

Koret Vision Institute + Beckman Vision Center + Department of Ophthalmology + Francis I. Proctor Foundation Summer 2012

University of California, San Francisco + That Man May See

Focal Point



Dear Friends,

Thank you for your support of our basic scientists and clinician researchers in ophthalmology. We share the common goal of substantially reducing the burden of blindness.

Major breakthroughs in alleviating world blindness are within reach as our internationally recognized teams collaborate across the spectrum of UCSF's robust clinical and research community, develop advanced technology and strategic partnerships, train the next generation of ophthalmology leaders, and transform patient care.

This issue of Visions focuses on a special team that addresses some of the most complex and even life-threatening disorders of our patients. Ophthalmic Plastic and Reconstructive Surgery at UCSF is at the forefront of teaching, research, and care. In other news, we are pleased to announce Robert Stamper, MD, as the holder of the Fortisure Foundation Distinguished Professorship and of David Sretavan, MD, PhD, as the department's new Director of Research. The Francis I. Proctor Foundation for Research in Ophthalmology has opened a new clinic that offers a novel treatment to improve vision for patients with complex corneal disorders and dry eye. You also will read about gifts that set the stage for a major uveitis clinical trial



Ophthalmology Insight They Save Faces

e are all looking for reasons to be here on this earth," says Robert Kersten, MD. "Mine are teaching and patient care." Dr. Kersten, director of UCSF's Ophthalmic Plastic and Reconstructive Surgery, and colleague M. Reza Vagefi, MD, bring this level of passion to each patient they help and every resident they mentor. This team saves faces.

Repairing Skin and Bone

Major head trauma. Congenital anomalies. Cancer. When these conditions threaten or harm the sight, these surgical specialists apply their refined understanding of the eye, its bony socket (orbit), and surrounding nerves and blood vessels to restore vision and the anatomical structures that support the eye. They also reduce disfigurement through a wide range of delicate procedures.



Oculofacial plastic and reconstructive surgery, or oculoplastics, was born of the need to manage severe eye and face injuries during World War II. Today this specialty includes cosmetic surgeries as well as complex procedures that halt vision loss. Drs. Kersten and Vagefi work on the surface of the eye and down to the skull, repairing orbital fractures and tear duct obstructions, removing tumors from in and around the eyes, reconstructing eyelids, and rejuvenating the face.

Collaboration of Specialists

UCSF's surgeons often collaborate with other specialists to save lives and, whenever possible, preserve vision. In a recent case, an elderly patient with a cancerous tumor on the surface of his eye

Continued on page 2



Envision the Future **Global Fight** Against Glaucoma

On behalf of our entire faculty and staff, thank you so much.

Sincerely,



Stephen D. McLeod, MD Theresa M. and Wayne M. Caygill, MD, Endowed Chair Professor and Chairman

laucoma patients at **J**UCSF have long had a friend in Robert Stamper, MD. And glaucoma has long had an enemy. Glaucoma is the world's second leading cause of blindness, and it is irreversible. Not only does

Dr. Stamper fight the disease patient by patient with the best tools available, his research sharpens those tools and shapes new ones. Now this warrior is leading a new charge, one that will be felt around the globe. Continued on page 4

A PEEK INSIDE:







Bequest Fuels Research



Alcon Honors Two



Passion for Pathology



UCSF Leadership in Oculoplastics

he first oculoplastics specialist in the country was UCSF's Crowell Beard, MD. On the UCSF faculty for four decades, he helped develop plastic surgery techniques for eye injuries and deformities and was a founder of the Society of Ophthalmic Plastic and Reconstructive Surgeons. Some people call Dr. Beard "the father of the field" for defining the subspecialty.

Dr. Beard grew up in Napa, the son of a haberdasher. An accomplished musician, Dr. Beard worked his way through the University of California, Berkeley, playing banjo and working in a clothing store he bought with his brother. He moved across the bay to attend the UCSF School of Medicine. Following his residency at the Mayo Clinic, Dr. Beard entered the U.S. Army and was stationed at Dibble General Hospital, where he gained a wealth of experience treating war wounds. He developed techniques which



Dr. Crowell Beard

bear his name and are still in use today for reconstruction of eyelids. His contributions to ophthalmology are legendary and include publication of the definitive text on blepharoptosis as well as training, mentoring, encouraging, and influencing more oculoplastic surgeons than anyone in the nation. He received awards from UCSF and the Mayo Clinic and was the recipient of the Lucien Howe Medal, the highest award of the American **Ophthalmological Society.**

In 1968 Dr. Beard launched the world's first fellowship in Oculofacial Plastic and Reconstructive Surgery. Dr. Beard's star students included Richard Collin, MD, now at Moorfields Eye Hospital in England, and Richard Anderson, MD, of Salt Lake City. Dr. Anderson trained both Drs. Kersten and Vagefi some twenty years apart. Now Drs. Kersten and Vagefi carry forward this UCSF teaching legacy.

Recipients of UCSF's Prestigious Crowell Beard Award

1992	Howard Schatz, MD
1993	Ariah Schwartz, MD
1994	J. Earl Rathbun, MD
1995	J. Brooks Crawford, MD
1996	David F. Chang, MD
1997	A. Sydney Williams, MD
1998	Gary L. Aguilar, MD
1999	J. Michael Lahey, MD
2000	Daniel Lacey, MD
2001	James W. Knapp, MD
2002	George F. Hilton, MD
2003	J. Michael Jumper, MD
2004	Robert A. Hardy, MD
2005	Velmir Petrovic, MD
2006	William Casey, MD
2007	J. Michael Jumper, MD
2008	Charlene Hsu-Winges, MD
2009	Michele Bloomer, MD
2010	J. Brooks Crawford, MD
2011	Brandon Lujan, MD
2012	Rahul Khurana, MD

They Save Faces Continued from page 1

benefited from the involvement of six specialists, including a pathologist, an oncologist, a radiologist, a radiation oncologist, a head and neck surgeon,

and Dr.Vagefi. At diagnosis the cancer had already spread to a saliva gland below the cheekbone near the ear. The entire team

met to develop a treatment plan. In the operating room, the oncologist, the head and neck surgeon, and Dr. Vagefi worked side by side to completely remove the cancer. The patient is now receiving radiation treatment.

Eyelid Repair

A very common oculoplastics procedure is reconstruction of the eyelid following A talented surgeon achieves optimal

C Drs. Kersten and Vagefi work to inspire excellence every day."

– Dr. Dan Greninger, Resident

function and creates a natural looking eyelid.

A droopy upper eyelid,

usually the result of aging and gravity, can be severe enough to block the pupil. A medically prescribed eyelid lift "pulls up the curtain," so the patient can see.

Eyelid Lift

Eyelid correction can improve sight, whereas an eyelid lift may also be done for cosmetic purposes. Related brow and face lifts also are undertaken for aesthetic enhancement. Like reconstructive surgery, cosmetic surgery focuses both on functionality and appearance. In this age of extended life spans and greater vigor in later life, cosmetic procedures are in high demand.



Teaching young doctors how to deliver

Drs. Kersten and Vagefi host informal

skin cancer removal. Preserving the elegance of the eyelid demands the skills of a highly trained surgeon.

The eyelid is astoundingly complex. It opens to permit vision and closes to protect the eye. It must do so quickly (the average blink lasts one tenth of a second), frequently (about 15,000 times per day), and without irritating the eye. Each blink gently lubricates the surface of the eye with a film of tears. The slightest irregularity of a reconstructed eyelid can impair blinking. Without constant lubrication, the eye's surface quickly dries, leaving it prone to pain, infection, inflammation, and vision loss.

Dynamic Teaching Duo

Together Drs. Kersten and Vagefi have formed a dynamic team that is keeping the training of oculoplastic residents and fellows at the highest level. Their teaching mission is central to their medical calling."I am very aware of the enormity of the teacher's role and tremendously committed to both learning and passing knowledge on," says Dr.Vagefi.

effective patient care makes UCSF a desirable place for these experts to practice their art. And their trainees are first-hand beneficiaries. Working alongside these specialists in clinic and operating room, residents learn to think deeply about patient conditions and how to sensitively respond to their needs. Monthly case reviews help residents build confidence in their emerging skills. "Drs. Kersten and Vagefi work to inspire excellence every day," says resident Dan Greninger, MD. "They take their mentoring roles very seriously."

group socializing after each month's case conference. Sympathetic to the rigors of residency and eager to support the well-being of these top-tier ophthalmologists-in-training, Dr. Kersten has treated residents to skiing at Lake Tahoe. Both doctors insist that enjoyment is essential for balancing the pressures of an intense workload.

Grateful Patients Share Their Stories



Born with an Eye Cyst

Oulter Kawaja was born with a neoplastic cyst, potentially causing disfigurement or inflammation with rupture. **M. Reza Vagefi, MD,** successfully removed the cyst in an extraordinarily delicate procedure. Coulter has no facial scarring or damage to his vision.

"We can't thank Dr. Vagefi enough. He was attentive to our concerns, gave thoughtful and tailored advice, and calmly explained what to expect at every stage of the process for Coulter's surgery. He is clearly an expert, yet what we will most remember is how he interacted with us. He is a wonderful surgeon, but more importantly a wonderful person." – Chris and Michell Kawaja



Hit by a Baseball

Marilyn Dompé suffered severe fractures in a number of bones surrounding her eye when she was hit by a baseball. After initial surgical repair with titanium implants, she came to UCSF for further treatment. The trauma and the surgery had paralyzed some muscles that allow the eye to rotate. **Robert Kersten, MD,** monitored Marilyn's condition as muscles stabilized and paralysis lessened. He then surgically severed adhesions that had formed and resurfaced the titanium with silicone to prevent new adhesions, increasing Marilyn's eye movement. Hidden incisions allowed Marilyn to avoid any facial scarring.

> "At UCSF, I had absolutely fantastic care. Dr. Kersten had a very calming effect when I was in distress. I am grateful that I still have great sight in that eye."

> > – Marilyn Dompé



Challenged by Cancer

Bruce Simon of Shreveport, Louisiana, traveled to UCSF for treatment after skin cancer of the eyelid struck for the third time. His dermatologist recommended Mohs micrographic surgery, an advanced treatment process for skin cancer that offers the highest possible cure rate for many skin cancers and minimizes the sacrifice of normal tissue. This leading-edge treatment requires highly specialized physicians. A UCSF dermatologist performed Mohs surgery and removed the cancer, in coordination with Dr.Vagefi. The following day, Dr.Vagefi completed the surgery by treating the tissue bed with cryogen (freezing) and reconstructing the tissue defect on the eye and eyelid.

"I needed the best oculoplastics surgeon possible. Dr. Vagefi is extraordinary. Everyone my wife and I came in contact with at UCSF was delightful, helpful, and these are extremely fine surgeons. This was my best surgical treatment ever."

– Bruce Simon

Award-Winning Surgeons

Du M. Dana Manafi and Du Dahaut Kausta

Supported by outstanding residents and fellows, **Robert Kersten**, **MD**, and **M. Reza Vagefi**, **MD**, lead UCSF's Oculoplastics care at the Parnassus campus, the Veterans Administration Medical Center, San Francisco General Hospital, and satellite ophthalmology clinics in Santa Rosa and Hayward.

Dr. Kersten came to UCSF in 2009 after more than 25 years as a distinguished clinician and professor, including a long tenure at the University of Cincinnati. National surveys have identified him as one of the "Best Doctors in America." For the past 20 years, Dr. Kersten has participated in medical missions to the developing world. When volunteering he focuses on helping patients with difficult and unusual oculoplastic cases, and he teaches Dr. M. Reza Vageti and Dr. Robert Kersten

local physicians how to handle complex cases themselves.

Dr. Kersten was recently joined by Dr. Vagefi, a brilliant young surgeon who stood out during his UCSF Ophthalmology residency and during a two-year fellowship at the Center for Facial Appearances in Salt Lake City. Dr. Vagefi most recently served on the faculty of the Scheie Eye Institute at the University of Pennsylvania, where he won the Surgical Teaching Award in his second year on staff.

Both doctors live full and busy lives. For Dr. Vagefi this includes the immense joy of a one-year-old son. And Dr. Kersten, when the conditions are right, can be found on the ski slopes above Lake Tahoe.





Generous Bequest Fuels Research Dr. David Sretavan to Lead Effort

Pepartment of Ophthalmology Chair Stephen D. McLeod, MD, recently created a new Director of Research position to help speed development of innovative solutions for struggling patients. His appointment of David R. Sretavan, MD, PhD, to the post is a logical one: Dr. Sretavan is a highly regarded senior investigator with a passion for collaboration, a talent for bringing people together, and the drive to leverage assets and build an even more powerful vision research engine.

An estate gift of \$6 million arrived on Dr. McLeod's desk just as he and Dr. Sretavan were laying plans to bolster research. "The visionary gift of Denise B. Evans will help us initiate new lines of research and strengthen efforts to move breakthroughs quickly from the lab to the clinic," says Dr. McLeod. "The extraordinary generosity of one person will make a tremendous difference for eye patients around the world for decades to come," he adds.

"As director, I can help the team leverage technology and collaboration to shape future prevention and treatment," Dr. Sretavan says. Greater resources will help research teams deliver innovative therapies and solutions for eye patients everywhere.

Research to Transform Care

Leading-edge research and top-quality patient care go hand in hand. The vigor of research at UCSF is reflected in its continued rank in the country's top ten institutes in ophthalmology (U.S. News & World Report) and as one of the largest recipients of vision research funding from the National Institutes of Health. Private philanthropy helps UCSF vision research to flourish, even as the university absorbs state funding cuts.

Finding solutions for blinding eye conditions is a top priority at UCSF Ophthalmology. Thirty-six ophthalmologists work directly with more than 45,000 patient visits each

Global Fight Against Glaucoma Continued from page 1

Resources from a new honor and research fund position him to fulfill a life-long dream of stemming glaucoma blindness in India, Africa, and other lands with scarce resources. Dr. Stamper has been appointed to UCSF's Fortisure Foundation Distinguished Professorship in Ophthalmology. The Center for International Glaucoma Studies at UCSF will coordinate the ambitious work. **Lietman, MD,** who will also lend his expertise to this project.

Reducing the Greatest Burden

A medical mission to rural Guatemala showed Dr. Stamper the impact of glaucoma on very poor families. "Older people had passed the point of no return; they had to be led in to the clinic by their grandchildren," says Dr. Stamper. "They told me, 'I can't plant the crops, I can't tend the goats.' And it



"This research breaks new ground in testing and refining strategies to transform glaucoma outcomes for populations worldwide," says Department Chair Stephen D. McLeod, MD. Led by Dr. Stamper, the core team includes glaucoma specialist Ying Han, MD, and other UCSF ophthalmologists, as well as Dr. Nita Subramanian. An international advisory group provides ongoing scientific guidance and monitoring. A nationwide search for an epidemiologist who will be a key member of the team has been initiated. This individual will have a joint appointment with the Francis I. Proctor Foundation and UCSF's Proctor International Group led by Thomas

was too late to help them."

Lack of glaucoma treatment is the norm for the world's poor, and 27 percent of untreated patients become totally blind within10 years. Dr. Stamper and his colleagues intend to identify and gather evidence for an effective model to transform these tragic outcomes.

Driving Down Costs

Before resource-challenged governments or foundations can invest in widespread efforts to control glaucoma, they need more cost-effective ways to screen and treat large populations. Dr. Stamper recently hosted a glaucoma summit, bringing together specialists from several nations. These leading vision scientists helped him ground the new

More than

million

Estimated number of glaucoma cases worldwide

Dr. David Sretavan (left) with laboratory technician Ryan Sze

year, and behind the scenes, these clinician scientists conduct research. Ten additional ophthalmologists, many with cross-appointments in other specialties, devote 100 percent of their time to laboratory-based, early-stage vision research.

Dr. Sretavan's own research focuses on understanding axon injury in the context of major eye diseases such as glaucoma and novel methods for nerve repair. To develop a platform for the microsurgical reconstruction and repair of single axons, his multidisciplinary team brings together expertise in micro-electromechanical systems,

Worldwide, 180 million people suffer from visual impairment. As the global population ages, many millions are at risk for age-related visual impairment. More than 9 million Americans currently live with intermediate or severe age-related macular degeneration.

Resources from the Denise B. Evans bequest will establish laboratories for new scientists who can broaden the team's expertise. Dr. Sretavan leads faculty searches to attract even more of the best and brightest minds to UCSF Ophthalmology. Research and emerging technologies converge to drive major advances in understanding the eye and treating disease. Fields such as bio-engineering and genetics offer fresh opportunities for new solutions.

As Director, I can help the team leverage technology and collaboration to shape future prevention and treatment."

- Dr. David Sretavan

nanoscience, biophysics, neurobiology, and neurosurgery. Dr. Sretavan's programs have been supported by the National Institutes of Health, The Sandler Family Supporting Foundation, and That Man May See patrons Frannie Fleishhacker and Robert J. Drabkin. Dr. Sretavan is also a recipient of the Lew R. Wasserman Merit Award from Research to Prevent Blindness.

Seeking New Scientists

More than 30 investigations currently at the Department of Ophthalmology are advancing understanding of vision and the disorders that can destroy it - all with the goal of saving sight. But more is needed.

Incubating New Ideas

Dr. Sretavan is also leading an expansion of early-stage vision research. Much like venture capital, philanthropic investment helps entrepreneurial scientists test new ideas. Once researchers gather evidence, their work becomes eligible for federal grants. Private gifts help the Department of Ophthalmology increase the potential for discoveries to stem vision loss.

That Man May See, the public charity for UCSF Ophthalmology, attracts contributors each year who invest in early research. Many of those relatively

Honoring a Donor's Vision

Denise B. Evans, the philanthropist who gave a \$6 million estate gift to That Man May See, considered vision research an essential investment. During her long lifetime, she contributed generously for the benefit of the Department of Ophthalmology. In the early 1980s she funded a suite of offices in the Koret Vision Research Laboratories.

Mrs. Evans's bequest will enable strategic investment in vision research. Establishment of an endowed chair and an endowed research fund will honor her memory in perpetuity. These funds will be used to attract additional outstanding investigators, establish their laboratories, and provide efficient, state-of-the-art instrumentation to accelerate breakthroughs.

modest beginnings have become fertile lines of research furthered by the National Institutes of Health.

Cross-Pollinating Research

UCSF ophthalmologists seek opportunities to share questions and ideas with their peers, knowing it fosters insights and strengthens research. The department's special environment - where most laboratory and clinician scientists work together under one roof - promotes dialogue and helps investigators stay grounded in the urgency of patient needs. Dr. Sretavan plans to expand formal and informal opportunities for creative exchange that can hasten pioneering patient solutions.

With the support of his colleagues, Dr. Sretavan plans to launch an annual UCSF vision conference where world-class scientists will explore pressing vision research issues. Hot topics to anchor the inaugural conference include age-related macular degeneration, eye-brain connections,

glaucoma, and diagnostic and therapeutic technologies.

Transforming Ocular Medicine

It is an exciting time for vision research at UCSF. An already dynamic faculty fully appreciates Dr. Sretavan's commitment.

"Dr. Sretavan's enthusiasm for his new role is not surprising to me," says Matthew LaVail, PhD, one of the department's senior investigators. "David is an extremely conscientious scientist who will do a terrific job."

Dr. Sretavan's training as both medical doctor and neuroscientist at Stanford University give him the breadth and quality of knowledge to direct a renowned and diverse team of vision scientists. Wise leadership and private investment will allow sight-saving research to thrive, allowing UCSF Ophthalmology to transform ocular medicine for patients here and around the world.

This research breaks new ground to transform glaucoma outcomes for populations worldwide."

- Dr. Stephen D. McLeod

initiative in the best thinking in the field and discussed how to overcome scientific, financial, and cultural challenges to success.

time for disease intervention, given that doctors are unavailable for ongoing patient monitoring. Surgery done early can pose unnecessary risks to the patient, but surgery delayed carries risks



UCSF's Groundbreaking Glaucoma Research

Using medical specialists for screening increases costs, so a screening method simple enough to be carried out by a village schoolteacher is being tested at UCSF. If successful here, the method will be applied and evaluated in Bangalore, India, and other parts of the world in 2013.

Unaffordable drug therapies are another obstacle. Even \$7 per month is too high a burden for a farmer making \$1,200 per year or for a third-world government helping thousands of patients at once. Investigators will explore options for a low-cost, long-lasting intervention, such as surgery.

The team will also make recommendations for the optimal of disability.

Improving Public Health

Decades of work on behalf of glaucoma patients make Dr. Stamper a natural pick to lead this new effort. He has long been involved in improving glaucoma detection techniques, and he has trained doctors all over the world to manage glaucoma. In 2008 he received a Lifetime Achievement Award from the American Academy of Ophthalmology for his years of service to the Academy and the profession. Dr. Stamper was a founding member of that group's Glaucoma EyeCare Project, which provides free diagnosis and initiation of treatment (when indicated) for those at high risk for glaucoma here in the United States.

UCSF vision scientists are pursuing various lines of innovative glaucoma research, accelerating efforts and shifting paradigms, in their dedication to a search for cures.

Potential Stem Cell Therapy and Regenerative Ophthalmology Yvonne Ou. MD Erik Ullian, PhD Shan Lin, MD

Applications of Micro and Nanotechnology for New Research and Surgical Tools Robert Stamper, MD David Sretavan, MD, PhD Ying Han, MD, PhD

Genetic and Visual Approaches for Improved Diagnostics Yvonne Ou, MD Douglas Gould, PhD Robert Stamper, MD

Leveraging Immune Response for Glaucoma Therapy Jorge Alvarado, MD

Clinical Trial Benefits Uveitis Patients

A five-year clinical trial, funded by the National Institutes of Health and led by **Nisha Acharya, MD, MS,** promises new insights to reduce blindness and other complications of uveitis, an inflammation of the eye that may cause pain, floaters, blurred vision, and light sensitivity. As a clinical scientist at UCSF's Francis I. Proctor Foundation for Research in Ophthalmology, Dr. Acharya strives to reduce the suffering and disability that accompany this disorder.

Complications of uveitis and treatment often lead to vision loss through cataracts, retinal scarring, macular edema, and glaucoma. However, the relatively small number of cases in "first-world countries" makes it difficult to conduct uveitis research. Now public funding will allow Dr. Acharya to lead a major study of promising therapies.

Moving Patients Off Steroids

There is no "cure" for uveitis. Steroid drugs, in the form of drops and pills, are the first line of treatment. "The quicker that inflammation is controlled, the less chance there is of uveitis-related complications, including blindness," says Dr. Acharya. Steroids have long been standard for ongoing care, too. But adverse health effects of longterm exposure include bone loss

Dr. Nisha Acharya

(osteoporosis), cataracts, and serious gastrointestinal disorders.

Dr. Acharya tries to limit steroid use, tapering doses as quickly as possible. Newer immuno-modulatory therapies are largely replacing systemic steroids for ongoing care of "immune-mediated" chronic uveitis.

Collaboration Advances Insight

"We want to learn which immunomodulatory therapy works better and whether patients can benefit from the second treatment if the first fails," Dr. Acharya explains. Uveitis specialists also want to find out whether the new therapies pose health hazards of their own.

To advance understanding and improve clinicians' ability to provide effective treatment as quickly as possible, Dr. Acharya has cultivated a collaborative network of research institutions and medical centers on the West Coast and in India. The study will follow patients enrolled in a clinical trial at the Proctor Clinic, the Oregon Health and Sciences University (Casey Eye Institute), and the Aravind Eye Care Hospital in India.

Hope for Struggling Patients

Private donors, in partnership with That Man May See, helped Dr. Acharya lay the groundwork for this important trial. UCSF patients and families affected by uveitis are excited about the study's Private donors, in partnership with That Man May See, helped Dr. Acharya lay the groundwork for this important study.

potential, and their appreciation runs deep.

Maris Meyerson, whose son was diagnosed with uveitis at age eight, expresses her gratitude this way: "Federal funding for Dr. Acharya's uveitis research has fulfilled a dream of mine – to see this disease get the study it needs to save the sight of patients like my son."

"This is indeed a big step forward," add Johnson and Selina Cha. "Without Nisha's hard work and diligence, our contribution would have gotten nowhere. We hope one day there will be a breakthrough for this disease."

Funding for UCSF uveitis research has been gratefully received from the National Institutes of Health; Research to Prevent Blindness; Jack Whitcher, MD, and the South Asia Fund; Ivan, Maris, and Harry Meyerson; the Peierls Foundation; Selina and Johnson Cha; C.M. Capital Foundation; Lewis Wallach and Cynthia Harrison-Wallach; and Genentech.

Young Investigators Honored

Leading-edge UCSF vision scientists Hilary Beggs, PhD, and Yvonne Ou, MD, are among eight scientists worldwide chosen for Young Investigator Grants from the Alcon Research Institute. The Young Investigator grant program, launched in Fall 2011, was created to assist exceptionally promising young vision scientists establish their research.

The Alcon Research Institute has sought out and supported the work of outstanding vision researchers since 1983; seven prestigious Alcon grants have gone to senior researchers at UCSF Ophthalmology. Drs. Beggs and Ou are pleased to join this prestigious company.

Dr. Ou: Profile in Endurance

Glaucoma specialist Dr. Ou works directly with patients and conducts pioneering laboratory research. She is working to address one of the biggest challenges in her field – the need to replicate human glaucoma in the laboratory to test new treatments. A former endurance athlete, Dr. Ou applies to her efforts the diligence and long-range vision of a world-class competitor.

Dr. Ou, in collaboration with **Erik Ullian, PhD,** is using stem cell technology to transform adult skin cells from her glaucoma patients into retinal cells. Successful culturing of these retinal cells will open the door to observations of human glaucoma at the cellular level. Potentially, the team will be able to test new therapies

Dr. Beggs: Puzzle Master

"I enjoy science because I love puzzles," says Dr. Beggs, a passionate neurobiologist. Her laboratory team focuses on understanding the minute details of cellular communication that lead to normal eye development, as well as precisely how disease disrupts that process.

Examining these processes at the molecular level, Dr. Beggs has already made surprising discoveries about the step-by-step cellular signaling process crucial to normal eye development. Building on those findings, Dr. Beggs has identified a mutation in a single gene that results in symptoms similar to those of agerelated macular degeneration and other progressive eye diseases. Next she plans to develop a research model to study how this genetic mutation operates in degenerative eye disease. This effort aims to advance the understanding of macular degeneration and will lead the way toward better patient outcomes. Dr. Beggs's work is supported by the Lisa and John Pritzker Family Fund.

The Alcon Research Institute has sought out and supported the work of outstanding vision researchers since 1983. on the cultivated retinal cells. Dr. Ou recently received the American Glaucoma Society's Young Clinician-Scientist Award for related work. That Man May See patrons Anita and Ron Wornick are supporting Dr. Ou's innovative investigation.



Dr. Yvonne Ou, left, and Dr. Hilary Beggs are recipients of Alcon's Young Investigator Awards – two of eight worldwide.

6

A Passion for Pathology

o describe J. Brooks Crawford, MD, and Michele Bloomer, MD, co-directors of the UCSF Hogan Eye Pathology Laboratory, no word rings as true as *indefatigable*. Driven by a powerful curiosity, zest for life, and amazing generosity of spirit, these scientists are among fewer than 50 fully trained physicians in the country to specialize in ophthalmic pathology. Dr. Crawford has been advancing the field for nearly 50 years, and Dr. Bloomer is an up and comer.

UCSF Ophthalmology is home to one of the world's top laboratories for the diagnosis of complex and unusual eye diseases. It is named to honor former department chairman Michael J. Hogan, MD, a pioneer in the field. Ophthalmologists from around the country send hundreds of samples with requests for diagnosis to the lab each year. Drs. Crawford and Bloomer act as consultants to these clinicians, carefully studying the cells of eye tissue samples under powerful microscopes to diagnose diseases ranging from deadly forms of cancer to parasitic infections.



Dr. Brooks Crawford rides his bike to work at UCSF's Department of Ophthalmology.

A Renaissance Man

Dr. Crawford radiates health and vitality. An avid cyclist for most of his adult life, he happily commutes on his bike between his San Francisco home and the Parnassus campus. Three years ago, Dr. Crawford and his son completed a Himalayan climb, reaching the summit of Island Peak in

Nepal at 20,285 feet above sea level.

When not cycling, climbing, seeing patients, teaching residents, or studiously bent over a microscope, Dr. Crawford continues to

publish. Author of more than 90 scientific articles and book chapters, Dr. Crawford has described many unusual cases that document eye diseases and disease processes for the first time. These scholarly articles are of enormous benefit to patients throughout the world, allowing doctors to diagnose and treat rare eye diseases before permanent vision loss occurs.

A Rising Star

During medical training Dr. Bloomer worked at the Wills Eye Hospital under legendary eye pathologist Ralph C. Eagle Jr., MD. Working with Dr. Eagle ignited her passion for pathology."Eye pathology is my first love," says Dr. Bloomer.

In 2006, Dr. Crawford began mentoring Dr. Bloomer through an intensive two-year fellowship. Since that time Dr. Crawford has been delighted with Dr. Bloomer's development and contributions. "She is a rising star in our field," exclaims Dr. Crawford.

trip two senior residents joined me. Their experience was so profound that two current senior residents are returning with me again this year. It is incredibly important to train young doctors to give back, to increase their awareness of how phenomenally lucky we are to live where we do."

Driven by a powerful curiosity, zest for life, and amazing generosity of spirit, these scientists are among fewer than 50 fully trained physicians in the country to specialize in ophthalmic pathology.

More Pathologists Needed

While learning eye pathology is clearly crucial for ophthalmologists in training, it is also essential for the education of those studying neuropathology. In addition to teaching young ophthalmologists, Dr. Bloomer's responsibilities include training neuropathology fellows. UCSF Ophthalmology is one of only ten centers in the United States that still has a fully functioning and dedicated eye pathology laboratory.

Despite the enormous value of highly trained ophthalmic pathologists to provide the most accurate diagnosis in difficult cases, the field is facing a huge challenge: nearly 75 percent of fully trained eye pathologists are at or near retirement. The national brain trust of eye pathologists is severely threatened.



An eyelid biopsy reveals viral particles of molluscum contagiosum, a common infection of the eye.

Due, in part, to changes in the medical field and the drive to contain costs, many ocular biopsies are now outsourced to labs without ophthalmology specialists. Today the specialty draws only the truly passionate, as many young clinicians seek specialties providing greater compensation. Dr. Bloomer's hope is that more young doctors will be drawn to the field, as she was. "I look forward to mentoring the next generation in a highly specialized and rewarding program that provides amazing insights and really can change lives." •



Bursting with energy, Dr. Bloomer treats patients and trains residents in eye pathology and ocular surgery. Beyond her role at the Hogan Eye Lab, she serves as director of comprehensive ophthalmology at San Francisco General Hospital and Trauma Center and associate director of the ophthalmology residency program.

Dr. Bloomer regularly participates in medical missions in the jungles of Guatemala."I am committed to helping underserved people," she says with passion in her eyes and excitement in her voice. "For this last

> Dr. Michele Bloomer shares her expertise with resident Drs. Allison Loh (left), and Shivali Menda (right).

Restoring Sight, Reducing Pain New Clinic Helps Patients with Severe Corneal Challenges

or the first time in memory, I could see the individual leaves on a tree," says Brenna O'Hair, a 27-year-old patient at UCSF's Proctor Clinic, sharing her first experience with a novel therapy. "It was kind of magical."

The treatment that changed Brenna's life is called Prosthetic Replacement of the Ocular Surface Ecosystem, or PROSE for short. Diagnosed with neurotropic keratitis at age three, Brenna struggled with sight all her life. The condition affected her erratically; she never knew how well she would see when she woke up each day. Learning to drive was out of the question.

Today Brenna drives, reads small print, and uses a computer screen without magnification. The new PROSE devices keep her sight remarkably stable. In fact, she refers to them as her "eyes."

Novel Treatment Saves Sight

A new clinic at UCSF, a partnership beween the Department of Ophthalmology and the Proctor Medical Group, now makes it easier for patients with severe corneal conditions to feel and see better with this leading-edge solution. PROSE is gaining credibility as an effective treatment for pain and blurred vision in patients challenged by dry eye syndrome, graft-versus-host disease, and other disorders that disrupt the integrity of the eye's surface.

"Most patients experience relief the moment the device goes onto their eye," says **Nancy Lee, OD**. Dr. Lee leads the new clinic and works closely with **Todd Margolis, MD, PhD,** director of UCSF's Francis I. Proctor Foundation for Research in Ophthalmology, **David Hwang, MD, Bennie Jeng, MD,** and the rest of the USCF cornea team.

Seeing Is Believing

In 2009, Dr. Margolis began prescribing PROSE to patients challenged by chronic pain and blurring sight resulting from corneal dryness. As Brenna and other patients traveled to Boston for PROSE fitting and training, they reported dramatic results. Improvements in their vision and their spirits cemented Dr. Margolis's resolve to bring the pioneering treatment to San Francisco.

Thanks to the support of generous donors, UCSF Ophthalmology now offers complete PROSE services to patients in Northern California and beyond. Drs. Margolis and Lee are thrilled that barriers of travel costs no longer limit treatment options. When the clinic opened in May, UCSF ophthalmologists had already listed 40 patients as potential beneficiaries of PROSE.

What is PROSE?

The name *Prosthetic Replacement of the Ocular Surface Ecosystem* describes the function of the device, but not what it looks like. Each PROSE is a clear synthetic dome customized to fit onto a patient's eye. Larger than a contact lens, PROSE covers more of the eye and is more deeply curved to hold a saline solution that moistens the ocular surface. A breathable material allows oxygen to reach the cornea, improving vision, comfort, and the health of the corneal tissue.

The device can also incorporate a prescription to combine vision correction with corneal treatment. Developed by the Boston Foundation for Sight, PROSE is receiving a great deal of attention from researchers. More than 40 peer-reviewed research papers and publications now document the benefits of the treatment.



Optometrist Nancy Lee

Expert Training

Prior to taking leadership of the new clinic, Dr. Lee completed a rigorous nine-week training at the Boston Foundation for Sight. She was taught how to measure patients for their PROSE, and she learned to coach them on proper insertion, removal, and care of their prosthetics. (PROSE is worn only during waking hours.) Each case is For several years, Dr. Lee fitted patients with medically necessary contact lenses. It was excellent preparation for her new role. When UCSF announced its search for a PROSE specialist, she enthusiastically threw her hat in the ring, knowing it would be the perfect marriage of her interest in contact lenses and her passion for patient care.

I enjoy building relationships with my patients while helping them achieve optimal vision."

- Optometrist Nancy Lee

unique, but patients spend a minimum of 15 to 20 hours in coaching and evaluation before heading home with their new devices.

Staying in Contact(s)

Dr. Lee has been interested in contact lenses since she attended the University of California, Berkeley, School of Optometry; she also completed a contact lens residency at the State University of New York. "The scope of treatment possible with such a small device still fascinates me," Dr. Lee says. The higher level of care needed by lens wearers appeals to her, too. "I enjoy building relationships with my patients while helping them achieve optimal vision."

Changing Patients' Lives

A compelling episode during Dr. Lee's PROSE training deepened her appreciation for the new treatment: "I remember helping a patient who has graft-versus-host disease. When he arrived for fitting he had extreme difficulty keeping his eyes open, and I could see he was in pain. But the first time he was able to take his PROSE devices home, he literally bounced for joy in the exam chair! He told me that his PROSE were allowing him to enjoy reading and writing again. Reactions like his help me realize how much of a difference our new clinic can make in someone's life." •

Generous gifts for development of the UCSF PROSE Clinic were provided by Larry and Sharon Malcolmson, Peter and Tina Locke, and the Peierls Foundation.

Residents' Rite of Passage

On Alexander R. Irvine Residents' Day, an annual spring rite at UCSF Ophthalmology since 1996, ophthalmology residents present original research to their peers and faculty mentors. This March, topics ranged from bacterial pathology to the economics of tissue transplantation. According to Residency Program Director **Ayman Naseri, MD,** "The quality of resident research gets better each year. These presentations were extremely impressive." vision disorder that most often affects children.

Jeremy Keenan, MD, MPH. In a labbased experiment he compared human breast milk to pharmaceutical-grade antibiotics to determine which provides greater protection against eight types of bacteria that cause conjunctivitis in children. In fact, breast milk provided some protection against three types of bacteria. However, standard antibiotics proved 4 to 40 times more effective in stopping growth of all eight strains.



Two of the presentations, described below, illustrate the breadth and creativity of resident research. Residents' Day also features the annual Transamerica Lecture. This year, renowned scientist and clinician David Guyton, MD, of Johns Hopkins University School of Medicine, presented an overview on strategies for managing strabismus, a

Myth or Medicine

The 18th-century *London Pharmacopoeia* proclaimed that human breast milk "cureth Red Eye immediately."To this day, many traditional cultures use breast milk to treat pediatric and even adult "red eye," an infection now known as conjunctivitis.

Recently, resident **Justin Baynham**, **MD**, set out to examine the truth of this folk remedy under the guidance of



Phone Home for Diagnosis Resident Michael Seider, MD, reported on his Ethiopian field test of an inexpensive Apple iPhone attachment that may speed diagnosis and treatment of a devastating eye disease prevalent in developing countries. Developed in collaboration with Robi Maamari in the Fletcher Lab at the University of California, Berkeley,

This iPhone attachment was field-tested for remote diagnosis of an infectious eye disease.

– Dr. Ayman Naseri, Residency Program Director

the attachment captures close-up digital images of the eye and eyelids.

Working in rural villages with **Dr. Keenan,** Dr. Seider took nearly 500 ocular photographs of Ethiopians being examined for trachoma. Once the design is fine-tuned, the modified phone should enable minimally trained medical personnel in the world's most remote regions to take diagnostic images, transmit them to a trachoma specialist at a far-away medical center, and quickly receive expert diagnosis when infection is confirmed.

8

Rising Star in Retina

66 C haron Solomon is a young faculty Omember at Wilmer Eye Institute who is gaining national prominence as a rising star in the field of retina," says David F. Chang, MD. Sharon D. Solomon, MD, returned to campus from the east coast in March to deliver the inaugural lecture honoring Steven G. Kramer, MD, PhD, late chair of the Department of Ophthalmology at UCSF. Dr. Solomon is the Katharine M. Graham Associate Professor of Ophthalmology at Wilmer at Johns Hopkins University School of Medicine.

Endowment Honors Dr. Kramer

The Steven G. Kramer, MD, PhD, Endowed Lecture Fund was inspired by Dr. Chang, a former resident of UCSF's Department of Ophthalmology. He generously supported an endowment to honor his mentor. "Steve Kramer emphasized and strengthened a tradition at UCSF, where resident training is a priority for the faculty," says Dr. Chang. "Of all that he accomplished during his chairmanship, Dr. Kramer would have

taken the most pride in the careers and success of the many talented residents who trained here."

While honoring Dr. Kramer, Dr. Chang hopes the annual lecture, delivered at Frederick C. Cordes Eye Society (Alumni) Scientific Meetings, also recognizes former UCSF trainees who have distinguished themselves through clinical or academic achievement.

My mentors

at UCSF were

compassionate giants in

their respective fields."

- Dr. Sharon Solomon

"Sharon is a wonderful and inspiring

role model for our current residents.

have approved of the tenets for this

lectureship honoring his legacy."

and I know that Steve would have been

very proud of her. I hope that he would



Dr. Sharon Solomon

Outstanding UCSF Alumna

Dr. Solomon received her Bachelor of Arts degree in biochemistry and molecular biology from Harvard University before completing medical training at UCSF. She completed a medical internship at Stanford University and returned to UCSF for her residency in ophthalmology. She received fellowship training in medical and surgical treatment of the retina from the Wilmer Eye Institute. In addition to an active clinical practice, Dr. Solomon serves as principal investigator on a number of clinical trials sponsored by the National Institutes of Health and has numerous publications.

Precious Time

The day before speaking at the annual Cordes meeting, Dr. Solomon addressed UCSF Ophthalmology residents, fellows, faculty members, and returning alumni during the annual Alexander R. Irvine Residents' Day. This academic event honors another of Dr. Solomon's mentors. She appreciates the excellent training received at UCSE."It was a very precious time," she recalls.

"The training I received at UCSF set the course for the rest of my career clinically, surgically, and academically," says Dr. Solomon. "My mentors at UCSF were compassionate giants in their respective fields and absolutely committed to the development and promotion of the residents. I carry the tenets of my UCSF training with me always."

Dr. Solomon and her husband Li-Wen Kang have twin three-year old sons, Ian and Aidan, adding other precious moments to their busy lives.

Recent Gifts to That Man May See

Thank you for generous contributions and pledges for vision research, teaching, patient care, and community outreach received between October 15, 2011, and May 31, 2012.

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*Deceased [◊]Annuity for future gift

9

Faculty News Award Hastens Glaucoma Study

Jorge A. Alvarado, MD, has been awarded a three-year grant from the National Institutes of Health for his investigation, Mechanisms of Aqueous Humor Homeostasis - the Role of Monocytes, a major glaucoma research project.

Enlisting the Immune System

Dr. Alvarado and his team have uncovered the existence of an elaborate cellular signaling mechanism that maintains

normal pressure in the eye. A key finding is that when this basic molecular signaling mechanism is disrupted, drainage is blocked. Dr. Alvarado's team also has uncovered involvement of the body's immune system (and a type of white blood cell known as the monocyte) in maintaining the normal function of the drainage system.

Dr. Alvarado's laboratory, in collaboration with William Reed, MD, is in the early



Richard L. Abbott, MD

Guest of Honor and Invited Lecturer: The Role and Importance of the American Academy of Ophthalmology in the Professional Development and Education of Ophthalmologists in the United States. Keynote address, Retina Research Society of the Valencian Community, Valencia, Spain



Cynthia Chiu, MD

Appointment: American Board of Ophthalmology, Neuro-Ophthalmology/Orbit Content Outline Development Committee



J. Brooks Crawford, MD

Invited Lecturer: Is ocular pathology still relevant to clinical ophthalmology?, Taylor Smith Lecture, Aspen Retinal Detachment Society, Snowmass Village, Colorado



Dr. Crawford answered his title question with "Yes, but the services, skills, and techniques of the eye pathologist are changing."



Dr. Flach's lecture material will be included in the Ocular Pharmacology and Toxicology Course he will provide as part of the Northern California Basic Science Course in Ophthalmology this summer at Stanford University. This is his 36th year to provide this section at this annual course.



David Hwang, MD

Invited Lecturer: Global Leaders Lecture Series, L.V. Prasad Eye Institute, Hyderabad, India

This ongoing annual lecture series features one of the top global leaders in ophthalmology for lectures delivered to one of the leading ophthalmology institutes in India.



Bennie H. Jeng, MD

Invited Lecturer: Surgical management of fungal keratitis, Current methods of corneal storage. Asia-Pacific Academy of Ophthalmology Annual Congress, Busan, Korea

Dr. Jeng chaired two conference sessions, focusing on medical and surgical treatments of corneal diseases most applicable to patients in the Asia-Pacific region.

stages of developing a cellular therapy for reducing eye pressure via the autotransplantation of monocytes. This treatment would be tantamount to vaccinating the patient with his or her own cells against the fluid blockage that elevates pressure and damages the optic nerve.

Dr. Alvarado is an invited lecturer at the Glaucoma Research Society in Wurzburg, Germany, in September 2012. He will present initial findings from the currently awarded NIHfunded project.

Generous private support to That Man May See for Dr. Alvarado's research includes the



Thomas J. Long Foundation; Jeanne and Sanford Robertson; McBean Family Foundation; the Joan Leidy Foundation, Inc.; Mary and Phil Anderson; Jeanne Copeland; and Drs. Myra and Burton Wise.



Shan C. Lin, MD

Publication: Wang SY, Singh K, Lin SC. The association between glaucoma prevalence and supplementation with the oxidants calcium and iron, Investigative Ophthalmology and Visual Science, 2012, Feb 13;53(2):725-31.

Dr. Lin's publication has potential implications for glaucoma prevention and treatment. Using data from a large national study, he demonstrated a potential strong association of excessive calcium and iron intake with glaucoma prevalence.

Tina Rutar, MD

Invited Lecturer: Human Error in Strabismus Surgery. National meeting of the American Association for Pediatric Opthalmology and Strabismus, San Antonio

Dr. Rutar, shared the podium with coauthors Travis Porco PhD, MPH, (UCSF epidemiologist) and Elizabeth Shen (UCSF medical student) to discuss their study of human error in strabismus surgery. Dr. Rutar and colleagues studied how the current methodology to prevent surgical errors is poorly suited to the nuances of eye muscle (strabismus) surgery. Error in medicine is an important topic gaining increasing attention in the field and in the media.

Julie Schnapf, PhD



Publication: Li, PH, Verweij, J, Long, JH, and Schnapf, JL. Gapjunctional coupling of mammalian rod photoreceptors and its effect on visual detection. Journal of Neuroscience, 2012, 32(10): 3552-3562.

Dr. Schnapf and her colleagues explored how night vision works in the eyes of mammals. For the first time, they were able to observe special electrical networks that form across multiple rods to assist in capturing visual information in low light.

Robert L. Stamper, MD



Invited Lecturer: What's new in imaging for glaucoma, How to detect glaucoma progression on visual fields, Tube-versustrabeculectomy studies - What is current status?, Optimizing medical therapy and adherence in glaucoma, New surgical approaches to glaucoma. Glaucoma Congress, Philippine Academy of Ophthalmology, Manila

M. Reza Vagefi, MD



Dr. Vagefi also co-chaired the conference's session on Nonsurgical Facial Rejuvenation.





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Remembering John Peter Stock

Tribute to a Champion

A wonderful friend of That Man May See and UCSF Ophthalmology, John P. Stock passed away in September, leaving a legacy of board engagement, generosity, and humor. Dedicated to the cause of saving and restoring sight, John helped to ensure vision research programs for the faculty and taught by example that the impact of this work was what truly mattered. His visits to the clinic and Koret Vision Research Laboratory were always lively, filled with lots of questions – and he stayed in touch with faculty to encourage their progress.

The Jean Kelly Stock Distinguished Professorship, named for John's wife of many years, is held by **Eugene de Juan Jr., MD.** The Stock Professorship is one of the ophthalmology department's most significant endowments. Realizing the importance of understanding the complexity of the visual process, John encouraged support for building the Horton Laboratory for Visual Neuroscience at UCSF. He also believed that providing babies and children with a lifetime of sight was meaningful, and he worked to build a new Visual Center for the Child on the Parnassus campus. During his tenure on the board of That Man May See and later as an honorary board member, John provided leadership, insight, and an energetic personality that will always



be remembered. He also served as a longtime board member of the Wayne and Gladys Valley Foundation. •



VISION AWARDS DINNER

1 Connecting: **Susan Koret**, left, with **Jacque Duncan**, **MD**, and **Albert Schreck**

2 Honoring: Past chairs of the board of That Man May See **Ted Tight; Stacy Mettier, MD; Dick Olsen; Walter Newman;** and **Angus MacLean** **3** Celebrating: **Stephen McLeod**, **MD**; **John Rohal**; and **Stephen Dobbs**, **PhD**

⁴ Bringing Sight to the Blind: **Dean Lloyd, Esq.**, of Los Altos Hills, shares his story of an experimental chip implant clinical trial for the innovative Second Sight Medical Device, Argus II. **Jacque Duncan, MD**, right, leads the UCSF **5** Remembering: **Stephen McLeod, MD,** left, with **Tina Frank** and **Julius Krevans, MD,** former chancellor of UCSF.

6 *Appreciating:* **Lorie and Ron Hirson** accept the Shirley Reich Award for outstanding board participation from **Kathleen Rydar**.

center for the trial.

That Man May See is a 501(c)3 public charity. Its mission is to raise funds for the dedicated faculty of UCSF Ophthalmology to make possible breakthroughs in vision research, state-of-the-art patient care, educational opportunities for residents and fellows, and community service.

To make a gift of cash or securities, go to www.thatmanmaysee.org/donate or call 415.476.4016 or email tmms@vision.ucsf.edu. Checks are payable to That Man May See. That Man May See 10 Koret Way, Box 0352 San Francisco, CA 94143-0352 tmms@vision.ucsf.edu VISIONS is a publication of the Department of Ophthalmology at UCSF and is produced by That Man May See.

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Young Fundraisers Help Babies

hen their teacher had a baby born with cataracts, students from Heidi Giammona's class at Sacred Heart School in Saratoga went into action. They studied the eye disease to learn more, and they campaigned for support to help others. Forty students, parents, and teachers from

Saratoga arrived at UCSF's KoretVision Research Laboratory to present a check to That Man May See for \$14,000. These funds will help save the sight of vulnerable infants. Sixty-five percent of UCSF's pediatric ophthalmology patients come from lower-income families.

Students from Sacred Heart School, Saratoga, held bake sales, washed cars, and solicited those they knew to help babies born with cataracts. They join baby Ryan and his mother Heidi Giammona, with surgeon Alejandra de Alba Campomanes, MD, MPH, in celebration.

In the Mazzocco Surgical Suite, the students learned what surgery on tiny eyes is like as baby Ryan's physician, Alejandra de Alba Campomanes, MD, MPH, described the causes and treatment for pediatric cataracts. The first clinical trial to test the efficacy of operating on infant eyes for this

condition was conducted at UCSF in the early 1980s by Creig Hoyt, MD, Dr. de Alba's mentor. The successful study turned the tide on blindness worldwide for millions of babies born with cataracts.