THE FUTURE OF
Vision
Summer 2018

University of California, San Francisco | Department of Ophthalmology | Francis I. Proctor Foundation | That Man May See

FOCAL POINT

Dear Friends,

Welcome to our new *Vision* magazine produced by our support foundation, That Man May See. Our grateful patient Steve Zwillinger has generously contributed his design talent to help UCSF Ophthalmology better communicate with you.

We hope you will be inspired by these globally significant stories that share the accomplishments and aspirations of our faculty.

With your help, we are raising funds for our new home for ophthalmology at Mission Bay, research toward cures, and training the finest ophthalmologists and vision scientists of tomorrow.

Your personal generosity has tremendous impact. Thank you for your part in our work to save and restore sight.

Sincerely,

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

Photo Credit: Dominique Catton

An intervention used to stop sight loss saved children's lives.

The Proctor Foundation
Saving Sight and Lives

Committed to reducing blindness worldwide, UCSF's Francis I. Proctor Foundation for Research in Ophthalmology has worked in sub-Saharan Africa since 2000.

A major investigation led by the Proctor Foundation is rocking the public health firmament. "The study shows we can prevent young children in sub-Saharan Africa from dying with a simple intervention," says **Jeremy Keenan, MD, MPH,** director of International Programs.

This team previously established that the same intervention saves children's sight. The UCSF team and international partners investigated whether giving two doses a year of a common antibiotic to infants and toddlers in Malawi, Tanzania, and Niger would reduce child deaths. The work was funded with $14.8 million from the Bill & Melinda Gates Foundation.

According to principal investigator **Thomas Lietman, MD,** the biggest effects were seen in Niger, where 10 percent of newborns do not survive to their fifth birthday. A continuation of the Niger study will examine the impact of a four-year course of treatment, with the support of a $2.4 million Gates Foundation award.

Tens of Thousands of Lives Saved

With 190,000 children participating, the treatments prevented one in four deaths among 1- to 5-month-olds

Continued on page 2

A PEEK INSIDE:

Saving Sight and Lives

Continued from page 1

PROBLEM

World's highest child mortality is in sub-Saharan Africa

STRATEGY

Testing an antibiotic treatment used for blindness prevention to save young lives

and slashed death rates by nearly 14 percent overall. The *New England Journal of Medicine* published the results in April, with Dr. Keenan as lead author. The news was covered everywhere from CNN to the *Wall Street Journal* and NPR.

The *New York Times* reported that these results are influencing the World Health Organization to decide whether to advise routinely giving antibiotics to newborns. Such a recommendation could speed progress toward the United Nations' goal of ending preventable child deaths by 2030. Concerns about antibiotic resistance are central to this discussion. In fact, Proctor scientists monitored resistance bacteria in the respiratory tract and the stool, and they will continue to do so for the next two years.

Saving Sight Increased Survival

The Proctor Foundation's meticulous studies on community-wide administration of the antibiotic azithromycin have played a leading role in arresting the epidemic spread of trachoma.

Early studies also showed that the vision-saving treatment increased survival rates for young children. Researchers believe the antibiotics could possibly help children fight off pneumonia, malaria parasites, and diarrhea, the biggest causes of death for this group.

Next Study to Support Newborns

The UCSF team is taking another leap forward, supported by a new $13.5 million award from the Gates Foundation. A three-year study of at least 50,000 young children in Burkina Faso is being planned. Drs. Lietman and Keenan share principal investigator honors with colleagues **Catie Oldenburg, PhD,** and **Thuy Doan, MD, PhD.**

In the first study, most babies were not treated in their earliest months, when they are most vulnerable. "In Burkina Faso, we are partnering with local health workers to provide azithromycin to infants at 4-6 weeks, during vaccine visits," explains Dr. Oldenburg. The study will explore whether treatment in the first weeks of life helps infants survive.

Biosamples to Yield Answers

"Biosamples gathered from the infants and toddlers are critical to understand precisely why more children survive," says Dr. Doan. Using conventional and advanced genetic sequencing techniques, she will analyze samples from the back of the throat and the gut to determine which pathogens are being killed. She'll also monitor for antibiotic-resistant genes and characterize the microbial environment in these children's digestive systems.

Research Benefits Sight, Too

"As we determine how best to use antibiotics to help vulnerable children survive, we also see benefit for the overall trachoma eradication program," says Dr. Lietman. Seed funds from That Man May See helped launch this work many years ago, with pilot funding from John Debs and others. "Small well-designed studies allowed us to establish evidence that led to increased support from the Bernard Osher Foundation, the National Institutes of Health, and most notably the Gates Foundation." says Dr. Lietman.

"Thanks to the Bill & Melinda Gates Foundation, we are able to test our strategies at scale."

– Dr. Thomas Lietman

Lack of basic medicines and good sanitation leaves infants and children vulnerable to disease.

Innovators Win FDA Approvals

Two novel ophthalmology devices developed by UCSF Department of Ophthalmology faculty gained US Food and Drug Administration approval. A third approved device benefited from early research by a faculty laboratory scientist.

"This spectacularly productive translational research will benefit patients across the globe," says **Stephen D. McLeod, MD,** chair of the Department of Ophthalmology. "The FDA sets a high bar for safety and efficacy that establishes a path for widespread adoption."

Dr. Daniel Schwartz

Lens Increases Sharpness

Daniel Schwartz, MD, led research that resulted in the first intraocular lens that allows fine tuning of the focus power after implantation for optimal glasses-free vision.

The RxSight light-adjustable lens can be adjusted post-operatively to treat residual near-sightedness, far-sightedness, and astigmatism.

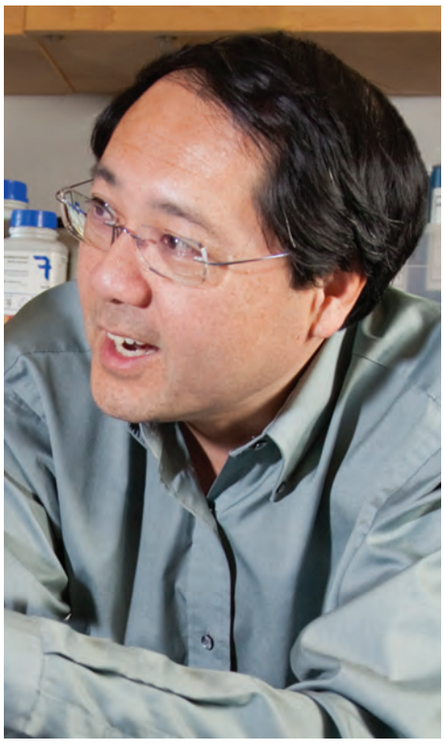
Dr. Eugene de Juan Jr.

Stent Reduces Glaucoma Damage

Eugene de Juan Jr., MD, provided leadership for development and testing of the Cypass Micro-Stent. Less invasive than traditional glaucoma surgery, the tiny implant enhances drainage of excess fluid from the eye, relieving elevated intraocular pressure that leads to vision loss from glaucoma.

Technology Improves Cataract Surgery

Early collaboration between **David Sretavan, MD, PhD,** and Christopher Keller, PhD, yielded significant findings on how to develop micromechanical knives suitable for cellular surgery. Dr. Keller later developed the MynoSys Zepto, which uses microdevice-related technology to improve cataract surgery. Clinical professor **David F. Chang, MD,** was the first clinical investigator to use the Zepto system in the United States.



Dr. David Sretavan

Research support was provided by the Lisa & John Pritzker Family Fund, Research to Prevent Blindness, and That Man May See.

Welcome New Faculty

Dr. Maxence Nachury

PhD: : UC Berkeley (Molecular and Cellular Biology)
Postdoctorate: Stanford University and Genentech (Cell Biology, Biochemistry)

Maxence Nachury, PhD, joins the Department of Ophthalmology as a laboratory scientist who aims to decode key processes of development and sensation and their relationship to genetic disorders.

Q You focus on tiny parts of the cell called cilia. Why?

A Primary cilia, hair-like projections attached to most human cells, act as cellular antennae. In the retina, for example, the cilia on each photoreceptor cell register light and change it into electrical signals. In the past 10 years, genetic defects in the cilia have been identified as the culprit in a broad class of major health disorders. This opens big possibilities for understanding, preventing, and treating disease.

Q You are leading two National Institutes of Health grants. What are your goals?

A My team is racing to understand how the cilia function to transport protein messages, how the cilia change in the disease state, and how these changes derail healthy cell development and function. We look at Bardet-Biedl Syndrome, a genetic disorder characterized by retinal degeneration as well as obesity, skeletal malformations, and kidney cysts.

Q Why have you chosen UCSF as your research home?

A Major advances are emerging from collaborative strategies, and UCSF has long championed this approach. I'm already planning joint research with scientists in five disciplines. Our diverse perspectives and skills will contribute to greater progress toward halting genetic diseases.

Q Which of your awards do you most value?

A I'm especially honored to have received the Alfred P. Sloan Fellowship and an Early Career Life Scientist Award from the American Society for Cell Biology.

Q Tell us about your passion for bicycling.

A My whole family enjoys biking together. One of my favorite rides is on the island of Hawai'i. There's a paved road that goes from sea level to the top of Mauna Kea at 14,000 feet. It's a long day, and the view is totally worth it.

Dr. Maanasa Indaram

MD: Duke University
Residency: UCSF
Fellowship: Pediatric Ophthalmology and Adult Strabismus, Boston Children's Hospital, Harvard University

Maanasa Indaram, MD, joins the Department of Ophthalmology as a pediatric and strabismus specialist.

Q Why did you choose an appointment at UCSF?

A As a resident here, I had inspiring mentors, and it's exciting to join a faculty that is highly collaborative in both clinic and research. This department is already at the top and continuing to rise.

Q What drew you to pediatric ophthalmology?

A It's very rewarding to have a life-long impact on sight, starting with premature infants. Also, the UCSF pediatric ophthalmology service is growing, and it's interesting to help shape that. We provide a wide range of high quality, specialized services, and the demand for complex patient care is high.

Q What excites you in pediatric ophthalmology right now?

Using interactive video games and 3D movies to treat amblyopia ("lazy eye") looks really promising. We are hopeful that kid-friendly entertainment can replace eye patching as the new standard of care.

We're also exploring earlier interventions to strengthen the corneas of children with keratoconus and halt its progression to prevent severe vision problems in the future. A new collagen crosslinking unit in the Mission Bay operating room makes this possible for very anxious or developmentally delayed children.

To treat infants with retinopathy of prematurity, injectable drugs similar to those used for macular degeneration are proving useful. It's easier on babies than laser therapies, which were the mainstay of care five years ago.

In areas that are already treatable, new technologies offer us opportunities to develop innovative treatments that make patients' lives even better.

Q What are your goals?

A I have so many research ideas to help children's vision, and I'm not sure where I will dive in just yet. Right now, I'm happy to be part of this incredible team, caring for patients in the clinic and operating room and teaching today's residents.

Q How do you like to relax?

A My fiancé and I love to get out of the city and recharge—the beauty of the natural world is so close by. I highly recommend taking a break, turning off your phone, and getting some perspective on the world.

Dr. Deepak Lamba

MD: University of Mumbai
PhD: University of Washington, Seattle (Neurobiology)
Postdoctoral Research: University of Washington, Seattle (Stem Cells/Retina)

Neurobiologist and bio-engineer Deepak Lamba, MD, PhD, has been appointed to the Department of Ophthalmology. His laboratory is housed at the Eli and Edythe Broad Center of Regeneration Medicine and Stem Cell Research. His research group won Top Team in Regenerative Medicine in the 2017 Interstellar Initiative, presented by the Japan Agency for Medical Research and Development and the New York Academy of Sciences.

Q What is the overarching aim of your research?

A All our investigations are designed to bring novel stem cell-based retinal repair closer to the clinic for those with age-related and inherited retinal degenerations.

Q You previously led a laboratory at the Buck Institute on Aging. How does joining UCSF advance your work?

A The partnership with UCSF ophthalmologists and their patients with inherited retinal degenerations is invaluable. With stem cell technologies, we will use patients' own cells to create customized gene therapies with the potential to stabilize or reverse their sight loss. One postdoctoral scientist and two technicians came with me, so we can be productive right away.

Q Share a few highlights of your progress so far.

A As a grad student, I developed a method to guide stem cells to develop into photoreceptor cells. We have increased the reliability of that method and established that these novel cells function in lab models and restore some vision. We now generate all the types of human retina cells to model and study retinal diseases in our lab.

Q What looks promising for maximizing success of retinal repairs?

A I discovered a critical support protein that reduces chronic inflammation and promotes cell survival. This may increase the success of lab-grown photoreceptors transplanted into eyes compromised by disease. We've also shown "proof of concept" for a way to disable a receptor in an immunological cell to prevent tissue rejection.

Q 3D printing of lab-grown human tissue is now a reality. How will you leverage this advance?

A We are experimenting with three-dimensional printing to create sheets of living retinal tissue. This would be ideal for screening new drugs and potentially useful for transplants.

Q Your previous lab was in Marin. You must be grateful your family is already settled here.

A Yes, we're very lucky that this change did not uproot our life. My wife Sheetal is an oncology nurse at Marin General Hospital, and our seven-year-old daughter Janyaa attends school in San Anselmo.

Hearst Fellowship Advances Care

Dr. Olubayo Kolawole may be the first ophthalmologist in Nigeria to specialize in inherited retinal degenerations (IRD).

"With expertise gained at UCSF, I can help Nigerians born with these historically untreatable blinding conditions," he says.

When Dr. Kolawole discovered the work of **Jacque Duncan, MD**, a recognized leader in IRD, he applied for and won a prestigious George and Rosalie Hearst Fellowship. "I am honored to have Dr. Duncan and **Anthony Moore, MD, FMEDSci,** as mentors," he says. Dr. Kolawole is learning to better diagnose the many types of IRDs and to use advanced technologies to assess patients.

Gene Therapies Bring Hope

"It is an auspicious time for ophthalmologists worldwide to develop expertise in IRD, because breakthroughs in gene therapies are bringing new hope to these patients," says Dr. Duncan.

The first successful gene therapy for an IRD gained US approval in 2017. It treats patients with mutations in the RPE65 gene, which causes severe vision loss in infants and young children. Ongoing clinical trials, including five led by Drs. Duncan and Moore, make it likely that more IRD gene therapies will be available in the near future.

Upon his return to Osogbo, Nigeria, Dr. Kolawole will pass his knowledge on to aspiring and veteran ophthalmologists. He plans to initiate research to pinpoint the genetic defects underlying patients' IRD conditions, paving the way for gene therapies in his country.

Hearst Fellow Dr. Kolawole

Improving Vision Care in China

UCSF ophthalmologists are improving quality of care for vision patients by teaching and consulting at vision clinics across China.

It isn't every day that ophthalmologists see their names dancing across a Jumbotron. This bold welcome met two UCSF clinician scientists last fall at the equivalent of a county hospital in Changchun, China. Vitreoretinal specialist **Jay Stewart, MD,** and oculofacial plastics specialist **M. Reza Vagefi, MD,** were the honored guests at a three-day teaching event.

Advancing Training, Care, and Understanding

Drs. Stewart and Vagefi spent one day consulting on how to help patients with complex vision disorders, and another day in surgery, teaching advanced methods. "I was able to share a method for approaching the orbit that avoids leaving a scar on the skin," says Dr. Vagefi. A third day was devoted to theory and clinical application.

"This was our second trip," says Dr. Vagefi, "and each has offered a unique learning experience. In China, patients are in charge of their own medical charts and carry them from doctor to doctor. For the most part, only senior ophthalmologists perform eye surgeries."

"After our first visit, we recommended a video system be installed in the operating room as a teaching tool," adds Dr. Stewart. "This will help advance the skills of younger ophthalmologists."

Dr. McLeod offers expertise on a difficult case.

Initiative to Improve Quality

These trips are part of a larger initiative to lift the quality of care for Chinese vision patients. In China, ophthalmologists often lack access to training on par with the best available in the United States and Europe, with only a handful of outstanding vision centers providing comprehensive training.

Organized by the nonprofit Lifeline Express, Western specialists help fill gaps in professional knowledge at interested hospitals and clinics and recommend improvements. Pediatric specialist **Creig Hoyt, MD,** was the first UCSF ophthalmologist to participate in the program, and he soon interested others.

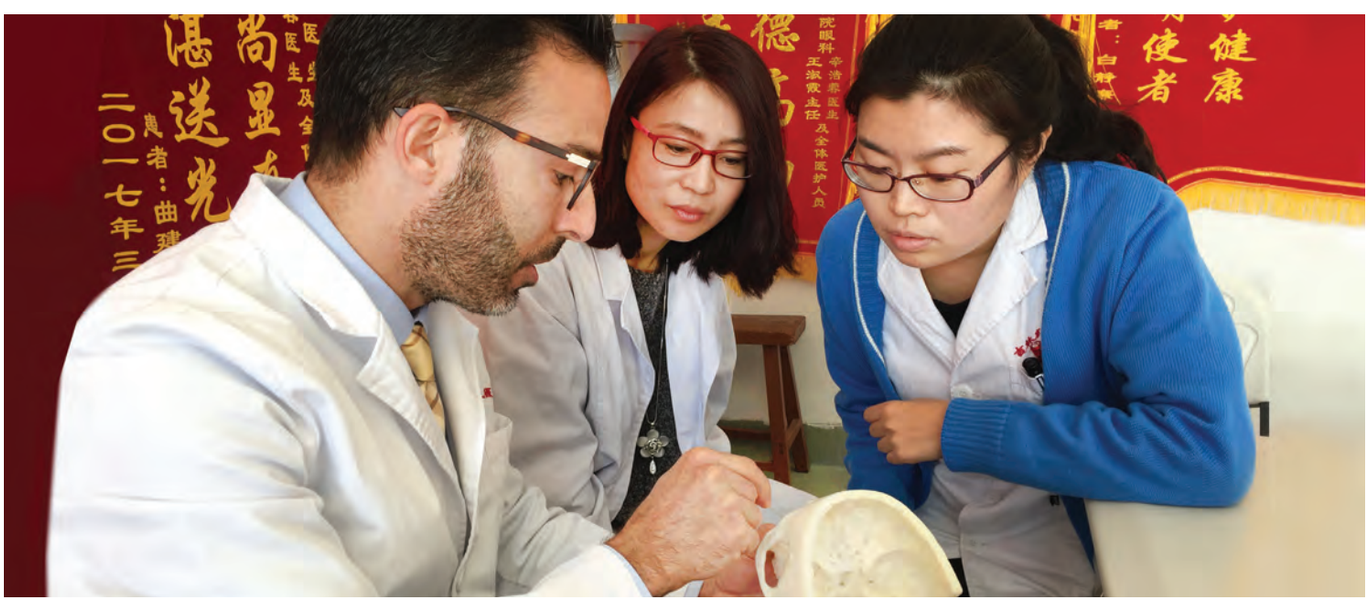
Chinese ophthalmologists consult with Dr. Hoyt.

This year Dr. Hoyt will teach at a clinic on the Tibetan plateau. Glaucoma specialist **Ying Han, MD,** pediatric ophthalmologist **Alexandra de Alba Campomanes, MD,** and **Stephen D. McLeod, MD** (cornea, external disease, and refractive surgery), have also led professional development missions.

Inspiring Deeper Learning

"The impact of this work continues to unfold," says Dr. Vagefi. "After our first visit, a junior ophthalmologist traveled to Shanghai, inspired to seek additional training in orbital surgery."

These UCSF ambassadors are establishing ties to vision institutions across China and offering invitations for ophthalmologists to apprentice as international fellows at UCSF. This year Drs. de Alba and Hoyt will host visiting Chinese scholars whom they met while working for Lifeline Express.



Dr. Vagefi shares expertise on repair of the orbit, the bones of the skull that surround each eye.

Thankful for Care and Research

Ophthalmologists working with Margaret Miller, a patient with glaucoma and inherited corneal disease, consult regularly to coordinate her care.

"I am thrilled that my UCSF specialists work closely to ensure the best possible outcome for my complex condition," says Margaret. Ophthalmologists in her local area had been treating the disorders independently.

Patient Margaret Miller is grateful to live independently and participate in family celebrations.

Integrated Care Ensures Excellence

When Margaret first came to UCSF Ophthalmology, cornea specialist **Jennifer Rose-Nussbaumer, MD,** brought in **Yvonne Ou, MD,** for consultation. The team aims to protect what Margaret cares about most — her independence and family time.

"Now that my husband is gone and I live alone, daytime driving allows me to be part of family events, which mean so much. And I go to water aerobics. When I met my UCSF team, I thought, 'Somebody cares!'"

"We recommended glaucoma surgery prior to a cornea transplant to maximize Margaret's sight in the future," says Dr. Rose-Nussbaumer. Dr. Ou implanted a drainage valve in Margaret's eye to control eye pressure, and the corneal surgery followed several months later.

After Margaret recovered from both surgeries, the new cornea greatly improved Margaret's ability to focus, and the glaucoma surgery successfully reduced her intraocular pressure.

Research to Improve Outcomes

Unfortunately, Margaret began experiencing recurrent corneal infections, which proved difficult to treat. "We need to better understand the underlying cause of Margaret's recurrent infections," says Dr. Rose-Nussbaumer. "It may be related to disruptions in her ocular microbiome." The eye, like many parts of the body, is host to a microbial community that plays a role in both health and disease. The ocular microbiome refers to the combined genetic material of these microorganisms in the eye.

Genetic research underway at UCSF aims to provide the answers ophthalmologists need to more quickly relieve Margaret's blurred vision. **Thuy Doan, MD, PhD,** spearheads the effort to bring a comprehensive molecular testing assay, called metagenomic deep sequencing, to the clinical lab to better characterize the ocular microbiome and diagnose ocular infections.

Hope Now and For the Future

As these viruses, bacteria, and fungi are identified, screening tests can be devised to better diagnose them and treatments can be targeted to improve the health of the ocular microbiome and halt infections. This research path will lead to better outcomes for patients like Margaret.

After trying various therapies, Margaret's infections cleared. Dr. Rose-Nussbaumer will perform a corneal transplant on the patient's second eye soon. "With the expert care I receive at UCSF, I am hopeful that I'll be able to maintain my independence."

"When I met my UCSF team, I thought, 'Somebody cares!'"

– Patient
Margaret Miller

3 MILLION

In the USA have glaucoma.

50% KNOW | **50%** DON'T KNOW

In Memoriam

Dr. Pauline Schwartz

The legacy of Pauline Schwartz, PhD, continues.

Pauline's husband, **Ariah Schwartz, MD,** trained as an ophthalmologist at UCSF; their son, **Daniel Schwartz, MD,** followed in his father's footsteps and currently serves as director of the Retina Service at UCSF. Pauline and Ariah's grandson, **Frank Brodie, MD,** carries forward the family tradition: he graduated from the ophthalmology residency program in June.

Pauline married Ariah shortly before World War II, and their marriage lasted until he passed away in 2008. They raised four children: Nina, Eric, Daniel, and David.

Pauline earned a master's degree in social work and a doctorate in education from Stanford University. She taught child development at San Jose State and San Francisco State Universities before returning to serving children directly. She then worked in the leadership of the Holy Family Day Home nursery school in San Francisco.

Upon retirement, Pauline embarked on a late career as a docent at the de Young Museum. Her museum work stopped only when she lost her sight at age 96, but she organized popular art lectures until the week before she passed away.

Dr. Jorge Alvarado

Jorge A. Alvarado, MD, long served grateful patients as a glaucoma specialist.

"Jorge was one of the most brilliant and creative minds in glaucoma," says Department Chair **Stephen D. McLeod, MD.** "He was also one of ophthalmology's most influential structural biologists."

Born in Costa Rica, Dr. Alvarado came to the United States, without knowing English, to attend UC Berkeley. As a UCSF medical student, he collaborated with ophthalmologist **Michael J. Hogan, MD,** and illustrator **Joan Espersen Weddell** on *Histology of the Human Eye*. This seminal textbook continues to be a classic.

Before joining the faculty in 1977, Dr. Alvarado completed his residency and fellowship at UCSF. Throughout his career, he worked tirelessly to care for his beloved patients, conquer challenging cases, teach the next generation, and further research to improve care. He received numerous honors and published and lectured nationally and internationally.

Dr. Alvarado's professional work allowed him to travel the world with his wife Jeanie. They raised three daughters and, later in life, he loved being "Poppy" to four adoring granddaughters. His legacy continues through his contributions to glaucoma and the colleagues and students he inspired.

Daniel Benatar

Daniel Benatar's leadership was personal.

That Man May See has lost a dear friend. Our former board chair and generous contributor, Dan shared with many friends his passion for supporting vision research. Deeply committed to our mission of sight for all, Dan joined the board in 2002 and served as chair from 2009 to 2012.

A native San Franciscan, Dan worked after school at Benatars on Market Street, billed as "the largest independent drugstore in California." Summers on his grandparents' fruit farm started a lifelong love of gardening.

He attended Stanford University before joining Lilli Ann Corporation, a union manufacturer of elegant women's clothing. Dan's 40-year career there allowed him to pursue his love of travel and spend time with family.

Active in the community, Dan served on the boards of Sherith Israel and the Koret Foundation. He loved supporting SF Jazz and was a devoted 49ers fan. That Man May See is honored to be a beneficiary of Dan's memorial tributes, and his legacy will continue with recognition in the new building at Mission Bay.

Ted Tight

Dexter Corwin "Ted" Tight has left an endowment to help others.

Many years ago, Ted and his wife Elizabeth Callendar "Betty" Tight, who survives him, established a research fund to nurture novel solutions for macular degeneration. Ted served on That Man May See's board of directors for 12 years and provided leadership as chair from 1995 to 1998.

Ted and Betty received the Vision Award from That Man May See for leadership longevity, honoring their four decades of support for vision research, patient care, and training next-generation leaders in ophthalmology.

A veteran of World War II and the Korean War, Ted received his law degree from Yale Law School and spent much of his career at The Gap, Inc. Devoted to family, church, and community, Ted volunteered for numerous nonprofit organizations, often serving on their boards.

Over the years, Ted graciously invited many wonderful people to learn about That Man May See and to support its cause.

To make memorial tributes for vision research, please visit thatmanmaysee.org/donate.

Recent Gifts for UCSF Ophthalmology

That Man May See celebrates your generous contributions and pledges for vision research, teaching, patient care, and community outreach received between October 10, 2017, and June 12, 2018.

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Faculty News

Highly Promising Researcher Honored

Developmental neurobiologist **Xin Duan, PhD,** has been chosen for a prestigious Klingenstein-Simons Fellowship Award in Neuroscience. The award honors highly promising, early-career scientists engaged in research that may lead to a better understanding of neurological and psychiatric disorders. Dr. Duan's work is aimed at restoring high-quality sight through regeneration of neurons and neural connections.

"We are proud that the Esther A. and Joseph Klingenstein Fund and the Simons Foundation have now recognized four of our outstanding vision scientists," says Department Chair **Stephen D. McLeod, MD.** "Better understanding the neuroscience of the visual system is key to finding solutions for blinding diseases."

Selected Awards

Award of Excellence, A Cure In Sight

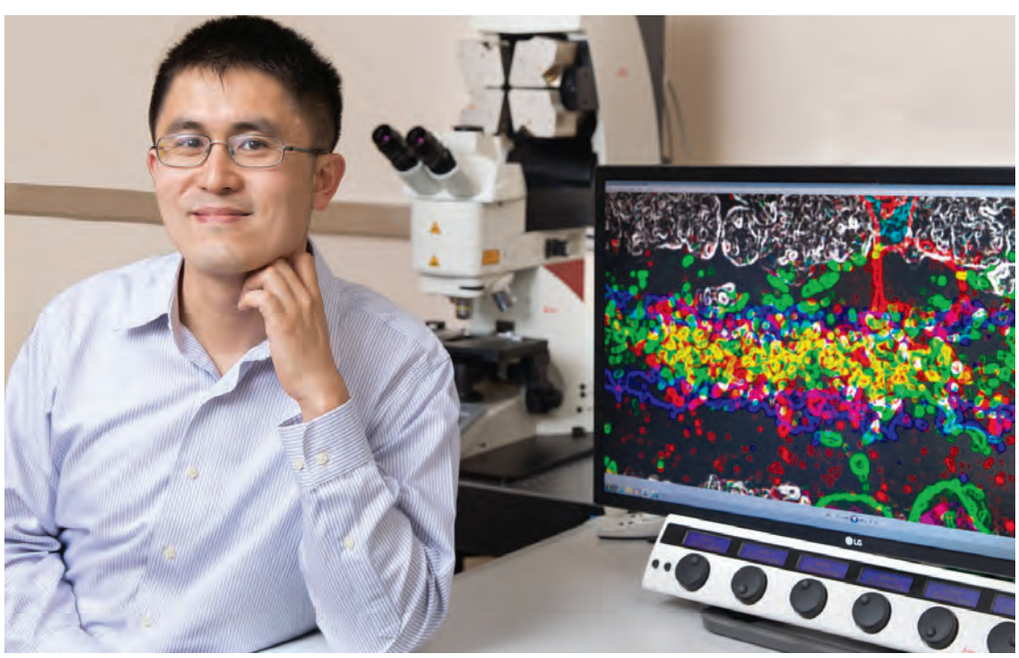
Bertil Damato, MD, PhD, FRCOphth, director of the Ocular Oncology Service, has been pioneering solutions for cancers of the eye for more than three decades.

Visionary Award, Foundation Fighting Blindness

Jacque Duncan, MD, was recognized for her dedication to research and patient care for those living with retinal degenerations. She serves as chair of the foundation's Scientific Advisory Board and fosters support for novel solutions as a community speaker and moderator.

Secretary-General, Academia Ophthalmologica Internationalis

Richard L. Abbott, MD, was elected secretary-general of this international society of academic ophthalmic leaders committed to global vision research, education, and service.



Dr. Duan uses confocal microscopy to understand living retinal cells, such as those displayed on this screen.

The Simons Foundation and Klingenstein Fund share a history of dedication to the advancement of science in the United States. The fellowship award comes with a grant of $225,000 over three years. Retinal physiologist **Felice Dunn, PhD,** and cellular biochemist **Maxence Nachury, PhD,** each received the award in prior years. Neuroscientist **Erik Ullian, PhD,** was chosen for two research awards from the Simons Foundation. Private support permits higher-risk — and potentially higher-reward — investigations.

Selected Publications

Department of Ophthalmology

Lew YJ, Rinella N, Qin J, Chiang J, **Moore AT, Porco TC,** Roorda A, **Duncan JL.** High-resolution imaging in male germ cell-associated kinase (MAK)-related retinal degeneration. *American Journal of Ophthalmology.* 2017 Nov 16.

Protas ME, Weh E, Footz T, Kasberger J, Baraban SC, Levin AV, Katz LJ, Ritch R, Walter MA, Semina EV,

Gould DB. Mutations of conserved noncoding elements of PITX2 in patients with ocular dysgenesis and developmental glaucoma. *Human Molecular Genetics*. 2017 Sept 15.

Adams DL, Economides JR, **Horton JC**. Incomitance and eye dominance in intermittent exotropia. *Investigative Ophthalmology & Visual Science*. 2017 Aug 1.

Kalin-Hajdu E, Colby JB, Idowu O, Grumbine FL, Kang JM, Hirabayashi KS, Glastonbury CM, **Vagefi MR, Kersten RC.** Diagnosing distensible venous malformations of the orbit with diffusion-weighted magnetic resonance imaging. *American Journal of Ophthalmology*. 2018 Feb 16.

Cipriani V, Silva RS, Arno G, Pontikos N, Kalhoro A, Valeina S, Inashkina I, Audere M, Rutka K, Puech B, Michaelides M, van Heyningen V, Lace B, Webster AR, **Moore AT.** Duplication events downstream of IRX1 cause North Carolina macular dystrophy at the MCDR3 locus. *Scientific Reports*. 2017 Aug 8.

Breslow DK, Hoogendoorn S, Kopp AR, Morgens DW, Vu BK, Kennedy MC, Han K, Li A, Hess GT, Bassik MC, Chen JK, **Nachury MV.** A CRISPR-based screen for hedgehog signaling provides insights into ciliary function and ciliopathies. *Nature Genetics*. 2018 Feb 19.

Paylakhi S, Labelle-Dumais C, Tolman NG, Sellarole MA, Seymens Y, Saunders J, Lakosha H, deVries WN, Orr AC, Topilko P, John SW, **Nair KS.** Müller glia-derived PRSS56 is required to sustain ocular axial growth and prevent refractive error. *PLoS Genetics*. 2018 Mar 12.

Kang JM, Padmanabhan SP, **Schallhorn J, Parikh N, Ramanathan S.** Improved operating room times for trainee cataract surgery in a public hospital setting. *Journal of Cataract and Refractive Surgery*. 2018 Feb 01.

Kim KH, Lee JO, Du J, **Sretavan D,** Choo H. Real-time in vivo intraocular pressure monitoring using an optomechanical implant and an artificial neural network. *IEEE Sensors Journal*. 2017 Oct 05.

Krencik R, Seo K, van Asperen JV, Basu N, Cvetkovic C, Barlas S, Chen R, Ludwig C, Wang C, Ward ME, Gan L, Horner PJ, Rowitch DH, **Ullian EM.** Systematic three-dimensional coculture rapidly recapitulates interactions between human neurons and astrocytes. *Stem Cell Reports*. 2017 Nov 30.

Proctor Foundation

Gonzales J, Doan T, Shantha JG, **Bloomer M,** Wilson MR, DeRisi JL, **Acharya N.** Metagenomic deep sequencing of aqueous fluid detects intraocular lymphomas. *The British Journal of Ophthalmology*. 2017 Nov 9.

Prajna NV, Krishnan T, Rajaraman R, Patel S, Shah R, Srinivasan M, Das M, Ray KJ, **Oldenburg CE, McLeod SD,** Zegans ME, **Acharya NR, Lietman TM, Rose-Nussbaumer J.** Predictors of corneal perforation or need for therapeutic keratoplasty in severe fungal keratitis: A secondary analysis of the mycotic ulcer treatment trial II. *JAMA Ophthalmology*. 2017 Aug 17.

Keenan JD, Bailey RL, West SK, Arzika AM, Hart J, Weaver J, Kalua K, Mrango Z, Ray KJ, Cook C, Lebas E, O'Brien KS, Emerson PM, **Porco TC, Lietman TM;** MORDOR Study Group. Azithromycin to reduce childhood mortality in sub-Saharan Africa. *New England Journal of Medicine*. 2018 Apr 26.

Ray KJ, Prajna NV, Lalitha P, Rajaraman R, Krishnan T, Patel S, Das M, Shah R, Dhakhwa K, **McLeod SD,** Zegans ME, **Acharya NR, Lietman TM, Rose-Nussbaumer J.** The significance of repeat cultures in the treatment of severe fungal keratitis. *American Journal of Ophthalmology*. 2018 Feb 1.

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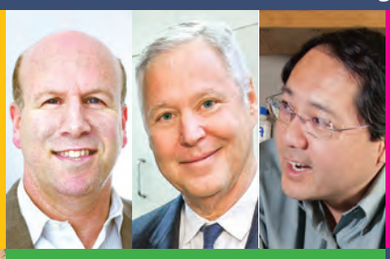

Welcome New Faculty

Innovators Win FDA Approvals

Improving Vision Care in China

Future of Vision Update

The UCSF Center for Vision Neuroscience is rising at Mission Bay, four floors off the ground at this writing. Bulldozers, cranes, and dedicated people are bringing this dream to life.

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