learn and grow can be seriously affected by eye diseases and injuries.

The Affiliates sponsor two unique children’s programs in the schools. One, *VISION In-School*, is geared to fourth-through sixth-grade students. Volunteers travel to classrooms with a curriculum that was developed by the Association for Research in Vision and Ophthalmology and the National Eye Institute, and has been refined by the Affiliates to make it both informative and fun. Child-oriented handouts and exercises emphasize eye safety and introduce the children to eye anatomy, common eye disorders, and the importance of eye care. Another program, *Preschool Vision Screening*, serves three-to-five-year-olds. It has been designed by the Affiliates to alert parents to potential vision problems in this very young age group. Volunteers conduct basic vision screening tests in preschools around the city. If a problem is found, parents are notified and a referral is made for a full ophthalmic exam.

At the Jules Stein Eye Institute, the Affiliates have created programs to augment patient care activities. To help children cope with eye surgery, the Affiliates created a program called “*Make Surgery Bearable*” that gives every pediatric surgery patient at the Institute a unique Dr Teddy MD stuffed bear to hug. Serious eye problems are uncommon in children, but when they occur, an oper-

ation can be a frightening experience. Funds for the teddy bears are raised in a variety of ways, including sponsorships that honor a loved one or celebrate a special occasion.

Another patient program, called *Shared Vision*, collects used eyeglasses for refurbishment and distribution to health clinics and homeless shelters throughout southern California. Eyeglass donation receptacles are located in patient suites throughout the Institute. The Affiliates also support the *MagniVision* program, which is offered in coordination with the JSEI Vision Rehabilitation Center to adults with low vision. The program provides a lending library of in-home equipment for patients who wish to try out visual aids before purchasing them. The Affiliates

support this library by providing new, technologically advanced devices on a regular basis. They also provide volunteer support to the center as needed.

In addition to these endeavors, the Affiliates sponsor a speaker’s bureau that offers free health care lectures to senior centers, schools and community organizations; and a consumer health service that provides brochures and other vision-related materials in a variety of venues, such as health fairs.

The extraordinary volunteerism of the JSEI Affiliates in providing these timely and valuable programs not only serves patients and the community, but helps to provide the extra measure of support that allows the Jules Stein Eye Institute to maintain excellence in patient care and education.



JSEI Affiliates board members and volunteers at the group’s first Mother’s Day Ice Cream Social, which raised money to buy teddy bears for the *Make Surgery Bearable* program.

## Facilities

The facilities of the Jules Stein Eye Institute comprise two free-standing structures of architectural note. The five-story Jules Stein Eye Institute building, occupying 110,000 square feet, is of neo-classical design. It is the original facility, constructed in 1966. An expansion and companion building, the Doris Stein Eye Research Center, followed in 1989. It is a four-story, red granite structure, occupying 67,000 square feet, and connecting with the Jules Stein Eye Institute by way of a graceful portico. With support from Research to Prevent Blindness, a conference center complex was erected between the buildings as part of the Doris Stein Eye Research Center.

The two facilities complement each other in design and function and together accommodate the Institute's outpatient treatment centers; clinical laboratories; a 30-bed ophthalmic outpatient unit; four operating rooms devoted exclusively to ophthalmic surgery; an optical dispensing facility; an ophthalmic photography unit; a pathology laboratory; basic science laboratories; a clinical research center; a library that provides dedicated study space for postdoctoral vision science fellows; and a variety of meeting facilities for lectures and conferences, including a 156-seat auditorium.

The buildings reflect the considerable architectural knowledge and exquisite taste of Dr and Mrs Jules Stein, which is evident in the Institute's design, building materials, artwork and furnishings. Dr and Mrs Stein were committed to the belief that the special attention given to internal design created an uplifting environment for patients, visitors and staff alike. Of particular architectural note are the Reading Room,



The B-level lobby of the Jules Stein Eye Institute building.

Seminar Room and Adam Room, all elegant meeting places containing antiques, original artwork and memorabilia from the Stein's estate.

Patient care suites in both facilities have been carefully planned to offer comfortable, well-appointed reception and treatment rooms, along with the most up-to-date ophthalmic equipment. These areas are enlivened by original artwork, including wall murals in the pediatric waiting rooms.

The main entrances to the buildings are graced with bronze sculptures, including a bust of Dr Jules Stein and a life-sized statue of a blind boy, entitled "The Kingdom is Within." Marble floors and high ceilings enhance the public areas. The lobby of the Doris Stein Eye Research Center is an atrium opening to the roof.

The Institute's vision research activities have benefited enormously from the foresight of the original facility planners. A generous 20,000 square feet were devoted to basic science laboratories during the construction of the Jules Stein Eye Institute, providing highly functional space for biochemistry, biophysics, molecular biology, electrophysiology,

microsurgery, cell biology, and visual physiology research. A central infrastructure supporting all of the basic science laboratories was also incorporated into this area.

Approved in 2001, and in the planning stages, is the Edie and Lew Wasserman Eye Research Center, a third building that will complete the Jules Stein Eye Institute campus. The 100,000-square-foot facility will be modeled after and situated opposite the Doris Stein Eye Research Center on Stein Plaza. Half of the space will be devoted to Institute activities and the other half to synergistic programs of the Institute and the David Geffen School of Medicine.

Dr Jules Stein set the standard for the Institute's design and function at the outset when he pronounced, "Our primary objective in building this Institute has been to serve the needs of medical science and medical practice...At the same time, we wished to demonstrate that all these purposes can be served within an atmosphere of grace and beauty." This standard has been maintained throughout the Institute's 38-year history and continues to be an integral component of all facilities planning.

Jules Stein Eye Institute



Artist's rendering of the completed Jules Stein Eye Institute campus; from left, the Edie and Lew Wasserman Eye Research Center (planned), the Jules Stein Eye Institute building (constructed in 1966), and the Doris Stein Eye Research Center (constructed in 1989)

# Highlights

# JULES STEIN EYE INSTITUTE

DEPARTMENT OF OPHTHALMOLOGY / UCLA SCHOOL OF MEDICINE



*Dear Friends,*

I am pleased to share these highlights of the 2003–2004 academic year, which serve to strengthen our commitment to preserve sight and prevent blindness. This year distinguished professorships acknowledged the contributions of Joseph Horwitz, PhD, who was appointed to the Oppenheimer Brothers Chair; and Ben J. Glasgow, MD, who was appointed to the Edith and Lew Wasserman Chair. We are pleased to introduce Nelson C. Rising, a new member to the Jules Stein Eye Institute Board of Trustees; and we are proud to present two new faculty members, D. Rex Hamilton, MD and Hui Sun, PhD, who will contribute greatly to our clinical care and basic science activities.



During the year, several of our faculty and residents were awarded special honors. The prestigious Edward Jackson Memorial Lecture was presented by Gary N. Holland, MD, who chose toxoplasmosis as the subject of his lecture. Important research grants led by senior faculty were renewed by the National Institutes of Health, and new grants were awarded to young investigators.

Philanthropic gifts to the Institute were highlighted by a significant pledge from the Annenberg Foundation in support of several direct service programs; and by a generous endowment from the trust of Frederic G. Rappaport that will create a professorship in pediatric ophthalmology in the name of Professor Emeritus Leonard Apt, MD.

We are appreciative of these opportunities afforded to faculty and students and share the belief that we will contribute to a future full of promise.

*Sincerely,*



*Bartly J. Mondino, MD*

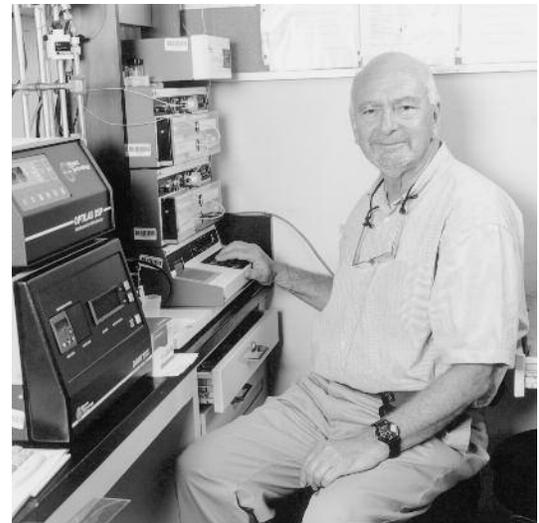
*Bradley R. Straatsma Professor of Ophthalmology  
Director, Jules Stein Eye Institute  
Chairman, Department of Ophthalmology,  
David Geffen School of Medicine at UCLA*

# Honors

Each year, as part of their ongoing academic pursuits, faculty members achieve notable recognition derived from their accomplishments and contributions. They give invited lectures around the world; they actively participate in influential professional and community organizations; and they serve as editors and writers for a wide range of scientific journals. In some cases special honors are bestowed. This year distinguished professorships acknowledged the contributions of two faculty members with long-standing ties to UCLA. New national and international awards recognized both individual achievements as well as the Institute as a whole. And we are pleased to introduce a new member of the Jules Stein Eye Institute Board of Trustees.

## THE OPPENHEIMER BROTHERS CHAIR

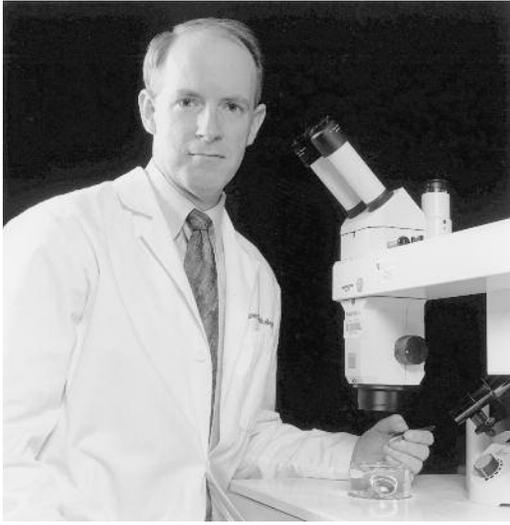
For **Joseph Horwitz, PhD**, Professor of Ophthalmology, appointment to the Oppenheimer Brothers Chair is a well-earned recognition of a career dedicated to vision science. His long association with UCLA dates back to his undergraduate and post-graduate education. His research career began in 1966, and he has been a full-time faculty member at the Jules Stein Eye Institute since 1971. Dr Horwitz has directed his efforts to the study of the alpha-crystallin protein, an important structural component of the eye lens and a critical factor in the development of age-related cataracts. This research has led to two major breakthroughs in the understanding of the role of alpha-crystallin in this disease process. Numerous awards and honors bestowed on Dr Horwitz include the Research to Prevent Blindness Senior Scientific Investigator Award, which he received twice, in 1992 and 1998; the Alcon Laboratories Recognition Award for Outstanding Contributions in the Field of Vision Research, given in 1984 and 1995; the Proctor Medal in Ophthalmology, one of the highest honors in the field, awarded in 1992; and the National Eye Institute (NEI) MERIT Award, which has supported his research since 1994.



Dr Joseph Horwitz

*A Special Recognition Award went to **Debora B. Farber, PhD, DPhhc**, Karl Kirchgessner Professor of Ophthalmology and Co-Chief of the Vision Science Division, from the Association for Research in Vision and Ophthalmology (ARVO) for her service to that internationally renowned organization.*

### THE EDITH AND LEW WASSERMAN CHAIR



Dr Ben Glasgow

The appointment of **Ben J. Glasgow, MD**, Professor of Pathology and Laboratory Medicine and of Ophthalmology, to the Edith and Lew Wasserman Chair acknowledges the scholarship of a uniquely qualified physician and scientist. Dr Glasgow has helped create the discipline of ophthalmic pathology, which plays a central role in both the study and practice of ophthalmology. His background includes medical school at Johns Hopkins University and an internship in internal medicine at the University of California, San Diego. He began his anatomic pathology training at the University of Toronto and completed residencies in both anatomic and clinical pathology at UCLA. This extensive preparation was followed by an ophthalmology residency and an eye pathology fellowship at the Institute. He was appointed to the UCLA faculty in 1991. Since 1996, the National Eye Institute has provided major funding for Dr Glasgow's research on tear lipophilin protein and the mechanisms of tear film formation. His laboratory is noted for the development of methods applicable to the study of the structure of proteins in solution.

### JACKSON MEMORIAL LECTURE

**Gary N. Holland, MD**, David May II Professor of Ophthalmology and Chief of the Cornea–External Ocular Disease & Uveitis Division, was chosen to present the prestigious Edward Jackson Memorial Lecture at the opening ceremonies of the 2003 annual meeting of the American Academy of Ophthalmology (AAO), in Anaheim, California. The Jackson Memorial Lecture is considered one of the highest honors in ophthalmology. The lecturer is nominated each year by the Editorial Board of the *American Journal of Ophthalmology*. Dr Holland is an authority on ocular infections and is currently collaborating on clinical studies of toxoplasmosis, an infectious disease caused by a common parasite. He chose toxoplasmosis as the subject of his lecture. Much of the new information about this disease has come from recent studies in other countries where it has a particularly high prevalence. The annual lecture honors Edward Jackson, MD, (1856–1942), who was a dominant force in shaping modern ophthalmology.

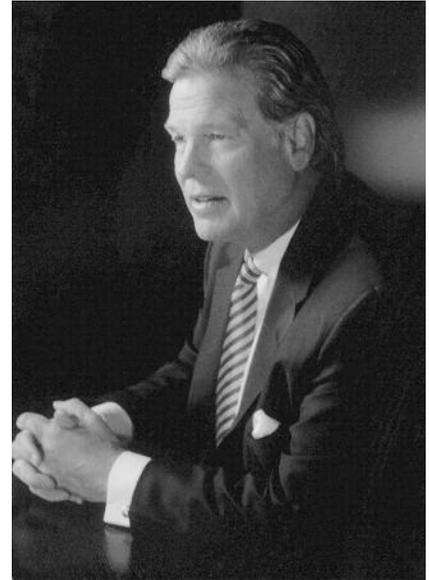
### GOLD JOSÉ RIZAL MEDAL

Professor Emeritus of Ophthalmology and Founding Director of the Jules Stein Eye Institute **Bradley R. Straatsma, MD, JD**, received the Gold José Rizal Medal, which is the highest award of the Asia-Pacific Academy of Ophthalmology, given for excellence in contributions to ophthalmology in Asia. Conferred at the 19<sup>th</sup> Congress of the Asia-Pacific Academy of Ophthalmology in Bangkok, Thailand, the award honors the memory of José Rizal (1861–1896), ophthalmologist, author and a national hero of Philippine independence.

### NELSON C. RISING JOINS THE BOARD OF TRUSTEES

The Jules Stein Eye Institute is honored to introduce its newest trustee, **Nelson C. Rising**. A veteran of over 30 years in the real estate industry, Mr Rising is Chairman, President, and Chief Executive Officer of Catellus Development Corporation. Since assuming this position in 1994, he has transformed the San Francisco-based company into a major developer of land in the western United States, primarily in California. Prior to joining Catellus, Mr Rising was a senior partner at Maguire Thomas Partners, where he was instrumental in the restoration of the historic Los Angeles Central Library. He was also in charge of the Playa Vista development project, a planned community near Playa del Rey, California.

Mr Rising graduated from UCLA with an economics degree in 1963 and a law degree in 1967. He served as Managing Editor of the *UCLA Law Review*. He was an attorney at O'Melveny & Myers prior to entering the real estate industry in 1972. Mr Rising has an extensive record of civic and community service. He is the current Chairman of the Bay Area Council, and recently served as Chairman of the Real Estate Roundtable, a public policy advocacy organization for the real estate industry. He is also former Chairman of the Board of the Federal Reserve Bank of San Francisco.



Trustee Nelson Rising

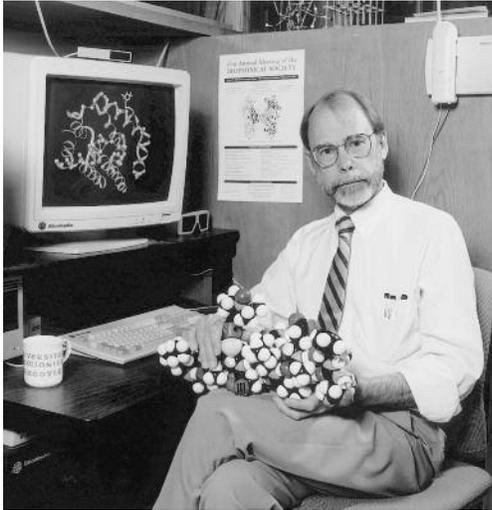


The Doris Stein Eye Research Center

### THE JULES STEIN EYE INSTITUTE RANKED BEST IN THE WEST

For the fourteenth consecutive year, *U.S. News and World Report* has ranked the UCLA Medical Center and the Jules Stein Eye Institute among the nation's top health care centers in its 2003 survey of "America's Best Hospitals." The Institute was ranked among the top five ophthalmology centers in the country and number one in the West by board-certified specialists who were surveyed over the past three years. The UCLA Medical Center advanced from fifth to third place in the nation this year, and is also number one in the West. It is the only southern California hospital to earn a spot on the magazine's "honor roll" every year since the survey has been conducted. The honor roll recognizes hospitals that demonstrate excellence across many specialties.

### PRESTIGIOUS AWARDS FOR DR WAYNE HUBBELL



Dr Wayne Hubbell

The Kazan Physical-Technical Institute of the Russian Academy of Sciences presented the 2003 Zavoisky Award to **Wayne L. Hubbell, PhD**, Jules Stein Professor of Ophthalmology and Co-Chief of the Vision Science Division, at a public ceremony in Kazan, Russia. The award was established in 1991 to honor the discovery of electron paramagnetic resonance (EPR) by E.K. Zavoisky, in 1944. Dr Hubbell was cited for his “contribution to the development and application of the site-directed spin label method” (SDSL), an EPR technique that is widely used in laboratories throughout the world to study the properties of proteins. Dr Hubbell also received the 2004 Bruker Prize from the Electron Spin Resonance (ESR) Group of the Royal Society of Chemistry.



*The 2001–2002 JSEI Annual Report won The Premier Print Award in the category of business and annual reports. As the printing industry’s oldest, largest and most prestigious worldwide graphic arts competition, this award promotes excellence and recognizes companies and individuals who produce the best in print media.*

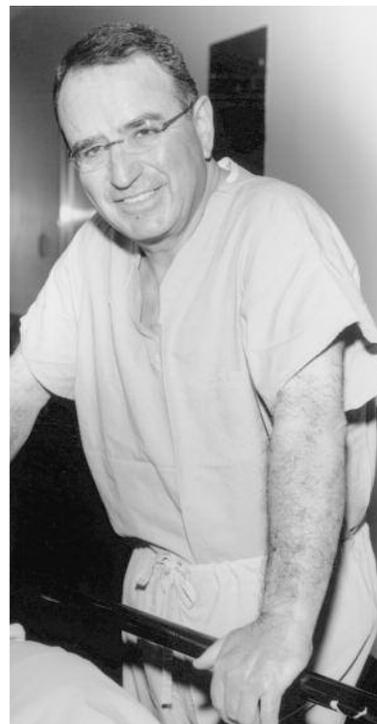
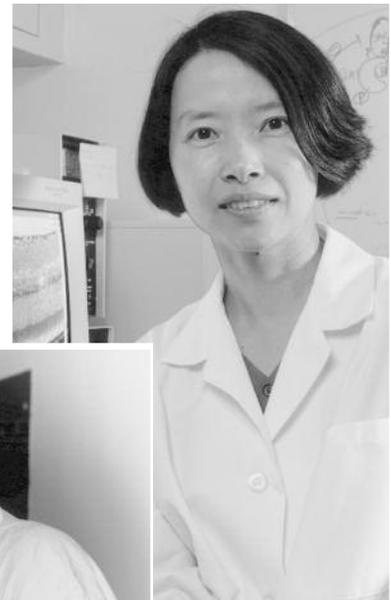
## Research

Research is a key component of the Institute's academic mission, and a high priority for faculty who have often devoted their life's work to furthering our knowledge of specific vision processes and eye diseases. Major research grants are routinely awarded to this effort each year. In 2003–2004, faculty members received important awards from both public and private organizations. Research to Prevent Blindness (RPB) awards included a medical school fellowship. Major new grants from the National Eye Institute (NEI) will enable faculty to substantially further ongoing vision science investigations that have shown promise. A core grant renewal from the NEI continues the funding of a critical laboratory infrastructure. New clinical trials have direct application to some of the country's most common ophthalmic problems. And we are proud to announce several laboratory-based fellowship awards that will enhance the careers of young investigators and promote the future of vision science research.

### RESEARCH TO PREVENT BLINDNESS AWARDS

**Arthur L. Rosenbaum, MD**, Professor of Ophthalmology and Chief of the Pediatric Ophthalmology and Strabismus Division, was honored with an RPB Physician-Scientist Award. This grant is designed to provide greater opportunities for physicians at medical institutions in the United States to conduct clinical eye research activities that have direct application to the human condition. Dr Rosenbaum will use the grant to explore ways to stimulate eye muscles that are involved in certain kinds of strabismus disorders, including paralytic strabismus and Duane's syndrome.

**Xian-Jie Yang, PhD**, Assistant Professor of Ophthalmology, received the Dolly Green Scholar Award as part of the Special Scholars Awards program, which recognizes and rewards promising young scientists of exceptional merit. Dr Yang's primary research interest is the molecular mechanisms underlying development of the neural retina. Recently, in collaboration with David S. Williams, PhD, at the University of California, San Diego, she has begun to develop a gene therapy approach for a major class of retinitis pigmentosa (a blinding eye disease) called the Usher 1B syndrome.



Drs Xian-Jie Yang and Arthur Rosenbaum received prestigious grants from Research to Prevent Blindness.

The UCLA Department of Ophthalmology was awarded an unrestricted grant under the direction of its chairman, **Bartly J. Mondino, MD**, Bradley R. Straatsma Professor of Ophthalmology. Dr Mondino plans to use the grant to support pilot research projects and meet the special needs of faculty conducting ongoing research.

An RPB Medical Student Eye Research Fellowship was awarded to **A. Brock Roller** to support his laboratory research into proteins involved in the structural and functional defects of photoreceptor cells that cause retinitis pigmentosa. A student at the University of Rochester, Mr Roller has taken off a year to pursue his interest in vision science research at the Institute under the supervision of **Gabriel H. Travis, MD**, Charles and Kenneth Feldman Professor of Ophthalmology.

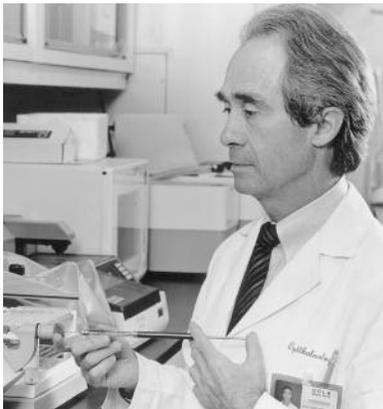
Since its founding in 1960 by Dr Jules Stein, Research to Prevent Blindness has channeled hundreds of millions of dollars to medical institutions for research into the causes, treatment, and prevention of blinding eye diseases.

### NATIONAL EYE INSTITUTE GRANTS

An NEI grant was awarded to **Debora B. Farber, PhD**, Karl Kirchgessner Professor of Ophthalmology and Co-Chief of the Vision Science Division, to support her molecular research studies of ocular albinism. Her laboratory is seeking a detailed understanding of how the genetic mutation that alters pigmentation in the retinal pigment epithelium causes abnormalities in the developing retina and visual pathways, resulting in visual impairment. This research is being conducted in collaboration with Benjamin E. Reese, PhD, from the University of California, Santa Barbara.

**Michael O. Hall, PhD**, Professor of Ophthalmology, received an NEI grant to further his lifelong research involving the interaction of the photoreceptors with the retinal pigment epithelium, a critical process in maintaining vision. His recent discovery that the signaling molecule Gas6 is involved in a crucial step of photoreceptor renewal may offer new information about genetic mutations that cause a form of retinitis pigmentosa. He will use the grant to elucidate the complete biochemical pathway initiated by Gas6.

JSEI's Core Grant for Vision Research, under the direction of **Wayne L. Hubbell, PhD**, Jules Stein Professor of Ophthalmology and Co-Chief of the Vision Science Division, was renewed. The grant provides the Institute's laboratories with support functions that comprise a critical infrastructure for vision science investigators. Sixteen faculty members who conduct basic science research are the current beneficiaries of this important grant, which has been awarded to the Jules Stein Eye Institute consistently since 1966.



Dr Michael Hall received a new NEI grant to further his lifelong research.

## NEW CLINICAL TRIALS

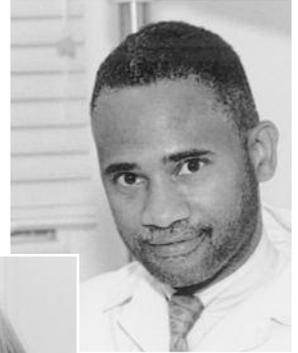
**Anthony J. Aldave, MD**, Professor of Ophthalmology, is one of a handful of investigators in the United States who were invited to participate in a clinical research study sponsored by the Food and Drug Administration (FDA). The purpose of the study is to evaluate the safety and effectiveness of an experimental device called the Phakic 6™ H2 Heparinized Refractive Intraocular Lens in the treatment of severe myopia (nearsightedness).

**Anne L. Coleman, MD, PhD**, Associate Professor of Ophthalmology at the Jules Stein Eye Institute, and **Richard S. Baker, MD**, Associate Professor of Ophthalmology at Charles R. Drew University of Medicine and Science, are the principal investigators in a long-term, multi-center study funded by the NEI on ocular hypertension, a condition that is often a precursor to glaucoma. The study is being conducted at King/Drew Medical Center. In the initial phase of the study, patients who were treated for ocular hypertension were compared with patients who were not treated. Results showed that while ten percent of patients naturally progressed to glaucoma, only half that number progressed if they were treated early. In this new study, patients who were not treated are now being offered appropriate care, and Drs Coleman and Baker are evaluating the benefits of initiating treatment in these later stages.

In a collaborative effort, **Simon K. Law, MD, PharmD**, Assistant Professor of Ophthalmology at the Jules Stein Eye Institute, and Ervin Fang, MD, a glaucoma specialist in the Southern California Permanente Medical Group (Kaiser), are conducting a clinical study to compare two prostaglandin drugs (bimatoprost and latanoprost) for the treatment of glaucoma. Both drugs have been proven effective in lowering intraocular pressure in patients with glaucoma, and both drugs are widely used as standard treatments by community ophthalmologists. The study is sponsored by the Southern California Permanente Medical Group.

The Diabetic Retinopathy Clinical Research Network (DRCR) is a multicenter collaboration investigating the vision-threatening consequences of diabetic retinopathy. Current studies under the direction of **Steven D. Schwartz, MD**, Associate Professor of Ophthalmology and Chief of the Retina Division, are comparing the efficacy of different patterns of laser photocoagulation for the treatment of clinically significant macular edema associated with diabetic retinopathy.

**Kent W. Small, MD**, Professor of Ophthalmology, initiated a major clinical study for exudative or “wet” aged-related macular degeneration (AMD), a particularly aggressive form of AMD, characterized by the growth of abnormal blood vessels in the eye that break and bleed, causing potentially devastating vision loss. The three-year study, sponsored by Genentech pharmaceutical company, will compare the efficacy of a new drug manufactured by Lucentis™ with the current standard of care (photodynamic therapy). Also awarded to Dr Small, a research grant from the Muscular Dystrophy Association will benefit his work to identify the gene responsible for a specific neuromuscular disease (Charcot-Marie-Tooth type 6 disease) that causes muscle weakness and optic nerve atrophy.



Drs Anne Coleman and Richard Baker are conducting a clinical study on glaucoma at King/Drew Medical Center.

*A grant award from the American Health Assistance Foundation to **Lynn K. Gordon, MD, PhD**, Assistant Professor of Ophthalmology, will further her laboratory research into the role of a protein called EMP2 (epithelial membrane protein 2) in age-related macular degeneration.*

### **JSEI FELLOWS RECEIVE PRESTIGIOUS GRANT AWARDS**

Research grants have been awarded to fellows pursuing scientific and clinical investigations into eye diseases under the supervision of Institute faculty. EyeSTAR fellow **Vinit B. Mahajan, MD, PhD**, received a Giannini Family Foundation Fellowship Grant to study the properties of the newly discovered *OAI* gene in ocular albinism. A Fight for Sight Fellowship Grant was awarded to postgraduate fellow **Eiko Kitamura, PhD**, to study the *Rd4* mouse model of retinal degeneration. Postgraduate fellow **Ned Van Eps, PhD**, received a grant from the American Heart Association to support his investigation into the structural properties of rhodopsin, a critical factor in the eye's ability to receive light. International fellow **Maria C. Ortube, MD**, in the Pediatrics and Strabismus Division, won a grant award from Knights Templar Eye Foundation to pursue studies in orbital imaging of complex strabismus disorders.



Knights Templar Eye Foundation awarded a research grant to international fellow Dr Maria Ortube in the Pediatric Ophthalmology and Strabismus Division.

# Education

Academic education 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 entrusted with developing and sharing new approaches to science and medicine that will ultimately result in improved patient care. This year we are proud to introduce two new full-time faculty members and initiate the first Jules Stein Eye Institute Clinical and Research Seminar, consolidating three prestigious annual conferences that are traditionally held each spring. We were saddened by the loss of two important educators who made significant contributions to the Institute throughout their professional careers.

## NEW FACULTY

**D. Rex Hamilton, MD**, was appointed Assistant Professor of Ophthalmology in the Cornea–External Ocular Disease & Uveitis Division. Dr Hamilton received his medical degree from the University of California, Irvine, and completed his residency in ophthalmology at the Jules Stein Eye Institute. After a fellowship in cornea and refractive surgery at Minnesota Eye Consultants, P.A., he was recruited to the position of director for the Institute’s Laser Refractive Center. He also holds a master’s degree in biomedical engineering from the University of Virginia. Dr Hamilton’s current research interests include new applications of Wavefront technology in refractive surgery, and emerging therapies that utilize intraocular lenses.

**Hui Sun, PhD**, received a joint appointment as Assistant Professor of Ophthalmology and Physiology. He studied biochemistry as an undergraduate at Nankai University, China, and pursued graduate studies in the same field at the University of Miami and at Johns Hopkins University, where he earned a doctorate in molecular biology and genetics. He subsequently completed a fellowship at Johns Hopkins University, followed by an appointment as a Research Associate at the Howard Hughes Medical Institute in 1999. Dr Sun will collaborate with Institute faculty in the Vision Science Division. His research interests are in the biogenesis of photoreceptor cells and the control of photoreceptor function using light and the biological clock.

*The Jules Stein Eye Institute hosted the 2003 meeting of the American Chinese Medical Association, with EyeSTAR trainee **Stephen H. Tsang, MD, PhD**, organizing the event in his role as President of the Southern California Chapter. The meeting provided practical strategies for academic career advancement for clinician-scientists, and also addressed health issues unique to the Asian American community.*



Dr Rex Hamilton



Dr Hui Sun

### PRESTIGIOUS LECTURESHIPS

At the 2003 meeting of the American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS), **Robert Alan Goldberg, MD**, Professor of Ophthalmology and Chief of the Orbital and Ophthalmic Plastic Surgery Division, gave the Fourth Henry Baylis Lecture, which is a tribute to the Institute's aesthetics program and to the contributions division faculty have made to aesthetic and reconstructive orbitofacial surgery. Dr Goldberg has been elected to the executive board of the ASOPRS.

**Gary N. Holland, MD**, David May II Professor of Ophthalmology and Chief of the Cornea–External Ocular Disease & Uveitis Division, gave the 35<sup>th</sup> Irvine Lecture at the Doheny Eye Institute, Keck University of Southern California School of Medicine, in Los Angeles. This annual lecture honors a family that includes three generations of prominent ophthalmologists.

**Arthur L. Rosenbaum, MD**, Professor of Ophthalmology and Chief of the Pediatric Ophthalmology and Strabismus Division, gave the prestigious Costenbader Lecture at the annual meeting of the American Association of Pediatric Ophthalmology and Strabismus (AAPOS). The lecture is one of the highest honors in the field, memorializing Frank D. Costenbader, MD, a renowned strabismologist and founder of pediatric ophthalmology.

### THE NEW CLINICAL AND RESEARCH SEMINAR

In 2004, the Institute's most prestigious academic events—Research and Alumni Day, the Post-ARVO Seminar, and the Annual Postgraduate Seminar and Jules Stein Lecture—were combined to create a new seminar. The *Jules Stein Eye Institute Clinical and Research Seminar* provides continuing education for ophthalmologists and vision scientists, as well as research and training opportunities for residents and fellows. This year's seminar featured the Thirty-Fifth Jules Stein Lecture, the Second Thomas H. Pettit Lecture, and the Second Bradley R. Straatsma Lecture.



Dr James Dunn Jr. gave the Thomas H. Pettit Lecture on ulcerative keratitis at the new Clinical and Research Seminar.

#### *Jules Stein Lecturer*

Robert N. Weinreb, MD, Shiley Eye Center at the University of California, San Diego

#### *Thomas H. Pettit Lecturer*

James P. Dunn, Jr., MD, Wilmer Eye Institute at The Johns Hopkins School of Medicine

#### *Bradley R. Straatsma Lecturer*

Paul S. Bernstein, MD, PhD, Moran Eye Center at the University of Utah

### RESIDENCY TRAINING SPONSORED BY PFIZER

Residents from the Jules Stein Eye Institute and neighboring Doheny Eye Institute traveled to Peapack, New Jersey, in March 2004, to receive hands-on ophthalmic surgical training at the Pfizer Ophthalmology Training Center. The unique facilities, built by Pfizer pharmaceutical company, encompass top-of-the-line phacoemulsification machines, the latest technology in microscopes, and fully networked multimedia to allow the instructor to interact with more than one student at a time. **Kevin M. Miller, MD**, Associate Professor of Ophthalmology, was instrumental in securing the funding for this unique educational experience.

### TOP PAPERS IN OPHTHALMOLOGY

A journal article co-authored by **Sherwin J. Isenberg, MD**, Grace and Walter Lantz Professor of Pediatric Ophthalmology, and **Leonard Apt, MD**, Professor Emeritus of Ophthalmology, was featured as one of the best papers of 2002 at the 2003 Annual Meeting of the American Academy of Ophthalmology. The article was published in the *American Journal of Ophthalmology*.

The Cosmetic Surgery Foundation chose clinical fellow **Raymond S. Douglas, MD, PhD**, as the winner of the 2004 Richard C. Webster, MD, Resident Paper Contest. His paper was chosen for its methodology, original research, and focus on patient safety, and was presented by Dr Douglas at the annual meeting of the American Academy of Cosmetic Surgery.

### IN MEMORIAM

**William P. Longmire, Jr., MD**, founding chairman of the UCLA Department of Surgery, died on May 9, 2003, at the age of 89. His innovative cardiac surgeries won him acclaim throughout the world, and his skill as an administrator and teacher helped build the David Geffen School of Medicine at UCLA (formerly the UCLA School of Medicine) to its current prominence. Dr Longmire was also one of the original Consulting Members of the Jules Stein Eye Institute.

Volunteer faculty member **Robert E. Bartlett, MD**, Clinical Professor of Ophthalmology, died on September 19, 2003. Dr Bartlett had a long association with UCLA that began with his undergraduate education. In 1953, Dr Bartlett assumed the position of Chief of Ophthalmology at the Veterans Administration Hospital, where he pioneered many ophthalmic plastic surgery procedures. After more than two decades in that position, he went into private practice in Westwood, continuing to serve UCLA as a volunteer faculty member into the 1990s.



Graduating residents presented the 2004 Volunteer Teaching Award to Dr Simon Law.

*The UCLA Laser Refractive Center launched its newly designed and expanded website ([www.uclaser.com](http://www.uclaser.com)), teaching prospective refractive surgery candidates about refractive errors and the technologies that are currently available to reduce dependence on spectacles and contact lenses.*

# Philanthropy

Private philanthropy is the cornerstone of the Institute's recognized position as an international leader in ophthalmology. Generous gifts from individuals, corporations and foundations provide the extra measure of support that enables the Institute to consistently record noteworthy achievements in research, education and patient care. This year, philanthropic gifts to the Institute were highlighted by a significant pledge from The Annenberg Foundation in support of several direct service programs; and by a generous endowment from the trust of Frederic G. Rappaport that will create a professorship in pediatric ophthalmology. We were saddened by the passing of several friends who contributed their time, passion, and largess over many years.

## THE LEONARD APT CHAIR IN PEDIATRIC OPHTHALMOLOGY

Professor Emeritus **Leonard Apt, MD**, who is the Founding Director of the Division of Pediatric Ophthalmology, has established the Leonard Apt Chair in Pediatric Ophthalmology through a \$1 million gift drawn from the trust of Frederic G. Rappaport, Dr Apt's nephew. This endowment will support teaching and research activities of a distinguished faculty member at the Jules Stein Eye Institute in this subspecialty. The Leonard Apt Chair will complement the Leonard Apt Fellowship in Pediatric Ophthalmology, recently created by Dr Apt. He is the first active faculty member to be responsible for endowing a professorship and a fellowship at UCLA.

Dr Apt pioneered pediatric ophthalmology. He was the first physician to be board certified in both fields, and he founded academic pediatric ophthalmology through the establishment of the first full-time division at a medical school (UCLA) in the United States. His illustrious career includes numerous accomplishments that have often redirected medical care in specific ways. He developed the "Apt test," which differentiates fetal from adult hemoglobin, as well as a surgical loupe that provides magnification during operations. His clinical studies identifying specific allergic reactions to catgut and collagen sutures as a cause of postoperative inflammation led to the development of present-day absorbable sutures. Most recently, he and colleague Sherwin J. Isenberg, MD, tested a new, inexpensive antiseptic eye drop that is now used in developing countries to dramatically decrease the incidence of eye infections and blindness in children. Dr Apt's commitment to children's health has garnered many awards and honors, including a Lifetime Achievement Award from the American Academy of Pediatrics.



Dr Leonard Apt

## THE ANNENBERG FOUNDATION

**Ms Wallis Annenberg**, through The Annenberg Foundation, made a significant pledge to the Jules Stein Eye Institute that will support four direct service programs benefiting children and adults with vision problems in the greater Los Angeles community. The Indigent Children's and Indigent Families Programs provide assistance with the full range of ophthalmic care leading to and following surgery for families who do not qualify for government support, but cannot afford health insurance. The Pediatric Contact Lens Fund helps parents of children with congenital cataracts purchase the multiple sets of contact lenses necessary to correct vision during the period of rapid ocular growth in the first years of life. The services of the UCLA Mobile Eye Clinic, a specially designed bus that provides free eye exams at schools, senior citizen and community centers, shelters, and health fairs around Southern California, will be expanded as a result of this generous gift. The Annenberg Foundation was established in 1958 by Walter H. Annenberg, distinguished publisher, broadcaster, diplomat and philanthropist. His daughter Wallis directs the Los Angeles office of the foundation.

## JSEI AFFILIATES PROGRAMS—A YEAR IN REVIEW

The JSEI Affiliates, a broad-based volunteer network, had an impressive year of activities. The annual holiday and Mother's Day Make Surgery Bearable campaigns raised funds to sponsor over 350 teddy bears for pediatric patients. The Shared Vision program collected over 2,500 pairs of used spectacles for refurbishment and distribution to health clinics and homeless shelters throughout southern California. The Vision In-School program visited 15 schools and made presentations to over 480 students throughout the Los Angeles area. The Preschool Vision Screening program, which screens three-to-five-year-olds for simple refractive errors and eye muscle problems, saw 2003 children.

### JULES AND DORIS STEIN UCLA SUPPORT GROUP

*The Jules Stein Eye Institute is grateful to have the commitment and involvement of the Jules and Doris Stein UCLA Support Group. Founded in 1985 as an independent organization with funding from the Stein estate, the Support Group continues to be a major contributor to research projects and initiatives and, in particular, enables the Institute to purchase much-needed new medical equipment.*

*The diverse and far-reaching activities of the Jules and Doris Stein UCLA Support Group provide a critical infrastructure for the Institute and assist in advancing vision science, education, and patient care programs.*

*The Jules and Doris Stein UCLA Support Group will spearhead the fundraising efforts for the new Edie and Lew Wasserman Eye Research Center. The Group also sponsors the activities of the JSEI Affiliates, an auxiliary group dedicated to providing the best possible vision for each person.*



Sandra Rosenbaum is the coordinator of the Indigent Children's Program, which is supported in part by The Annenberg Foundation. She is shown with a child whose eyesight has benefited from this gift and from the services of the Jules Stein Eye Institute.

## MAJOR GIFTS OVER \$50,000

*Alcon Research, Ltd.*

*Allergan Inc.*

*The Annenberg Foundation*

*Joyce J. Cammilleri Family Fund*

*Ernest G. Herman*

*Judi and Ken Keltner*

*Theo and Wendy Kolokotronis*

*Wilbur May Foundation*

*Ruth Fowler Papeman 1982 Trust*

*The Louis and Harold Price Foundation*

*Research to Prevent Blindness*

*Endowment Fund Inc.*

*Sanford B. Schulhofer*

*Robert M. Sherman Trust*

*The Jules and Doris Stein UCLA  
Support Group*

## IN MEMORIAM

**Harold and Pauline Price** were loyal supporters of the Jules Stein Eye Institute, with more than thirty years of dedication and friendship. They passed away on January 27 and April 19, 2004, respectively. The Louis and Harold Price Foundation was established in 1951 through the generosity of Harold and his father, Louis Price. The senior Price was a founding partner of the Joe Lowe Corporation, a bakery and ice cream supply business famous for the promotion of the Popsicle. Harold and Pauline created an endowed fellowship and an endowed chair at the Institute, as well as the Price Retina Research Fund.

A major supporter of UCLA programs, **Ray Stark** died on January 17, 2004. Among his gifts to the Institute was the Frances and Ray Stark Professorship of Ophthalmology, established by Ray and his late wife Frances. This academic honor will provide an enduring legacy to benefit vision science research.

**Adrienne Underwood** and her late husband, Vernon O. Underwood, Sr., were generous supporters of the Institute. She passed away in November 2003. Gifts included a fund to provide ongoing support for the Institute's clinical fellowship program. In 1995, Adrienne Underwood established the Vernon O. Underwood Family Chair of Ophthalmology in memory of her late husband.

On July 27, 2003, centenarian **Bob Hope** passed away, leaving the legacy of a long and venerable career as entertainer, movie star, comedian and goodwill ambassador. His compassion was expressed in many ways, including support for blindness prevention and eye research initiatives throughout the United States. He was a close friend of Jules Stein and participated in events at the Institute on a number of occasions. Noteworthy among these was his appearance at the Groundbreaking Ceremony of the Jules Stein Eye Institute in 1964.



*Long-time Institute benefactors **Gerald and Gail Oppenheimer** were recipients of the UCLA Center on Aging ICON Award, which is presented to individuals who have made outstanding contributions to society throughout their lives, and who exemplify the Center on Aging's motto, "Living Better Longer." The Institute applauds this wonderful tribute to a couple with exceptional accomplishments and dedicated involvement in the community.*

Faculty

## Anthony J. Aldave, MD

Assistant Professor of Ophthalmology  
Director, Cornea and Refractive Surgery Fellowship  
Associate Member of the Jules Stein Eye Institute

### Research Summary

#### Discovering the Genetic Basis of the Corneal Dystrophies

The corneal genetics laboratory, under Dr Aldave's direction, is involved in the search for and characterization of the genes that are associated with the maintenance of corneal clarity. It conducts mutation screening for corneal dystrophies in which the responsible gene and mutations are known, such as the TGFBI-related corneal dystrophies; for those dystrophies in which the responsible gene is known but all of the causative mutations are not, such as macular corneal dystrophy; and for those dystrophies for which the genetic basis has not been identified, such as Schnyder's crystalline corneal dystrophy and posterior polymorphous corneal dystrophy.

#### Novel Surgical Approaches for the Treatment of Corneal and Refractive Problems

Dr Aldave is one of only a handful of surgeons in the United States who have been invited to participate in the FDA trials of phakic intraocular lenses to treat high degrees of nearsightedness in patients who are not candidates for keratorefractive surgery. Additionally, he is one of a very few physicians in the United States to have implanted both the Boston (Dohlman-Doane) and AlphaCor™ artificial corneas in patients who are poor candidates for traditional corneal transplantation.



### Public Service

Member, American Academy of Ophthalmology Knowledge Base Development Project—Cornea and External Disease Panel

Reviewer for several ophthalmic journals:

### Honors

Invited speaker at the 3<sup>rd</sup> Annual San Francisco Cornea Symposium in San Francisco, California, on April 3, 2004

Invited speaker at the 12<sup>th</sup> Annual VISTA Scientific Conference in Fort Lauderdale, Florida, held April 26–30, 2004

Invited speaker at the Annual Research Conference, sponsored by the Department of Ophthalmology, Loma Linda University School of Medicine, in Loma Linda, California, on June 4, 2004

### Research Grant

Ophthalmic Innovations International, Inc: ...evaluate the Safety and Effectiveness of the Phakic 6 H2 Refractive Anterior Chamber Lens, 7/03/03–7/02/07

## Anthony C. Arnold, MD

Professor of Clinical Ophthalmology  
 Chief of the Neuro-Ophthalmology Division  
 Director of the UCLA Optic Neuropathy Center  
 Member of the Jules 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 the principal investigator for the UCLA center in the National Eye Institute-sponsored clinical study of optic nerve sheath decompression surgery for nonarteritic anterior ischemic optic neuropathy. He has been involved on the Visual Field Data Analysis Committee for the study, with results to be published this year. He is a primary consultant for an international multicenter study of risk factors for nonarteritic anterior ischemic optic neuropathy, sponsored by the North American Neuro-Ophthalmology Society.

Additional research studies are ongoing, and 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.



### Public Service

Special Associate Examiner for the American Board of Ophthalmology (Neuro-Ophthalmology Oral Examination Development)

Faculty for the American Academy of Ophthalmology Basic and Clinical Science Course, Section 5, Neuro-Ophthalmology

Faculty for the Stanford Basic Science Course in Ophthalmology, Neuro-Ophthalmology Section

Member of the Executive Board for the North American Neuro-Ophthalmology Society

Member of the Long-Range Strategic Planning Committee for North American Neuro-Ophthalmology Society

Member of the Residency Program Directors Advisory Council for the Association of University Ophthalmology Professors

Co-Chair of the American Academy of Ophthalmology Neuro-Ophthalmology Subspecialty Day

Reviewer for many ophthalmic journals

### Honors

Invited lecturer at the Argentine Congress of Ophthalmology in Rosario Argentina, held September 12–13, 2003

Invited lecturer at the annual meeting of the Philippine Academy of Ophthalmology in Manila, Philippines, held November 22–24, 2003

Invited lecturer at the annual meeting of the Cebu Ophthalmology Society in Cebu City, Philippines, on November 27, 2003

Invited lecturer at the National Neuro-Ophthalmology Update in Manila, Philippines, held May 22–23, 2004

Invited lecturer at the International Ophthalmology Program Directors Course in Mexico City, Mexico, held June 17–18, 2004

### Research Grant

Joyce J. Camilleri Family Fund: Ischemic Optic Neuropathy, 1/14/04–1/13/05

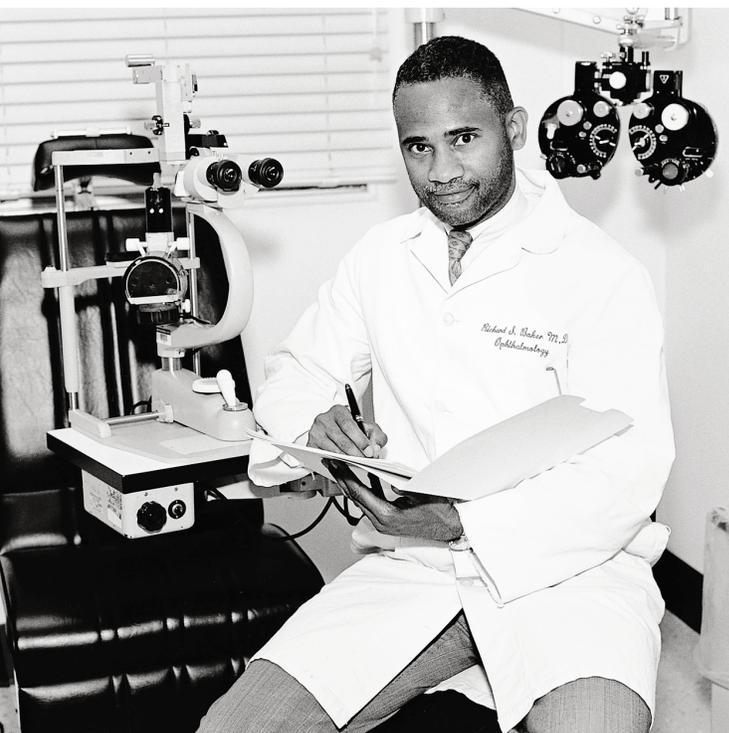
## Richard S. Baker, MD

Associate Professor of Ophthalmology  
Assistant Dean of Research, King/Drew Medical Center,  
Charles R. Drew University of Medicine and Science,  
Los Angeles  
Associate Member of the Jules Stein Eye Institute

### Research Summary

#### Ophthalmic Epidemiology

Dr Baker's primary research interest is in the field of ophthalmic epidemiology. Current projects 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. Dr Baker initiated an ongoing collaborative effort with the epidemiology group of Charles R. Drew University of Medicine and Science to provide population-based comparative assessment of functional vision, daily activity, and quality of life among the elderly population of Los Angeles County, by ethnicity.



### Public Service

Member of the Board of Directors for the following organizations: California Black Health Network, Drew Economic Development Corporation, Drew Academic Medical Corporation, and Los Angeles Eye Institute

Member of the Advisory Board for the Center for Spatial Analysis and Remote Sensing at the California State University, Los Angeles

Member of the Data Committee and the Service Planning Area 6 (SPA-6) Committee for the Los Angeles County Children's Planning Council

Member of the Proposition 10 Data, Research, and Evaluation Committee for Los Angeles County Children and Families First

Member of the HIV/AIDS Strategic Planning Committee of the Los Angeles County Department of Health Services, Office of AIDS Programs and Policy

Reviewer for the Special Emphasis Review Panel for Translational Research sponsored by the Agency for Health Care Policy and Research (AHCPR)

Reviewer for the Special Emphasis Review Panel, Development Centers for Evaluation and Research in Patient Safety (DCERPS); and the Clinical Informatics to Promote Patient Safety (CLIPS) Review Panel, sponsored by the Agency for Healthcare Research and Quality (AHRQ)

Chairman of the National Center on Minority Health and Health Disparities (NCMHD)

Reviewer for the Loan Repayment Application Panel for Health Disparities Research (HDR) and Extramural Clinical Research for Individuals from Disadvantaged Backgrounds (ECR-DB)

Reviewer for several ophthalmic journals

### Research Grants

National Center for Research Resources: Drew Core Infrastructure Development Grant, 9/30/00–8/31/05

Department of Health and Human Services/Health Resources & Services Administration: UCLA/Rand/Drew Program to Address Disparities in Health, 9/1/00–8/31/05

National Eye Institute/NCRR Clinical Vision Research Study Group, 9/1/01–8/31/04

## Suraj P. Bhat, PhD

Associate Professor of Ophthalmology  
Member of the Jules Stein Eye Institute

### Research Summary

#### Molecular Biology of Vision

Dr Bhat's laboratory conducts research into the regulation of gene expressions during differentiation and development of the vertebrate eye. This involves isolation and characterization of genes and gene products, identification of the attendant regulatory elements, and study of the regulatory controls in both *in vivo* and *in vitro* systems with manipulated gene sequences. Two areas of research are currently under investigation that will provide insight into molecular mechanisms that developmentally predispose the eye to hereditary dysfunctions such as myopia, cataracts and retinal diseases. One area of study is the developmental and tissue-specific control of the heat shock promoter of the  $\alpha$ B-crystallin gene and the biological function of its gene product. This involves a focus on HSF4, which we recently reported to be the only heat shock transcription factor of the ocular lens. Another area of study is control of the growth of the eye globe with special emphasis on neurogenesis (generation of neurons) in the retina.

#### Public Service

Member, National Advisory Eye Council, National Eye Institute, National Institutes of Health, Bethesda, MD

Member of the University of California, Council on Research

Member of the Scientific Advisory Board for the Eye Research Institute of Oakland University, in Rochester, Michigan

Executive Editor for *Experimental Eye Research*

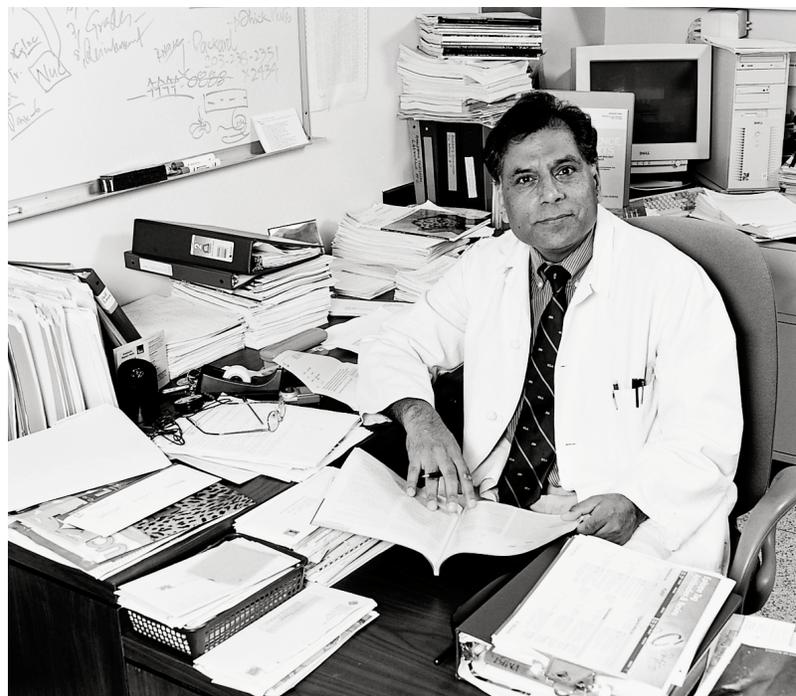
Editor for *Molecular Vision*

Guest Editor for *Investigative Ophthalmology and Vision Science (IOVS)*

Reviewer for many scientific journals

#### Research Grant

National Eye Institute: Gene Expression in Normal and Cataractous Lens, 2/1/00–1/31/05



## Dean Bok, PhD

Dolly Green Professor of Ophthalmology  
 Professor of Neurobiology  
 Member of the Jules Stein Eye Institute  
 Member of the Brain Research Institute

### Research Summary

#### Cell and Molecular Biology of the Retina

Dr Bok's research interests involve the cell and molecular biology of the normal and diseased retina. In one research area, he is identifying and characterizing genes specific to retinal pigment epithelium (RPE) and exploring interactions that take place between RPE and retinal photoreceptors. RPE performs a multitude of functions in the retina, including the transport of nutrients, ions, and fluid; the uptake and processing of vitamin A; and the daily removal of outer segment disc membranes that have been discarded by the photoreceptors. A second research area involves the study of animal models for human retinitis pigmentosa and macular degeneration. Dr Bok is using the techniques of cell and molecular biology to determine the proteins responsible for photoreceptor degeneration. One of the proteins under study in mice and humans is *rds/peripherin*. Because of a gene mutation, this protein is defective in a strain of mice called *rds*. As a result, the photoreceptors fail to form their light-sensitive organelles and eventually die. Dr Bok and collaborators have prevented blindness in these mice by injecting an artificial gene for *rds/peripherin* that performs normally. They are currently placing human *rds/peripherin* mutations into mice in order to study the mechanisms that cause photoreceptor death. Attempts are being made to slow the process of photoreceptor degeneration by delivery of neurotrophic factors into the retina by nonpathogenic viruses.



#### Public Service

Member of the Scientific Advisory Board for the following organizations: Bank of America/Giannini Foundation, the E. Matilda Ziegler Foundation for the Blind, The Karl Kirchgessner Foundation, Schepens Eye Research Institute/Harvard Medical School, and the Ruth and Milton Steinbach Fund, Inc.

Trustee for Schepens Eye Research Institute/Harvard Medical School

Member of the Editorial Board for *International Review of Cytology*

Reviewer for many scientific journals

#### Honors

Invited Speaker at the Macula Vision Research Foundation held in Philadelphia, Pennsylvania on October 25, 2003

Invited Speaker at the Age-Related Macular Degeneration Symposium in New York, New York, on March 19, 2004

#### Research Grants

The Foundation Fighting Blindness: Center Grant (Center Coordinator): 7/1/00–6/30/05 (with other Investigators)

National Eye Institute: Pathology of Inherited Retinal Degeneration, 12/1/01–11/30/06

Joyce J. Cammilleri Family Fund: Gene Therapy, 1/14/04–1/13/05

## Joseph Caprioli, MD

Frances and Ray Stark Professor of Ophthalmology  
 Chief of the Glaucoma Division  
 Member of the Jules Stein Eye Institute

### Research Summary

#### Measurements of Optic Nerve Damage in Glaucoma

Dr Caprioli's clinical research involves the assessment of optic nerve and nerve fiber layer structure, which is important to the early detection and timely treatment of glaucoma. The specific aims of the current research are to develop new structural measures of the optic nerve and nerve fiber layer which are sensitive and specific for early and progressive glaucomatous optic nerve damage; determine the diagnostic precision of existing and new measures to detect the presence and progression of early structural damage; and identify and validate methods that provide sensitive, specific, and cost-efficient measures of early structural damage. A longitudinal study in progress is following normal patients, patients with ocular hypertension, and glaucoma patients to determine the sensitivity and specificity of various measures to identify change. Long-term follow-up will show the subsequent development or worsening of visual field loss. The study will also provide quantitative information to identify cost-efficient methods to detect and monitor glaucoma damage in practice, define measures for outcome studies of glaucoma care and clinical trials, and identify new measures for glaucoma screening.

#### Basic Mechanisms of Optic Nerve Damage in Glaucoma

Dr Caprioli and his research group are interested in the study of the mechanisms of damage to the optic nerve in glaucoma. In previous studies they have demonstrated that certain endogenous stress proteins protect retinal ganglion cells against diverse forms of damage to the retina. When the retinal ganglion cells are damaged by glaucoma, blindness can result. In recent studies Dr Caprioli and co-workers have demonstrated that induction of stress proteins in retinal ganglion cells protects against cell damage from glaucoma in rats. This research will help elucidate the role of stress proteins in glaucomatous optic nerve damage and provide the possibility of a novel therapeutic approach to glaucoma by manipulating the endogenous stress response. The long-term objective of the study is to identify neuroprotective strategies to prevent the death of retinal ganglion cells in human glaucoma. Currently, the only tool that physicians have to treat glaucoma is reduction of intraocular pressure. This treatment fails to prevent visual loss in a substantial proportion of patients.

### Public Service

Chairman of the Preferred Practice Pattern Committee of the American Academy of Ophthalmology

Chairman of the Program Committee for the Glaucoma Section of the Association for Research in Vision and Ophthalmology (ARVO)

Member of the Editorial Board for the following journals: *American Journal of Ophthalmology*, *Investigative Ophthalmology and Visual Science*, and *Journal of Glaucoma*

Reviewer for many ophthalmic journals

### Honors

Irving H. Leopold Lecturer at Allergan, Inc., in Irvine, California, on August 22, 2003

Invited Speaker at the 20th Annual Current Concepts in Ophthalmology meeting in Vail, Colorado, held March 15–19, 2004

Invited Speaker at the annual meeting of the Association for Research in Vision and Ophthalmology in Fort Lauderdale, Florida, held April 25–29, 2004

Secretariat Award from the American Academy of Ophthalmology, bestowed at the annual meeting in November 2003

### Research Grants

Allergan Pharmaceutical Company: Oral Memantine Study, 8/31/99–7/8/06

National Eye Institute: Clinical Measurements of Optic Nerve Damage, 3/1/01–2/28/05

Research to Prevent Blindness: Physician Scientist, 1/1/02–12/31/07



## **Richard Casey, MD**

Associate Professor of Clinical Ophthalmology  
Chairman of the Department of Ophthalmology at  
King/Drew Medical Center,  
Charles R. Drew University of Medicine and Science,  
Los Angeles  
Member of the Jules Stein Eye Institute

### **Research Summary**

#### **Cornea and External Ocular Disease**

Dr Casey's primary research interest is in the field of angiogenesis (development of blood vessels), with an emphasis on corneal neovascularization (development of abnormal blood vessels). He has worked on the development and testing of pharmacologic agents that both stimulate and inhibit neovascularization. Current projects include the testing of angiogenic modulators, with specific attention to their effects on vascular endothelial cells.

#### **Public Service**

Co-founder of The Los Angeles Eye Institute and The Angiogenesis Foundation

Member of the Board of Directors for the Braille Institute of America and for the Research Study Club in Ophthalmology, Los Angeles

President of the Los Angeles Society of Ophthalmology



## Anne L. Coleman, MD, PhD

Professor of Ophthalmology and Epidemiology  
 Director of the UCLA Center for Eye Epidemiology and  
 the UCLA Mobile Eye Clinic  
 Member of the Jules 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 (AMD), including the study of lifestyle limitations imposed on patients with these kinds of eye diseases. Clinical projects involve the following areas of study: a randomized trial of antiglaucoma medications versus observation (since not all patients with elevated intraocular pressure develop glaucoma); geographic variation in diagnostic procedures for glaucoma in the Medicare population; the possible association between hip fractures from falls and impaired vision from glaucoma, cataract and AMD; and the incidence of macular degeneration.

### Public Service

Member of the National Eye Health Education Program Planning Committee at the National Institutes of Health  
 Voting Member of the Federal Drug Administration (FDA) Ophthalmic Devices Panel  
 Member of the Health Policy Committee for the Task Force on Aging  
 Associate Examiner for the American Board of Ophthalmology  
 Member of the Scientific Advisory Committee for the Glaucoma Research Foundation  
 President for Women in Ophthalmology  
 Assistant Program Chair for the California Association of Ophthalmology  
 Chair of the Glaucoma Knowledge Base Panel for the American Academy of Ophthalmology, 2002–2007  
 Board Member of the Los Angeles Research Study Club, 2002–present  
 President of the Los Angeles Society of Ophthalmology  
 Member of the Research Agenda Setting Program for the American Geriatric Society  
 Member of the American Glaucoma Society Nominating Committee  
 Member of the Eye Care America—Glaucoma Committee for the American Academy of Ophthalmology

Member of the National Eye Institute Advisory Committee for Cochrane Eyes and Vision Group, 2002–present  
 Advisor to the Ocular Health Program for Chile  
 Executive Editor for Glaucoma Editorial Board for *American Journal of Ophthalmology*  
 Reviewer for many ophthalmic journals

### Honors

Wilmer Distinguished Lecturer at Johns Hopkins University in Bethesda, Maryland, on September 12, 2003  
 Secretariat Award from the American Academy of Ophthalmology, bestowed at the annual meeting in November 2003  
 Distinguished Editorial Board Member award from the *American Journal of Ophthalmology*, bestowed in 2003  
 Woman of the Year from the American Biographical Institute, bestowed in 2004  
 Senior Achievement Award from the American Academy of Ophthalmology, bestowed in May 2004  
 Honorary Award bestowed at the 37<sup>th</sup> Panhellenic Ophthalmological Meeting in Thessaloniki, Greece, held June 9–13, 2004

### Research Grants

National Eye Institute/Charles R. Drew University of Medicine and Science: Ocular Hypertension Treatment Study, 1/1/04–12/31/04  
 National Institute on Aging: Study of Osteoporotic Fractures: Eye Survey, 8/15/02–7/31/07  
 National Institute on Aging: Multidimensional Intervention for Vision Impaired Elders, 7/1/01–6/30/04  
 Alcon Laboratories, Inc: ... Study to Compare IOP-Lowering Effect of Travatan..., 6/14/02–11/30/04  
 National Eye Institute: Incidence of Late Macular Degeneration in Older Women, 8/1/02–7/31/07



Joyce J. Cammilleri Family Fund: Glaucoma and Age-Related Macular Degeneration, 1/14/04–1/13/05

## Joseph L. Demer, MD, PhD

Laraine and David Gerber Professor of Ophthalmology  
Professor of Neurology  
Chief of the Comprehensive Ophthalmology Division  
Member of the Jules Stein Eye Institute

### Research Summary

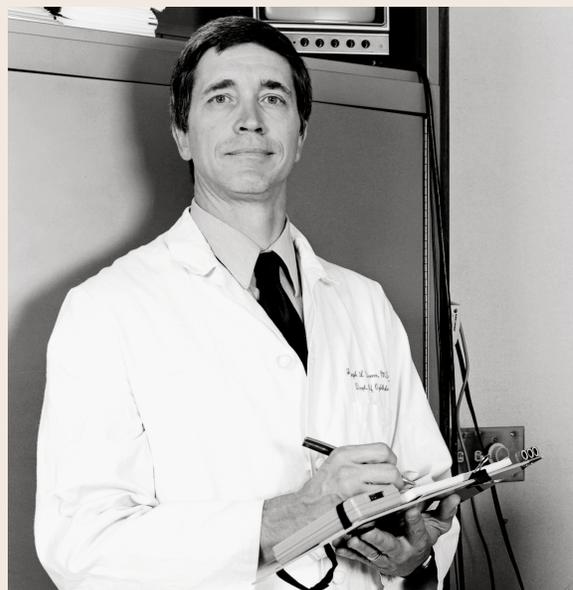
#### Moving Eyes for Better Vision and Balance

Dr Demer studies the role of the brain and extraocular muscles in the control of eye movements and visual perception. These experiments also evaluate balance and dynamic visual acuity (visual function during motion). Three projects are underway as follows:

Dr Demer directs a National-Eye-Institute-funded research project aimed at developing an understanding of the role of orbital connective tissues in the development of binocular coordination disorders, such as strabismus. As part of this effort, he is developing new technologies for magnetic resonance imaging of extraocular muscles and nerves. To date, this research has fundamentally contributed to the knowledge of the functional anatomy of the extraocular muscles and connective tissues.

Dr Demer directs a project funded under a multi-project grant from the National Institute on Deafness and Communicative Disorders. This multidisciplinary effort involves colleagues in the UCLA Department of Neurology and the UCLA Division of Head and Neck Surgery. They are studying eye-head coordination and dizziness mediated by the inner ear. Dr Demer is recording eye and head movements using magnetic search coils and flux gate magnetometers, as well as dynamic visual acuity.

In collaboration with Elizabeth C. Engle, MD, at Bostons Childrens Hospital, Dr Demer is the local principle investigator of a collaborative National-Eye-Institute-funded study that is conducting magnetic resonance imaging of the extraocular muscles. This procedure may clarify the phenotypes and mechanisms of congenital cranial dysinnervation syndromes that have been characterized using modern molecular genetics. Patients with these syndromes have severe forms of strabismus.



### Public Service

Member of the Editorial Board for *American Journal of Ophthalmology*

Associate Editor of *Strabismus*

Ad hoc member of National Institutes of Health Study Sections

Reviewer for the Swiss National Science Foundation

Reviewer for many professional journals

### Honors

Invited Speaker at National Eye Institute's 25<sup>th</sup> Anniversary Symposium in Bethesda, Maryland, on September 18, 2003

Invited Speaker at St. Justine Hospital's 28<sup>th</sup> Annual Pediatric Ophthalmology Day in Montreal, Canada, on October 17, 2003

Invited Speaker at the North American Neuro-ophthalmology Society meeting in Orlando, Florida, on March 31, 2004

Invited Speaker at the Canadian Ophthalmological Society in Vancouver, British Columbia, Canada, on June 17, 2004

Recognition Award from the Alcon Research Institute bestowed on June 30, 2004

### Research Grants

National Eye Institute: Biomechanical Analysis in Strabismus Surgery, 1/1/01–12/31/05

National Institute on Deafness and Communicative Diseases: Diseases of the Vestibular System, Project 1, New Tests of Vestibular Function, 7/1/02–6/30/07

National Eye Institute/Bostons Childrens Hospital: Genetic and Anatomic Basis of the Fibrosis Syndrome, 8/1/03–7/31/04

## Gordon L. Fain, PhD

Professor of Physiological Science and Ophthalmology  
Member of the Jules Stein Eye Institute

### Research Summary

#### Physiology of Neurons

Dr Fain's primary interest is in the physiology of photoreceptors in the vertebrate eye. He is particularly interested in the biophysical nature of the electrical signal and the role of calcium in its production. Such information will help investigators understand how the eye works and may provide insight into the mechanism of retinal degeneration.

#### Public Service

Reviewer for many scientific journals

#### Honors

Visiting Scholar at Clare Hall at the University of Cambridge in Cambridge, United Kingdom, January to August 2004

#### Research Grant

National Eye Institute: Physiology of Photoreceptors, 2/1/00–1/31/05



**Debora B. Farber, PhD, DPhhc**

Karl Kirchgessner Professor of Ophthalmology  
Associate Director of the Jules Stein Eye Institute  
Co-Chief of the Vision Science Division

**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 using biochemistry, molecular biology, molecular genetics, animal models of retinal degeneration, and patients' DNA. Her laboratory has cloned and characterized several genes encoding enzymes and proteins that play a key role in vision. Dr Farber has demonstrated that genetic abnormalities in the  $\beta$ -subunit of cGMP-phosphodiesterase ( $\beta$ -PDE) lead to blindness in mice and dogs, and cause one type of autosomal recessive retinitis pigmentosa (RP), as well as congenital stationary night blindness. Utilizing gene therapy, her group has rescued the *rd* mouse photoreceptors using gutted adenoviral vectors to deliver the normal gene to these cells. Her laboratory has also isolated the RPI gene (responsible for a type of autosomal dominant RP), the mouse homologue of the gene causing X-linked juvenile retinosis (XLR5), and the gene causing disease in the *rd7* mouse—a model for Enhanced S-Cone Syndrome. They have characterized the biochemical features of retinoschisin, the product of the XLR5 gene, and have established that it is secreted from the photoreceptors and transported to the inner retina where it holds the cell layers together with its adhesion properties.

Furthermore, her group is working on the mechanisms that regulate transcription and expression of genes that encode retinal proteins. They have identified a new transcription factor that synergistically interacts with other retinal-specific transcription factors to control the level of

activity of the  $\beta$ -PDE promoter. Moreover, they have identified response elements involved in the translation of this gene. Other studies that are performed in Dr Farber's laboratory include the characterization of transgenic mice (generated on the  $\gamma$ -PDE knockout background) that carry different mutated alleles of the  $\gamma$ -PDE gene and the characterization of animal models of ocular albinism, a disease that causes permanent visual impairment. In addition, they have developed a new methodology for the delivery of the  $\beta$ -PDE gene to the retina of the *rd* mouse. This gene therapy approach is non-invasive and has been proven to be very effective.

Finally, Dr Farber's team is testing the DNA from patients with retinal dystrophies for mutations in candidate genes.

**Public Service**

Member of the Scientific Advisory Board for the Foundation Fighting Blindness and Scientific Advisor to the Center for Vision Research, State University of New York Health Science Center at Syracuse, New York

Scientific Advisor and Member of the Board of Directors for The Vision of Children

Member of The ARVO Foundation Campaign Committee, 2002–present

Advisor for the Canadian Retinitis Pigmentosa Foundation, 1998–present

Member of the Editorial Board for *Molecular Vision*

Reviewer for several journals

**Honors**

Invited speaker at the Retinal Degenerative Diseases Symposium at the University of Tennessee, in Memphis, Tennessee, on December 5, 2003

**Research Grants**

National Eye Institute:

- Molecular Mechanisms in Retinal Degenerations, 2/1/02–1/31/06
- Phosphodiesterases in Photoreceptor Metabolism and Disease, 8/1/99–7/31/04
- Pathfinding of Ganglion Cell Axons and Ocular Albinism, 8/1/01–7/31/04
- (in collaboration with UCSB) Transgenic/Molecular Approaches to Ocular Albinism, 7/01/03 – 6/30/07
- Vision Research Training Program, 9/30/00–9/29/05

The Foundation Fighting Blindness:

- Center Grant, 7/1/00–6/30/05 (with other Investigators)
- Study of the Genes that Regulate Susceptibility of the Retina to Light Damage in the Mouse, 7/1/01–6/30/04
- Molecular Genetic Studies of Retinal Degeneration and Progressive and Stationary Retinal Dystrophies... (with Stephen H. Tsang, MD, PhD), 9/1/02–6/30/05

The Vision of Children: Studies on Ocular Albinism, 7/1/99–6/30/04



## **Bernard K-K. Fung, PhD**

Professor of Ophthalmology and  
of Molecular and Medical Pharmacology  
Member of the Jules Stein Eye Institute

### **Research Summary**

#### **Retinal Phototransduction**

Dr Fung is interested in the molecular basis of signal processing in cells. His major research effort is directed toward understanding how light received by the visual cells triggers chemical changes that ultimately lead to the generation of electrical activities in the brain. To meet this complex problem, his laboratory has employed a combination of biochemical and biophysical techniques. These include the use of monoclonal antibodies as probes to identify key proteins involved in this process, fluorescein spectroscopy to characterize the interactions of the signal-processing enzymes, and recombinant DNA technology to study the structure and function of these molecules. Another area of investigation by Dr Fung is the identification of signal-processing proteins that are common in visual cells and in hormone-sensitive cells. Such information will provide insight into the functioning of other hormonal cells.



#### **Public Service**

Reviewer for several scientific journals

#### **Research Grant**

National Eye Institute: Structure, Function and Organization of Lens Alpha A-Crystallin, 1/1/00–12/31/03

## Ben J. Glasgow, MD

Edith and Lew Wasserman Professor Ophthalmology  
Professor of Pathology and Laboratory Medicine  
Chief of the Ophthalmic Pathology Division  
Member of the Jules 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 employs site-directed mutagenesis (mutation caused by insertion of new genetic material into a normal gene) 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.

#### Public Service

Reviewer for many scientific journals

#### Research Grants

National Eye Institute: Proteins in Molecular Mechanisms of Tear Film Formation, 2/1/01–1/31/06

Underwood Vitreoretinal Fund: Asteroid Hyalosis, 12/1/01–11/30/06



## Robert Alan Goldberg, MD

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 Jules 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) have resulted in new techniques that include specialized lasers and specifically designed microscopic instrumentation. In addition, detailed clinical information gathered from patients with Graves' orbitopathy is recorded in a shared database as a way to better understand the natural history and response to treatment of this multifaceted disease, which is a cause of significant visual loss and discomfort. Dr Goldberg is also studying other forms of thyroid related orbitopathy in collaborative research with Terry J. Smith, MD, in the Division of Molecular Medicine at Harbor-UCLA Medical Center. 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 MR imaging to evaluate motility problems following trauma and orbital surgery, and three-dimensional analysis of orbital anatomy. Surgical advances in the treatment of deformities and dysfunction of the eyelids and orbit depend upon a better understanding of their anatomy.

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



#### Public Service

Assistant Vice President of Professional Education for the California Academy of Ophthalmology, 1999–present

Fellow and Member of the Executive Committee for the American Society of Ophthalmic Plastic and Reconstructive Surgeons

Fellowship Program Director for the American Academy of Cosmetic Surgery, 2003

Member of the Editorial Board for the following journals: *Archives of Ophthalmology*, *Ophthalmic Plastic and Reconstructive Surgery*, and *Archives of Facial Plastic Surgery*

#### Honors

Elected to the Executive Council of the American Society of Plastic and Reconstructive Surgery at their annual meeting in November 2003

Fourth Henry Baylis Lecture at the American Society of Plastic and Reconstructive Surgery meeting in Anaheim, California, on November 14, 2003

Featured Guest Speaker at Barcelona Oculoplastics 2004, in Barcelona, Spain, held March 5–6, 2004

Featured Invited Speaker at the Washington State Ophthalmology Society in Seattle, Washington, held March 17–18, 2004

## Christine R. Gonzales, MD

Assistant Professor of Ophthalmology  
Associate Member of the Jules Stein Eye Institute

### Research Summary

#### Vitreoretinal Diseases

Dr Gonzales is primarily interested in retinal disease with abnormal angiogenesis such as age-related macular degeneration (AMD), diabetic retinopathy, and retinopathy of prematurity (ROP). She is the principal investigator in three clinical trials evaluating a new pharmacologic treatment for exudative macular degeneration. This treatment involves an intravitreal injection of an agent that blocks vascular endothelial growth factor (VEGF). This growth factor is known to play an important role in abnormal blood vessel growth in AMD. VEGF is also known to increase vascular permeability in patients with diabetic retinopathy leading to macular edema. Dr Gonzales is the principal investigator in another clinical trial in which the anti-VEGF agent is injected into the eye in patients with macular edema secondary to diabetic retinopathy.



### Public Service

Co-Coordinator of the UCLA Telemedicine Retina Initiative  
Reviewer for the *Journal of the American Association for Pediatric Ophthalmology and Strabismus*, and the *American Journal of Ophthalmology*

### Research Grants

EyeTech Pharmaceuticals:

- Phase III...Comparative Trial...Intravitreal Injections ... for Patients with ...Exudative Age-Related Macular Degeneration, 10/16/01–10/15/03
- Pharmacokinetics Study...Intravitreal Injections... for Patients with Exudative Age-Related Macular Degeneration, 2/12/03–12/31/04
- Phase III Trial... Intravitreal Injections ...for Patients with Significant Diabetic Macular Edema..., 9/6/02–9/5/04
- Phase II prospective...Multi-Center Trial...Effect of Pegaptanib Sodium...in Patients with Exudative Subfoveal Age-Related Macular Degeneration, 5/1/04–8/31/06

Neovista, Inc: ... Evaluate the Safety and Tolerability of Subretinal Delivery of Radiation for ...Subfoveal Choroidal Neovascularization (CNV) in Patients with Age-Related Macular Degeneration, 5/1/04–8/31/06

## Lynn K. Gordon, MD, PhD

Assistant Professor of Ophthalmology  
 Chief of the Section of Ophthalmology,  
 Department of Veterans Affairs  
 Greater Los Angeles Healthcare System  
 Member of the Jules Stein Eye Institute

### Research Summary

#### Immune Mechanisms of Ocular Inflammatory Disease

Dr Gordon's primary research interest is in the molecular mechanisms of immune-mediated diseases. Recently, her laboratory identified beta B1 crystallin as a cognate antigen for an antibody found in a subset of patients with uveitis. Reactivity against this and other lens crystallins was identified in many individuals with uveitis. The consequence of this reactivity is being determined in longitudinal studies of uveitis patients. Preliminary data suggests an association with cataract formation in these patients. In addition, animal studies support the uveitogenicity of a subset of these proteins, allowing development of a new animal model for uveitis.

A second line of laboratory research involves the role of a protein, epithelial membrane protein 2 (EMP2) in retinal pigment epithelium (RPE). RPE is a critical cell type in normal retinal homeostasis and plays major roles in photoreceptor health. In addition, RPE is responsible for the regulation of inflammatory responses in the ocular micro-environment and for maintenance of the blood brain barrier.

#### Clinical Research

Dr Gordon collaborates with other members of the Jules Stein Eye Institute on several clinical projects. Under the direction of Bradley R. Straatsma, MD, JD, a method for the prospective and thorough clinical evaluation of patients undergoing cancer immunotherapy was developed and is being currently used in prospective tests. A clinical study of visual field testing in patients with birdshot chorioretinopathy is being conducted with Ralph D. Levinson, MD, and Gary N. Holland, MD. Finally, studies are ongoing to determine the reliability of new visual field testing strategies.



#### Public Service

Alternate Councilor representing Women in Ophthalmology for the American Academy of Ophthalmology

Media Spokesperson representing the North American Neuro-Ophthalmology Society at the American Academy of Ophthalmology

Member of the Medical Scientist College Advisory Council for the UCLA School of Medicine

Member of the Steering Committee for the annual meeting of the Federation of Clinical Immunology Societies (FOCIS)

Program Director for the Los Angeles Eye Society

Executive Committee, NORDIC (Neuro-Ophthalmology Research Disease Investigator Consortium)

#### Honors

Invited Lecturer at the American Academy of Ophthalmology neuro-ophthalmology subspecialty day in Anaheim, California, held November 16–18, 2003

Invited Lecturer at the 1<sup>st</sup> Ibero-American Congress of Neuro-Ophthalmology in Lima, Peru, held December 6–8, 2003

Invited Lecturer at the People's Hospital of China, in Beijing, China, on June 28, 2004

#### Research Grants

National Eye Institute: Beta-B1 Crystallin-A New Candidate for Uveitis Autoantigen, 9/1/01–8/31/04

American Health Assistance Foundation: Role of EMP2 in RPE Homeostasis, 4/01/04–3/31/06

Research to Prevent Blindness: James S. Adams Scholar Award, 6/1/02–5/31/04

## Michael O. Hall, PhD

Professor of Ophthalmology  
Member of the Jules Stein Eye Institute

### Research Summary

#### **Retinal Biochemistry, Retinal Degeneration, Cellular Interaction and Metabolism of Retinal Pigment Epithelium**

Dr Michael Hall is studying the molecular signaling processes involved in the phagocytosis of outer segments (OS) by retinal pigment epithelial (RPE) cells. Our studies over the past five years have been directed toward identifying the ligand-receptor interactions involved in this process. Using cultures of rat RPE cells, we have been able to show that the ligand Gas6 specifically interacts with the receptor tyrosine kinase, Mer, situated on the apical surface of the RPE cell. When either Gas6 or Mer are absent, as in the mutant RCS strain of rat, OS phagocytosis does not occur, and retinal degeneration results. We are currently investigating the localization of Gas6 in the eye, using both immunohistochemistry and in situ hybridization. Ongoing studies are directed toward defining the intracellular pathways involved in this signaling process.

### Public Service

Reviewer for several scientific journals

### Research Grant

National Eye Institute: Studies of Gas6/Merck Mediated Phagocytosis of OS by RPE Cells, 9/01/03 – 8/31/06



## David Rex Hamilton, MD

Assistant Professor of Ophthalmology  
Director, UCLA Laser Refractive Center  
Associate Member of the Jules Stein Eye Institute

### Research Summary

#### Corneal and Intraocular Refractive Surgery

Dr Hamilton's research interests are in the areas of refractive surgical techniques including the refinement of new customized procedures, particularly those designed to treat patients with complications from previous refractive surgery. He is also interested in the clinical study of intraocular lenses for the treatment of high myopia and presbyopia. Currently, he is developing clinical studies in custom LASIK enhancements and conductive keratoplasty for the treatment of post-refractive surgical irregular astigmatism. Dr Hamilton is also actively involved in training residents and fellows in the surgical treatment of refractive errors.

### Public Service

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

### Honors

*Who's Who in Science and Engineering, 7<sup>th</sup> Edition, 2003–2004*

Invited Lecturer at the Intacs Users Forum, held in conjunction with the annual meeting of the American Society of Cataract and Refractive Surgery, in San Diego, California, on May 2, 2004



## John R. Heckenlively, MD

Vernon O. Underwood Family Professor of Ophthalmology  
Director of the UCLA Vision Genetics Center  
Member of the Jules Stein Eye Institute

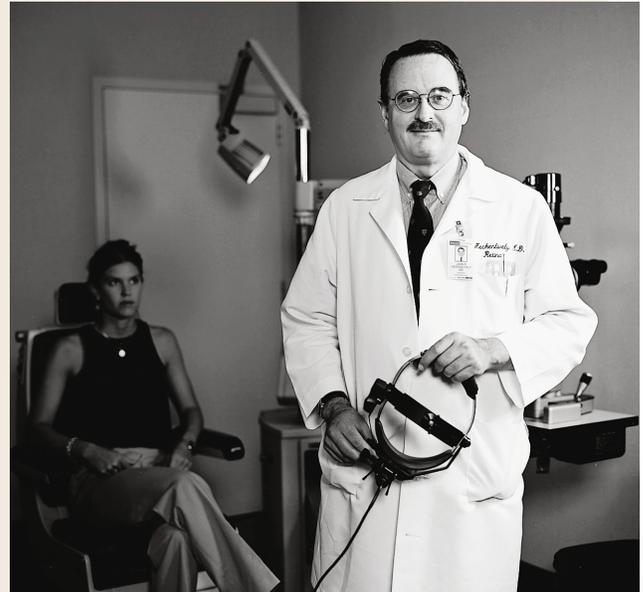
*Dr Heckenlively left UCLA in December 2003 to join the Kellogg Eye Center in Ann Arbor, Michigan, as the Paul R. Lichter Professor of Ophthalmic Genetics and Director of the Macular and Retinal Degeneration Center.*

### Research Summary

#### Retinal Disease: Hereditary and Autoimmune Disorders

Dr Heckenlively is particularly interested in inherited diseases of the eye and retinal diseases, including forms of macular degeneration and retinitis pigmentosa (RP). To better understand retinal degenerations, investigators are identifying and studying the genes underlying these disorders. One research approach used by Dr Heckenlively is the study of families with hereditary eye disorders. Examination of DNA samples from patients with retinal degenerations and careful characterization of their ocular disorders help uncover new genetic forms, which are then studied through electrophysiologic and psychophysic techniques, as well as biochemical tests. Some forms of retinal disorders, such as RP and macular degeneration have autoimmune components, which are under investigation.

Because human eye tissue is precious and generally unavailable for examination, mouse models of eye disease are frequently employed in genetics research in the laboratory. This approach is expected to contribute to rapid progress and a better understanding of eye diseases in humans. Dr Heckenlively is the recipient of a major grant to study and find new genes in mouse ocular disorders, which will provide models for human diseases. To date, over 100 models have been discovered, including mouse models for retinitis pigmentosa, macular degeneration, glaucoma and cataracts.



#### Public Service

Member of the Editorial Board for: *Documenta Ophthalmologica* and *EyeNet*

Ad Hoc Grant Reviewer for the following organizations: British Retinitis Pigmentosa Society, Canadian Retinitis Pigmentosa Foundation, Medical Research Council of Canada, National Institutes of Health, National Institute of Dental and Craniofacial Research, The Foundation Fighting Blindness, and Wellcome Trust

Reviewer for many professional journals

#### Research Grants

Research to Prevent Blindness: Physician Scientist Award, 1/1/01–12/31/05

National Eye Institute/Harbor–UCLA Medical Center: Mouse Models of Human Hereditary Eye Diseases, 4/1/03–3/31/06

## Gary N. Holland, MD

David May II Professor of Ophthalmology  
 Chief of the Cornea-External Ocular Disease  
 & Uveitis Division  
 Director of the Ocular Inflammatory Disease Center  
 Director of the Jules Stein Eye Institute  
 Clinical Research Center  
 Member of the Jules Stein Eye Institute

### Research Summary

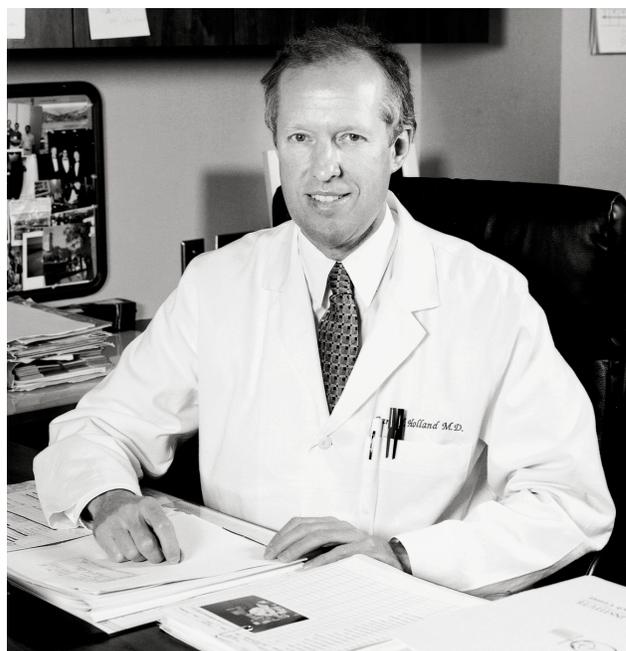
#### Uveitis, Cornea and External Ocular Disease

Dr Holland's research interests involve infectious and inflammatory diseases of the eye. A major focus of current research is ocular toxoplasmosis, the most common cause of retinal infections in the general population. This parasitic infection occurs worldwide, and can lead to severe vision loss. Dr Holland is conducting epidemiological and laboratory investigations to understand the sources of infection, course of disease, response to treatment, and outcomes more thoroughly. Studies are also being conducted to identify both host and parasite factors that are related to disease severity. This information may lead to better strategies for prevention of eye involvement or treatment of active eye disease.

Since 1981, Dr Holland has been involved in the study of HIV-related eye disease. Studies are being performed to investigate risk factors for development of, and long-term outcomes associated with, cytomegalovirus (CMV) retinitis, a blinding infection among severely immunosuppressed patients. The introduction of potent antiretroviral therapies to treat HIV infections has reduced, but not eliminated, the risk of developing CMV retinitis. In another group of studies, Dr Holland is investigating abnormalities of blood flow in the retinae of HIV-infected individuals, which may lead to retinal damage similar to diabetic retinopathy. Dr Holland is also participating in a large, multicenter study to investigate how the ocular manifestations of HIV disease have changed since the introduction of potent antiretroviral drugs.

In another area of research, Dr Holland and colleagues are studying corneal infections with "nontuberculous mycobacteria," organisms related to tuberculosis. These uncommon infections occur after surgical procedures on the cornea, including refractive procedures, such as LASIK. Studies include the investigation of new, more effective antibiotics.

Dr Holland has established a special program to provide care for children with uveitis, in conjunction with members of the Department of Pediatrics. Through this program, he is studying the most effective techniques for evaluation and treatment of uveitis in this age group.



#### Public Service

Senior Associate Editor for the *American Journal of Ophthalmology*

Member of the International Council for the International Ocular Inflammation Society

President of the American Uveitis Society

Chairman of the Ethics and Regulation in Human Research Committee for the Association for Research in Vision and Ophthalmology, 2004–2007

Associate Examiner for the American Board of Ophthalmology

#### Honors

LX Edward Jackson Memorial Lecturer at the American Academy of Ophthalmology annual meeting in Anaheim, California, on November 16, 2003

Irvine Memorial Lecturer at the Doheny Eye Institute in Los Angeles, California, on June 12, 2004

#### Research Grants

Centers for Disease Control: Serologic Testing of Patients with Toxoplasmosis for a Presumed Outbreak of Water Borne Infection, 3/13/03–9/30/04

National Eye Institute/Johns Hopkins University: Studies of the Ocular Complications of AIDS (SOCA), 8/1/03–7/31/04

Research to Prevent Blindness: Physician Scientist Award, 1/1/03–12/31/07

## Joseph Horwitz, PhD

Oppenheimer Brothers Professor of Ophthalmology  
Member of the Jules 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 his laboratory, techniques have been developed for the microdissection of single human cataractous lenses and for separating, with the aid of a microscope, opaque areas and adjacent normal areas. The cataractous and normal lens sections then are studied with the aid of a high-performance liquid chromatography system that separates the chemical substances. This work should provide valuable information about the lens proteins, and contribute directly to understanding the processes involved in the development of cataracts. In addition, Dr Horwitz is investigating the molecular chaperone properties of the eye lens  $\alpha$ -crystallin, a protein that plays an important role in keeping the eye lens clear during normal aging.

### Public Service

Member of the National Eye Institute's Cataract Panel for the Vision Research National Plan 1998–2003

Ad hoc member of the Board of Scientific Counselors for the National Institutes of Health

Ad hoc member of the Study Section for R03 Grants for the National Eye Institute

Grant reviewer for the British Medical Research Council

Member of the Editorial Advisory Board for *Biochimica et Biophysica Acta*

Reviewer for many scientific journals

### Research Grants

National Eye Institute MERIT Award: Analysis of Microdissected Cataractous Human Lenses, 8/1/00–7/31/04

Research to Prevent Blindness: Senior Scientific Investigator Award, 1/1/99–12/31/03



## Wayne L. Hubbell, PhD

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

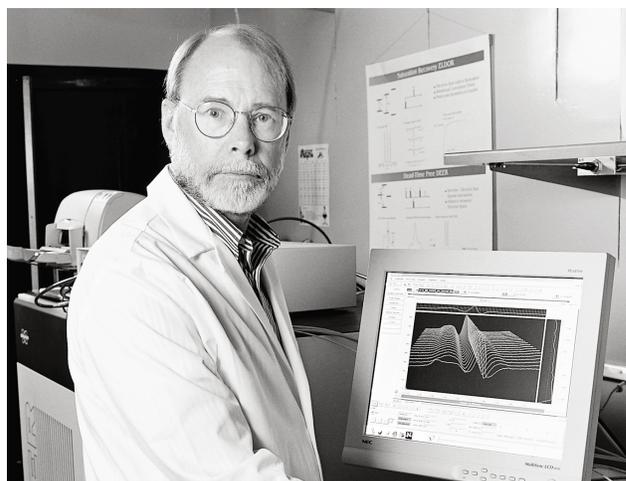
### Research Summary

#### Retinal Photoreceptor Membrane Structure and Function

Dr Hubbell's research is focused on understanding the relationship between the molecular structure of a protein and the conformational changes that control its function. Of particular interest are membrane proteins that behave as "molecular switches," i.e., proteins whose structures are switched to an active state by a physical or chemical signal. A primary example under study is light-activated rhodopsin, the visual pigment in photoreceptor cells of the retina. The goal is to elucidate the structure of rhodopsin, the mechanism of the molecular switch, and regulation of this switch by associated proteins, transducin and arrestin. Recently, his research has broadened to include structure/function relationships in water soluble proteins such as the lens protein  $\alpha$ -crystallin and the family of retinoid carrying proteins that transport vitamin A throughout photoreceptor cells.

To investigate these proteins, Dr Hubbell's laboratory has developed the technique of site-directed spin labeling (SDSL), 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 a wealth of information about the local environment in the protein. With a sufficiently large set of labeled proteins, global information on structure is obtained, and most importantly, changes in the structure during function can be followed in real time.

Using SDSL, Dr Hubbell's laboratory, in collaboration with colleagues at the Massachusetts Institute of Technology, has developed a topological map of rhodopsin and followed the detailed structural changes that take place upon activation by a single photon of light. Determining such molecular details is essential to understanding the underlying causes of retinal diseases such as retinitis pigmentosa.



### Public Service

Member of the Editorial Board for *Journal of Membrane Biology*

Member of the Advisory Committee for the National Biomedical Electron Paramagnetic Resonance (EPR) Center, at the Medical College of Wisconsin

Member of the Advisory Board for the Center for Low Frequency Electron Paramagnetic Resonance (EPR) for In Vivo Physiology, at the University of Chicago

Member of the National Institutes of Health Study Section for Biophysical Chemistry

Member of the Advisory Committee for the Solid-state NMR of Proteins Resource Center, University of California, San Diego

Member of the Advisory Committee for the Advanced ESR Technology Research Center, Cornell University

Chairman of the Scientific Advisory Board for The Karl Kirchgessner Foundation Vision Science Program

Reviewer for many scientific journals

### Honors

Zavoisky Award from the Kazan Physical-Technical Institute of the Russian Academy of Sciences, bestowed at the annual workshop on Modern Development of Magnetic Resonance in Kazan, Russia, held September 16–21, 2003

Bruker Prize from the Royal Society of Chemistry EPR Group, bestowed at the 37<sup>th</sup> Annual International Meeting in Warwick, England, held March 28–April 1, 2004

### Research Grants

National Eye Institute: Molecular Basis of Membrane Excitation, 5/1/00–4/30/05

Research to Prevent Blindness: Senior Scientific Investigator Award, 1/1/00–12/31/04

Defense Advanced Research Projects Agency (DARPA): Development of a Single Electron Spin Microscope, 2/2/02–12/31/03

National Eye Institute: Core Grant for Vision Research, 3/1/04–2/28/09

## Sherwin J. Isenberg, MD

Grace and Walter Lantz Professor  
of Pediatric Ophthalmology  
Professor of Pediatrics  
Vice-Chairman of the UCLA Department of Ophthalmology  
Chief of the Ophthalmology Division,  
Harbor-UCLA Medical Center, Torrance  
Member of the Jules Stein Eye Institute

### Research Summary

#### Pediatric Ophthalmology, Amblyopia and Ophthalmic Pharmacology

Dr Isenberg's research activities have concentrated on various aspects of surgical and medical diseases of children's eyes. The goal is to decrease the frequency of blindness in children worldwide. In a series of studies of newborns, Dr Isenberg has characterized a number of elements: the type and source of bacteria of the external eye; the evolution of iris structural changes; the development of the macula, which is the source of central vision; and pupillary responses after birth. Recent publications have characterized the production and nature of tears of infants. A forthcoming paper will describe how the cornea develops 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 eye drops have been found to successfully treat bacterial conjunctivitis in a three-year, international study with the University of the Philippines. The eye drops were also found to be safer and more effective in preventing eye infections than the currently used agents. Dr Isenberg and other investigators are currently conducting new studies to evaluate the eye drops to treat the number one cause of preventable pediatric blindness in the world—corneal infections due to bacteria and fungi. These studies are ongoing in children in India and the Philippines. Another study in Kenya evaluating new treatment schedules using povidone-iodine eye drops to prevent conjunctivitis of newborns has just been published.

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 with adults undergoing cardiac bypass surgery. The hope is to eventually 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 should keep the oxygen at an appropriate level, minimizing the possibility of retinopathy of prematurity.

### Public Service

Editor-in-Chief of the *Journal of the American Association for Pediatric Ophthalmology and Strabismus*

Member of the Board of Directors and Medical Advisory Board; and Chairman of the Research Committee for the Blind Children's Center

Reviewer for many professional journals

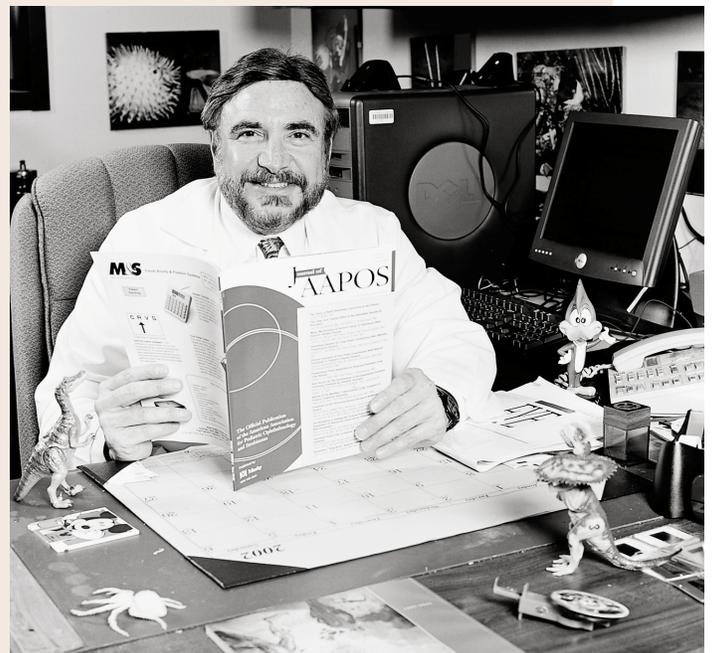
### Honors

Visiting Professor at Hadassah-Hebrew University  
Department of Ophthalmology in Jerusalem, Israel, in December 2003

### Research Grants

Research to Prevent Blindness: Senior Scientific Investigator Award, 1/1/01–12/31/05

Thrasher Research Foundation: A Clinical Trial of Povidone-iodine for the Treatment of Bacterial Corneal Ulcers, 4/1/02–3/31/04 (with Leonard Apt, MD)



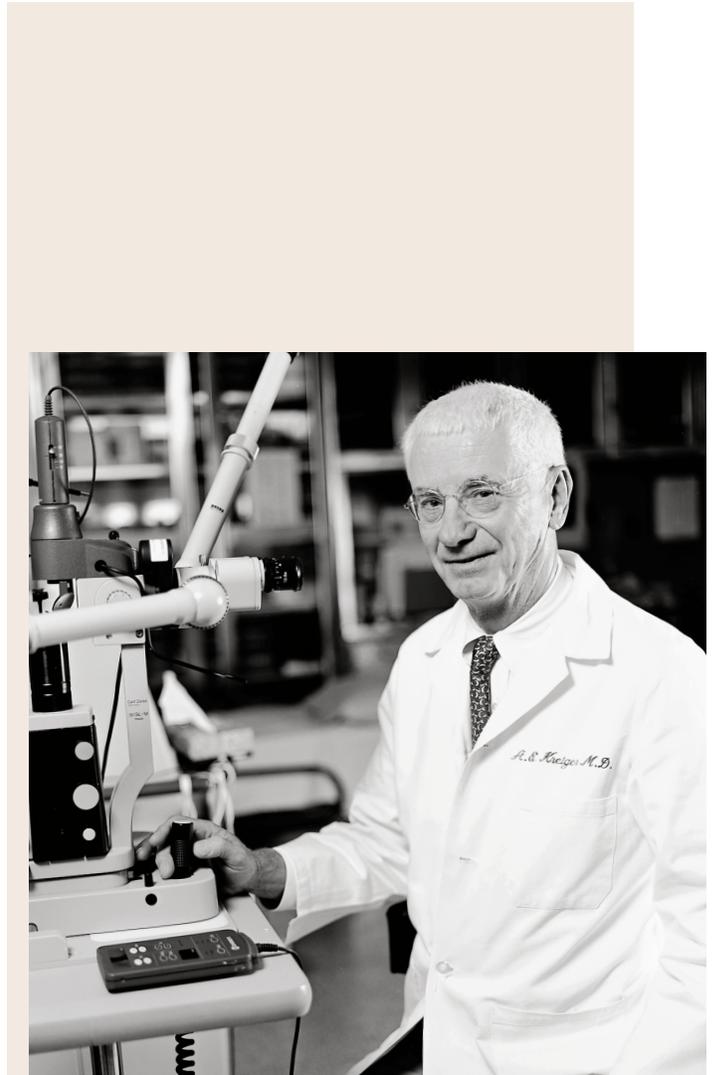
## Allan E. Kreiger, MD

Professor of Ophthalmology  
Member of the Jules Stein Eye Institute

### Research Summary

#### Retinal Disease and Retinovitreal Surgery

Dr Kreiger is particularly interested in the expanding field of vitreoretinal surgery. He has worked to clarify the indications for improved outcomes of operations on complex forms of vitreous and retinal diseases, including diabetic retinopathy, complicated rhegmatogenous retinal detachment, and ocular trauma. He has designed numerous surgical instruments and has developed a wide array of surgical techniques. He is particularly interested in the surgical incisions made in the *pars plana* during vitrectomy and has reported several basic science and clinical investigations that define normal healing as well as the complications that can occur when healing is abnormal. His most recent work examined the epidemiology of proliferative vitreoretinopathy, the most complex form of retinal detachment. In this work, the risk of visual loss in the fellow eye was surveyed and found to be much higher than previously suspected.



### Public Service

Reviewer for several ophthalmic journals

## Simon K. Law, MD, PharmD

Assistant Professor of Ophthalmology  
Chief of the Section of Ophthalmology Surgical Services,  
Department of Veterans Affairs  
Greater Los Angeles Healthcare System  
Associate Member of the Jules Stein Eye Institute

### Research Summary

#### Optic Nerve Evaluation

Dr Law is assessing the optic nerve head and nerve fiber layer in patients with different retinal diseases and optic nerve head anomalies. Current research involves the quantitative measurement of the optic nerve head structure with different laser imaging techniques in patients with advanced age-related macular degeneration, congenital tilted disc syndrome, and acquired myopic tilted disc lesion. It is hoped that the findings will help clinicians to better evaluate the optic nerve head in patients with the above ocular pathology and glaucoma.

#### Glaucoma

Dr Law is analyzing surgical outcomes for Asians who received various types of glaucoma surgeries at the Jules Stein Institute. He is also interested in the outcome of different types of glaucoma tube shunt procedures for complicated glaucoma; current research involves comparing the effectiveness of different tube shunt devices. There are limited studies of glaucoma in the Asian population, especially surgical outcomes.

Utilizing his background in pharmacology, Dr Law is studying the outcomes of the currently available medications for glaucoma. He is conducting studies to compare the efficacy of the different prostaglandin glaucoma eye drops.

#### Public Service

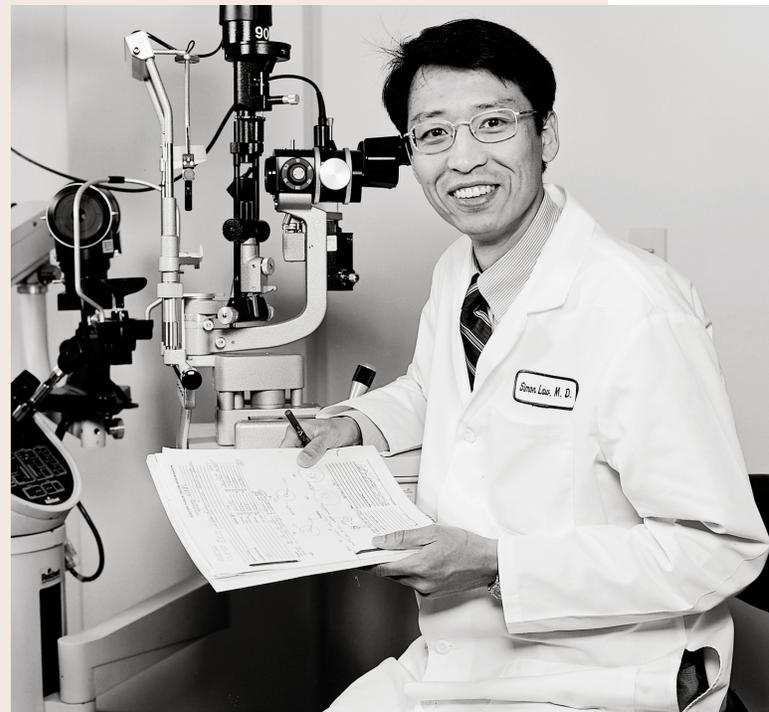
Reviewer for several ophthalmology journals

#### Honors

2004 Jules Stein Eye Institute Faculty Teaching Award

#### Research Grant

Southern California Permanente Medical Group:  
Retrospective Analysis of Two Prostaglandin Drugs for the  
Treatment of Glaucoma, 12/01/03–12/31/04



## Ralph D. Levinson, MD

Assistant Professor of Ophthalmology  
Medical Director of University Ophthalmology Associates  
Associate Member of the Jules Stein Eye Institute

### Research Summary

#### Inflammatory Eye Diseases and Comprehensive Ophthalmology

Dr Levinson's research interests are in the areas of ocular inflammatory diseases, comprehensive ophthalmology, small incision cataract surgery, and ocular involvement in systemic disease and medical education. He is also interested in the interface of comprehensive ophthalmology and other medical disciplines both in practice and in the education of physicians during and after medical school training. Currently, he is developing clinical studies in uveitis, as well as studies of cataract surgery in eyes complicated with inflammatory disease.

### Public Service

Reviewer for several ophthalmic journals

### Research Grants

MacDonald Family Foundation: Mechanisms of Inflammatory Disease Associated with Human Leukocyte Antigen (HLA), 5/1/02–6/30/05

MacDonald Family Foundation: Immunogenetics, 7/1/03–6/30/04

Gerald H. Oppenheimer Family Foundation: Accupressure for Dry Eye, 10/1/03–9/30/04



## John D. McCann, MD, PhD

Associate Professor of Ophthalmology  
Co-Director of the UCLA Aesthetic Center  
Member of the Jules Stein Eye Institute

### Research Summary

#### Computerized Clinical Research Tools

Dr McCann's primary research area involves the development of computer technology for clinical research, education and patient care. Specifically, he is interested in creating an electronic medical record to facilitate collaborative research efforts in ophthalmic plastic surgery while providing a reference tool for physicians in training. Computerization of medical records and images greatly facilitates retrospective analysis of clinical data, enabling researchers at several facilities to share information at the same time. Online information linked to medical records will also provide an immediate and timely resource for physicians at all levels of training, augmenting their education and enhancing their performance when conducting patient evaluations.

#### Conjunctival Cicatrization

Dr McCann is developing surgical techniques and materials for patients with cicatricial conjunctivitis (inflammation caused by scarring of the eyelid) for use in the field of ophthalmic plastic and reconstructive surgery.



#### Public Service

Executive Editor for *American Journal of Ophthalmology*  
Reviewer for *Ophthalmic Plastic and Reconstructive Surgery*

#### Research Grant

Joyce J. Cammilleri Family Fund: Benign Essential  
Blepharospasm, 1/14/04–1/13/05

## Kevin M. Miller, MD

Associate Professor of Clinical Ophthalmology  
Member of the Jules Stein Eye Institute

### Research Summary

#### Comprehensive Ophthalmology/Cataract Surgery

Dr Miller's research interests are in refractive cataract surgery, intraocular lenses, ophthalmic optics, and surgical outcomes. He is an investigator for the Alcon Laboratories toric intraocular lens that corrects astigmatism at the time of cataract surgery, and for the Ophtec USA model 311 aniridia lens that simultaneously corrects surgical aphakia and iris defects. He obtained a humanitarian device exemption from the U.S. Food and Drug Administration (FDA) to implant Morcher GmbH aniridia implants in eyes with congenital and acquired iris defects. He recently completed the Ophtec USA capsular tension ring clinical trial; this device is now FDA approved. He participated in the development and national launch of the Alcon Laboratories Infiniti Vision System. He continues to work with Alcon to study the thermal effects of its phacoemulsification systems.

Dr Miller is interested in the cataract surgical outcomes of functionally one-eyed patients. He published some of the initial investigations on this topic, including a large surgical case series and a case-control study, both of which found a high prevalence of ocular comorbidity in monocular patients. He recently showed that monocular patients experience a two-fold greater improvement in functional vision than age- and sex-matched binocularly sighted controls despite similar gains in best-corrected Snellen visual acuity. He also showed that monocular patients require more effort at the time of cataract surgery than binocular patients.

Dr Miller is interested in the surgical outcomes of patients who undergo cataract surgery following retinal surgery. He published one of the initial investigations on phacoemulsification after *pars plana* vitrectomy, and one of the first papers on cataract surgery by the phacoemulsification technique following retinal detachment repair by scleral buckle placement. Currently he is studying a series of patients with complicated retinal histories, including both *pars plana* vitrectomy and scleral buckling.

Additional ongoing studies include an analysis of the incidence of posterior capsule opacification requiring Nd:YAG capsulotomy after anterior capsule polishing, an analysis of evolving indications for intraocular lens exchange, a review of the outcomes of zero and minus power intraocular lens implantation, and an analysis of astigmatism outcomes following cataract surgery combined with astigmatic keratotomy.

### Public Service

Chairman of the American Academy of Ophthalmology's Basic and Clinical Science Course, Section 3 Committee (Optics, Refraction, and Contact Lenses)

Member, American Academy of Ophthalmology Anterior Segment Knowledge Base Panel

Member of the Editorial Board for *Comprehensive Ophthalmology Update*

Reviewer for several ophthalmology journals

### Honors

Invited Guest Speaker at the 7<sup>th</sup> Malaysian Small Incision Surgeons' meeting in Pahang, Malaysia, held August 31–September 1, 2003

Invited Lecturer at the American Academy of Ophthalmology annual meeting in Anaheim, California, held November 16–18, 2003

Guest Speaker at the Phaco Advancement in China Today (PACT) meeting in Chengdu, China, held April 16–19, 2004

Faculty Panelist at Alcon Cataract and Refractive Live Surgery program in San Diego, California, on May 1, 2004

Best Paper of Session Award from the American Society of Cataract and Refractive Surgery bestowed at the annual meeting in San Diego, California, on May 5, 2004

### Research Grants

Alcon Pharmaceutical Company: Clinical Investigation of ACRYSOF Single-Piece Toric Intraocular Lens Model SA60T, 4/1/02–4/30/05

UCLA Academic Senate Faculty Grant Program: Clinical Evaluation of Two Artificial Iris Implants, 7/1/03–6/30/04



## Bartly J. Mondino, MD

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

### Research Summary

#### Corneal and External Ocular Diseases and Immunological Disorders

Dr Mondino's research activity is focused on corneal-external ocular diseases, with particular emphasis on immunological disorders. He is studying 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 is being explored; Dr Mondino is studying the immune response to staphylococcal endophthalmitis. Other research interests include corneal dystrophies, peripheral corneal ulcers, bullous diseases of the skin and mucous membranes, collagen shields, and contact lens-related corneal ulcers.



#### Public Service

Member of the Board of Directors for the Braille Institute  
Member of the Editorial Board for the following journals:  
*Ophthalmic Surgery* and *Ophthalmology Times*  
President of the Association of University Professors of  
Ophthalmology

#### Research Grant

Research to Prevent Blindness: Unrestricted Grant Award,  
1/1/04–12/31/04

## Steven Nusinowitz, PhD

Assistant Professor of Ophthalmology  
Associate Member of the Jules Stein Eye Institute

### Research Summary

#### Mechanisms of Retinal Degeneration

Dr Nusinowitz's primary research interest is the study of the sites and mechanisms of disease action in inherited eye diseases such as retinitis pigmentosa and macular degeneration. Using electrophysiological and psychophysical techniques, he is evaluating patients with diseases of the retina with known genetic abnormalities to better understand how specific gene mutations result in the wide spectrum of disease expression. In the laboratory, he is studying naturally occurring mouse models of retinal disease in order to identify new candidate genes that may be involved in human disease. Additionally, he is using a mouse model to study a variety of therapeutic interventions that may eventually halt or reverse the progression of some forms of retinal disease.

#### Public Service

International Scholar and Consultant for Visual Physiology, Department of Ophthalmology, Federal University of São Paulo, Brazil, 2001–2005

#### Research Grant

The Foundation Fighting Blindness: Center Grant, 7/1/00–6/30/05 (with other Investigators)



## Natik I Piri, PhD

Assistant Professor of Ophthalmology  
Associate Member of the Jules Stein Eye Institute

### Research Summary

#### **Biochemistry and Molecular Biology of Retinal Ganglion Cells; Mechanism of Retinal Ganglion Cell Death in Glaucoma**

The main objective of Dr Piri's research is aimed toward understanding the molecular mechanisms leading to retinal ganglion cells (RGC) death in glaucoma. Although, it has been established that RGC die by apoptosis, the exact pathway from death stimulus to cell death is not completely understood. As an initial step in this direction, Dr Piri is analyzing gene expression patterns that are altered in glaucomatous retinas, using DNA microarrays and proteomics technologies, as well as conventional molecular biology, biochemistry and genetic methods.

Dr Piri is also working on identification of new genes whose expression is restricted to the retinal ganglion cells. Once these genes are identified, Dr Piri will study their possible involvement in glaucoma and other optic neuropathies. Lastly, he will investigate the function of the corresponding proteins of these new genes in RGC differentiation, metabolism and structural features. Gene and protein expression studies may lead to a better understanding of the regulatory events involved in RGC apoptosis, and provide molecular targets for development of new therapeutic agents with neuroprotective effect in order to prevent or delay the loss of ganglion cells in glaucoma.



### Honors

The Stein Oppenheimer Endowment Award

## Arthur L. Rosenbaum, MD

Professor of Ophthalmology  
Chief of the Pediatric Ophthalmology  
and Strabismus Division  
Vice-Chairman of the UCLA Department of Ophthalmology  
Member of the Jules Stein Eye Institute

### Research Summary

#### Pediatric Ophthalmology, Strabismus, Retinal Disease and Ophthalmic Surgery

Dr Rosenbaum's research emphasis is in the field of strabismus (misalignment of the eyes). He is one of the original investigators in the area of botulinum toxin injection of extraocular muscles in the treatment of strabismus and facial spastic disorder. He continues to be involved in research projects utilizing this treatment following surgical overcorrection and undercorrection in an attempt to avoid reoperation; and for sixth nerve palsy.

Dr Rosenbaum is presently working on new surgical approaches to complicated strabismus problems resulting from trauma and congenital problems, where most of the ocular muscles are not functioning correctly. He has recently completed studies on strabismus complications following cosmetic blepharoplasty and on the use of adjustable suture strabismus surgery in children.

Dr Rosenbaum has recently co-authored a major textbook on strabismus.

### Public Service

Member of the Editorial Board for the *Archives of Ophthalmology*

Vice President of the Administrative Council of the International Strabismological Association

Reviewer for many professional journals

### Honors

Costenbader Lecturer at the American Association for Pediatric Ophthalmology and Strabismus annual meeting in Washington, DC, on March 28, 2004

Physician-Scientist Award from Research to Prevent Blindness, bestowed January 1, 2004



## Steven D. Schwartz, MD

Associate Professor of Ophthalmology  
Chief of the Retina Division  
Director of the UCLA Diabetic Eye Disease  
and Retinal Vascular Center  
Member of the Jules Stein Eye Institute

### Research Summary

#### Vitreoretinal Ocular Diseases

Dr Schwartz's research interests involve vitreoretinal diseases, with particular emphasis on vasoproliferative diseases, such as retinopathy of prematurity and diabetic eye disease; and degenerative diseases like macular degeneration. Clinical research includes novel laser applications such as trans-scleral diode laser and picosecond laser; surgical anatomy and microanatomy of vitreoretinal pathology, such as advanced traction retinal detachment in proliferative diabetic retinopathy and retinopathy of prematurity; and etiology, epidemiology and treatment of idiopathic macular hole.

Dr Schwartz also has a strong interest in improving both the quality of and access to specialized ophthalmology care through innovative teleophthalmological approaches to screening for eye diseases, specifically diabetic retinopathy and retinopathy of prematurity (ROP). Currently, a collaborative program with the Gonda Diabetes Center 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 Jules Stein Eye Institute for interpretation and follow-up. Also under study is a revolutionary hand-held digital camera, which takes high-resolution panoramic digital images of the retina of premature babies in order to screen for ROP.



#### Public Service

Reviewer of educational materials for the American Academy of Ophthalmology and the United States Department of Veterans Affairs

Member of the UCLA Hospital Speakers' Committee

Reviewer for many ophthalmic journals

#### Honors

Invited lecturer at the New Therapies in Retina Diseases conference in Rome, Italy, held June 4–5, 2004

#### Research Grant

Joyce J. Cammilleri Family Fund: Age-Related Macular Degeneration, 1/14/04–1/13/05 (with Kent W. Small, MD)

## Kent W. Small, MD

Professor of Ophthalmology  
 Director of the UCLA Macular Disease Center  
 Medical Advisor for the UCLA Vision Rehabilitation Center  
 Member of the Jules Stein Eye Institute

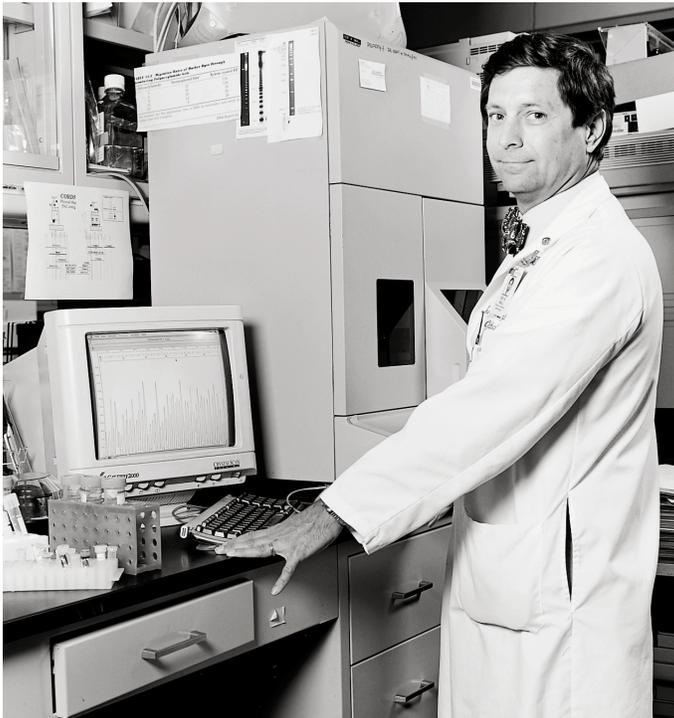
*Dr Small left UCLA in July 2004.*

### Research Summary

#### Macular Disease and Ocular Gene Therapy

Dr Small conducts both basic science and clinical research into macular and retinal diseases. In the laboratory, he has localized several disease-causing genes. Currently, he is working on defining the mutations that cause macular degeneration and developing a research protocol for this disease using gene therapy. In clinical research, Dr Small is conducting several studies that may serve as treatments for “wet” macular degeneration (AMD). These include oral medications (including anti-neovascular drugs), surgery, radiation and a new type of laser therapy called TTT (transpupillary thermotherapy). Additionally, a new drug for the prevention of proliferative diabetic retinopathy is being tested.

Dr Small is participating in an international consortium for the genetic studies of age-related macular degeneration.



### Public Service

Reviewer of grant applications for the Canadian Research Council, the Canadian Retinitis Pigmentosa Foundation, and The Foundation Fighting Blindness

Elected Member of the American Ophthalmological Society and the Pan-American Ophthalmological Association

Member of the Advisory Board for the National Association for the Visually Handicapped

Member of the Editorial Board for *Molecular Vision*

Reviewer for many professional journals

### Research Grants

The Foundation Fighting Blindness: Center Grant, 7/1/00–6/30/05 (with other Investigators)

Novartis Pharmaceutical Company: ... Sandostatin LAR ... for Patients with Diabetic Retinopathy or Low Risk Proliferative Diabetic Retinopathy, 11/13/00–1/1/06

Novartis Pharmaceutical Company: Phase III... Trial... Intramuscular Injections... for Patients with Diabetic Retinopathy... 11/13/00–1/1/04

National Eye Institute: Cloning the Gene for Blepharophimosis Syndrome, 8/1/01–7/31/04

Research to Prevent Blindness/Mrs. Merrill Parks Award: Study of Macular Degeneration, 8/29/01–8/29/04

Genentech: Phase II Trial... Intravitreal Injections... for Patients with Exudative Age-Related Macular Degeneration... 1/1/02–5/31/03

Genentech: Phase II Trial... Intravitreal Injections... for Patients with Exudative Age-Related Macular Degeneration ... 5/15/03–12/31/04 (with Steven D. Schwartz, MD)

Joyce J. Camilleri Family Fund: Age-Related Macular Degeneration, 1/14/04–1/13/05 (with Steven D. Schwartz, MD)

Muscular Dystrophy Association: Hereditary Motor and Sensory Neuropathy Type IV, Gene Mapping and Positional Cloning – Marie Tooth Disease, 07/01/03 – 06/30/06

Genentech: Phase III... Safety and Efficacy of rhuFab V2... Age Related Macular Degeneration, 08/18/03–12/31/05

## Hui Sun, PhD

Assistant Professor of Physiology and Ophthalmology

### Research Summary

#### Macular Degeneration Etiology; Regulation of Photoreceptor Cells by Light and Dark

Dr Sun's laboratory studies pathological mechanisms of macular degeneration and physiological mechanisms in photoreceptor cells. Bruch's membrane is a natural barrier to choroidal neovascularization (CNV), the major cause of blindness in "wet" age-related macular degeneration (AMD). Leading hypotheses point to a change in Bruch's membrane as the ultimate trigger to hypoxia and inflammation, which in turn leads to CNV. Dr Sun is trying to understand the causes of this change in Bruch's membrane at the molecular level through animal models. Animal models make it possible to study not only the terminal phenotypes, but also the sequential events leading to these phenotypes. Knowledge of these pathways will help design more effective ways to treat or to prevent the disease.

Another avenue of Dr Sun's research is the study of the regulation of photoreceptor cells in light and dark. Since the photoreceptor cell functions as a light sensor, it is not surprising that light and dark regulate many of its cellular processes. For example, the photoreceptor cell has an intrinsic circadian clock that is independent of the brain's. Light and dark regulate this clock, which in turn orchestrates many photoreceptor functions. Light and dark also initiate reciprocal translocation of phototransduction proteins in and out of photoreceptor outer segments. The mechanism for this translocation is still enigmatic. Dr Sun is using a combination of *in vivo* and *in vitro* approaches to shed light on this process.



### Research Grants

The Karl Kirchgessner Foundation Award: Morphogenesis of Photoreceptor Outer Segment, 11/1/03–10/31/04

The Stein-Oppenheimer Endowment Award: Identification of the Receptor for Vitamin A Uptake in the Eye, 3/1/04–2/28/04

The Ruth and Milton Steinbach Fund: Dissection of a Molecular Pathway in Bruch's Membrane, Leading to Macular Degeneration, 7/1/04–6/30/06

## Gabriel H. Travis, MD

Charles Kenneth Feldman Professor of Ophthalmology  
Member of the Jules Stein Eye Institute

### Research Summary

#### Biochemistry of Vertebrate Photoreceptors and Mechanisms of Retinal Degeneration

Dr Travis' research group uses biochemical and genetic approaches to study the function of photoreceptor cells. Vision in vertebrates is mediated by two types of light-sensitive cells—rods and cones. The light-sensitive structure of rods and cones is the outer segment, comprising a stack of flattened disks filled with opsin visual-pigment. Mice with the spontaneous mutation, *retinal degeneration slow* or *rds* completely lack outer segments. Dr Travis originally cloned the gene for *rds* and helped to show that mutations in the corresponding human gene are responsible for an inherited blinding disease called retinitis pigmentosa in some families. One project in his lab is to define the role of *rds* in the folding of outer-segment discs. A second project in the Travis lab is to study the function of a newly identified transporter protein called ABCR. Mutations in the human ABCR gene are responsible for a childhood blinding-disease called Stargardt's macular degeneration. The Travis group generated mice with a mutation in this gene. Biochemical analysis of the phenotype in *abcr*-mutant mice led them to the molecular cause of Stargardt's disease. This understanding suggested a pharmacological strategy to reverse the biochemical defect in *abcr*-mutant mice. Testing of this strategy is underway with encouraging preliminary results. Still another project ongoing in the Travis lab 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 his group point to the existence of a new pathway for regenerating visual pigments in cones. The Travis group is currently working to purify and clone the enzymes that define this new biochemical pathway.

### Public Service

Member of the Scientific Advisory Panel for The Karl Kirchgessner Foundation Vision Science Program  
Reviewer for many scientific journals

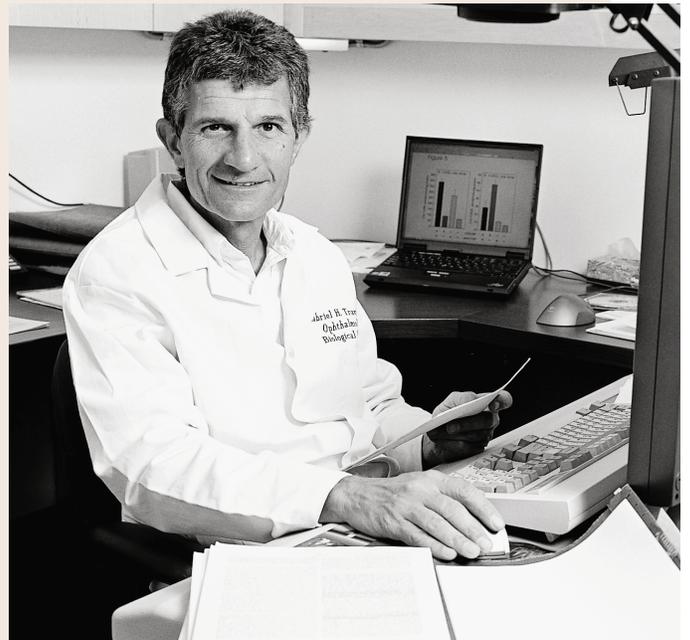
### Research Grants

The Foundation Fighting Blindness: Center Grant, 7/1/00–6/30/05 (with other Investigators)

National Eye Institute: Function/Interaction of RDS/ Peripherin in Photoreceptors, 6/1/01–5/31/04

Research to Prevent Blindness: Stein Professorship Award, 7/1/01–6/30/06

National Eye Institute: Regeneration of Cone Pigments and Treatment of Stargardt's Disease, 3/1/02–2/28/07



## Barry A. Weissman, OD, PhD

Professor of Ophthalmology  
Member of the Jules Stein Eye Institute

### Research Summary

#### Corneal Contact Lenses and Corneal Oxygen Transport

Dr Weissman is studying the optics and physiological tolerance of contact lens systems. He has specified a model that predicts optical changes that are induced when a hydrogel (soft) contact lens “wraps” onto a human cornea. This model has shown its applications in lens design. Dr Weissman has also been investigating the severe complications occasionally encountered with contact lens wear, such as neovascularization, abrasion and corneal infection. He continues to be interested in systems for oxygen supply to the corneas of contact lens wearers, and in the ability of contact lenses and emerging ophthalmic devices to transmit oxygen. Keratoconus, a corneal disease treated with contact lenses, is another area of interest. Dr Weissman is the principal investigator for the UCLA center of the National Eye Institute-sponsored Collaborative Longitudinal Evaluation of Keratoconus (CLEK) study.

#### Public Service

Member of the Editorial Review Board for the following journals: *Journal of the British Contact Lens Association*, *Evidence-Based Eye Care*, and *Eye & Contact Lens*

Member of the Admittance Committee for the American Academy of Optometry (Scientists, Region 6), 1995–present

Consultant to the Ophthalmic Devices Advisory Panel, U.S. Food and Drug Administration, 2001–present

Advisor to The Center for Keratoconus, 2003–present

Referee for many professional journals

#### Research Grant

National Eye Institute/Ohio State University: Collaborative Longitudinal Evaluation of Keratoconus (CLEK) Study, 9/30/00–9/29/04



## Xian-Jie Yang, PhD

Assistant Professor of Ophthalmology  
Member of the Jules Stein Eye Institute

### Research Summary

#### Development of the Vertebrate 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 make cell fate choices during formation of the retina. To achieve these goals her laboratory uses a variety of molecular and biochemical approaches to study genes involved in cell-to-cell communication, intracellular signal transduction, and neuronal differentiation. One important tool that Dr Yang utilizes is retroviral vector (special laboratory-based viruses) mediated gene transfer. This method allows the introduction of wild-type and mutant genes into the developing and mature retina for the analysis and rescue of gene functions. In addition, Dr Yang's laboratory is developing viral vector based gene therapy for the combined deafness and blindness Usher syndrome and early onset macular degeneration. Her research will enhance researchers' capability to manipulate retinal progenitor cells and neural stem cells, thereby contributing to the effort to combat retinal degenerative diseases.

### Honors

Dolly Green Special Scholar Award from the Research to Prevent Blindness Foundation bestowed July 1, 2003

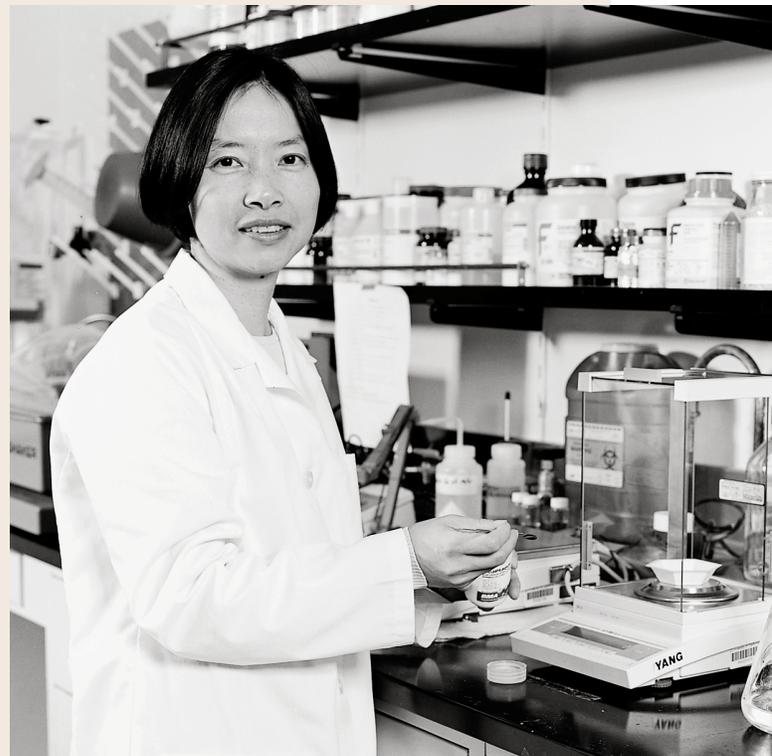
### Research Grants

National Eye Institute: Cytokine Signal Transduction in Retinal Development, 5/1/00–1/31/05

The Kirchgessner Foundation Research Award, 6/1/01–5/31/06

National Eye Institute: Mysosin Villa Gene Therapy, 3/1/03–2/28/06

Foundation Fighting Blindness/UC San Diego: Development of Lentivirus-based Usher 1B Gene Therapy, 3/01/04–2/28/05



## Marc O. Yoshizumi, MD

Professor of Ophthalmology  
Director of the UCLA Eye Trauma and Emergency Center  
Member of the Jules Stein Eye Institute

### Research Summary

#### Retinal Disease, Retinal Detachment and Vitreoretinal Surgery

Dr Yoshizumi is developing improved surgical techniques for the treatment of retinal detachment and pathological conditions of the vitreous. He has developed new subretinal surgical procedures for the treatment of Coats' disease, a blinding disorder that affects young men. These new surgical techniques make it possible to evacuate and prevent the accumulation of subretinal cholesterol crystals, the hallmark of Coats' disease, which can result in permanent retinal detachment and lead to loss of the eye.

He is also investigating novel intraocular drugs and drug delivery systems for the treatment of intraocular infections and inflammation. In recent laboratory studies, he has developed the foundation for administration of steroidal injections directly into the eye in cases of severe intraocular infections known as endophthalmitis. The use of intravitreal injections of steroids has been shown to significantly improve the prognosis of visual recovery if given early (within 36 hours) after the start of endophthalmitis and in combination with appropriate antibiotics. Dr Yoshizumi's research in ocular iontophoresis, a new drug delivery system, has demonstrated that some antibiotics and antiviral agents can be effectively administered by delivering an electrically charged drug molecule through the tissue walls of the eye, enabling a high concentration of the drug to be targeted to a specific, intraocular location. Results of these studies have sparked research interest in this drug delivery system throughout the world.



### Public Service

Commissioner for the California Board of Medical Quality Assurance

Member of the National Advisory Board for the Schepens International Society

Reviewer for many ophthalmic journals

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## Institute Members Based at Other Sites

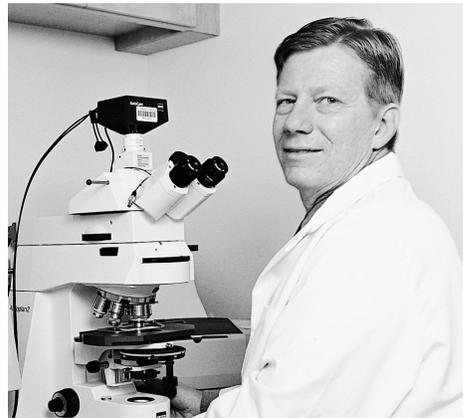
### Nicholas C. Brecha, PhD

Professor of Neurobiology and Medicine  
Vice Chair of the Department of Neurobiology  
Member of the Jules Stein Eye Institute  
Member of the Brain Research Institute  
Member of CURE: Center for Digestive Diseases

#### Research Summary

##### Functional Organization of the Mammalian Retina

Dr Brecha's research focuses on the elucidation of the cellular and neurochemical organization of the inner retina. Morphological studies have defined cell types and classes, and neurochemical studies have investigated the modulatory action of neurotransmitters and neuroactive peptides. This experimental work has led to the formulation of a model to investigate the functional role of neuropeptides in the retina and provide evidence for the current hypothesis that neuropeptides are modulators of retinal neurons and circuitry. These investigations are fundamental steps in establishing the retina's functional organization and provide the basis for understanding the pathophysiology of retinal dysfunction.



#### Research Grants

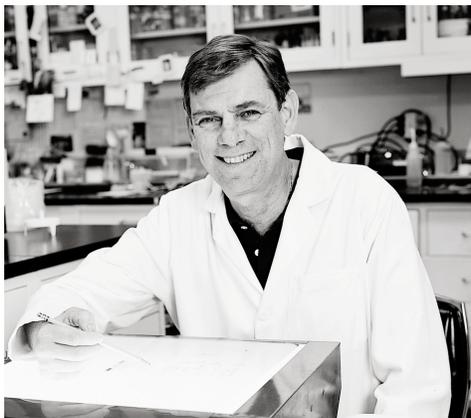
Department of Veterans Affairs Merit Review Award: Neuropeptides and Receptors in the Retina, 4/1/02–3/30/06

National Eye Institute: Neurochemical Pathways in the Retina, 6/30/04–7/1/09

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### Michael Danciger, PhD

Researcher in Ophthalmology  
Professor of Biology at Loyola-Marymount University,  
Los Angeles  
Member of the Jules Stein Eye Institute



#### Research Summary

##### Genetic Factors Influencing Retinal Degenerations

The focus of Dr Danciger's research is twofold: Identify genetic factors (especially those that are protective) that influence or modify the course of retinal degenerations as a result of light exposure or inherited mutations; and identify the genetic factors that contribute to age-related retinal degeneration. It is hoped that this research will open pathways of study leading to treatments that will prevent retinal degenerations or decrease their severity.

#### Research Grant

National Eye Institute: Gene Modifiers of Age-Related and pcd (purkinje cell disease in mice) Retinal Degenerations, 4/1/01–3/31/05

## Terry J. Smith, MD

Professor of Medicine  
Milly and Steve Liu Scholar  
Chief of the Division of Molecular Medicine  
at Harbor-UCLA Medical Center  
Member of the Jules Stein Eye Institute

### Research Summary

#### Orbital Connective Tissue and Its Involvement in Graves' Disease

Dr Smith's research involves the molecular pathogenesis of thyroid-associated ophthalmopathy (TAO). He and his colleagues have been characterizing the unique phenotype of human orbital fibroblasts because those cells appear to be intimately involved in TAO. In particular, Dr Smith has applied a wide array of molecular techniques to identify specific fibroblast genes and their products, which he believes lead to the dramatic inflammation and tissue remodeling that occurs in the orbit in TAO. The relationship between the orbit and thyroid gland is uncertain and why the two tissues should share involvement in Graves' disease is unknown at this time. One feature common to both is the infiltration of activated T lymphocytes. Dr Smith has found that both orbital fibroblasts and thyrocytes, when activated, participate in the trafficking of T lymphocytes to diseased tissues. He and his



colleagues have discovered that Graves' disease-specific antibodies bind to and activate the insulin-like growth factor receptor. In so doing, powerful T lymphocyte chemoattractant molecules are expressed. His research group is currently studying intracellular signaling pathways utilized in this gene inductive process.

#### Research Grants

National Eye Institute: Functional Diversity of Orbital Fibroblasts, 4/1/02–3/31/07

National Eye Institute: Regulation of Retroocular Connective Tissue, 12/1/00–11/30/04

Veterans Administration Merit Review Award: Is the Human Fibroblast a Significant Mediator of Thyroid Disease? 3/1/99–3/31/04

## Professional Research Series

### Novrouz Akhmedov, PhD

Assistant Researcher of Ophthalmology

#### Research Summary

#### Molecular Biology of the Retina

Dr Akhmedov's research interests are the identification of differently expressed and novel retinal genes, the evaluation of their function in the maintenance of the retina, and possible involvement in human hereditary retinal degenerative diseases. Currently, Dr Akhmedov is applying microarray techniques to isolate and characterize genes involved in cone photoreceptor cell metabolism. This strategy allows detection of unique and differentially expressed genes in ocular tissues from an animal model of retinal degeneration exclusively affecting the cone photoreceptors. Dr Akhmedov is also working to identify genetic abnormality(s) that cause retinal degeneration in the *rd3* mouse, a spontaneous autosomal recessive mutation.

### Christian Altenbach, PhD

Associate Researcher of Ophthalmology

#### 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 (SDSL) and electron paramagnetic resonance spectroscopy (EPR) to study the structure of rhodopsin in the absence of light, as well as the changes in structure caused by light. This research will add to the scientific base for hereditary eye diseases.

### Jacky M.K. Kwong, PhD

Assistant Researcher in Ophthalmology

#### Research Summary

#### Degeneration of Retinal Ganglion Cells and Neuroprotection

Dr Kwong's research goal is to understand the mechanisms of glaucomatous optic nerve damage and to identify novel neuroprotective therapies for glaucoma. He is studying the response of glial cells and the cell death pathway of retinal ganglion cells in experimental animal models. He is also applying pharmacologic techniques to evaluate therapies that enhance endogenous neuroprotective responses against glaucomatous and excitotoxic damage to nerve cells.

### Rehwa H. Lee, PhD

Researcher of Ophthalmology  
Chief of the Molecular Neurology Laboratory at the Department of Veterans Affairs Healthcare Center, Sepulveda

#### Research Summary

#### Phosphoprotein and G Protein Interactions in Vision and Blindness

Dr Lee's research goal is to understand the mechanisms that carry out and regulate normal photoreceptor activities and cause photoreceptor cell death in animals and humans affected by inherited blindness and age-related macular degeneration. Currently, she is investigating the functional role of an important G protein regulator called phosducin in the photoreceptor cells by studying the enzymes that regulate phosphorylation (a chemical reaction that adds phosphate to a protein) and the effects of individual or coordinated phosphorylation on phosducin.

#### Research Grant

Department of Veterans Affairs Healthcare Center, Sepulveda:  
Phosphoprotein/G Protein Interaction in Vision and Blindness, 10/1/01–9/30/05

### Nathan Mata, PhD

Assistant Researcher of Ophthalmology

#### Research Summary

#### Vitamin A Metabolism in the Eye

Little is known regarding the various biological activities or catalysts that convert dietary vitamin A into the unique light-sensing compound (rhodopsin), a crucial process for visual sensation. Dr Mata's research efforts are focused on characterization of these biochemical mechanisms in order to identify the key steps underlying vitamin A metabolism in the eye. The ultimate goal is to isolate the various biological catalysts and determine their genetic origin so that animal models may be generated as a means of studying human retinal disease.

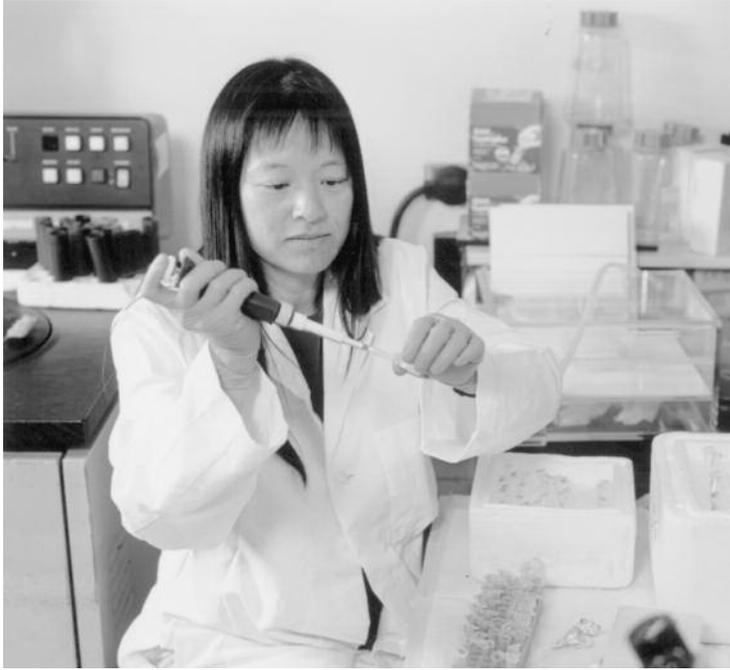
### Michael D. Olson, OD, PhD

Assistant Researcher of Ophthalmology

#### Research Summary

#### Comprehensive Ophthalmology

Dr Olson's research activities focus on the surgical correction of refractive errors and the visual and surgical outcomes following cataract surgery. He is currently an investigator for Alcon's AS60TT toric intraocular lens for the correction of astigmatism following cataract surgery, and the Ophtec Reconstruction Lens for the treatment of partial or complete aniridia. With Kevin M. Miller, MD, he obtained a humanitarian device exemption from the U.S. Food and Drug Administration for the Morcher Iris Diaphragm to treat eyes with congenital and acquired iris defects. He has recently completed an investigation of the Ophtec endocapsular tension ring for the management of zonular weakness or dialysis during and/or after cataract surgery. The FDA recently approved this device for use by general ophthalmology.



Dr Silvia Reid is studying the protein product of a gene called retinoschisin. Her work may lead to a better understanding of cell interactions used to articulate the architecture and function of the retina.

### **Silvia N.M. Reid, PhD**

Assistant Researcher of Ophthalmology

#### **Research Summary**

##### **X-Linked Juvenile Retinoschisis**

Dr Reid has recently cloned and characterized a photoreceptor cell (Xlrs1) in a mouse. Mutations of this gene in humans cause X-linked juvenile retinoschisis, a degenerative disease of the retina. Currently, she is studying the function of the protein product of this gene, called retinoschisin, which will lead to a better understanding of cell interactions used to articulate the architecture and the function of the retina. Additionally, she is conducting research to devise treatments for X-linked juvenile retinoschisis. She plans to use similar approaches to study other degenerative diseases and their treatments.

### **Jun-ru Tian, MD, PhD**

Assistant Researcher of Ophthalmology

#### **Research Summary**

##### **Interaction Between Vestibulo-Ocular Reflex (VOR) and Saccadic Eye Movements During Eye-Head Coordination**

Dr Tian is investigating the mechanism of abnormal gaze reflexes that are caused by cerebellar dysfunction, inner ear disturbances, and aging. These impairments can affect eye and head coordination. Specifically, she is studying the interaction of vestibular-ocular reflex or VOR (involuntary rotation of the eyes in the opposite direction from head rotation) and saccadic eye movements that normally occur to shift the gaze promptly from one cued target location to another. Investigation of this interaction may provide insight into the neural reflex system that coordinates eye and head movement leading to the development of synergistic strategies for compensation.

### **Nitin Udar, PhD**

Assistant Researcher of Ophthalmology

#### **Research Summary**

##### **Gene Cloning and Diagnostic Testing for Hereditary Eye Diseases**

Dr Udar's research activities are focused on various approaches to the cloning of human eye disease genes. Additionally, he is developing DNA diagnostic tests for hereditary eye diseases that can potentially be utilized for patients who are presymptomatic, as well as for patients who are exhibiting signs of disease.

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## **Professional Clinical Series**

### **John D. Bartlett, MD**

Clinical Instructor of Ophthalmology

#### **Research Summary**

Dr Bartlett is currently conducting clinical research on the benefits of cataract surgery in patients with good Snellen visual acuity but poor visual functioning. His recent publications have included a book chapter on the evaluation and management of Grave's orbitopathy and an article detailing specialized cataract surgery techniques for use in patients with small pupils. Dr Bartlett provides clinical supervision to resident physicians at the University Ophthalmology Associates and teaches medical students during their ophthalmology surgical sub-specialties clinical rotation.

**Melissa W. Chun, OD**

Assistant Clinical Professor  
of Ophthalmology  
Director of the UCLA Vision  
Rehabilitation Center

**Research Summary**

**Keratoconus**

Dr Chun's research interest is in the area of keratoconus, a thinning disorder of the central cornea, resulting in visual distortion. She is a co-investigator in the Collaborative Longitudinal Evaluation of Keratoconus (CLEK) study, funded by the National Eye Institute. This multicenter, observational study was established to prospectively characterize vision, corneal changes, and patient quality of life findings in keratoconus and to determine the progression of changes occurring with keratoconus over time.

**Susan S. Ransome, MD**

Clinical Instructor in Ophthalmology

**Research Summary**

**Cytomegalovirus (CMV) Retinitis**

Dr Ransome is participating in several clinical research studies involving HIV-infected patients, some of whom have AIDS and cytomegalovirus (CMV) retinitis. In one study investigators are following patients over time to see what types of eye problems develop with HIV-infected individuals in the era of potent antiretroviral therapies.

**David Sarraf, MD**

Assistant Clinical Professor  
of Ophthalmology

**Research Summary**

**Phenotyping of Retinal Disease**

Dr Sarraf is interested in hereditary degenerative diseases of the retina. He has recently characterized a previously unreported hereditary syndrome in which older members of three different families demonstrate age-related macular degeneration, while younger members show retinitis pigmentosa. Dr Sarraf is

also interested in innovative imaging systems of the retina and has conducted retrospective studies investigating the use of OCT imaging of the macula in various retinal diseases including solar maculopathy and crystalline maculopathy and hopes to use this imaging system to better elucidate the different stages of the occult form of wet age related macular degeneration. Lastly, Dr Sarraf is conducting observational studies to better characterize and understand existing retinal conditions and to describe new retinal syndromes.

**Meryl L. Shapiro-Tuchin, MD**

Assistant Clinical Professor  
of Ophthalmology  
Director of the Ophthalmology  
Inpatient Consultation Service

Dr Shapiro-Tuchin provides clinical supervision to resident physicians while they are attending patients at University Ophthalmology Associates clinics. She also functions as Director of the Ophthalmology Inpatient Consultation Service, assisting resident physicians in

their evaluation of inpatients admitted to the UCLA Medical Center. She provides clinical instruction to medical students during their rotation in Ophthalmology and to students in the Ophthalmic Assistant Training Program.

**Federico G. Velez, MD**

Clinical Instructor in Ophthalmology

**Research Summary**

**New Approaches to Strabismus**

As part of a multidisciplinary team of researchers, Dr Velez is studying the mechanisms of congenital and acquired forms of strabismus and is involved in the development of new surgical approaches for the treatment of complicated forms of ocular motor deficiencies. He has participated in the development of guidelines for preoperative assessment and surgical approaches to patients with convergent strabismus (esotropia) and divergent strabismus (extropia).



Dr John Bartlett is conducting clinical research on the benefits of cataract surgery in patients with good visual acuity (as measured by standard testing) but poor visual functioning.

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## Emeritus Faculty

### **Leonard Apt, MD**

Professor Emeritus (Active)  
of Ophthalmology  
Founding Chief of the Division  
of Pediatric Ophthalmology  
and Strabismus  
Member of the Jules Stein Eye Institute

### **Robert Y. Foos, MD**

Professor Emeritus of Pathology and  
Laboratory Medicine  
Member of the Jules Stein Eye Institute

### **Robert S. Hepler, MD**

Professor Emeritus of Ophthalmology  
Member of the Jules Stein Eye Institute

### **Thomas H. Pettit, MD**

Professor Emeritus of Ophthalmology  
Founding Chief of the Cornea–External  
Ocular Disease Division  
Member of the Jules Stein Eye Institute

### **Bradley R. Straatsma, MD, JD**

Professor Emeritus of Ophthalmology  
Founding Chairman of the Department  
of Ophthalmology  
Founding Director of the Jules Stein  
Eye Institute

### **Richard W. Young, PhD**

Professor Emeritus of Neurobiology  
Member of the Jules Stein Eye Institute

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## Lecturers

### **Kathleen L. Boldy, VMD**

Lecturer in Ophthalmology

### **Samuel M. Genensky, PhD**

Lecturer in Ophthalmology

### **David G. Kirschen, OD, PhD**

Lecturer in Ophthalmology

# Programs

## Patient Care Services

The Institute's program of care for patients encompasses the full range of eye diseases. Nationally and internationally renowned faculty, along with highly skilled clinical fellows and physician residents, provide integrated consultation and treatment, including surgical services. They are supported by optometrists, orthoptists, technicians, and nurses. Care is delivered in distinctive subspecialty treatment centers, service areas, and clinical laboratories, as well as in specially equipped ophthalmic surgical suites and a dedicated inpatient unit. Recent scientific advances have made available a host of new diagnostic and therapeutic procedures through the Institute's comprehensive services.

### Faculty Consultation Service

Institute faculty provide direct consultation and treatment, including surgery, to patients through the Ophthalmology Faculty Consultation Service. This service is available by referral and offers both physicians and patients a valuable and unique resource for special vision problems. Faculty have extensive, advanced training in ophthalmic subspecialties, which enables them to offer emerging therapies.

### University Ophthalmology Associates

Comprehensive and subspecialty eye care in all medical and surgical areas of ophthalmology and refractions for eyeglasses are offered through University Ophthalmology Associates (UOA). **Dr Ralph D. Levinson** leads UOA as Medical Director. Ophthalmologists who are members of the UCLA Medical Group staff the practice.

### Inpatient Services

Inpatient ophthalmology services are provided within the medical center to both pediatric and adult patients.

The Ophthalmology Inpatient Consultation Service, operating 24 hours a day throughout the UCLA Medical Center, provides consultation and treatment to patients admitted to the hospital's medical and surgical inpatient services. Led by **Dr Meryl L. Shapiro-Tuchin**, the consultation team consists of physician resident staff. Subspecialty coverage from faculty is called upon as needed.

### Surgical Services

Ophthalmic surgery of all types, from cataract extraction to removal of ocular and orbital tumors, is performed in the Institute's dedicated and specially equipped operating rooms. Additionally, a number of laser surgeries, such as laser-assisted *in situ* keratomileusis (LASIK) and certain aesthetic laser surgeries, are performed in procedure rooms located in the outpatient suites. Faculty 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 pre- and post-operative care.

### UCLA Mobile Eye Clinic

The UCLA Mobile Eye Clinic, a 39-foot-long bus specially equipped with eye examination equipment, was donated to Jules Stein Eye Institute in 1996 by The Karl Kirchgessner Foundation, Barbara Mott McCarthy, and the Burton C. Bettingen Corporation. This is the third bus to be donated for this purpose since the program's founding by the Uncle Claude Fund in 1975. The Mobile Eye Clinic's staff of trained ophthalmic personnel include **Drs C. Gerald Cullen, Benjamin C. Lusk,**



Dr Meryl Shapiro-Tuchin leads a consultation team of resident physicians who provide ophthalmology services 24 hours per day to patients admitted to the hospital. She is shown here with resident physician Dr Leonardo Dacanay.

**Lawrence M. Hopp**, and **Sidney W. Penn**; and are led by **Dr Anne L. Coleman**. The Mobile Eye Clinic provides general eye care to over 5,500 adults and children annually throughout Southern California, traveling to schools, shelters, community health and senior citizen centers, health fairs, and organizations that assist homeless and low-income families.

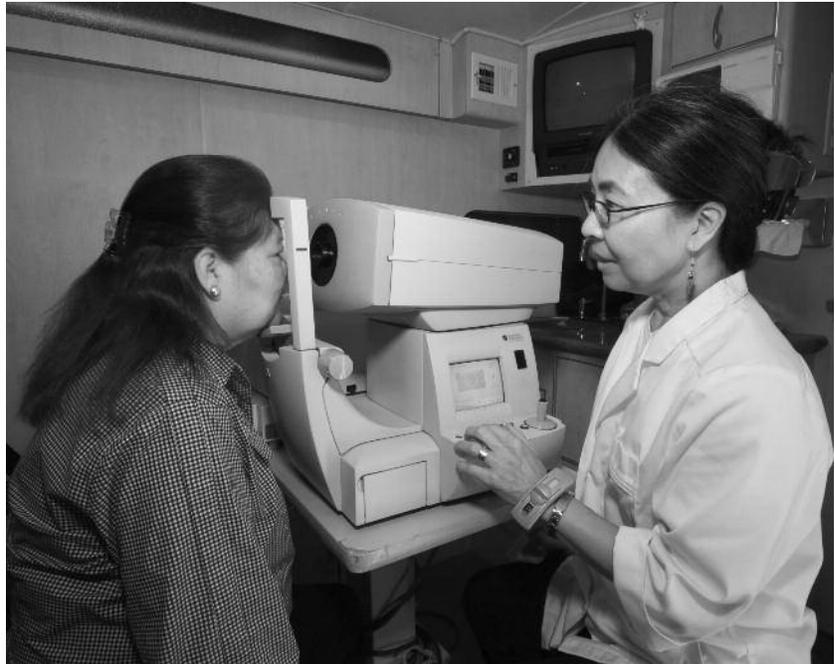
Vision services offered by the UCLA Mobile Eye Clinic are ophthalmic examination and refraction, diagnosis of potential or existing eye disorders, treatment of some ocular diseases, and appropriate referral of patients who need additional services.

### Eye and Tissue Bank and Donor Eye Program

The Donor Eye Program, under the direction of **Dr Anthony J. Aldave**, was established at the Jules Stein Eye Institute to inform the public of the need for eye tissue and to retrieve donated eyes. The program endeavors to increase the number of eyes available for corneal transplantation and for scientific study of underlying causes of various eye diseases. The UCLA Eye and Tissue Bank has established a strong relationship with the Doheny Eye Bank to ensure coordinated efforts.

Potential donors are recruited through patient contact by ophthalmology faculty and by a donor information brochure containing all of the documents necessary for donating to the UCLA Eye and Tissue Bank of the Jules Stein Eye Institute in accordance with the Uniform Anatomical Gift Act.

In the two decades that the Eye and Tissue Bank has been in operation, the waiting time for corneal transplantation has decreased from several months to under two weeks, not only at the Jules Stein Eye Institute, but at the



The UCLA Mobile Eye Clinic travels to sites across southern California, offering general eye care to adults and children in a variety of venues, including schools and shelters. Faye Oelrich, shown here with a patient, manages the daily operations of the clinic.

UCLA-affiliated hospitals where this surgical procedure is performed. For emergency cases, tissue is available within 24 hours.

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## 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 in addition to standard treatment approaches for the gamut of eye disorders. In addition to comprehensive treatment, the centers afford both patients and physicians expert diagnostic and consultation services for diseases that are difficult to identify and treat. Ophthalmology faculty work closely with other specialists within

the Jules Stein Eye Institute, as well as with other UCLA clinical departments, to create a multidisciplinary team customized to each patient's unique medical needs. Services provided by the centers may be inpatient or outpatient in nature, drawing upon the surgical skills of ophthalmology faculty when necessary, and coordinated with patients' nonvision treatment needs when appropriate.

### Aesthetic Center

The Aesthetic Center, under the direction of **Drs Robert Alan Goldberg** and **John D. McCann**, provides services to patients who are interested in enhancing their appearance through aesthetic surgery. Established in 1998, the center has rapidly earned a reputation for high quality, individualized care delivered by surgeons trained in both ophthalmic and plastic surgery.

### Summary of Patient Care Statistics

	2002–03	2003–04
<b>Faculty Consultation Service</b>		
Patient visits	62,455	63,384
<b>University Ophthalmology Associates</b>		
Patient visits	21,286	20,347
<b>Inpatient Consultation Service</b>		
Patient evaluations	383	275
<b>Clinical Laboratories</b>		
Procedures	24,429	23,231
<b>Surgery Services</b>		
Number of procedures	7,986 <sup>1</sup>	7,787 <sup>1</sup>
<b>Mobile Eye Clinic</b>		
Number of patients seen	4,659	5,251
Ocular abnormalities	44%	35%
Number of trips	152	179

<sup>1</sup>Includes refractive and aesthetic laser surgeries as well as JSEI operating room procedures.

Surgical services offered in the center include laser-assisted upper and lower eyelid blepharoplasty, endoscopic forehead lifting, liposuction, lifting of the neck and face, and Restylane and Botox injections to smooth facial lines. Center physicians have pioneered surgical techniques to improve the normal function and appearance of the face and often receive referrals for correction of complications of previous plastic surgery.

A major goal is to educate patients on what they might achieve with aesthetic surgery. In conjunction with in-depth consultation, videotapes and digital photography are used to facilitate discussion. A comfortable, private suite affords complete and confidential pre- and post-operative care, as well as

dedicated surgical facilities. A range of post-surgical nursing options are available from home care to the Institute's ophthalmic inpatient unit.

Center faculty conduct clinical research that focuses on improving an understanding of skin processes, including aging and healing, and on the development of new techniques and substances for aesthetic surgery.

### Center for Eye Epidemiology

The Center for Eye Epidemiology, under the direction of **Dr Anne L. Coleman**, was established in 1998 to promote interdisciplinary investigations into blinding diseases of public health importance. Colleagues with expertise in epidemiology, biostatistics, health policy, public

health, and international health collaborate with ophthalmologists around the world to advance knowledge related to the causes and prevention of specific eye diseases.

A major focus of the center is the assessment of the health care of this country's elderly patients. Faculty are studying the Medicare database maintained by the Health Care Finance Administration (HCFA) to identify and evaluate trends in the delivery of eye care. Utilizing epidemiological models, faculty are also investigating the prevalence and familial inheritance of age-related macular degeneration and glaucoma, both leading causes of vision loss in the elderly population.

### Clinical Research Center

The Jules Stein Eye Institute's Clinical Research Center functions under the direction of **Dr Gary N. Holland**, with Co-Directors **Drs Joseph Caprioli, Steven D. Schwartz, and Ralph D. Levinson**. Established in 1998, the center provides 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. Center staff liaise with grant agencies and government regulatory bodies, assist with the preparation of grant applications, participate in the design and management of clinical studies, and perform data collection and analysis functions.

Institute faculty conduct over 44 clinical research studies at any time. (Current studies are 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

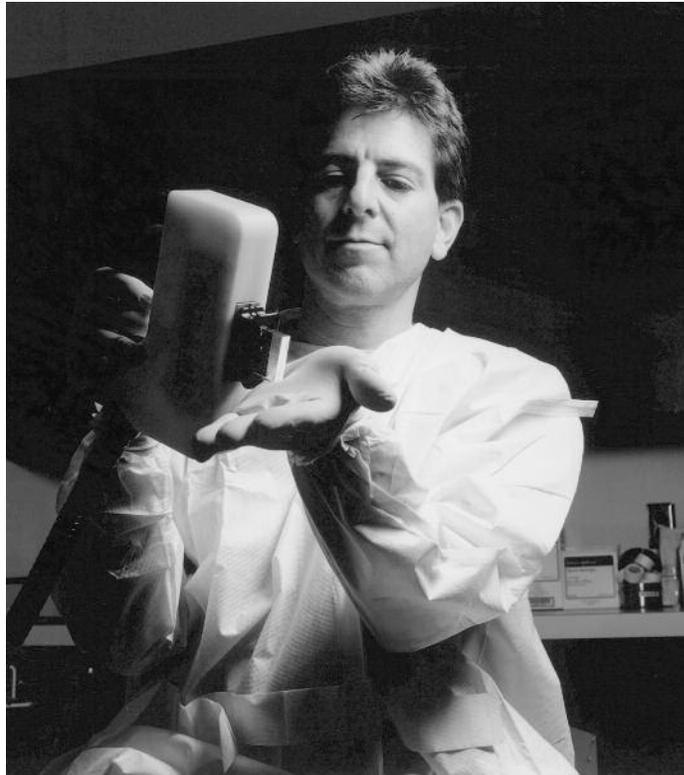
The Contact Lens Center, under the direction of **Dr Barry A. Weissman**, was created through a reorganization of the contact lens service in 2002 to provide patients with an expanded treatment program and facilities. The center serves patients with all ophthalmic diagnoses that can be treated with contact lenses, including nearsightedness and farsightedness, regular and irregular astigmatism, and presbyopia. The center also treats patients who have had eye diseases that are only optically or therapeutically approached with contact lenses (eg, aphakia, keratoconus, post-corneal transplants, corneal trauma, and infection).

The center is one of several across the nation participating in the landmark CLEK (Collaborative Longitudinal Evaluation of Keratoconus) Study, sponsored by the National Eye Institute. Other research conducted by faculty at the center includes the complications of contact lens wear, such as neovascularization, abrasion and corneal infection; and systems of oxygen supply to the corneas of contact lens wearers.

## Diabetic Eye Disease and Retinal Vascular Center

The Diabetic Eye Disease and Retinal Vascular Center, under the direction of **Dr Steven D. Schwartz**, provides diabetic patients with medical consultation and treatment services ranging from basic vision screening to the management of severe eye disease. Established almost a decade ago, the center has since contributed significantly to the understanding, treatment and prevention of diabetic eye disease. Currently, the focus is on innovation in technologies and techniques that will expand the standard of treatment, such as

- new lasers and unique strategies for employing existing lasers,



Dr Robert Alan Goldberg demonstrates a non-invasive light laser that is used in the Aesthetic Center for facial rejuvenation.

- 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 and stresses viewing the patient as a whole. In providing the best eye care, ophthalmologists take into consideration complications and requirements of diabetes that lie outside the field of ophthalmology. Care is coordinated by a diabetes patient coordinator who also provides education and psychosocial support to reinforce disease prevention, treatment applications, and lifestyle changes. Treatment interventions include laser and ophthalmic surgery. Recognizing the special care needed for diabetics in any ophthalmic 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 Marc O. Yoshizumi**, 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 center was formally established to encompass all levels of ocular trauma within the UCLA hospital system, including support to affiliated institutions. 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 followup.

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.

Primary surgical repairs are performed immediately for new trauma. Secondary repairs are usually scheduled; less than half of patients experiencing ocular trauma require immediate surgery. In many cases, treatment involves medical follow-up alone.

### Laser Refractive Center

The Laser Refractive Center is under new direction from **D. Rex Hamilton, MD**. The center was founded in 1991, utilizing the skills of faculty specializing in refractive corneal surgery, including clinical and research applications of new laser technology. The center was one of a few programs in the United States to pioneer investigations into laser eye surgery. Since its inception, the center has provided patients with all standard refractive procedures and offers emerging therapies as they become available. The most common forms of refractive vision correction are:

- Custom LASIK (laser *in situ* keratomileusis)
- Custom LASEK (laser epithelial keratomileusis)

- Custom PRK (photo refractive keratectomy)
- AK (astigmatic keratotomy)
- CK (conductive keratoplasty)
- Phakic intraocular lenses
- Intacs™

Patients referred to the center undergo a complete ocular examination. Once a patient is accepted for surgery, corneal topographic maps are obtained so as to analyze corneal shape and identify conditions that may interfere with surgical correction. Candidates for laser surgery receive intensive education so that they understand the benefits, risks and alternatives to surgery.

Clinical trials for new refractive devices and techniques are open to patients on an ongoing basis. These include studies for the treatment of nearsightedness and farsightedness, including presbyopia, that are not available in community-based laser refractive centers.



The Ophthalmic Oncology Center, co-directed by Dr Bradley Straatsma, diagnoses and manages patients with tumors of the eye, particularly ocular melanoma.

### Macular Disease Center

The Macular Disease Center, under the direction of **Dr Kent W. Small**, was created in 1994 in response to the growing, national incidence of macular degeneration.

The thrust of the center 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 basic science research into the causes of macular disease.

Patients with the atrophic or dry form of macular disease are evaluated and their cases followed at the center in conjunction with services offered by the Vision Rehabilitation Center. Patients

with the exudative or wet form of macular disease receive an immediate angiogram to identify lesions. Treatment options for wet macular disease include participation in emerging therapies and 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.

A monthly support group for patients with macular degeneration and their families is sponsored jointly by the center and the Braille Institute. The program was initiated to assist people who are dealing with sight loss as a result of this disease. Meetings consist of discussions and lectures around topics such as low vision technology and training, current research, and maximizing daily living.

### Ocular Inflammatory Disease Center

The Ocular Inflammatory Disease Center, under the direction of **Dr Gary N. Holland**, was established in 1985 to provide patients with a broad spectrum of coordinated care that bridges specialties both within the Institute and outside the field of ophthalmology. The center has a long history of participating in clinical studies and investigational drug therapies that have furthered the understanding and treatment of inflammatory eye diseases.

Center faculty were the first to describe cytomegalovirus (CMV) retinitis as an ophthalmic manifestation of AIDS. Ongoing investigations have created one of the premier centers of expertise in AIDS-related ophthalmic disease in the country. Additionally, the center offers world-renowned expertise in the research and treatment of uveitis. Other common inflammatory eye diseases treated in the center are corneal ulcers, endophthalmitis, and autoimmune diseases of the cornea and ocular surface.

Due to the frequency with which ocular inflammatory diseases are associated with systemic diseases, center physicians routinely collaborate with nonophthalmologists. During each evaluation, a determination is made about any additional services or specialties that may be necessary as part of a patient's care. The center offers a Corneal Ulcer Service and an HIV Ocular Disease Service staffed by clinical coordinators to facilitate the integration of care with other medical specialties.

Diagnostic testing ranges from cultures to biopsies to special ultrasound biomicroscopic examinations. Complex medical treatments are available, including immunosuppression and investigational drugs. Surgical intervention, including corneal, glaucoma, and retinovitreal procedures, is also available, if indicated.

### Ophthalmic Oncology Center

The Ophthalmic Oncology Center, under the direction of **Drs Bradley R. Straatsma** and **Robert E. Engstrom, Jr.**, serves adults and children with tumors of the eye, eyelid and orbit. Established in the early 1980s, the center is highly regarded for the diagnosis and management of ocular melanoma and serves as a hub for national, long-term studies investigating the progression and outcome of the disease and its treatment.

Patients with confirmed ocular melanoma are offered options for care that are often not available in the community. Options include radioactive plaque therapy, transpupillary thermotherapy (TTT), enucleation, and laser surgery. Treatment is closely coordinated with UCLA internists, oncologists, and radiation oncologists. Patients with other tumors and simulating diseases are closely followed by center physicians.

Melanoma of the eye is the focus of a major research activity in the center, the Collaborative Ocular Melanoma Study (COMS), sponsored by the National Eye Institute. The COMS is a multicenter, randomized study to evaluate the effectiveness of standard treatment options, as well as treatment effects and quality of life. For medium-size choroidal melanoma, survival results of the clinical trial comparing enucleation with radioactive plaque therapy were published in 2001. Quality of life information for patients with ocular melanoma was presented in 2002. In 2003–2004, COMS publications reported visual acuity three years after brachytherapy for choroidal melanoma and presented data regarding second cancers in patients with choroidal melanoma.

### Optic Neuropathy Center

The Optic Neuropathy Center, under the direction of **Dr Anthony C. Arnold**, 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, neuroradiologists, and neurosurgeons. The professional and technical expertise available to patients, many of whom are referred for definitive diagnosis, is unparalleled.

Patients referred to the 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,



Dr Gary Holland (seated) directs the Ocular Inflammatory Disease Center. He is shown here with international fellow Dr Jean Vaudaux (standing) and a patient.

physicians are refining disease classifications and 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 Robert Alan Goldberg** and **John D. McCann**, brings multidisciplinary expertise to the treatment and study of orbital diseases arising from trauma, cancer, inflammation and infection. The center was founded in 1991, building upon an established, international reputation in the treatment of orbital diseases. Care is organized around a team of experts in ophthal-

mology, neuroradiology, neurosurgery, head and neck surgery, radiation oncology, and craniofacial surgery who bring to the treatment of orbital diseases a depth of knowledge and experience not available elsewhere in Southern California.

Both medical and surgical management is employed in the center; however, surgical management is the primary treatment approach. Modern ophthalmic operating rooms within the Institute provide advanced instrumentation for ophthalmic surgery, oculoplastic surgery, orbital bony reconstruction, and orbital microsurgery. The treatment team performs procedures that are not usually available in the community, including orbital decompression micro-

surgery for orbital apical tumors, optic canal decompression, and bony reconstruction to address traumatic or congenital defects.

The center has an active program for patients with Graves' disease and is conducting outcomes research to evaluate new surgical techniques for these patients, as well as basic science research to further understand the disease.

### **Vision Genetics Center**

The Vision Genetics Center, under the direction of **Dr John R. Heckenlively**, began in 1978 as the UCLA Retinitis Pigmentosa (RP) Registry. Since then, the center has progressed to its current status as a highly specialized and inte-

grated clinical and research program, providing definitive diagnosis and counseling while furthering an understanding of genetic and degenerative eye diseases. All retinal degenerations are evaluated in the center, including macular dystrophies and degenerations, cone degeneration, Stargardt's disease, and all forms of retinitis pigmentosa.

Due to the difficulty inherent in characterizing and diagnosing many genetic and degenerative diseases, diagnostic testing is usually scheduled in advance of the first visit. Testing is extensive and closely correlated with a comprehensive physical examination and medical history of the patient (and family members, if necessary). Patients receive counseling by a physician specializing in genetic ophthalmology; patients desiring in-depth genetic counseling are referred to the UCLA Genetics Clinic.

Most genetic and degenerative diseases require regular follow-up in order to benefit from the latest approaches to the detection and treatment of disorders such as cataracts or glaucoma, and to monitor the retinal disease for possible complications. Participation in clinical studies as well as gene testing are available to center patients and their families.

### Vision Rehabilitation Center

The Vision Rehabilitation Center is under the direction of **Dr Melissa W. Chun**, with **Dr Kent W. Small** as Medical Advisor. The center was established to provide rehabilitation for patients with low vision as a way to maximize their visual function and quality of life. Low vision is defined as best corrected vision of 20/70 or worse in the better eye. Though less restrictive than legal blindness (20/200 or worse) or total blindness, low vision can nevertheless limit everyday life. Patients

with low vision have a wide range of eye diseases, including age-related macular degeneration, diabetic retinopathy, glaucoma, corneal disease, and retinitis pigmentosa.

The center provides assistance in the form of patient education and training, including reading and computer training, as well as consultation on a wide array of technical devices that can help patients adapt to their vision restrictions. Center services are customized for each patient's individual needs. From simple techniques that optimize lighting and contrast, such as pouring coffee into a white mug, to sophisticated devices like a computer system that scans written materials and reads it back in a synthesized voice, the center offers comprehensive options. One unique feature is a special "lending library" of low vision devices that enables patients to try them at home or in the office prior to purchase.

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## 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 by enlarging the parameters employed to assess the clinical course and effectiveness of treatment. Additionally, the clinical laboratories enlarge 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.

### Glaucoma Photography Laboratory

The Glaucoma Photography Laboratory, under the direction of **Dr Joseph Caprioli**, takes a series of specialized photographs for new and follow-up glaucoma patients to assist the ophthalmologist in the management of patients with this disease. All of the photographic modalities capture varying aspects of the optic nerve fiber layer, a critical component in predicting, diagnosing, and monitoring glaucoma. Additional abnormalities associated with glaucoma and other eye diseases can also be measured and visually represented.

The GDX Nerve Fiber Analyzer uses 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 (HRT), using confocal laser light, measures additional parameters of the optic nerve and provides more information on the nerve fiber layer. Optical coherence tomography (OCT) uses 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. Four types of tests are performed. Electro-oculography

(placing electrodes around the eye) evaluates nerve muscle palsies and lost or slipped eye muscles. 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.

Basic science research is an integral component of the laboratory. Using donor tissue, investigators further their understanding of eye movement as well as diseases of the eye, brain, and muscles, and related tissues of the inner ear. The research goals are twofold: To advance etiological theories of disease; and to develop new tests and new applications of existing tests that will aid in the diagnosis of eye diseases.

### Ophthalmic Photography Clinical Laboratory

The Ophthalmic Photography Clinical Laboratory, under the direction of **Dr Steven D. Schwartz**, 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 in the laboratory 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 labo-

ratory also supports the research and teaching activities of the Jules Stein Eye Institute by preparing and duplicating graphic materials for presentation and publication.

### Ophthalmic Ultrasonography Clinical Laboratory

The Ophthalmic Ultrasonography Clinical Laboratory, directed by **Drs Steven D. Schwartz** and **Kevin M. Miller**, performs clinical examinations that are useful in diagnosing both ocular and orbital eye diseases. Patients are referred for ocular ultrasonic examination when internal structures of the eye cannot be seen directly, or to differentiate known or suspected ocular pathology.

Diagnostic examinations performed in the laboratory 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 lens calculation examinations are also performed in the laboratory. Biometry measures the axial eye length, anterior chamber depth, and lens thickness; lens calculations are performed to determine the power of the lens implant for cataract patients.



Co-Director Dr Steven Nusinowitz uses electrophysiological and psychophysical techniques to evaluate patients in the Visual Physiology Clinical Laboratory.

### Ophthalmology Diagnostic Laboratory

The Ophthalmology Diagnostic Laboratory, under the direction of **Dr Joseph Caprioli**, offers four quantitative tests, including measurement of vision acuity and field of vision. The potential acuity meter (PAM) and the laser interferometer measure potential vision acuity, usually preparatory to cataract surgery for patients with complicating eye diseases such as macular degeneration. Patients with little potential visual acuity are often not candidates for surgery. The Goldmann perimeter uses manual perimetry to measure the field of vision (including peripheral vision). Patients with retinal degenerations are commonly referred for this type of test. Lastly, the endothelial cell count uses a high-powered microscope and video camera to photograph the inner layer of the cornea and corneal thickness. Patients with a low cell count do not have a healthy cornea and consequently may not be good candidates for surgery due to difficulty in healing.

### 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 pinpoint lights 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 John R. Heckenlively** 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 possibilities. Electrophysiological and psychophysical testing is performed in the laboratory. Electrophysiological tests, including the electroretinogram (ERG), electro-oculogram (EOG), and visually evoked potential test (VEP), record electrical signals from different layers of the visual system, much like an electrocardiogram (ECG) records electrical signals of the heart. Psychophysical tests, like reading an eye chart, require the participation of the patient in specific tasks to evaluate visual functions like color blindness and contrast sensitivity. In many cases, both electrophysical and psychophysical tests are performed together in order to obtain the optimum amount of information for diagnosis.

## Training Programs

The Jules 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. Integrated, multi-faceted programming offers a stimulating environment for learning and for meeting degree and certificate requirements. A strong commitment to teaching by Institute faculty assures that ophthalmic education is maintained as a priority amidst the imperatives of patient care and research.

The training programs at the Institute 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, including many that require surgical intervention, offers innumerable training opportunities for both residents and clinical fellows. The availability of over 15 research laboratories ensures a wide choice of vision science projects for all trainees. Pre- and post-doctoral research fellows particularly benefit from the wealth of new and unfolding research generated by vision scientists at the Institute.

### UCLA Medical Student Program

Each academic year the Department of Ophthalmology and the Institute extend instruction to UCLA medical students in their second, third and fourth years of enrollment. Through lectures, demonstrations, discussions and clinical practice, the students are afforded numer-



Dr Marc Yoshizumi (far right) has a leading role in the Medical Student Program. He is shown here with a group of trainees.

ous training opportunities from which to gain knowledge and experience in ophthalmology.

All second-year medical students participate in a four-day program that encompasses the ophthalmology portion of Fundamentals of Clinical Medicine. The program consists of lectures, demonstrations, instructions on ophthalmic history-taking and techniques for examination of the eye and related structures of the visual system. Students in small groups are assigned to clinical instructors for practical and personalized training in examination procedures and in the use of ophthalmic instruments. In this way each student is exposed to major ophthalmic diseases, significant ophthalmic findings and actual examination experience.

Third-year medical students complete a one-week rotation in ophthalmology. Instruction includes lectures, reading, computer-assisted learning, discussion, demonstrations, and patient examinations. The basic schedule for this rotation provides instruction in clinical ophthalmology and participation in departmental seminars and conferences. Students observe and participate in patient care and experience a concentrated period of basic instruction in ophthalmology.

The fourth-year medical student program is made up of various elective programs, including the Advanced Clinical Clerkship in Ophthalmology. Elective courses provide intensive exposure to clinical ophthalmology and basic visual sciences.



First-year residents are (from left) Drs Christine Annunziata, Samir Shah, Magdalena Kula, Leonardo Dacanay, Candace Chen, Shahriar Farzad, and Dorothy Khong.

## UCLA Ophthalmology Residency Program

The Department of Ophthalmology conducts an accredited three-year residency program for 21 residents; seven residents begin training each July. The full breadth of ophthalmology training is offered, including experience in general ophthalmology and in the following ophthalmic subspecialties: cornea-external ocular disease, glaucoma, neuro-ophthalmology, ophthalmic anesthesiology, orbital and ophthalmic plastic surgery, pediatric ophthalmology and strabismus, retinal disease, ophthalmic genetics, ocular inflammatory disease, ophthalmic oncology and vision science.

Training incorporates the resources of several major medical centers in Los Angeles: UCLA Jules 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 Jules Stein Eye Institute include both general ophthalmology and subspecialties. In general ophthalmology, residents work as a team, handling clinics, emergencies (including overnight in-house call) 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.

During the first year of training, residents are given a firm clinical foundation with an emphasis on general ophthalmology. They develop skills in refraction, diagnostic evaluations, and the medical management of ophthalmic problems. They also begin their surgery training and take an intensive rotation in ophthalmic pathology under the direction of a full-time ophthalmic pathologist. In the second year, residents begin in-depth training in all of the ophthalmic subspecialties. During the third year, they assume greater responsibilities for medical and surgical patient care and participate in supervision and teaching of medical students and first- and second-year ophthalmology residents. They also engage in administrative duties at the various medical centers.

### 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 (AAO) and Clinical Sciences Course. These lectures are followed by Grand Rounds, consisting 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. These conferences sometimes consist of visiting faculty lectures.

Residents attend according to their rotations and interests. First-year residents also meet weekly with faculty members in a course designed specifically for their needs as new trainees. There are additional opportunities for residents to participate in any of the extensive continuing education programs conducted by the department and the Institute. All residents attend at least one annual meeting of the American Academy of Ophthalmology in their second or third year of the program.

### Surgery Training

Residents begin to perform surgery in their first year of training and continue to operate throughout their residencies. Surgical cases are assigned commensurate with level of training and experience. First-year residents begin in the Institute's microsurgery laboratory, learning basic techniques. The laboratory is available to residents throughout their training. Residents first assist on selected surgical cases; by the end of their residencies, 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 an ongoing clinical or basic science research project in ophthalmology. They present the results of their work at the Jules 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



Second-year residents are (seated from left) Drs Emma Clay, Wei Jiang, and Reem Renno; (standing from left) Drs Polly Quiram, Sean Dumars, Vinit Mahajan, and Tanuj Nakra.

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

The EyeSTAR (Specialty Training and Advanced Research) Program 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 has a doctorate. EyeSTAR trainees work under the guidance of a faculty advisory panel representing the trainee's clinical and research interests.

This unique opportunity is especially geared to physicians committed to academic careers in ophthalmology, combining basic science with clinical practice in a six-year curriculum. Trainees select their faculty mentors and laboratories or research groups from a wide range of participants throughout the David Geffen School of Medicine at UCLA, College of Letters and Sciences, School of Public Health, Clinical Scholars Program, and RAND Graduate School.

The six-year curriculum is a blend of graduate courses, laboratory research and clinical training. The trainee is expected to commit three years to the residency program in ophthalmology and conduct vision science research for three years. Each trainee's educational



Third-year residents are (seated from left) Drs Michael Tran, Alisa Kim, and Amani Fawzi; (standing from left) Drs Michael Roberts, Tri Nguyen, Kevin Shiramizu, and David Paikal.

course is individualized depending on his or her background, interests and needs. The goal of the program is to generate leaders in ophthalmology who are investigators as well as practitioners—physicians who are as comfortable at the laboratory bench as in the examining or operating rooms.

### UCLA Ophthalmology and Vision Science Fellowship Programs

Jules Stein Eye Institute offers stipends to enable particularly well-qualified persons to receive and contribute to training and research at the predoctoral and postdoctoral levels. Fellows usually concentrate on specific areas of clinical ophthalmology or vision science.

Clinical fellowship training combines outpatient, inpatient and surgical experience in an ophthalmic subspecialty. The fellow assumes increasing responsibility for patient care, under the supervision of faculty members responsible for the program. In addition to receiving instruction 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 basic or clinical field related to their specialty. Time is allotted appropriately for this experience, and its value

is enhanced by careful supervision, availability of laboratory facilities, and access to technical assistance.

Vision science fellowship training is laboratory based and offers both predoctoral and postdoctoral opportunities to trainees in specific areas of vision science, or over 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. They may work on individual projects or contribute to faculty projects. The scope and nature of each vision science fellowship is developed by the trainee and his/her faculty mentor.

Clinical and vision science fellowships offered by the Institute are described below.

### Fellowship in Comprehensive Ophthalmology

The Comprehensive Ophthalmology Division offers a one-year fellowship under the direction of **Dr Kevin M. Miller**. The fellowship prepares the graduates of residency training programs for careers in academic comprehensive ophthalmology, emphasizing the latest techniques in cataract surgery and combined cataract-refractive surgery. The learning experience is augmented by participation in the Annual Postgraduate Seminar and Grand Rounds; and by interaction with members of the volunteer clinical faculty.

Clinical experience is gained by working under the program director in the comprehensive ophthalmology consultation suite and University Ophthalmology Associates. Surgical experience is gained by assisting the faculty preceptor, performing independent and supervised surgery, and supervising residents. Although cataract surgery accounts for the majority of surgery performed by the service, the fellow gains experience in many areas, including



EyeSTAR trainees Drs Vinit Mahajan (left) and Stephen Tsang

anterior segment surgery, laser refractive surgery, strabismus surgery, glaucoma filtration surgery, oculoplastics and some retinal laser procedures.

Teaching is an integral part of the fellowship experience. The fellow is expected to be an instructor in an annual anterior segment surgery course, the lens and cataract basic science course, journal club, and other courses offered by the Comprehensive Ophthalmology Division. The fellow also is expected to instruct medical students and speak at community hospitals in the southern California area through arrangements with the UCLA Medical Center Visiting Speakers Program. The fellow presents cases at Grand Rounds and participates as an instructor or lecturer at courses

offered during the annual American Society of Cataract and Refractive Surgery and American Academy of Ophthalmology meetings.

The fellow is expected to undertake several clinical research projects during the year. A microsurgery laboratory is available for surgical experiments. Collaboration with members of the vision science faculty can be arranged for projects of mutual interest. Research findings are submitted for presentation at national meetings and significant findings are submitted for publication. The fellow is required to present the results of one study at Jules Stein Eye Institute's Research and Alumni Day and Post-ARVO Seminar.

### Fellowship in Contact Lens Practice

The one-year fellowship in contact lens, under the direction of **Drs Barry A. Weissman** and **Melissa W. Chun**, offers optometrists and ophthalmologists advanced study in accordance with the program's mission to

- provide state-of-the-art clinical training in contact lens care,
- foster scientific investigation of related topics in the study of contact lenses and corneal physiology,
- prepare individuals to deliver excellence in clinical care,
- encourage individuals in careers in academic or industrial settings, and
- promote professional relations between optometry and ophthalmology.

The contact lens fellow participates in patient care in the Jules Stein Eye Institute Contact Lens Center. Working with optometrists, ophthalmology residents, and ophthalmology fellows of various subspecialties provides excellent training opportunities for routine and specialized contact lens and comprehensive ophthalmology services in a multidisciplinary setting. Specialized services include complicated contact lens fittings for all types of astigmatism, aphakia (both adult and pediatric), presbyopia, post surgical corneas (including corneal grafts and keratorefractive surgery), irregular corneas secondary to trauma, and diseased corneas (including keratoconus and healed herpetic keratitis).

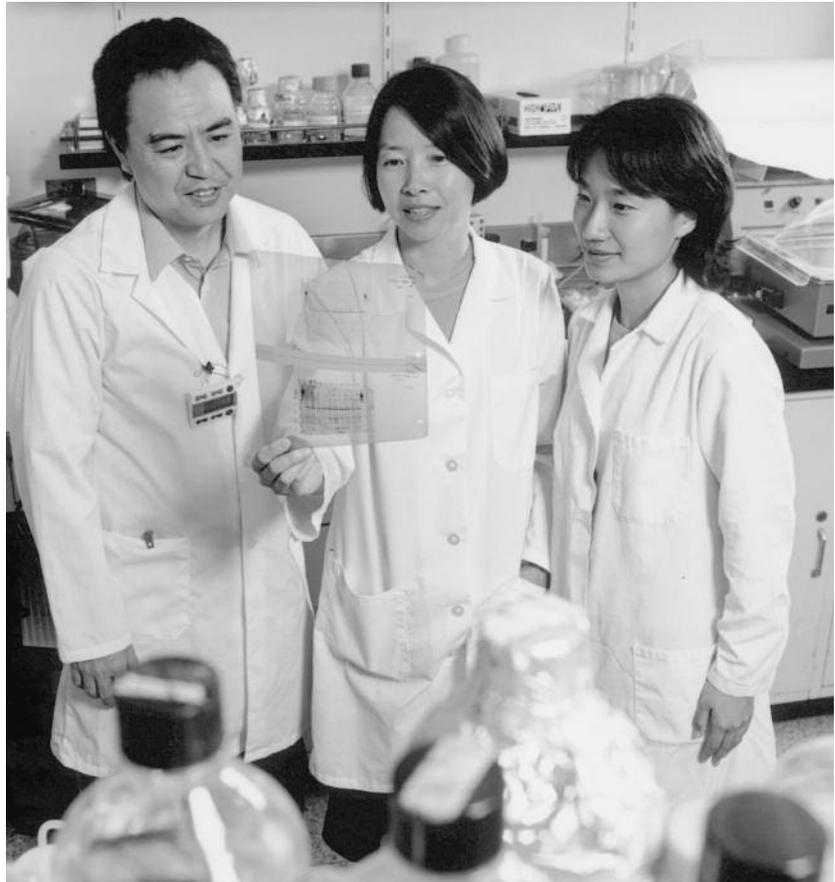
The fellow is encouraged to participate in ongoing research in contact lens care and to initiate personal research activities related to patient care and/or laboratory study. In this way, the fellow becomes versed in current scientific thought related to a variety of contact lens topics, such as immunology and microbiology of contact lens wear,

contact lens optics, and oxygen delivery through contact lens materials. More than one day per week is allocated to research activities.

### Fellowship in Cornea and External-Ocular Diseases and Refractive Surgery

Under the direction of faculty members **Drs Anthony J. Aldave, Bartly J. Mondino, Gary N. Holland, Barry A. Weissman and D. Rex Hamilton**, in the Cornea-External Ocular Disease & Uveitis Division, one-year fellowships are offered in the study of diseases of the cornea, external eye, anterior segment, and refractive surgery. Each faculty member has an area of specialization, creating a broad clinical and laboratory training experience for applicants who are preparing for an academic career in ophthalmology. Clinical experience consists of participation in the cornea faculty practices, including surgery, and assisting and/or directing the care of emergency cornea cases at the Jules Stein Eye Institute. Fellows work in the microsurgical laboratory at the Institute, developing their microsurgical skills, and assist in teaching these skills to ophthalmology residents. Under the direction of faculty, they also assist with surgical procedures in the UCLA Laser Refractive Center. In addition to in-depth training at the Jules Stein Eye Institute, fellows supervise patient care in the cornea clinics at the Veterans Affairs West Los Angeles Healthcare Center and at Harbor-UCLA Medical Center. Experience and knowledge concerning contact lens fitting, contact lens management and related aspects of corneal physiology are also obtained.

Research may be clinically oriented or geared to basic science. Faculty are actively engaged in research at the Institute and collaborate with fellows on worthwhile projects of mutual interest.



Post-doctoral fellows Dr Takao Hashimoto (left) and Kiyo Sakagami (right) study molecular mechanisms in the development of the vertebrate eye in the laboratory of vision scientist Dr Xian-jie Yang (center).

Fellows typically complete an original clinical or laboratory research project, and frequently co-author a book chapter or review during their training.

The fellowship provides a tremendous educational and cultural experience through an optional one-month rotation at The Singapore National Eye Center, an eye institute with close teaching and research ties with Jules Stein Eye Institute.

### Fellowship in Glaucoma

Under the direction of **Drs Joseph Caprioli, Anne L. Coleman and Simon K. Law**, the one- or two-year glaucoma fellowship provides clinical and labo-

ratory experience in glaucoma diagnosis and management for physicians who are preparing for an academic career in ophthalmology. Clinical experience is gained by working with the faculty advisor in the consultation suite examining patients and participating in clinical and surgical management. Fellows assist in glaucoma surgical cases and perform surgery under the guidance of the program director. They work in the glaucoma microsurgical laboratory, participate in microsurgery courses for resident and practicing physicians, 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 performed at Jules Stein Eye Institute and affiliated institutions, present cases at teaching rounds, and prepare presentations for regularly scheduled glaucoma conferences. They participate in teaching of staff, students and residents through practical and didactic presentations, and improve their techniques of examination and interpretation of ancillary tests.

Fellows undertake at least one research project that can be accomplished during the fellowship period. This project, which may be a clinical study or an applied research project in the laboratory, is performed in cooperation with the faculty advisor. Use of the excellent facilities in eye pathology is encouraged. Vision scientists, including biochemists, physiologists, pathologists, anatomists and clinical ophthalmologists, are amenable to collaborating on worthwhile projects.

#### **Fellowship in Low Vision**

The one-year fellowship in low vision, under the direction of **Drs Melissa W. Chun, Steven D. Schwartz, and Kent W. Small**, offers optometrists and ophthalmologists advanced study and experience in providing vision rehabilitation to patients with low vision. Clinical experience is gained by working with faculty advisors in their practices and conducting independent patient care in the Vision Rehabilitation Center. Specialized training includes the management of low vision systems, such as telescopes and microscopes, video-based magnification devices, and computer-assistive technology. In addition, the fellow rotates through the practices of faculty members in the Retina Division in order to gain experience in retinal diseases. This facilitates an understanding and management of the underlying disease processes that lead to low vision.

The fellow is encouraged to participate in on-going clinical research and typically undertakes a research project. In this way, the fellow becomes versed in current scientific thought related to a variety of vision rehabilitation topics, such as multi-disciplinary delivery mode, optics and technological advances in low vision systems, patient mobility, and issues related to the management of daily living activities.

#### **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 fellow is encouraged to develop rapport with members of the neurology and neurosurgery services at UCLA, and to become aware of neuro-ophthalmologic problems elsewhere in the hospital. The David Geffen School of Medicine at UCLA maintains major clinical and research programs in neurology, neurosurgery and neuroradiology.

The fellow attends the weekly Neurology-Neurosurgery Grand Rounds, takes an active part in seeing relevant inpatient consultations throughout the medical center, and assists in selected surgical procedures of interest to neuro-ophthalmologists. Attendance at the weekly neuroradiology teaching conferences is encouraged. Participation in clinical research, e.g., studies of eye movement disorders and disturbances of visual pathways, is expected. Time is allotted for scientific reading and for research activities.

#### **Fellowship in Orbital and Ophthalmic Plastic Surgery**

Fellowships in orbital and ophthalmic plastic surgery, under the overall supervision of **Drs Henry I. Baylis, Robert Alan Goldberg, John D. McCann, and Norman Shorr**, provide special training for physicians who have completed ophthalmology residency training and are interested in specializing in orbital and adnexal disorders and in aesthetic and reconstructive orbitofacial surgery. The Orbital and Ophthalmic Plastic Surgery Service conjoins efforts of the neuro-ophthalmology, neuroradiology, neurosurgery and ocular pathology units in diagnosis and treatment of disorders affecting the optic nerve, orbit and adjacent tissues (paranasal sinuses and intracranial tissues) that affect vision and ocular motility. The fellowship program is approved by the American Society of Ophthalmic Plastic and Reconstructive Surgery and the American Academy of Cosmetic Surgery.

The fellowship program includes ophthalmic plastic surgery outpatient consultation, inpatient activities and surgical procedures at Jules Stein Eye Institute and affiliated hospitals. Fellows participate extensively in the 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.

As part of the Institute's orbital and ophthalmic plastic surgery continuing education program, several surgical and dissection workshops, including a seminar on eyelid and orbit surgery, are held each year. The highlight of these workshops is the one-on-one teaching between faculty members and participants. Fellows are an integral part of these courses.

#### **Fellowship in Pediatric Ophthalmology and Strabismus**

Fellowships in pediatric ophthalmology and strabismus provide in-depth clinical and laboratory experience for individuals preparing for academic careers in ophthalmology. The division offers one-year fellowships for U.S. licensed physicians as well as ophthalmologists from abroad, under the direction of **Drs Arthur L. Rosenbaum, Sherwin J. Isenberg and Joseph L. Demer.**

Clinical experience for each fellowship consists of supervised participation in the ophthalmic care of pediatric patients seen at the Jules Stein Eye Institute, Harbor-UCLA Medical Center, and Olive View-UCLA Medical Center. Specific activities include participation in University Ophthalmology Associates, the nursery and neonatal intensive care units, ophthalmic plastic and reconstructive surgery, and the pediatric retinal service. Other areas of interest in pediatric ophthalmology encompass experience in the private consultation suites and participation in pediatric cases that are receiving care through other services.

Fellows may collaborate with vision scientists, including biochemists, physiologists, pathologists and anatomists, on research projects of mutual interest.

### Fellowship in Vitreoretinal Diseases and Surgery

The fellowship in vitreoretinal diseases and surgery is designed to provide an opportunity for appropriate clinical training and for clinical or vision science research related to retinal disease, over a two-year period. Special training includes the prevention, diagnosis and treatment of retinal, choroidal, vitreous and related ocular diseases. Under the direction of **Drs Allan E. Kreiger, Steven D. Schwartz, Kent W. Small, Bradley**

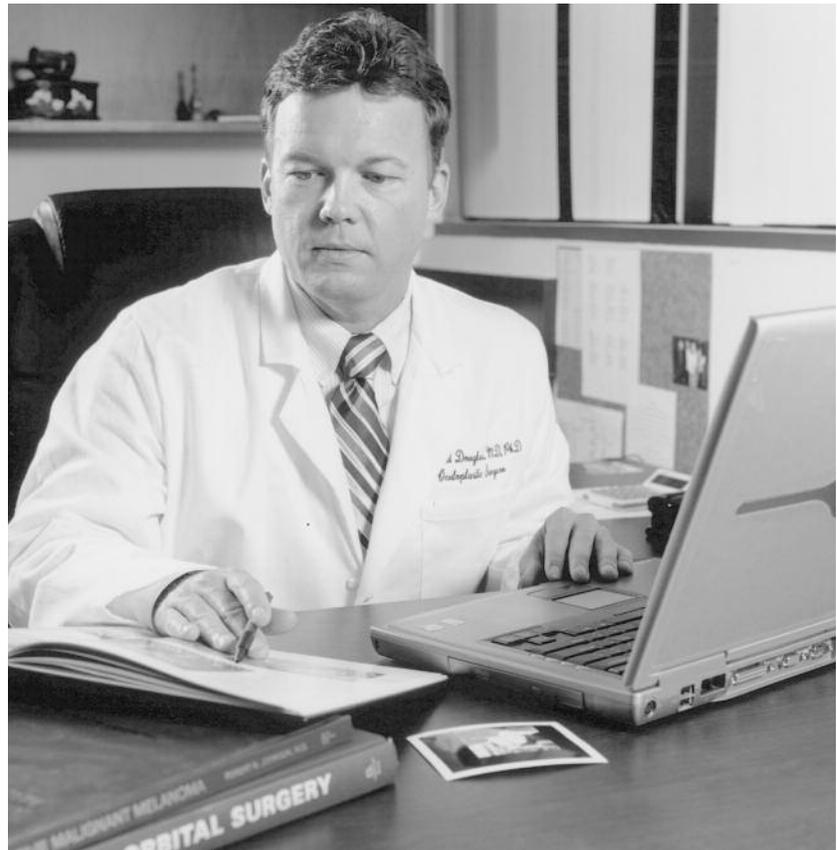
**R. Straatsma, Marc O. Yoshizumi, Christine R. Gonzales, Anunag Gupta, and Tara A. Young,** the fellowship consists of the following major components:

- diabetic retinopathy,
- diseases of the macula and retina,
- fluorescein angiography and retinal photography,
- hereditary retinal degenerations,
- ocular trauma,
- ophthalmic oncology,
- rhegmatogenous retinal disease and vitreoretinal surgery, and
- ultrasonography.

### Fellowship in Vision Science

Predoctoral and postdoctoral research fellowships in vision science are offered to individuals who have an interest in specific research areas being pursued by Institute faculty. Predoctoral fellowships in neurobiology, neurosciences, pharmacology, chemistry, biochemistry, molecular biology, molecular genetics, cell biology, biomechanics and visual physiology provide the means for graduate students to obtain their doctorates while working with Institute faculty in highly specialized laboratory environments.

Postdoctoral research fellowships are offered for one to three years in all of the vision science laboratories at the Institute. Each fellowship is unique,



Clinical fellow Dr Raymond Douglas won the Richard C. Webster, MD, Resident Paper Contest, sponsored by the Cosmetic Surgery Foundation.

and conducted according to mutual agreements between trainees and their mentors. Research areas for postdoctoral fellowships 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.

In addition to individually supported research fellowships, a special integrated program is offered under the auspices of a National Eye Institute Vision Science Training Grant for predoctoral and postdoctoral fellows. The grant provides trainees with coordinated and organized exposure to a wide range of techniques and current knowledge in the vision sciences. All fellows are required to take a defined program of core courses and become rapidly acquainted with the fundamentals of vision research within a broad spectrum of the basic sciences. The training gives each fellow the broadest possible background in ophthalmology and the basic sciences, and enables him/her to pursue individual interests with clearly designed experiments. Fellows are required to present their research at informal and formal seminars and encouraged to par-



Resident physician Dr Polly Quiram won a Young Investigator Travel Award from the Association for Research in Vision and Ophthalmology (ARVO).

ticipate in the publication of scientific papers. To gain a broad background in the vision sciences, fellows utilize the expertise of several laboratories and collaborate with fellows and faculty members other than their own preceptors. This multi-faceted training grant is under the direction of **Dr Debora B. Farber**.

#### **International Fellowship and Exchange Program**

To promote and encourage research and education interaction with ophthalmology institutions throughout the world, the Jules Stein Eye Institute offers an International Ophthalmology Fellowship and Exchange Program consisting of one- to two-year fellowships under the supervision of specific Institute faculty. Candidates for these international 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.

#### **Ophthalmic Assistant Training Program**

A nine-month program leading to certification as a COA (Certified Ophthalmic Assistant) was instituted in 1978. This extensive educational program, with instruction provided by a number of Institute faculty and staff, is conducted for nonphysicians who want to participate in the care of ophthalmic patients. The program includes lectures, laboratory work, supervised practical

# Appendices

**Volunteer and Consulting Faculty**

**Volunteer Faculty in Ophthalmology**

**Clinical Professor of Ophthalmology**

Robert E. Bartlett, MD  
*(deceased September 10, 2003)*

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

Bruce B. Becker, MD

Michael S. Berlin, MD

Norman E. Byer, MD

Glenn O. Dayton, MD

Paul D. Deiter, MD

Donald E. Dickerson, MD

Richard Elander, MD

Leland M. Garrison, MD

Kenneth J. Hoffer, MD

C. Richard Hulquist, MD

Roger A. Kohn, MD

Howard R. Krauss, MD

Benjamin C. Kwan, MD

Jeremy E. Levenson, MD

Ezra Maguen, MD

Samuel Masket, MD

Albert T. Milauskas, MD

Irvin S. Pilger, MD

George B. Primbs, MD

Robert J. Schechter, MD

Stephen S. Seiff, MD

Alan L. Shabo, MD

Norman Shorr, MD

Robert M. Sinsky, MD

Sherwin H. Sloan, MD

Roger W. Sorenson, MD

Howard H. Stone, MD

**Associate Clinical Professor of Ophthalmology**

Charles R. Barnes, MD

Gerald J. Barron, MD

Arnold L. Barton, MD

Louis Bernstein, MD

W. Benton Boone, MD

William P. Chen, MD

Andrew E. Choy, MD

Peter J. Cornell, MD

Bernard S. Davidorf, MD

Paul B. Donzis, MD

Donald I. Goldstein, MD

Michael J. Groth, MD

Thomas A. Hanscom, MD

Andrew Henrick, MD

Edwin P. Hill, MD

John D. Hofbauer, MD

Eugene F. Hoffman, Jr., MD

Forrest E. Hull, MD

David F. Kamin, MD

Stanley M. Kopelow, MD

Joseph N. Lambert, MD

Jonathan I. Macy, MD

Robert K. Maloney, MD

M. Gene Matzkin, MD

Joan E. McFarland, MD

James W. McKinzie, MD

Alan L. Norton, MD

Leon G. Partamian, MD

Gene J. Pawlowski, MD

Sidney W. Penn, MD

Yaron S. Rabinowitz, MD

David S. Robbin, MD

Teresa O. Rosales, MD

David E. Savar, MD

Timothy V. Scott, MD

James F. Sharp, MD

Albert Sheffer, MD

James D. Shuler, MD

Yossi Sidikaro, MD, PhD

Matthew Sloan, MD

Hector L. Sulit, MD

Kamal A. Zakka, MD

**Assistant Clinical Professor of Ophthalmology**

David H. Aizuss, MD

Malvin D. Anders, MD

Richard K. Apt, MD

Reginald G. Ariyasu, MD, PhD

Arthur A. Astorino, MD

Mark A. Baskin, MD

Katherine L. Bergwerk, MD

Arthur Benjamin, MD

Betsy E. Blechman, MD

Cynthia A. Boxrud, MD

Harvey A. Brown, MD

Almira W. Cann, MD, PhD

Arnett Carraby, MD

Andrew M. Chang, 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

Uday Devgan, MD

Farid Eghbali, OD

Troy R. Elander, MD

Naomi L. Ellenhorn, MD

Calvin T. Eng, MD

Robert E. Engstrom, Jr., MD

Michael K. Farley, MD  
*(retired September 2003)*

Joseph M. Faust, MD

Doreen T. Fazio, MD

Sanford G. Feldman, MD

David R. Fett, MD

Donald S. Fong, MD, MPH

Laura E. Fox, MD

Charles D. Fritch, MD

Ron P. Gallemore, MD

George H. Garcia, MD

Kathryn M. Gardner, MD

Leslie C. Garland, MD

W. James Gealy, Jr., MD

Lawrence H. Green, MD



Richard H. Havunjian, MD

Man M. Singh Hayreh, MD

Jonathan A. Hoenig, MD

Morton P. Israel, MD

Steven J. Jacobson, MD

Véronique H. Jotterand, MD

J. David Karlin, MD

David S. Katzin, MD

James F. Kleckner, MD

Jerome R. Klein, MD

Craig H. Klinger, MD

Howard E. Lazerson, MD

Brian L. Lee, MD

Steven Leibowitz, MD

Joanne E. Low, MD

Bryant J. Lum, MD

Michael C. Lynch, MD

Jonathan I. Macy, MD

M. Polly McKinstry, MD

Ashish M. Mehta, MD

George L. Miller, MD

Kenneth J. Miller, MD

David R. Milstein, MD

Bernard Monderer, MD

Ronald L. Morton, MD

Lee T. Nordan, MD

Roger L. Novack, MD, PhD

John F. Paschal, MD

James H. Peace, MD

Gilbert S. Perlman, MD

Cheryl J. Powell, MD  
 John R. Privett, MD  
 Firas Rahhal, MD  
 George M. Rajacich, MD  
 Michael Reynard, MD  
 Jay J. Richlin, MD  
 Lawrence N. Roer, MD  
 Gerald S. Sanders, MD  
 Barry S. Seibel, MD  
 David M. Shultz, MD  
 Eliot B. Siegel, MD  
 Lance M. Siegel, MD  
 John D. Slaney, MD  
 Ronald J. Smith, MD  
 Robert J. Smyth-Medina, MD  
 Alfred M. Solish, MD, MS  
 Kenneth O. Sparks, MD  
 Kenneth D. Steinsapir, MD  
 William C. Stivelman, MD  
 Robert C. Tarter, MD  
 Debra G. Tennen, MD  
 Teddy Y. Tong, MD  
 Sterling M. Trenberth, MD  
 Robert C. Tudor, MD  
 Henry E. Ullman, MD  
 Nancy S. Wang, MD  
 Tay J. Weinman, MD  
 Irwin S. Weiss, MD  
 Sidney J. Weiss, MD  
 Scott Whitcup, MD  
 David L. Williams, MD  
 Jeffrey V. Winston, MD  
 David M. Winters, MD  
 Stuart R. Winthrop, MD  
 David L. Wirta, MD  
 Barry J. Wolstan, MD  
 Wilson C. Wu, MD, PhD  
 Michael C. Yang, MD  
 Richard H. Yook, MD  
 John D. Zdral, MD  
 Peter D. Zeegen, MD

**Clinical Instructor in  
 Ophthalmology**

Gavin G. Bahadur, MD  
 John D. Bartlett, MD  
 J. Kevin Belville, MD  
 Amarpreet S. Brar, MD  
 Neil D. Brouman, MD  
 Stephen S. Bylsma, MD  
 Andrew I. Caster, MD  
 Joseph H. Chang, MD  
 John J. Darin, MD  
 Louise Cooley Davis, MD  
 Paul J. Dougherty, MD  
 Brad S. Elkins, MD  
 Matthew L. Hecht, MD  
 Jeffrey Hong, MD  
 Lawrence M. Hopp, MD, MS  
 John A. Hovanesian, MD  
 Anisha J. Judge, MD  
 Rajesh Khanna, MD  
 Jeffrey M. Lehmer, MD  
 Robert T. Lin, MD  
 Wayne H. Martin, MD  
 Laurie C. McCall, MD  
 Alpa A.S. Patel, MD  
 Jayantkumar Patel, MD  
 Tory Prester, MD

Steven H. Rauchman, MD  
 Mark Silverberg, MD  
 Sharon N. Spooner-Dailey, MD  
 Dana P. Tannenbaum, MD  
 William L. Trotter, MD  
 Mathew Wang, MD

**Consulting  
 Members of  
 the Jules 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 &  
 Biochemistry and Biological  
 Chemistry Molecular Biology  
 Institute*

Allan 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*

Vicente Honrubia, MD, DMSc  
*Professor Emeritus of Surgery,  
 Division of Head and Neck Surgery;  
 Director, Victor Goodhill Ear Center*

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*

Allan J. Tobin, PhD  
*Professor of Neurology and  
 Physiological Science; Eleanor  
 Leslie Chair in Neuroscience;  
 Director, Brain Research Institute*

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



## Residents and Fellows

### Residents

#### THIRD-YEAR RESIDENTS, 2001–2004

Amani A.R. Fawzi, MD  
*JSEI Resident Award for Excellence in Ophthalmic Surgery*

Alisa Kim, MD  
*Grand Prize Winner for the 2003–2004 JSEI Weekly Grand Rounds Quiz*

Tri M. Nguyen, MD

David Paikal, MD

Michael A. Roberts, MD

Kevin M. Shiramizu, MD

Michael K. Tran, MD

#### SECOND-YEAR RESIDENTS, 2002–2005

Emma L. Clay, MD  
*Honorable Mention for the 2003–2004 JSEI Weekly Grand Rounds Quiz (2nd year residents)*

Sean M. Dumars, MD  
*JSEI Resident Research Award—Clinical Sciences*

Wei Jiang, MD

Tanuj Nakra, MD

Polly A. Quiram, MD, PhD  
*2004 UCLA Department of Ophthalmology Association Research Award*  
*2004 ARVO Young Investigator Travel Award*  
*JSEI Resident Research Award—Clinical Sciences*

Reem Z. Renno, MD

#### FIRST-YEAR RESIDENTS, 2003–2006

Christine C. Annunziata, MD

Candace C. Chen, MD

Leonardo M. Dacanay, MD

Shahriar Farzad, MD  
*Honorable Mention for the 2003–2004 JSEI Weekly Grand Rounds Quiz (1st year residents)*

Dorothy P. Khong, MD

Magdalena K. Kula, MD

Samir A. Shah, MD

### EyeSTAR Trainees

Vinit B. Mahajan, MD, PhD  
(2002–2007)

Stephen H. Tsang, MD, PhD  
(1999–2004)

### Clinical Fellows

#### COMPREHENSIVE OPHTHALMOLOGY

Marvin I. Gordon, MD

#### CORNEA AND EXTERNAL OCULAR DISEASES

Danny Y. Lin, MD

Bruce E. Wietharn, MD

#### GLAUCOMA

JoAnn A. Giaconi, MD

Satvinder K. Gujral, MD

#### ORBITAL AND OPHTHALMIC PLASTIC SURGERY

Raymond S. Douglas, MD, PhD  
*Winner of the Richard C. Webster, MD, Resident Paper Contest from the Cosmetic Surgery Foundation*

Robert M. Schwarcz, MD

#### PEDIATRIC OPHTHALMOLOGY AND STRABISMUS

Michelle T. Britt, MD

#### VITREORETINAL DISEASES AND SURGERY

William J. Foster, MD, PhD

Jiong Freeman, MD

David G. Telander, MD, PhD



#### SPECIALIZED CLINICAL FELLOWS

Charles Dominguez, OD  
(contact lens)

### Postdoctoral Research Fellows

Robert C. Clipsham, DVM, PhD

Rajendra K. Gangalum, PhD

Takao Hashimoto, MD, PhD

Ming-Hao Jin, PhD

Guy V. Jirawuthiworavong, PhD

Catherine H. Kaschula, PhD

Eiko Kitamura, PhD  
*2004 Fight for Sight Certificate/Award*

Myong Koag, PhD

Ana Karin Kusnetzow, PhD

Kim B. Phan, PhD

Roxana A. Radu, MD

John R. Sinclair, PhD

John D. Stamm, PhD

Ned C. Van Eps, PhD

VivekNeil S. Yellore, PhD

Jeffrey H. Zhang, PhD

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## Predocctoral Research Fellows

Mark R. Fleissner  
Zhefeng Guo  
Yun Han  
Yi-Wen "Evan" Hsieh  
John J. McCoy  
Kim B. Phan  
Kun Do Rhee  
Mehrnoosh Saghizadeh  
Robin L. Seitzman  
Mark Verardo  
Zoe Verney  
Arthi Vijayaraghavan  
Lawrence H. Yoo

Kouros Nouri-Mahdavi, MD  
*Glaucoma*  
Iran University of  
Medical Sciences  
Tehran, Iran  
June 1, 2002–May 30, 2005  
*JSEI Fellow Research Award—  
Clinical Sciences*

Maria C. Ortube, MD  
*Pediatric Ophthalmology  
and Strabismus*  
Centro de Ojos Quilmes  
Buenos Aires, Argentina  
July 1, 2002–December 31,  
2004

Alexandre Principe, MD  
*Cornea and External  
Ocular Diseases*  
Universidade Federal de  
São Paulo  
São Paulo, Brazil  
July 1, 2003–June 30, 2004

Andres A. Rodriguez, MD  
*Comprehensive Ophthalmology*  
Universidad Central del Ecuador  
Quito, Ecuador  
July 1, 2003–June 30, 2004

Jean Vaudaux, MD  
*Uveitis*  
Hôpital Ophtalmique  
Jules Gonin  
Lausanne, Switzerland  
July 1, 2003–June 30, 2004

Tzu-En Jessica Wu, MD  
*Pediatric Ophthalmology  
and Strabismus*  
Shin Kong Wu Ho-Su  
Memorial Hospital  
Taipei, Taiwan, R.O.C.  
July 1, 2003–June 30, 2004

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## International Fellows

Guy Ben Simon, MD  
*Orbital and Ophthalmic  
Plastic Surgery*  
Goldschleger Eye Institute,  
Sheba Medical Center  
Tel-Hashomer, Israel  
July 1, 2003–December 31,  
2004

Rahul Bhole, MD  
*Pediatric Ophthalmology  
and Strabismus*  
Maulana Azad Medical College  
New Dehli, India  
July 1, 2003–June 30, 2004  
*JSEI Fellow Research Award—  
Clinical Sciences*

Behrooz Koochaki, MD  
*Glaucoma*  
Emam-Khomeini Hospital  
Pars Abad, Ardabil, Iran  
September 29, 2003–August 31,  
2005



**Endowed Professorships, Fellowships and Other Funds**

**Endowed Professorships**

**Leonard Apt Chair in Pediatric Ophthalmology**

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

**Charles Kenneth Feldman Chair in Ophthalmology**

Established in 1982 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

Joseph L. Demer, MD, PhD  
2000–present

**Dolly Green Chair in Ophthalmology**

Established in 1980 by Dorothy (Dolly) Green

Dean Bok, PhD, 1984–present

**The 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 of the Department of Ophthalmology

Debora B. Farber, PhD, DPhhc  
2002–present

**Grace and Walter Lantz Endowed Chair**

Established in 1991 as a term chair by Mr and Mrs Lantz

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

Sherwin J. Isenberg, MD  
Scholar, 1993–1995  
Professor, 1996–present

**David May II Chair in Ophthalmology**

Established in 1998 as a term chair by the family of David May II, a founding member of the Institute's Board of Trustees, to perpetuate, in memoriam, Mr May's association with Jules Stein Eye Institute

Gary N. Holland, MD  
1999–present

**Oppenheimer Brothers Chair in Ophthalmology**

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

Joseph Horwitz, PhD  
2003–present

**Harold and Pauline Price Endowed Chair in Ophthalmology**

Established in 2000 as a term chair by the Louis and Harold Price Foundation

**Frances and Ray Stark Chair in Ophthalmology**

Established in 1992 as a term chair by the Fran and Ray Stark Foundation

Joseph Caprioli, MD  
1997–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 Samuel Goldwyn, Jr.

Wayne L. Hubbell, PhD  
1983–present

**Bradley R. Straatsma, MD, Chair in Ophthalmology**

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

Bartly J. Mondino, MD  
2000–present

**Vernon O. Underwood Family Chair in Ophthalmology**

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

John R. Heckenlively, MD  
1997–2004

**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 for the training of outstanding postdoctoral fellows

David G. Telander, MD  
2003–2004

**Leonard Apt Fellowship**

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

Michelle T. Britt, MD  
2003–2004

**Steven and Nancy Cooperman Fellowship Fund**

To support eye research and education, with emphasis on clinical ophthalmology

Raymond S. Douglas, MD, PhD  
2002–2004

**Klara Spinks Fleming Fellowship Fund**

Established in 1985 for the support of cataract research

Jo Anne A. Giaconi, MD  
2003–2004

**Frances Howard Goldwyn Fellowship**

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

Satvinder K. Gujral, MD  
2003–2004

**Elsa and Louis Kelton Fellowship**

Endowed in 1982 to support post-doctoral research and training

Danny Y. Lin, MD  
2003–2004

**Bert Levy Research Fellowship Fund**

Established in 1995 to enhance the educational opportunities of vision science scholars and advance research in neuro-ophthalmology

**David May II Fellowship Fund**

To support advanced study and research in ophthalmology and vision science

Bruce E. Weitharn, MD  
2003–2004

**Abe Meyer Memorial Fellowship Fund**

Established in 1969 to support clinical fellows at the Institute

Robert M. Schwarz, MD  
2003–2004

**Adelaide Stein Miller Research Fellowship**

Established in 1977 as a tribute to Dr Jules Stein's sister

William J. Foster, MD  
2003–2004

**Harold and Pauline Price Fellowship**

To support research and education in ophthalmology and vision care

**Ann C. Rosenfield Fund**

Established in 2000 to support the Division of Orbital and Ophthalmic Surgery's International Fellowship Program

**Dr Jack Rubin Memorial Fellowship**

To support postdoctoral fellows

**Sanford and Erna Schulhofer Fellowship Fund**

To support postdoctoral research and training in vision science

**Lee and Mae Sherman Fellowship Fund**

Established in 1971 to support postdoctoral fellows

Marvin I. Gordon, MD  
2003–2004

**Jules Stein Research Fellowship**

Established in 1982 to honor the memory of Charles Kenneth Feldman

Jiong Y. Freeman, MD  
2002–2004

**Vernon O. Underwood Family Fellowship Fund**

Established in 1993 to support clinical fellows

**Endowments for Research, Education and Patient Care**

**The Annenberg Foundation Fund**

Established in 2003 for follow-up treatment of patients who have benefited from The Annenberg Foundation's direct-service programs for children and adults

**Elsie B. Ballantyne Regents Fund**

For educational and patient care projects within the Glaucoma Division

**Elsie B. Ballantyne UCLA Foundation Fund**

Established in 1971 for research related to glaucoma

**Virginia Burns Oppenheimer Endowment Fund**

Established in 1998 with memorial gifts as a tribute to Virginia Burns Oppenheimer. The fund is to be used for interior maintenance projects

**Card Family Research Fund**

Established in 1998 for vision research with an emphasis on corneal disease

**Edward and Hannah Carter Fund**

Established in 1990 for continuing medical education

**Anthony Eannelli Fund**

Established in 1998 with a bequest from the estate of Anthony Eannelli for research into the treatment and cure of macular degeneration

**Katherine L. Gardner Research Fund**

Established in 1984 for vision research

**Emma B. Gillespie Fund**

Established in 1968 for the development and enrichment of teaching, research and patient care programs

**Audrey Hayden-Gradle Trust**

Established in 1994 with an unrestricted trust

**Michael Huffington Ophthalmology Scholarship Fund**

Established in 1994 for educational activities within the Retina Division

**Stella F. Joseph Fund**

Established in 1982 for the cataract research of Bradley R. Straatsma, MD

**JSEI Maintenance Fund**

For special maintenance of the exterior marble and other unique characteristics of Jules Stein Eye Institute buildings

**Herman King Fund**

Established in 1993 with a bequest from Herman King to support age-related cataract research under the direction of Dr Joseph Horwitz

**The Karl Kirchgessner Foundation Ophthalmology Endowment Fund**

Established in 1984 for promising areas of vision science research

**Sara Kolb Memorial Fund**

Established in 1984 for research in pediatric ophthalmology

**John and Theiline McCone Macular Disease Research Fund**

Established in 1989 for macular disease research

**Memorial Library Funds**

In honor of General and Mrs H.L. Oppenheimer, Jerome T. Pearlman and Susan Stein Shiva

**Chesley Jack Mills Trust**

Established in 1990 for vision research with special emphasis on glaucoma associated with corneal disease and/or uveitis

**Patricia Pearl Morrison Research Fund**

Established in 1982 for the investigation of retinal structure and disease

**Emily G. Plumb Estate and Trust**

Established in 2003 to support research for the prevention and cure of blindness

**Harold and Pauline Price Retina Research Fund**

Established in 2000 by the Louis and Harold Price Foundation for retina research under the direction of Steven D. Schwartz, MD

**The Skirball Foundation Fund**

Established in 1990 for research, education and patient care in the Ocular Inflammatory Disease Center

**Frances and Ray Stark Glaucoma Research Fund**

Established in 2000 to support glaucoma research, under the direction of Dr Joseph Caprioli

**Raymond and Ruth Stotter Vision Science Research Fund**

Established in 1990 for vision science research

**Bradley R. Straatsma Research Fund**

Established in 1988 for research related to ophthalmology under the direction of Bradley R. Straatsma, MD

**Barbara P. Taylor Fund**

For the vision science program

**UCLA Center for Eye Epidemiology**

Established in 1997 by The Ahmanson Foundation to support research and clinical studies to further knowledge of the development, treatment, and prevention of eye disease

**Uncle Claude Fund**

Established in 1972 for vision care services of needy children and adults through the UCLA Mobile Eye Clinic

**Anne H. West Estate Fund**

Established in 1987 for medical research in eye diseases and disorders and for related equipment and supplies

**Daniel B. Whipple Fund**

Established in 1982 for the study of the transplantation of eye tissue

## Educational Offerings for 2003–2004

### Ophthalmology and Vision Science Training Programs

#### JSEI Clinical and Research Seminar

May 21–22, 2004

##### COORDINATORS

Anthony C. Arnold, MD  
Peter Cornell, MD  
Robert Alan Goldberg, MD  
Gary N. Holland, MD  
Bartly J. Mondino, MD  
Xian-Jie Yang, PhD

This year marked the first combined Annual Postgraduate Seminar and Annual Research and Alumni Day. The new seminar meets the clinical and research training needs of the Institute's residency training program and clinical and research fellowship programs. The event was sponsored by the Department of Ophthalmology Association and featured three invited guest lectures. The thirty-fifth Jules Stein Lecturer was Robert B. Weinreb, MD, Professor and Vice Chairman of the Department of Ophthalmology at University of California, San Diego, whose lecture was entitled "Changing the Paradigm for Diagnosing Glaucoma." The second Bradley R. Straatsma Lecturer was research alumnus Paul S. Bernstein, MD, PhD, Associate Professor of Ophthalmology and Visual Science at the University of Utah School of Medicine, whose lecture was entitled "The Biochemistry and Biophysics of Nutritional Interventions Against Macular Degeneration: New Insights into an Old Age Disease." The second Thomas

H. Pettit Lecturer was clinical alumnus James P. Dunn, Jr., MD, Associate Professor of Ophthalmology at the Wilmer Eye Institute of Johns Hopkins University, whose lecture was entitled "Non-Infectious Peripheral Ulcerative Keratitis." Also included were presentations of current research findings by volunteer faculty members, residents, and clinical and basic science research fellows. The combined conference provided an expanded forum for discussion and collaboration of emerging clinical and basic science research.

Each year the program includes faculty awards presentations. The Senior Honor Award for at least 25 years of service to the teaching programs of UCLA and its affiliated hospitals went to volunteer faculty member Richard H. Yook, MD, Assistant Clinical Pro-

fessor of Ophthalmology. JSEI third year residents presented Simon K. Law, MD, Assistant Professor of Ophthalmology with an award for outstanding faculty teacher.

##### GUEST SPEAKERS

Dimitri T. Azar, MD  
Boston, Massachusetts  
Sadeer B. Hannush, MD  
Philadelphia, Pennsylvania  
R. Doyle Stulting, MD, PhD  
Atlanta, Georgia

#### Eighth Annual Vision Science Conference

September 19–21, 2003

##### COORDINATOR

Debora B. Farber, PhD, DPhc

Sponsored jointly by the Jules Stein Eye Institute and the National Eye Institute, the Annual Vision Science

Conference brings together pre- and postdoctoral research fellows and faculty from the Jules Stein Eye Institute to discuss a wide range of topics in vision science research.

#### Ophthalmology Basic and Clinical Science Course

##### COURSE CHAIRMAN

Bartly J. Mondino, MD

This course is a major segment of the education program for ophthalmology residents, as well as a review course for ophthalmologists. Sections are presented each year in a rotation designed to provide complete review of all sections in a three-year period. First-year residents participate in a more intensive curriculum in order to



obtain a comprehensive foundation of ophthalmologic knowledge. In 2003–2004, the following course components were offered:

**Section 10. Glaucoma**

September 3–October 22, 2003  
Joseph Caprioli, MD  
Section Chairman

**Section 11. Lens and Cataract**

October 29, 2003–January 7, 2004  
Kevin M. Miller, MD  
Section Chairman

**Section 8. External Disease and Cornea**

January 14–March 24, 2004  
Anthony J. Aldave, MD  
Section Chairman

**Section 4. Pathology and Intraocular Tumors**

March 31–June 2, 2004  
Ben J. Glasgow, MD  
Section Chairman

**Ophthalmology Clinical Conferences**

COORDINATOR  
Bartly J. Mondino, MD

The Clinical Conferences are offered in conjunction with the regular weekly Ophthalmology Basic and Clinical Science Course. These conferences are accompanied by lectures in the Ophthalmology Specialty Service Program, in which all faculty members of the Institute participate on a rotating basis; and the Invited Lecture Series, which features guest speakers from other UCLA Departments, from across the United States, and from abroad. The Clinical Conferences review patient care activities of the UCLA Department of Ophthalmology,

present general topics in ophthalmic science, and promote discussion of relevant aspects of ophthalmic pathology and pharmacy.

**Vision Science Seminar Series**

COORDINATOR  
Joseph Horwitz, PhD

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

**Phacoemulsification Course**

October 18, 2003  
COURSE DIRECTOR  
Kevin M. Miller, MD

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

**Study Groups**

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



**HIV-Related Eye Disease Study Group**

At monthly conferences, Gary N. Holland, MD, and Susan S. Ransome, MD, meet with infectious disease specialists from the UCLA Center for AIDS Research and Education (CARE) to discuss new developments in the management of cytomegalovirus (CMV) retinitis and other issues related to the ophthalmic manifestations of AIDS. Interested clinical and research professionals are invited to the meetings.

**Fluorescein Angiography Conference**

Arranged by the clinical fellows in vitreoretinal studies, this conference is convened periodically to review current angiograms representing disease entities, unusual abnormalities, and controversial interpretations of angio-

graphic findings. Supervision of the conference is by Steven D. Schwartz, MD, and other members of the Retina Division.

**Glaucoma Weekly Conference**

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

**Oculoplastic Conference**

This conference meets bimonthly and includes full-time and volunteer clinical faculty and visitors from the community who meet to discuss oculoplastic and orbital cases presented

by fellows and residents. The coordinators for the year were John D. McCann, MD, PhD, and 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, Drew University of Medicine and Science, and the Jules 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; Yadavinder P. Dang, MD, at Drew University; and Joseph L. Demer, MD, PhD, and Arthur L. Rosenbaum, MD, at the Jules Stein Eye Institute.

### **Neuro-Ophthalmology Conference**

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

## **Continuing Education Programs**

### **Aesthetic Eyelid and Facial Rejuvenation Course**

February 6–8, 2004

COURSE DIRECTORS

Robert Alan Goldberg, MD

John D. McCann, MD, PhD

Norman Shorr, MD

This course was geared to aesthetically oriented oculoplastic surgeons as well as surgeons from other disciplines. The didactic sessions and video presentations focused on the most recent developments in minimally invasive aesthetic surgery. Topics included non-surgical aesthetic facial rejuvenation, upper and lower eyelid surgery, forehead lift, minimally invasive lower face lift surgery and midface lift surgery.

### **Sixth Annual JSEI/SCCO Joint Optometric Symposium**

January 11, 2004

COURSE DIRECTOR

Barry A. Weissman, OD, PhD

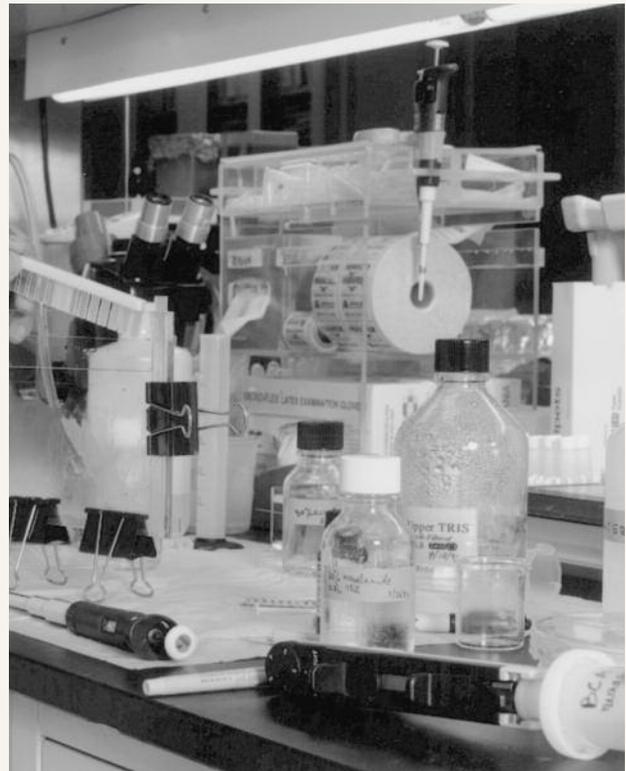
This symposium, jointly sponsored by the Jules Stein Eye Institute and the Southern California College of Optometry, is offered annually to optometrists and ophthalmologists across California. Each year focuses on a different topic pertinent to private practice. This year's program featured glaucoma.

## **Center for Eye Education**

CENTER DIRECTOR

Bradley R. Straatsma, MD

The Center for Eye Education coordinates and promotes educational opportunities for ophthalmologists, vision research scientists and health care professionals, as well as the public. Center activities emphasize basic science education, clinical training and public information. All endeavors encourage timely access and appropriate eye care as essential steps in the preservation and restoration of vision.



## Research Contracts and Grants

FISCAL YEAR 2003–2004	AWARD YEAR TOTAL	TOTAL AWARD	FISCAL YEAR 2003–2004	AWARD YEAR TOTAL	TOTAL AWARD
<b>Vision Science Grants</b>			<b>Joseph L. Demer, MD, PhD</b>		
				\$ 32,463	\$ 32,463
			<i>Genetic and Anatomic Basis of the Fibrosis Syndrome<sup>2</sup></i> National Eye Institute/Boston's Children's Hospital Duration: 8/1/03–7/31/04		
			<b>Robert E. Engstrom Jr., MD</b>		
	\$ 5,000	\$ 5,000		\$ 8,876	\$ 550,183
			<i>Collaborative Ocular Melanoma Study (COMS)</i> National Eye Institute Duration: 8/1/00–7/31/04		
			<b>Gordon L. Fain, PhD</b>		
	\$332,569	\$1,613,440		\$262,862	\$1,315,495
			<i>Physiology of Photoreceptors<sup>2</sup></i> National Eye Institute Duration: 2/1/00–1/31/05		
			<b>Dean Bok, PhD, Coordinator w/ Debora B. Farber, PhD</b>		
	\$452,021	\$2,287,923			\$ 324,503
			<i>Studies on Ocular Albinism</i> The Vision of Children Duration: 7/1/99–6/30/04		
			<b>Steven Nusinowitz, PhD</b>		
				\$254,573	\$1,251,331
			<i>PDEs in Photoreceptor Metabolism &amp; Disease</i> National Eye Institute Duration: 8/1/99–7/31/04		
			<b>Kent W. Small, MD</b>		
				\$260,984	\$1,265,836
			<i>Vision Research Training Program</i> National Eye Institute Duration: 9/30/00–9/29/05		
				\$ 57,351	\$ 227,790
			<b>Gabriel H. Travis, MD</b>		
				\$276,542	\$1,224,972
			<i>Study of Genes that Regulate... Light Damage in the Mouse</i> Foundation Fighting Blindness Duration: 7/1/01–6/30/04		
				\$276,542	\$1,224,972
			<b>Dean Bok, PhD</b>		
	\$316,060	\$1,875,243		\$60,000	\$ 175,454
			<i>Molecular Mechanisms in Retinal Degenerations</i> National Eye Institute Duration: 2/1/02–1/31/06		
			<b>Dean Bok, PhD</b>		
	\$ 10,000	\$ 10,000		\$200,000	\$ 800,000
			<i>Vision Research Training Program</i> National Eye Institute Duration: 9/30/00–9/29/05		
				\$ 57,351	\$ 227,790
			<b>Joseph Caprioli, MD</b>		
				\$276,542	\$1,224,972
			<i>Study of Genes that Regulate... Light Damage in the Mouse</i> Foundation Fighting Blindness Duration: 7/1/01–6/30/04		
				\$276,542	\$1,224,972
			<b>Anne L. Coleman, MD, PhD</b>		
	\$ 10,000	\$ 10,000		\$60,000	\$ 175,454
			<i>Mol Gen Studies of Ret Deg &amp; Progress &amp; Station Rel Dystroph</i> Foundation Fighting Blindness Duration: 9/1/02–6/30/05		
				\$200,000	\$ 800,000
			<b>Michael Danciger, PhD</b>		
	\$100,000	\$ 400,000		\$200,000	\$ 800,000
			<i>Transgenic/Molecular Approaches to Ocular Albinism</i> National Eye Institute Collaboration with UCSB, Dr. B Reese Duration: 7/1/03–6/30/07		
			<b>Joseph L. Demer, MD, PhD</b>		
	\$309,039	\$1,501,503		\$200,000	\$ 800,000
			<i>Biomechanical Analysis in Strabismus Surgery</i> National Eye Institute Duration: 1/1/01–12/31/05		
				\$200,000	\$ 800,000
			<b>Joseph L. Demer, MD, PhD</b>		
	\$328,795	\$1,934,345		\$200,000	\$ 800,000
			<i>Diseases of the Vestibular System... New Tests of Vestibular Function<sup>2</sup></i> National Institute on Deafness and Communicative Diseases Duration: 7/1/02–6/30/07		
				\$200,000	\$ 800,000
			<b>Bernard K-K Fung, PhD</b>		
				\$200,000	\$ 800,000
			<i>Structure, Function &amp; Org of Lens</i> National Eye Institute Duration: 1/1/00–12/31/03		
				\$200,000	\$ 800,000

Jules Stein Eye Institute

FISCAL YEAR 2003–2004	AWARD YEAR TOTAL	TOTAL AWARD	FISCAL YEAR 2003–2004	AWARD YEAR TOTAL	TOTAL AWARD
<b>Ben J. Glasgow, MD</b> <i>Proteins in Molecular Mech of Tear Film Formation<sup>2</sup></i> National Eye Institute Duration: 2/1/01–1/31/06	\$200,000	\$1,094,557	<b>Wayne L. Hubbell, PhD</b> <i>Molecular Basis of Membrane Excitation</i> National Eye Institute Duration: 5/1/00–4/30/05	\$250,000	\$1,250,000
<b>Ben J. Glasgow, MD</b> <i>Asteroid Hyalosis<sup>2</sup></i> Underwood Vitreoretinal Fund Duration: 12/1/01–11/30/06	\$ 75,000	\$ 375,000	<b>Wayne L. Hubbell, PhD</b> <i>Development of a Single Electron Microscope</i> Def Adv Res Projects Agency Duration: 2/2/02–12/31/03	<sup>1</sup> \$ 63,000	
<b>Lynn K. Gordon, MD, PhD</b> <i>Beta-B1 Crystallin—New Cand for Uveitis</i> <i>Autoantigen</i> National Eye Institute Duration: 9/1/01–8/31/04	\$100,000	\$ 300,000	<b>Wayne L. Hubbell, PhD</b> <i>Core Grant for Vision Research</i> National Eye Institute Duration: 3/1/04–2/28/09	\$300,251	\$1,342,607
<b>Lynn K. Gordon, MD, PhD</b> <i>James S. Adams Scholar Award</i> Research to Prevent Blindness Duration: 6/1/02–5/31/04	<sup>1</sup> \$ 50,000		<b>Sherwin J. Isenberg, MD</b> <i>Senior Scientific Investigator Award</i> Research to Prevent Blindness Duration: 1/1/01–12/31/05	<sup>1</sup> \$ 60,000	
<b>Lynn K. Gordon, MD, PhD</b> <i>Role of EMP2 in RPE Homeostasis</i> American Health Assistance Foundation Duration: 4/1/04–3/31/06	\$ 50,000	\$ 100,000	<b>Rehwa Lee, PhD</b> <i>Phosphoprotein/G Protein Interaction in Vision</i> <i>&amp; Blindness<sup>2</sup></i> Dept of Veterans Affairs Healthcare Center, Sepulveda Duration: 10/1/01–9/30/05	\$220,000	\$ 936,600
<b>Michael O. Hall, PhD</b> <i>Studies of Gas6/Merk1 Mediated Phagocytosis</i> <i>of OS By RPE Cells</i> National Eye Institute Duration: 9/1/03–8/31/06	\$200,000	\$ 600,000	<b>Ralph D. Levinson, MD</b> <i>Mechanisms of Infl Dis Associated w/ Human</i> <i>Leukocyte Antigen (HLA)</i> MacDonald Family Foundation Duration: 5/1/02–6/30/05	<sup>1</sup> \$ 200,000	
<b>John R. Heckenlively, MD</b> <i>Physician-Scientist Award</i> Research to Prevent Blindness Duration: 1/1/01–12/31/05	<sup>1</sup> \$ 55,000		<b>Ralph D. Levinson, MD</b> <i>Immunogenetics</i> MacDonald Family Foundation Duration: 7/1/03–6/30/04	\$ 50,000	\$ 100,000
<b>John R. Heckenlively, MD</b> <i>Mouse Models of Human Hereditary Eye Disease<sup>2</sup></i> National Eye Institute/Harbor–UCLA Medical Center Duration: 4/1/03–3/31/06	\$349,936	\$ 681,604	<b>Ralph D. Levinson, MD</b> <i>Accupressure for Dry Eye</i> Gerald H. Oppenheimer Family Foundation Duration: 10/1/03–9/30/04	\$ 50,000	\$ 50,000
<b>Gary N. Holland, MD</b> <i>Physician-Scientist Award</i> Research to Prevent Blindness Duration: 1/1/03–12/31/07	<sup>1</sup> \$ 55,000		<b>John D. McCann, MD, PhD</b> <i>Benign Essential Blepharospasm</i> Joyce J. Cammilleri Family Fund Duration: 1/14/04–1/13/05	\$ 20,000	\$ 20,000
<b>Gary N. Holland, MD</b> <i>... Test of Pats w/ Toxoplasmosis... Outbreak of</i> <i>Water-Borne Inf</i> Center for Disease Control Duration: 3/13/03–12/30/04	<sup>1</sup> \$ 17,150		<b>Bartly J. Mondino, MD</b> <i>Departmental Equipment Grant: Fluorescence</i> <i>Lifetime Spectrometer</i> Bruce Ford and Anne Smith Bundy Foundation Duration: 7/23/03–7/22/04	\$100,000	\$ 100,000
<b>Joseph Horwitz, PhD</b> <i>Senior Scientific Investigator Award</i> Research to Prevent Blindness Duration: 1/1/99–12/31/03	<sup>1</sup> \$ 60,000		<b>Bartly J. Mondino, MD</b> <i>Departmental Grant Award</i> Research to Prevent Blindness Duration: 1/1/04–12/31/04	\$110,000	\$ 110,000
<b>Joseph Horwitz, PhD</b> <i>Analysis of Microdissected Cataractous</i> <i>Human Lenses</i> National Eye Institute MERIT Duration: 8/1/00–7/31/04	\$302,117	\$1,228,781	<b>Arthur L. Rosenbaum, MD</b> <i>Physician-Scientist Award</i> Research to Prevent Blindness 1/1/04–12/31/04	\$ 55,000	\$ 55,000
<b>Wayne L. Hubbell, PhD</b> <i>Senior Scientific Investigator Award</i> Research to Prevent Blindness Duration: 1/1/00–12/31/04	<sup>1</sup> \$ 60,000		<b>Kent W. Small, MD</b> <i>Cloning the Gene for Blepharophimosis Synd</i> National Eye Institute Duration: 8/1/01–7/31/04	\$200,000	\$ 650,000

FISCAL YEAR 2003–2004	AWARD YEAR TOTAL	TOTAL AWARD	FISCAL YEAR 2003–2004	AWARD YEAR TOTAL	TOTAL AWARD
<b>Kent W. Small, MD</b> <i>Mrs. Merrill Parks Award, Study of Mac Deg</i> Research to Prevent Blindness Duration: 8/29/01–8/29/04	1	\$ 5,000	<b>Xian-Jie Yang, PhD</b> <i>Cytokine Signal Transduction in Retinal Development</i> National Eye Institute Duration: 5/1/00–1/31/05	1	\$ 700,000
<b>Kent W. Small, MD</b> <i>Hereditary Motor and Sensory Neuropathy</i> <i>Type IV, Gene Mapping and Positional Cloning –</i> <i>Marie Tooth Disease</i> Muscular Dystrophy Association Duration: 7/1/03–6/30/06	\$ 68,410	\$ 139,514	<b>Xian-Jie Yang, PhD</b> <i>Kirchgeessner Fdn Res Award</i> Duration: 6/1/01–5/31/06	1	\$ 50,000
<b>Kent W. Small, MD, and</b> <b>Steven D. Schwartz, MD</b> <i>Age-Related Mac Deg</i> Joyce J. Cammilleri Family Fund Duration: 1/14/04–1/13/05	\$ 20,000	\$ 20,000	<b>Xian-Jie Yang, PhD</b> <i>Mysosin VIIa Gene Therapy</i> National Eye Institute Duration: 3/1/03–2/28/06	\$100,000	\$ 300,000
<b>Hui Sun, PhD</b> <i>Morphogenesis of Photoreceptor Outer Segment</i> The Karl Kirchgeessner Foundation Duration: 11/1/03–10/31/04	\$ 50,000	\$ 50,000	<b>Xian-Jie Yang, PhD</b> <i>Dolly Green Scholar Award</i> Research to Prevent Blindness Duration: 7/1/03–6/30/04	\$ 70,000	\$ 70,000
<b>Hui Sun, PhD</b> <i>Identification of the Receptor for Vitamin A Uptake</i> <i>in the Eye</i> The Stein-Opppenheimer Endowment Duration: 3/1/04–2/28/04	\$ 20,000	\$ 20,000	<b>Xian-Jie Yang, PhD</b> <i>Development of Lentivirus-based Usher 1B</i> <i>Gene Therapy<sup>2</sup></i> Foundation Fighting Blindness/UC San Diego Duration: 3/1/04–2/28/05	\$ 31,667	\$ 31,667
<b>Hui Sun, PhD</b> <i>Dissection of a Molecular Pathway in Bruch's</i> <i>Membrane Leading to Macular Degeneration</i> The Ruth and Milton Steinbach Foundation Duration: 7/1/04–6/30/06	\$100,000	\$ 300,000	<b>Postdoctoral Fellow Grants</b>		
<b>Gabriel H. Travis, MD</b> <i>Biochem &amp; Mol Analysis Vis Pigm Regen in</i> <i>Cone Photoreceptors</i> Ruth and Milton Steinbach Fund Duration: 7/1/00–6/30/04	1	\$ 300,000	<b>Eiko Kitamura, PhD</b> Debora B. Farber, PhD (Mentor) <i>Molecular Characterization of the Inversion in</i> <i>Chromosome 4 Associated with Retinal</i> <i>Degeneration in the Rd4 Mouse</i> Fight for Sight, Postdoctoral Fellowship Duration: 7/1/03–6/30/04	\$ 16,000	\$ 16,000
<b>Gabriel H. Travis, MD</b> <i>Function/Interaction of RDS/Peripherin</i> <i>in Photoreceptors</i> National Eye Institute Duration: 6/1/01–5/31/04	\$193,400	\$ 570,796	<b>Vinit Mahajan, MD, PhD</b> Debora B. Farber, PhD (Mentor) <i>Signal Transduction Mechanisms in Ocular Albinism</i> Giannini Family Foundation, Postdoctoral Fellowship Duration: 7/1/03–6/30/06	\$ 36,000	\$ 114,000
<b>Gabriel H. Travis, MD</b> <i>Stein Professorship Award</i> Research to Prevent Blindness Duration: 7/1/01–6/30/06	\$ 75,000	\$ 375,000	<b>Kouros Nouri-Mahdavi, MD</b> Joseph Caprioli, MD (Mentor) <i>Intraocular Pressure Fluctuation is at Risk for</i> <i>Glaucomations Visual Field</i> Pfizer Ophthalmics Duration: 6/1/04–5/31/05	\$ 5,000	\$ 5,000
<b>Gabriel H. Travis, MD</b> <i>Regeneration of Cone Pigments &amp; Treatment</i> <i>of Stargardt's</i> National Eye Institute Duration: 3/1/02–2/28/07	\$250,000	\$1,250,000	<b>Kouros Nouri-Mahdavi, MD</b> Joseph Caprioli, MD (Mentor) <i>Neuro-Protection of Caloric Restriction in</i> <i>Experimental Glaucoma</i> Fight for Sight Duration: 7/1/04–6/30/05	\$ 11,000	\$ 11,000
<b>Barry A. Weissman, OD, PhD</b> <i>Coll Longitudinal Evaluation of Keratoconus</i> <i>(CLEK) Study</i> National Eye Institute/Ohio State Univ Duration: 9/30/00–9/29/04	\$ 29,186	\$ 119,740	<b>Maria Ortube, MD</b> Joseph L. Demer, MD, PhD (Mentor) <i>Orbital Imaging in Craniosynostosis: Understanding</i> <i>The Pathophysiology of Complex Strabismus</i> Knights Templar Eye Fdn. Duration: 5/1/04–4/30/05	\$ 30,000	\$ 30,000

FISCAL YEAR 2003–2004	AWARD YEAR TOTAL	TOTAL AWARD	FISCAL YEAR 2003–2004	AWARD YEAR TOTAL	TOTAL AWARD
<b>Stephen H. Tsang, MD, PhD</b> <i>Tamoxifen-Induced Functional Genomics Toxicity</i> National Eye Institute Duration: 9/30/00–11/30/03	\$103,297	\$ 347,137	<b>Robert E. Engstrom Jr., MD</b> <i>Collaborative Ocular Melanoma Study (COMS)</i> National Eye Institute Duration: 8/1/00–7/31/04	\$ 12,643	\$ 81,547
<b>Stephen H. Tsang, MD, PhD</b> <i>... Cell Death in Mice Lacking Gamma Submit of the CGMP...</i> Burroughs Wellcome Fund Duration: 9/1/01–8/31/03	\$ 63,000	\$ 122,000	<b>Christine R. Gonzales, MD</b> <i>Phase III... Intravitreal Injections ... Pat w/ Exudative Age-Rel Mac Deg</i> EyeTech Pharmaceuticals, Inc. Duration: 10/16/01–10/15/03	<sup>1</sup>	\$ 140,023
<b>Ned Van Eps, PhD</b> Wayne L. Hubbell, PhD (Mentor) <i>An Investigation of Structural Interactions with Rhodopsin/Transduction Complex</i> American Heart Association Duration: 7/1/04–6/30/06	\$ 39,000	\$ 80,000	<b>Christine R. Gonzales, MD</b> <i>Phase III... Intravitreal Injections Pat w/ Significant Diab Mac Edema</i> EyeTech Pharmaceuticals, Inc. Duration: 9/6/02–9/15/04	\$ 69,667	\$ 169,667
<b>Clinical Trials</b>			<b>Christine R. Gonzales, MD</b> <i>Pharm Study... Intravitreal Injections Pat w/ Exudative Age-Rel Mac Deg</i> EyeTech Pharmaceuticals, Inc. Duration: 2/12/03–12/31/04	<sup>1</sup>	\$ 178,475
<b>Anthony J. Aldave, MD</b> <i>... to evaluate the Safety and Effectiveness of the Phakic 6 H2 Refractive Anterior Chamber Lens</i> Ophthalmic Innovations International, Inc Duration: 7/3/03–7/2/07	\$ 67,112	\$ 67,112	<b>Christine R. Gonzales, MD</b> <i>Phase II... Pegaptanib Sodium... Pats w/ Exudative Subfoveal Age-Rel Mac Deg</i> EyeTech Pharmaceuticals, Inc. Duration: 5/1/04–8/31/06	\$104,642	\$ 104,642
<b>Joseph Caprioli, MD</b> <i>Oral Memantine Study</i> Allergan Pharm Company Duration: 8/31/99–7/8/06	<sup>1</sup>	\$ 389,716	<b>Christine R. Gonzales, MD</b> <i>... Subretinal Delivery of Radiation for... Subfoveal Choroidal Neovascularization in Pat w/ Age-Rel Mac Deg</i> NeoVista, Inc. Duration: 5/1/04–8/31/06	\$ 43,450	\$ 43,450
<b>Joseph Caprioli, MD</b> <i>Clin Measure... Optic Nerve Damage</i> National Eye Institute Duration: 3/1/01–2/28/05	\$250,000	\$1,250,000	<b>Anurag Gupta, MD &amp; Christine R. Gonzales, MD</b> <i>Phase II... Intravitreal Injections Pat w/ Diabetic Mac Edema...</i> Oculex Pharmaceuticals, Inc. Duration: 9/1/01–12/31/03	<sup>1</sup>	\$ 118,048
<b>Anne L. Coleman, MD, PhD</b> <i>Multidimensional Intervention for Vision Impaired Elders<sup>2</sup></i> National Institute on Aging Duration: 7/1/01–6/30/04	\$121,434	\$ 305,587	<b>Anurag Gupta, MD</b> <i>Phase II... Intravitreal Injections ... Pat w/ Exudative Age-Rel Mac Deg</i> Gen Vec Inc. Duration: 1/31/03–1/30/05	<sup>1</sup>	\$ 119,852
<b>Anne L. Coleman, MD, PhD</b> <i>... Study to Compare IOP Lowering Effect of Travatan...</i> Alcon Laboratories, Inc. Duration: 6/14/02–11/30/04	<sup>1</sup>	\$ 20,000	<b>Anurag Gupta, MD</b> <i>... Post Juxtasccleral Admin of Anecortave Acetate... v Sham Admin... Pat w/ Exudative Age-Rel Mac Deg</i> Alcon Research, LTD Duration: 3/1/04–2/28/08	\$ 75,564	\$ 302,259
<b>Anne L. Coleman, MD, PhD</b> <i>Incidence of Late Macular Deg in Older Women<sup>2</sup></i> National Eye Institute Duration: 8/1/02–7/31/07	\$843,087	\$4,625,171	<b>Anurag Gupta, MD</b> <i>... Pilot Trial To Compare Fluorescein Angiography Images Obtained with the Panoramic200A...</i> Diabetic Retinopathy Optos PLC Duration: 4/27/04–11/26/04	\$ 14,500	\$ 14,500
<b>Anne L. Coleman, MD, PhD</b> <i>Study of Osteoporotic Fractures: Eye Survey<sup>2</sup></i> National Institute on Aging Duration: 8/15/02–7/31/04	\$209,976	\$ 843,078	<b>Gary N. Holland, MD</b> <i>Studies of the Ocular Complications of AIDS (SOCA)<sup>2</sup></i> National Eye Institute/Johns Hopkins Univ Duration: 8/1/03–7/31/04	\$247,101	\$ 859,778
<b>Anne L. Coleman, MD, PhD</b> <i>Ocular Hypertension Tx Study<sup>2</sup></i> National Eye Institute/ Charles R. Drew Univ Med & Sci Duration: 1/1/04–12/31/04	\$ 95,275	\$ 508,805			

Jules Stein Eye Institute

FISCAL YEAR 2003–2004	AWARD YEAR TOTAL	TOTAL AWARD	FISCAL YEAR 2003–2004	AWARD YEAR TOTAL	TOTAL AWARD
<b>Sherwin J. Isenberg, MD and Leonard Apt, MD</b> ... Povidone Iodine... Treatment of Bacterial Corneal Ulcers <sup>2</sup> Thrasher Research Foundation Duration: 4/1/02–3/31/04		\$110,801 \$ 182,245	<b>Steven D. Schwartz, MD and Kent W. Small, MD</b> Phase II... Intravitreal Injections Pat w/ Exudative Age-Rel Mac Deg Genetech Duration: 5/15/03–12/31/04	<sup>1</sup>	\$ 15,429
<b>Simon K. Law, MD</b> Retrospective Analysis of ... Southern California Permanente Medical Group Duration: 12/1/03–12/31/04		\$ 80,204 \$ 80,204	<b>Steven D. Schwartz, MD and Christine R. Gonzales, MD and Anurag Gupta, MD</b> The Diabetic Retinopathy Clinical Research Network <sup>2</sup> National Eye Institute/ JAEB Center for Health Research Duration: 6/1/03–5/31/06		\$ 22,165 \$ 22,165
<b>Kevin M. Miller, MD</b> ... ACRYSOF Single-Piece Toric Intraocular Lens Model SA60TT Alcon Pharmaceutical Company Duration: 4/1/02–4/30/05	<sup>1</sup>	\$ 81,535	<b>Kent W. Small, MD</b> ... Sandostatin LAR in Pts... Diabetic Retinopathy or Low Risk Proliferative Diabetic Retinopathy Novartis Pharmaceutical Duration: 11/13/00–1/1/06		\$ 48,622 \$ 48,662
<b>Kevin M. Miller, MD</b> Clinical Evaluation of Two Artificial Iris Implants UCLA Academic Senate Faculty Grant Program Duration: 7/1/03–6/30/04		\$ 7,500 \$ 7,500	<b>Kent W. Small, MD</b> Phase III... Intramuscular Injections... Pat w/ Diabetic Retinopathy Novartis Pharm Company Duration: 11/13/00–1/1/04	<sup>1</sup>	\$ 351,391
<b>Steven D. Schwartz, MD</b> Phase II... Periorbital Injection... Pat w/ Exudative Age-Rel Mac Deg Alcon Laboratories, Inc. Duration: 12/1/00–12/31/03	<sup>1</sup>	\$ 225,000	<b>Kent W. Small, MD</b> Phase II... Intravitreal Injections... Pat w/ Exudative Age-Rel Mac Deg Genetech, Inc. Duration: 1/1/02–5/31/03		\$314,098 \$ 314,098
<b>Steven D. Schwartz, MD and Christine R. Gonzales, MD</b> ... Diabetic Retinopathy Study Lily Research Laboratories Duration: 8/27/01–3/1/05	<sup>1</sup>	\$ 136,788	<b>Kent W. Small, MD</b> Phase III... Safety and Efficacy of rhuFab V2... Age Related Macular Degeneration Genetech, Inc. Duration: 8/18/03–12/31/05		\$961,420 \$ 961,420
<b>Steven D. Schwartz, MD</b> Submacular Surgery Trial... National Eye Institute/Johns Hopkins Univ Duration: 5/1/03–4/30/04		\$ 56,180 \$ 56,180			

<sup>1</sup> Total amount of grant awarded in previous year(s)

<sup>2</sup> Grant administered outside of the Jules Stein Eye Institute

## Clinical Research Studies

### Cataract

#### Alcon AcrySof Single Piece Toric Intraocular Lens

The Institute is participating in a multicenter clinical study to evaluate the safety and effectiveness of the AcrySof® Toric Intraocular Lens to correct astigmatism after cataract removal. The evaluation will be done by comparing vision results with this experimental lens to those of an approved standard lens. The study is a randomized clinical trial in which patients will be followed on an outpatient basis for one year. Principal Investigators: Kevin M. Miller, MD; and Michael D. Olson, OD, PhD

#### Endocapsular Tension Ring

The Institute is participating in a multicenter study to investigate the effectiveness of the OCULAID endocapsular tension ring (CTR) at improving capsular stability in cataract surgery patients who have weak or broken zonules around their natural lenses. Institute faculty will implant the device during cataract surgery in patients who meet the study criteria and follow them on an outpatient basis for one year. Principal Investigators: Kevin M. Miller, MD; and Michael D. Olson, OD, PhD

#### Functional Visual Outcomes of Cataract Surgery

Patients who have been scheduled for routine cataract surgery are being asked to participate in a clinical study in which a 14-question visual function (VF-14) survey is administered before and after surgery. The VF-14

scores are correlated with Snellen acuity, ocular comorbidities, and cataract severity. Principal Investigator: Kevin M. Miller, MD

#### Morcher Iris Diaphragm

The Institute has obtained a compassionate use Individual Device Exemption from the U.S. Food and Drug Administration to use the Morcher Iris Diaphragm implant in patients with partial or complete aniridia, and to evaluate its preliminary effectiveness. The implant is designed to limit the amount of light coming into the eye, like a natural iris, reducing symptoms of light sensitivity and glare. Patients will be followed on an outpatient basis for one year following surgery. Principal Investigators: Kevin M. Miller, MD; and Michael D. Olson, OD, PhD

#### Ophtec Iris Reconstruction Lens

The Institute is participating in a multicenter clinical investigation designed to evaluate the safety and effectiveness of the Ophtec Model 311 Iris Reconstruction Lens for the treatment of visual disturbances (glare, halos and photophobia) related to the absence of part or all of the human iris. This study is designed to determine the level of reduction in visual disturbances and improvement in uncorrected and best-spectacle, corrected visual acuity associated with this lens. The implant is designed for patients who are aniridic and either aphakic or in need of cataract surgery. Patients will be followed on an outpatient basis for a 3-year period. Principal Investigators: Kevin M. Miller, MD; and Michael D. Olson, OD, PhD

### Corneal Diseases

#### Collaborative Longitudinal Study of Keratoconus (CLEK)

The Institute is participating in a long-term, multicenter clinical trial that is studying the natural history of keratoconus (a degenerative corneal disease). The study prospectively characterizes vision, corneal changes, and patient quality-of-life findings in a large group of keratoconic patients, and determines the progression of keratoconus over time. Principal Investigators: Barry A. Weissman, OD, PhD; and Melissa W. Chun, OD

### Diabetic Retinopathy

#### Laser Photocoagulation

The Diabetic Retinopathy Clinical Research Network (DRCR) is a multicenter collaboration sponsored by the National Eye Institute to investigate the vision threatening consequences of diabetic retinopathy. Current studies are comparing the efficacy of different patterns of laser photocoagulation for the treatment of clinically significant macular edema associated with diabetic retinopathy. Principal Investigators: Steven D. Schwartz, MD; Anurag Gupta, MD; and Christine R. Gonzales, MD

#### Protein Kinase C Inhibitor

Retina specialists are participating in a clinical trial to determine whether oral administration of a protein kinase C inhibitor over three years can reduce the progression of retinopathy in subjects who have moderately severe to very severe nonproliferative diabetic retinopathy. Principal Investigators: Steven D. Schwartz, MD; Allan E. Kreiger, MD; Marc O. Yoshizumi, MD; and Christine R. Gonzales, MD

### Sandostatin Treatment

The Institute's Retina Division faculty are studying the efficacy and safety of the intramuscular drug Sandostatin LAR in the therapy of patients with moderate-to-severe, non-proliferative diabetic retinopathy; or low-risk, proliferative diabetic retinopathy. Principal Investigator: Kent W. Small, MD

#### Vascular Endothelial Growth Factor (VEGF)

Vascular endothelial growth factor (VEGF) is known to be elevated in patients with diabetic retinopathy. This factor plays a key role in the development of macular edema in patients with diabetic retinopathy by increasing vascular permeability. A multi-center clinical trial is currently underway to determine safety and preliminary efficacy of intravitreal injections of an anti-VEGF compound in patients with diabetic macular edema. Principal Investigators: Christine R. Gonzales, MD; Anurag Gupta, MD; Allan E. Kreiger, MD; Marc O. Yoshizumi, MD; and Kent W. Small, MD

#### Widefield Retinal Imaging

As part of a multicenter clinical trial, investigators at the Institute are evaluating the efficacy of a new imaging technology with the ability to determine the involvement of the peripheral retina in diabetic retinopathy. The images from this system may contribute to understanding and developing new treatment strategies for diabetic retinopathy. Principal Investigators: Anurag Gupta, MD; Steven D. Schwartz, MD; and Christine R. Gonzales, MD

## General Ophthalmology

### Dry Eye and Accupressure

Faculty are exploring accupressure as an adjunctive treatment for dry eye. Accupressure is a massage technique individuals can perform for themselves using the same points as are used in acupuncture. This study is being done in collaboration with the UCLA Center for East-West Medicine. Principal Investigators: Ralph D Levinson, MD; and Ka Kit Hui

### Multidimensional Intervention for Vision-Impaired Elders

The Institute is participating in a clinical trial and pilot study sponsored by the Older American Independence Center (OAIC) and the UCLA Mobile Eye Clinic. The investigation is evaluating the benefit of appropriate eyeglass prescriptions in vision-impaired elders together with the feasibility of lighting intervention in their homes. Principal Investigators: Anne L. Coleman, MD, PhD; Carol M. Mangione, MD, MSPH; and Steven Nusinowitz, PhD

### Osteoporotic Fractures in Elderly Women

The goal of this investigation is to test whether common and treatable eye diseases increase the risk of falls and fractures in elderly women. Principal Investigators: Anne L. Coleman, MD, PhD; and Carol M. Mangione, MD, MSPH

### Glaucoma and Other Diseases of the Optic Nerve

#### Baerveldt Implant Versus Ahmed Valve Implant in Refractory Glaucoma

Tube shunt devices for glaucoma have received little comparison. This study compares the efficacy and safety of the two most commonly used glaucoma tube shunt surgical devices in clinical settings. Principal Investigator: Simon K. Law, MD, PharmD

### Comparison of Polypropylene and Silicone Ahmed Glaucoma Valves

Tube shunt devices for glaucoma have received little comparison. This study compares the efficacy and safety of two commonly used materials in glaucoma tube shunt devices. They will be evaluated in the same device—Ahmed glaucoma valve—in clinical settings. Principal Investigators: Simon K. Law, MD, PharmD; Anne L. Coleman, MD, PhD; and Joseph Caprioli, MD

### Clinical Measurements of the Optic Nerve in Glaucoma

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. Principal Investigator: Joseph Caprioli, MD

### Confocal Scanning Laser Ophthalmoscopy of the Optic Disc

This study is ancillary to the Ocular Hypertension Treatment Study (OHTS). Investigators are evaluating the ability of confocal scanning laser ophthalmoscopy to detect changes in the appearance of the optic disc associated with ocular hypertension and glaucoma. Principal Investigator: Anne L. Coleman, MD, PhD

### Evaluation of the Effectiveness and Safety of Oral Memantine

The Oral Memantine Study is a 48-month, multicenter clinical trial to evaluate the effectiveness of oral memantine in patients with chronic, open-angle glaucoma, who are at risk for progression of glaucoma. This is

the first study of its type for neuroprotection for glaucoma. Principal Investigator: Joseph Caprioli, MD

### From Latanoprost to Bimatoprost

Compare the efficacy, tolerability, and side effects of latanoprost and bimatoprost in patients with glaucoma or glaucoma suspect in a health maintenance organization (HMO) setting. Principal Investigator: Simon K. Law, MD, PharmD

### Glaucoma and Quality of Life

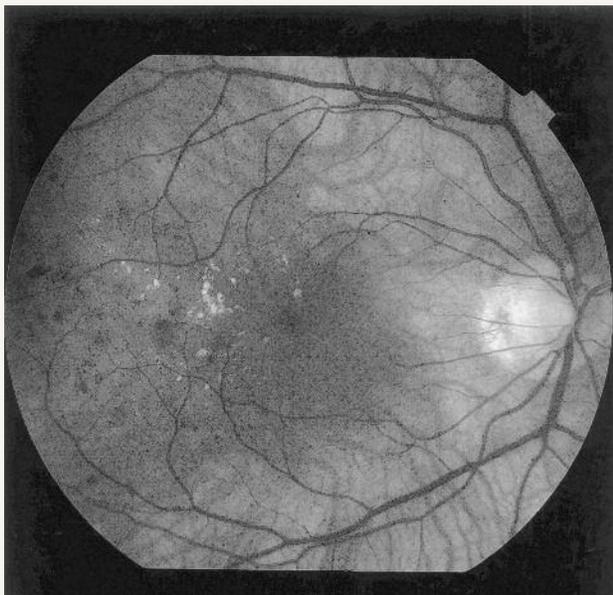
Faculty in the Glaucoma Division are conducting an investigation to ascertain the prevalence of stress and mood symptoms, and to determine quality of life in patients with chronic glaucoma. Principal Investigator: Anne L. Coleman, MD, PhD

### Measurement of Motion Perception Losses in Early Glaucoma

This study continues the development of a novel test of motion perception losses in early glaucoma. Work is underway to evaluate a monitor-based test that may be more sensitive to early glaucomatous loss than standard perimetric tests. Principal Investigator: Joseph Caprioli, MD

### Ocular Hypertension Treatment Study (OHTS)

This National Eye Institute-sponsored, multicenter clinical trial is evaluating how best to treat patients with elevated pressure who have no definitive, clinical signs of glaucoma. Investigators want to determine if patients 40 to 80 years of age, with intraocular pressures between 24 and 32 mmHg, should be taking antiglaucomatous medications. Principal Investigators: Richard S. Baker, MD; and Anne L. Coleman, MD, PhD



### **Travaprost as a Treatment Alternative for Lowering IOP**

This study is assessing whether medical treatment with Travaprost is more effective than a nonspecific beta-blocker in lowering the intraocular pressure (IOP) of patients with normal tension glaucoma. Principal Investigator: Joseph Caprioli, MD

### **Visual Field Progression Analysis**

Investigators are analyzing glaucomatous visual field progression using data from the Advanced Glaucoma Intervention Study (AGIS). The analysis includes the investigation of pointwise linear regression and other methods of trend analysis (time series analysis). The results are being compared against other techniques, such as clinical agreement and the AGIS score. Principal Investigator: Joseph Caprioli, MD

## **Infectious and Inflammatory Eye Diseases**

### **Abnormal Retinal Blood Flow in Human Immunodeficiency Virus (HIV)-Infected Individuals**

Slowing of blood flow, and abnormalities in factors that affect blood flow (changes in white blood cell rigidity, increased red blood cell aggregation) are being investigated as possible causes of subtle vision loss (color vision abnormalities, altered contrast sensitivity) in HIV-infected individuals. Principal Investigator: Gary N. Holland, MD

### **Acquired Immunodeficiency Syndrome (AIDS)-Related Eye Diseases**

The Ocular Inflammatory Disease Center is participating in a large, epidemiological study that is sponsored by the National Institutes of Health. Individuals infected with human immunodeficiency virus (HIV) are followed to determine the types of eye diseases that are associated with AIDS in an era of potent antiretroviral therapy. Investigators: Gary N. Holland, MD; and Susan S. Ransome, MD

### **Cytomegalovirus (CMV) Retinitis**

As one member of the Southern California HIV/Eye Consortium, the Institute is conducting several studies looking at risk factors for, and characteristics of, CMV retinitis in HIV-infected individuals in an era of potent antiretroviral therapy. The consortium includes investigators throughout Los Angeles and Orange Counties who are based in university and government hospitals, as well as the community. Principal Investigator: Gary N. Holland, MD

### **Dry Eye and Accupressure**

Faculty are exploring accupressure as an adjunctive treatment for dry eye. Accupressure is a massage technique individuals can perform for themselves using the same points as are used in acupuncture. This study is being done in collaboration with the UCLA Center for East-West Medicine. Principal Investigators: Ralph D Levinson, MD; and Ka Kit Hui

### **Immunogenetics of Uveitis**

Investigators are pursuing studies of the role of genetic factors in both infectious and autoimmune uveitis in order to obtain new insights into disease mechanisms. Principal Investigator: Ralph D Levinson, MD

## **Macular Degeneration**

### **Angiostatic Steroids to Inhibit Neovascularization**

A new class of compounds called angiostatic steroids has been found that may inhibit the formation of new blood vessels (neovascularization) in the eye. Investigators at the Institute are participating in a multicenter clinical trial for a new angiostatic steroid that may represent a breakthrough treatment for ocular neovascular diseases such as “wet” age-related macular degeneration. Principal Investigators: Anurag Gupta, MD; Allen E. Kreiger, MD; Kent W. Small, MD; Marc O. Yoshizumi, MD; Christine R. Gonzales, MD; and Steven D. Schwartz, MD

### **Angiostatic Steroids to Prevent Neovascularization**

A new class of compounds called angiostatic steroids has been found to inhibit the formation of new blood vessels (neovascularization) in the eye. Investigators at the Institute are participating in a multicenter clinical trial that may establish a breakthrough treatment to prevent progression of “dry” age-related macular degeneration to the “wet” form of the disease. Principal Investigators: Anurag Gupta, MD; Christine R. Gonzales, MD; Allan E. Kreiger, MD; Marc O. Yoshizumi, MD; and Steven D. Schwartz, MD

### **Incidence of Age-Related Macular Degeneration**

The goal of this investigation is to measure the incidence of age-related macular degeneration in elderly women. Principal Investigator: Anne L. Coleman, MD, PhD

### **Pigment Epithelium Derived Factor (PEDF)**

Pigment epithelium derived factor (PEDF) is a key regulator of vascularity in the eye. In addition to its anti-angiogenic activity, PEDF enhances neuronal survival under cytotoxic conditions. Gene transfer of PEDF using an adenovirus vector may allow the factor to be delivered to the region of neovascularization for prolonged periods of time. A multi-center clinical trial is currently underway to determine safety and preliminary efficacy of intravitreal injections of an adenovirus vector designed to deliver the PEDF gene in patients with neovascular age-related macular degeneration. Principal Investigators: Anurag Gupta, MD; Christine R. Gonzales, MD; and Steven D. Schwartz, MD

### **Submacular Radiation to Inhibit Neovascularization**

The efficacy and safety of a new surgical intervention for the treatment of selected patients with new blood vessels (neovascularization) associated with “wet” age-related macular degeneration is currently being evaluated by faculty in the Retina Division in a multicenter clinical trial. Principal Investigators: Christine R. Gonzales, MD; and Anurag Gupta, MD

### **Vascular Endothelial Growth Factor (VEGF)**

There is evidence suggesting that angiogenic factors such as vascular endothelial growth factor (VEGF) play a role in the pathogenesis of “wet” age-related macular degeneration by stimulating the formation of new blood vessels (neovascularization). If this is the case, then VEGF inhibition should have some impact on the onset and/or severity of vision loss associated with vascular growth and subsequent subretinal hemorrhage that are characteristic of the disease. Faculty in

the Retina Division are participating in a multicenter clinical trial to determine the safety and efficacy of anti-angiogenic factor(s) given by intravitreal injection. Principal Investigators: Christine R. Gonzales, MD; Anurag Gupta, MD; Allen E. Kreiger, MD; Kent W. Small, MD; and Marc O. Yoshizumi, MD

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## Macular Edema

### Persistent Macular Edema

A clinical trial is underway to compare the safety and efficacy of a novel dexamethasone implant in the treatment of patients with macular edema persisting at least 90 days following central retinal vein occlusion or branch retinal vein occlusion. This intravitreal drug delivery system allows for maintenance of therapeutic doses of dexamethasone in the eye for many weeks without the toxicity found with other drug delivery methods. Principal Investigators: Anurag Gupta, MD; Christine R. Gonzales, MD; Steven D. Schwartz, MD; and Allan E. Kreiger MD

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## Ocular Melanoma

### Collaborative Ocular Melanoma Study (COMS)

The Institute is one of 43 clinical centers in North America participating in a National Eye Institute-sponsored, multidisciplinary clinical trial comparing treatment modalities for choroidal melanoma. Principal Investigators: Robert E. Engstrom, Jr., MD; Bradley R. Straatsma, MD; Hector L. Sulit, MD; Ben J. Glasgow, MD; Man M. Singh Hayreh, MD; Robert G. Parker, MD; and Alexander N. Li, PhD

### MARTI-Transformed Dendritic Cells for Metastatic Cutaneous Melanoma

A phase I/II clinical trial of dendritic cell-based genetic immunotherapy for metastatic cutaneous melanoma is in progress. Principal Investigators: Antoni Ribas, MD; John A. Glaspy, MD; James S. Economou, MD; Lisa H. Butterfield, PhD; Lynn K. Gordon, MD, PhD; Steven Nusinowitz, PhD; and Bradley R. Straatsma, MD, JD

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## Orbital and Ophthalmic Plastic Surgery

### Thyroid-Related Orbitopathy

New discoveries in the molecular biology of Graves' orbitopathy have opened up new opportunities for study. In this research project, cells from the orbital tissue of patients with Graves' disease, removed as part of surgery, are harvested and grown in the laboratory. Molecular biologic features of the disease identified in these cells are then correlated with clinical parameters of the disease. It is hoped that this kind of research will lead to better therapies and more specific tests to determine the effectiveness of therapies. Principal Investigators: Robert Alan Goldberg, MD; John D. McCann, MD, PhD; and Terry J. Smith, MD

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## Pediatric Ophthalmology and Strabismus

### Biochemical Analysis in Strabismus Surgery

Now in its second decade of support from the National Eye Institute, 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 (MRI) of the extraocular muscles, are performed in the Institute's Clinical and Basic Science Ocular Motility Laboratory before and after strabismus surgery. Selected patients undergo molecular genetic studies of the extraocular muscles and orbital connective tissues. Results are correlated with state-of-the-art anatomic studies done in the Laboratory and with comparative anatomic studies in normal volunteers. Principal Investigator: Joseph L. Demer, MD, PhD

### Blood Gas Monitoring from the Eye

A new instrument has been developed that measures blood gas parameters from the conjunctiva. A thin polyethylene wire bearing a number of sensors is placed within the conjunctival fornix of the eye where it measures partial pressures of oxygen, carbon dioxide, bicarbonate, and pH. The instrument is being evaluated in intensive care situations, especially with premature newborns, as a way to decrease the incidence and severity of retinopathy of prematurity and postnatal hypoxia, which blind thousands of children around the world. Principal Investigator: Sherwin J. Isenberg, MD

### Botulinum Toxin Therapy

The Institute is evaluating the use of botulinum toxin (botox) for patients with acute and chronic sixth nerve palsy. This therapy is used alone and in combination with strabismus surgery. Principal Investigator: Arthur L. Rosenbaum, MD

### Eye-Head Coordination

Investigators are conducting clinical and laboratory studies of vestibulo-ocular reflexes in patients with disorders of the inner ear or cerebellum.

The study is sponsored by the National Institute on Deafness and Communicative Diseases. Principal Investigator: Joseph L. Demer, MD, PhD

### Genetic and Anatomic Basis of the Fibrosis Syndromes

The long-term goal of this National Eye Institute-sponsored project is to determine the causes of congenital cranial dysinnervation disorders of the extraocular muscles. These inherited conditions result in strabismus and drooping eyelids. Currently, a collaborative investigation is being conducted with investigators from Boston Children's Hospital: Nerve versus muscular causes of this syndrome are being studied in individual families worldwide and linked through molecular genetics testing of blood samples to the causal genes. Principal Investigator at UCLA: Joseph L. Demer, MD, PhD

### Pediatric Retinal Detachment Registry

The Institute is currently studying children with retinal detachment. All children with retinal detachment, who are treated at the Institute, are entered into the UCLA Pediatric Retinal Detachment Registry. Principal Investigators: Arthur L. Rosenbaum, MD; Sherwin J. Isenberg, MD; Joseph L. Demer, MD, PhD; Steven D. Schwartz, MD; Allan E. Kreiger, MD; Kent W. Small, MD; and Marc O. Yoshizumi, MD

### Povidone-Iodine to Treat Bacterial Corneal Ulcers in Children

The single major cause of blindness in children is corneal scarring resulting from bacterial corneal ulcers. It is the cause of blindness in over 400,000 children worldwide. Both in Manila, Philippines, and Hyderabad, India, clinical trials have begun to evaluate the effect of povidone-iodine to treat these ulcers when they are in the

active and infectious stage, before scarring occurs. The results are being compared to control antibiotics that are commonly used locally. The advantages of povidone-iodine are significant. The medication is widely available, easy to apply, safe, and is inexpensive. If used, especially in peripheral areas in underdeveloped countries, this medication could prevent thousands of cases of blindness in children annually. Principal Investigators: Sherwin J. Isenberg, MD; and Leonard Apt, MD

### Preschool Vision Screening

Amblyopia (reduced vision or “lazy eye”) is estimated to affect one in every 20 children of preschool age. The main causes are refractive error and strabismus (misalignment of the eyes), and the impairment is usually asymptomatic. Vision impairment is generally permanent if the problem is not detected and treated within the first five to six years of life when normal vision is developing. In the past year, the Jules Stein Eye Institute Preschool Vision Screening Program was initiated to identify young children who may have vision or eye problems. In the first eight months of the program, 971 children were tested at 26 preschools in west Los Angeles. Referrals for a complete eye exam were made for 6.8% of the children who failed the vision test. Potential blindness or vision loss was prevented in 66 children. Principal Investigator: Leonard Apt, MD

### Retinopathy of Prematurity Photographic Screening Trial

Early detection is crucial in the management of babies with Retinopathy of Prematurity (ROP). This study is investigating the use of a high-resolution, panoramic, digital camera

to promote screening through telemedicine. The goal is to reduce vision loss by facilitating early detection and improving access to specialized care. Principal Investigators: Steven D. Schwartz, MD; Jennie Y. Kageyama, OD; and Christine R. Gonzales, MD

### Retinopathy of Prematurity Registry

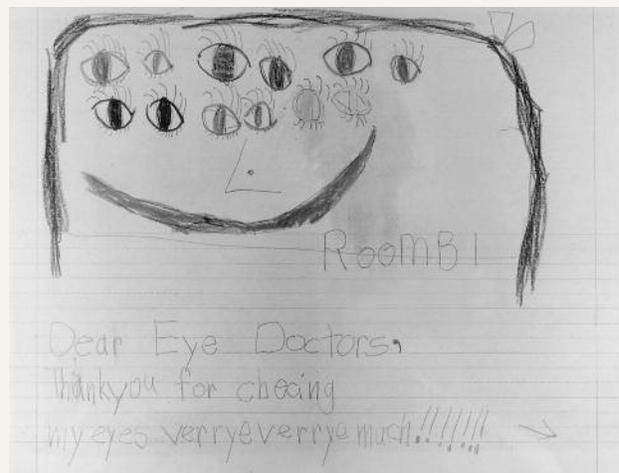
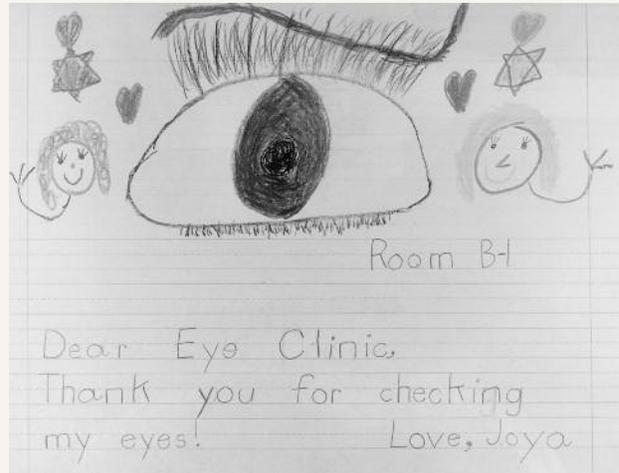
To further the study of retinopathy of prematurity (ROP), all patients with ROP, who are treated at the Institute, are entered into the UCLA ROP Registry. Principal Investigators: Steven D. Schwartz, MD; Arthur L. Rosenbaum, MD; and Christine R. Gonzales, MD

### Strabismus Surgery in Patients with Duane Syndrome

Institute strabismus specialists are investigating the effectiveness of new rectus muscle transposition techniques in combination with botulinum toxin (botox) injections to obtain better alignment and expanded binocular visual field in patients with Duane syndrome. Principal Investigator: Arthur L. Rosenbaum, MD

### Surgical Management of Lost or Transected Rectus Muscles

The Pediatric Ophthalmology and Strabismus Division is engaged in a study exploring new techniques, such as dynamic MRI scanning and anterior orbitotomy, for more precise diagnosis and more appropriate surgical management in cases of rectus muscle trauma, either due to strabismus surgery, endoscopic sinus surgery or other causes of trauma. Principal Investigator: Arthur L. Rosenbaum, MD



## Retinal Degenerations

### Retinal Degenerations/ Retinitis Pigmentosa Gene Studies

The UCLA Retinitis Pigmentosa Registry sponsors a number of studies for patients with retinal degeneration. Current investigations include 1) gene localization and characterization of hereditary dystrophies, including retinitis pigmentosa; 2) family studies for linkage analysis and gene identification; and 3) clinical studies. Principal Investigator: Debora B. Farber, PhD, DPhhc

## Vitreoretinal Surgery

### 25 Gauge Vitrectomy

A new surgical system has been recently developed for patients undergoing *pars plana* vitrectomy for a variety of vitreoretinal diseases, including macular holes, epiretinal membranes, and diabetic retinopathy. Faculty in the Institute's Retina Division are currently evaluating the efficiency and advantages of this novel system compared to traditional surgical approaches. Principal Investigators: Steven D. Schwartz, MD; Anurag Gupta, MD; Christine R. Gonzales, MD; and Allan E. Kreiger MD

## Publications of the Full-Time Faculty

### Anthony J. Aldave, MD

Aldave AJ, Lin DY, Principe AH, Yellore VS, Weissman BA. Anterior basement membrane corneal dystrophy and pseudo-unilateral lattice corneal dystrophy in a patient with recurrent corneal erosions. *Am J Ophthalmol*. 2004 Jun;137(6):1124-7.

Aldave AJ, Yellore VS, Thonar EJ, Udari N, Warren JF, Yoon MK, Cohen EJ, Rapuano CJ, Laibson PR, Margolis TP, Small K. Novel mutations in the carbohydrate sulfotransferase gene (CHST6) in American patients with macular corneal dystrophy. *Am J Ophthalmol*. 2004 Mar;137(3):465-73.

Warren JF, Aldave AJ, Srinivasan M, Thonar EJ, Kumar AB, Cevallos V, Whitcher JP, Margolis TP. Novel mutations in the CHST6 gene associated with macular corneal dystrophy in southern India. *Arch Ophthalmol*. 2003 Nov;121(11):1608-12.

Aldave AJ, Yellore VS, Hwang DG. Atypical vortex pattern of corneal deposits in granular corneal dystrophy. *Cornea*. 2003 Nov;22(8):754-9.

Jeng BH, Aldave AJ, McLeod SD. Spontaneous corneal hydrops and perforation in both eyes of a patient with pellucid marginal degeneration. *Cornea*. 2003 Oct;22(7):705-6.

### Nouvrou Akhmedov, PhD

Piri N, Yamashita CK, Shih J, Akhmedov NB, Farber DB. Differential expression of rod photoreceptor cGMP-phosphodiesterase alpha and beta subunits: mRNA and protein levels. *J Biol Chem*. 2003 Sep 26;278(39):36999-7005. Epub 2003 Jul 18.

### Leonard Apt, MD

Isenberg SJ, Apt L, Del Signore M, Gichuhi S, Berman NG. A double application approach to ophthalmia neonatorum prophylaxis. *Br J Ophthalmol*. 2003 Dec;87(12):1449-52.

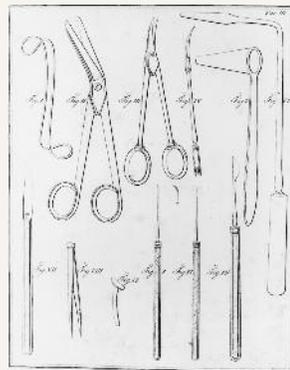
Apt L, Gaffney WL. Adverse Effects of Topical Eye Medication in Infants And Children. In Tasman, Jaeger, eds. *Duane's Clinical Ophthalmology*. Philadelphia: Lippincott-Raven. 2004.

### Dean Bok, PhD

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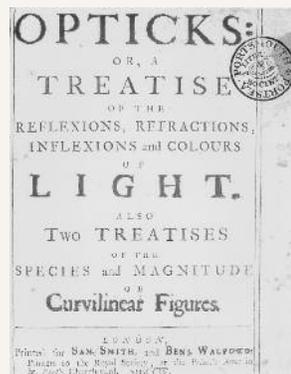
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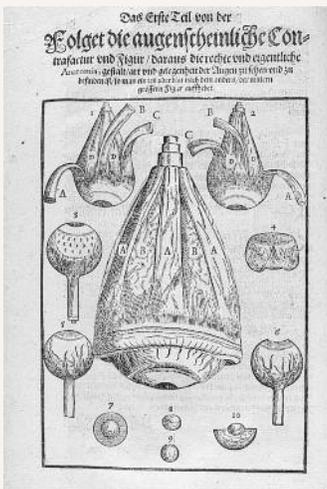
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