

Summer 2020

enVISION

News from the UC Davis Eye Center

50 YEARS

of Excellence
in Clinical Care and Vision Science



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 UC Davis Eye Center

enVISION

News from the UC Davis Eye Center

our MISSION

We will realize our vision through pioneering collaborative vision research, providing state-of-the-art, world-class eye care, and training superbly prepared ophthalmologists and vision scientists.

our VISION

Our vision is to be the world's transformational leader in collaborative vision research and the development of cures for blinding eye disease from cornea to cortex.

UC DAVIS
HEALTH

Eye Center

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Eye to Eye

Looking at the accomplishments of the UC Davis Eye Center over the past 50 years naturally generates a sense of pride. Speaking for myself and, I believe, for my talented predecessors who have served as leadership, the experience is also incredibly humbling.

I believe most leaders in the medical field and beyond quickly realize that you can only control so much of what happens. You can, of course, work hard to set a solid direction, to hire the best people in all positions, to attract talented trainees and to engage with the community. Yet at some point the program begins to have a life of its own.

That life that comes from you, not from me.



And that life is wonderful to observe: A dedicated researcher makes a breakthrough in stem cell technology that may help save the eyesight of thousands. Promising students transform into brilliant young ophthalmologists who improve the health of their communities both here and around the globe. Generous donors step forward with financial contributions that fund everything from scholarships and small but important programs to our new, state-of-the-art Eye Institute.

This collective power of faculty, staff, students, donors and the community is so great that when asked about what wonderful accomplishments will occur in the next 50 years, I now have only one reply: "It is to your credit."

And so, I invite each of you to read this special anniversary issue of *EnVision* with the pride of having been part of our storied past. Even more importantly, I invite you to consider how you will be part of its future. Our table is set, as they say, and now it is up to each of us to help define our goals and the parts we will play.

Mark J. Mannis, M.D., F.A.C.S
Fosse Endowed Chair in Vision Science Research
Professor and Chair
Department of Ophthalmology & Vision Science
University of California, Davis Eye Center

Through community outreach and relationship building, we support and promote the UC Davis Eye Center as the premier provider of quality eye care for Northern California and of cutting-edge research for the world.

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IT'S BEEN A LONG TIME COMING

UC Davis Eye Center Celebrates a Half Century of Leadership, Research, Education, Philanthropy and Community

50 YEARS *of Excellence* *in Clinical Care and Vision Science*



FIFTY-YEARS AGO . . .

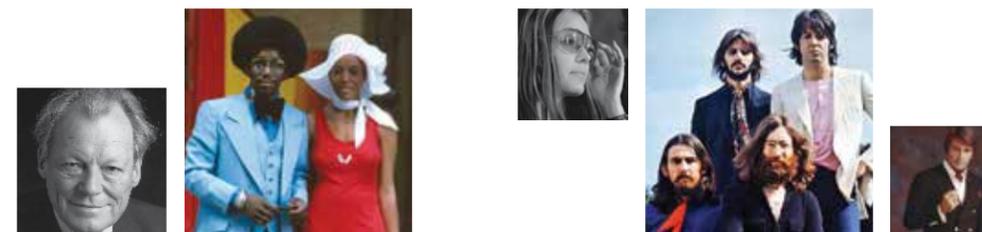
Richard M. Nixon was midway through his first term. The Beatles disbanded. Spacecraft Apollo 13 narrowly survived an oxygen tank explosion. Time's Man of the Year was German chancellor Willy Brandt. Women's movement leader Gloria Steinem was named Woman of the Year—retroactively. Men sported double-breasted blazers and women, four-piece polyester pantsuits. And a small, dedicated group of medical professionals opened the doors of the UC Davis Department of Ophthalmology.

The rest, as they say, is history. But what a rich and fascinating history it is. Despite everyone's high hopes, few could have predicted from such humble beginnings that 2020 would mark the initial construction of the Ernest E. Tschannen Eye Institute.

This state-of-the-art facility will further the Eye Center's mission to become one of the world's transformational leaders in collaborative vision research and in developing cures for disabling eye disease. The greatest beneficiaries, of course, will be the more than 55,000 patients served each year with advanced specialty care.

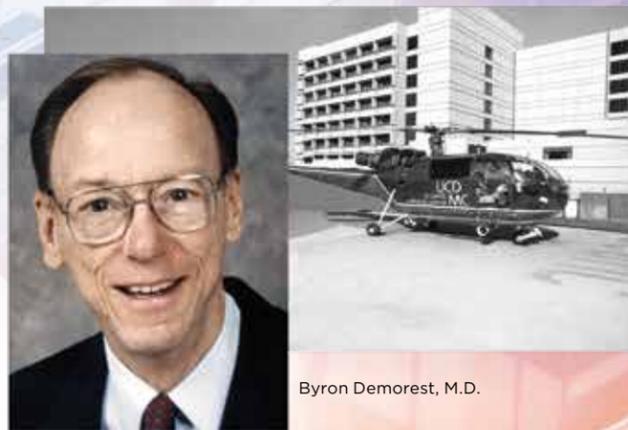
But a lot happened along the way to make everything from new treatments to new buildings a reality. This issue of EnVISION highlights those important achievements with a focus on leadership, research, education, philanthropy and community.

We hope you enjoy our historical journey, as well as a look forward. And we hope that you see yourself as we discuss many of the important contributors, from doctors, staff and students to the many generous donors—both large and small.





Professor Gerald L. Portney, M.D.
(1937–77)

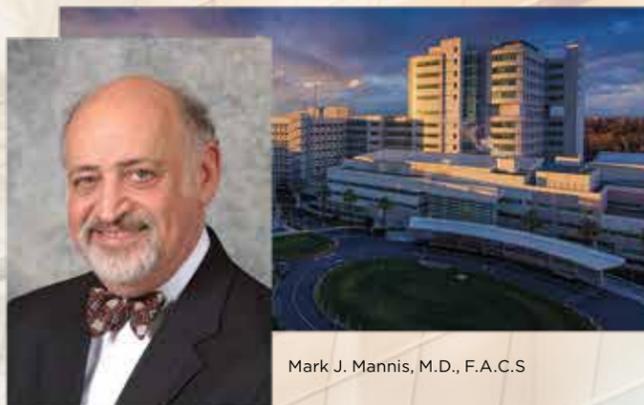


Byron Demorest, M.D.

LEADERSHIP



John L. Keltner, M.D.



Mark J. Mannis, M.D., F.A.C.S

DEFINED BY EFFECTIVE LEADERSHIP

Growth and prosperity—especially over an extended period—do not happen by chance. They occur because good leaders serve as role models who motivate and support the organization's stakeholders, create confidence and encourage open communication. The result: things are accomplished in a way that fosters strong and stable growth.

That clearly describes the four chairs who led the Eye Center from its inception to the present day. Each brought a unique style, background and set of accomplishments to a common vision.

Getting Up and Running

With UC Davis School of Medicine opening in 1966, university officials soon wanted to include an ophthalmology program. They reached out to the late Byron Demorest, M.D., as the founding volunteer chair of what was originally called the UC Davis Department of Ophthalmology.

Dr. Demorest, a practicing pediatric ophthalmologist and widely regarded as Sacramento's preeminent practitioner, was a perfect choice. He demonstrated the focused, positive energy needed to nurture a fledgling department—and it was anything but a garden variety startup.

Born of the Community

Most departments begin with academic physicians. Dr. Demorest, on the other hand, was a noted physician in full-time private practice who saw the need for an academic center of ophthalmology in Sacramento. He forged a strong, supportive partnership with regional physicians that even today mirrors his unwavering determination to do the right thing by our patients and the community. He organized physicians from both Sacramento and San Francisco to provide service at the county hospital and to teach residents in the fledgling program.

Dr. Demorest understood that a truly academic department would

require a full-time academic chairperson. And so, among his most important achievements was his recruitment of a distinguished academic physician, Professor Gerald L. Portney, M.D. (1937–77). Dr. Portney assumed the reigns as the first full-time department chair in 1971. Byron Demorest focused on the practice of community pediatric ophthalmology even while maintaining a close relationship with the young department.

That year also marked the school's first graduating class, which consisted of just one physician. The graduating resident was Dr. Neil E. Kelly, founder of the Retinal Consultants in Sacramento and a pioneer whose groundbreaking clinical work discovered and developed macular hole surgery. Thus began a long line of graduates who continue to positively impact both the vision sciences and clinical community care.

A Dynamic Spokesman for Ophthalmology

Gerald Portney continued the job of recruiting noted academic physicians who could further advance the program. That group included Portney's eventual successor, neuro-ophthalmology specialist John L. Keltner, M.D. Other foundational recruits were Alan M. Roth, M.D., who practiced comprehensive ophthalmology and ocular pathology, and the late



Professor Gerald L. Portney, M.D. (1937-77)

George O. Waring, M.D., F.A.C.S., F.R.C.Oph., a noted cornea specialist and innovator. Their impact was both immediate and long-lasting, helping to launch the program toward its current prominence.

The Keltner Years

Gerald Portney's sudden and untimely passing in 1977 thrust John Keltner immediately into the department chair position. While some might view chairing the department as a daunting task, Dr. Keltner was more than up for the challenge. In fact, he served as chair for 26 years and continues to add value as chairman emeritus. To give the length of his tenure some perspective, current chair Mark J. Mannis, M.D., F.A.C.S., says, "I was not yet a medical student

when John Keltner assumed the chairmanship at UC Davis."

A dedicated academic who cared about vision science as well as clinical care, Keltner ultimately positioned the basic scientists and the clinicians literally across the hall from one another. His belief was that proximity helped transfer and percolate ideas, and he was correct. The culture of collaboration and integration flourished throughout the department, as did the achievements of both clinicians and scientists.

The culture that Keltner advanced helped create a work environment that continues today—one that is collaborative, family-like and incredibly hardworking. Case in point: physicians and veterinary ophthalmology residents still engage in collaborative activities such as grand rounds and a robust microsurgical training course for both ophthalmology and veterinary ophthalmology residents.

Dr. Keltner also gained significant national recognition. He served as president of the Association of University Professors of Ophthalmology and as chair

of the American Board of Ophthalmology. His stature helped attract top-level faculty that included current chair Mark J. Mannis, Ivan R. Schwab, M.D., Maurice Landers, M.D., Lawrence S. Morse, M.D., Ph.D., James D. Brandt, M.D., James T. Handa, M.D., and Michele C. Lim, M.D.

Finally, Dr. Keltner's work helped fully legitimize the Eye Center as an academic department. An internationally known pediatric and neuro-ophthalmologist, Dr. Keltner's personal areas of research included the following: the use of botulinum toxin for the treatment of facial spasm, the effects of cancer on the eye, autoimmune-related retinopathies, multiple sclerosis and its impact on vision, optic neuropathy and the development of automated visual field testing. He would spearhead the establishment of UC Davis as the visual field reading center for several important multicenter clinical trials.

A Seamless Transition

When a department chair elects to step down, as John Keltner did at the end of 2001, standard university procedure would be to launch a national search for a replacement. But Dr. Keltner had other ideas.

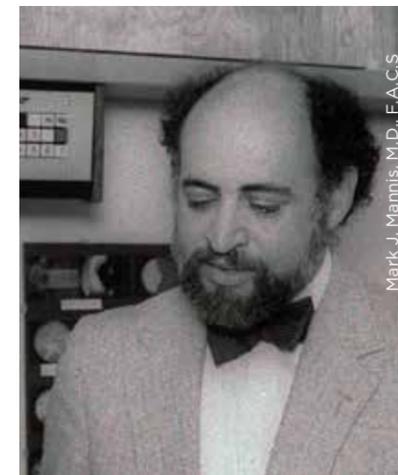
"The culture that Keltner advanced helped create a work environment that continues today—one that is collaborative, family-like and incredibly hardworking."

Foremost in his mind was to preserve and nurture the unique culture of what was then the UC Davis Department of Ophthalmology & Vision Science. Achieving that goal would likely require finding a qualified candidate from within, and Dr. Keltner had identified the individual he thought would make his ideal successor.

That person was Mark J. Mannis, then in mid-career as a highly respected and well-published ophthalmologist specializing in corneal surgery and external diseases of the eye. Just as importantly, his considerable research and academic interests made him the right candidate to carry on the Eye Center's expanding reputation for both clinical and research excellence.

Dr. Mannis became department chair in 2003. Knowing the importance of quality personnel, he has added a vibrant new group of faculty including Nandini Gandhi (Pediatric Ophthalmology), Jennifer Li (Cornea), Jeffrey Ma (Comprehensive Ophthalmology), Allison Liu (Neuro-ophthalmology), Nicholas Marsh-Armstrong (Glaucoma Research), Ravi Jonnal (Retinal Imaging Research), Robert Zawadzki (Retinal Imaging Research), Ala Moshiri (Vitreoretinal Surgery), Glenn Yiu (Vitreoretinal Surgery), Christopher Murphy (Veterinary Ophthalmology-Cornea), and Min Zhao (Cornea Research) among others.

One of his most recent recruits is Paul A. Sieving, M.D., Ph.D., as a clinician scientist known for his work on inherited retinal and macular diseases, retinal physiology and the genetics of



Mark J. Mannis, M.D., F.A.C.S.

eye disease. Dr. Sieving is the former director of the National Eye Institute, a position that he held for 15 years, and he will be the inaugural holder of the Neil and M.J. Kelly Presidential Endowed Chair in Vitreoretinal Science.

In addition to success in recruitment, Dr. Mannis also excelled in raising funds for the Eye Center. Those efforts culminated in start-up funding for the Ernest E. Tschannen Eye Institute. The generous \$38.5 million cumulative donation from Mr. Tschannen, a Sacramento-based property developer and manager, represents the largest gift from an individual in the 100-year history of UC Davis.

While additional funding will be required to complete the project, this incredible donation has already inspired additional gifts from patients, alumni, and former faculty, including Barbara Fingerut, Claire Burns, Alan Roth, Michael and Shelley Schermer, and Robert and Sonia Miller, among many others.

"The new eye institute will also be a symbol of the programming that takes place within its walls," says Mark Mannis. "The building and the talented people managing its clinical services and scientific programs will take the scientific level to even greater

heights. We'll be able to deliver even more happy outcomes to so many additional people."

Still on the "Mannis Agenda" is the establishment of the Center for Ocular Regenerative Therapy (CORT) under the direction of Dr. Sieving. The center's work will include the investigation and application of gene therapy for the treatment of inherited retinal disease, including age-related macular degeneration (AMD).

Miles to Go

Renowned composer Leonard Bernstein once said, "In order to do something great, you need two things: a plan and not quite enough time." While 50 years may seem like a long time in one sense, it is a blink of the eye when you consider the amazing accomplishments crammed into those years.

An important reason for the Eye Center's success is the abundance of strong leadership that has graced this program. One can only imagine what is yet to come, although you can count on accomplishments that continue to advance vision science and patient outcomes throughout the worldwide community.

As Dr. Alan Roth—our pioneering ocular pathologist—proudly says, "You ain't seen nothin' yet." ■



Left to right - Mary O'Hara, M.D., Mark J. Mannis, M.D., F.A.C.S., and Nandini Gandhi, M.D., at the passing of the torch for the Demorest Chair at the Annual Napa Symposium in 2019

Left to right - John L. Keltner, M.D. and Christopher Murphy, D.V.M., Ph.D., DACVO





THE MAKING OF A WORLD-CLASS VISION RESEARCH PROGRAM

Each of the four department chairs, despite varying professional backgrounds, recognized the importance of co-developing the clinical and research elements of the program. They collectively viewed the two disciplines as representing the ancient principle of Yin and Yang—where seemingly opposite forces may actually be complementary. And while the two disciplines are often segregated within some academic environments, Demorest, Portney, Keltner and Mannis regarded the practitioner and research areas as necessarily complementary, interconnected and interdependent.

Encouraging Collaboration

We know that wishing does not necessarily make something come true. So early on, clinicians and researchers were positioned literally across the hall from one another. The purpose was intentional: to make collaboration both natural and easy. The arrangement fostered closer relationships and mutual respect for what each brought to the table.

Eventually, the research labs were moved to the Davis campus to provide vision scientists with access to other scientists as well as large, shared equipment. Yet the spirit of those earlier years continues through the present day. Though interaction now requires a more concerted effort—not always a bad thing—the deeply ingrained collaborative environment continues to thrive.

As a result, the program features a distinctive reliance on interdisciplinary vision research among the School of Medicine, the School of Veterinary Medicine and the California National Primate Center. UC Davis is one of only two academic institutions in the United States featuring this unique and powerful triad.

There are now more than 30 basic scientists across the Davis campus in 15 different departments with interests directly in or tangent to the visual system. With the goal of becoming one of the world's leading vision research centers for restoring and preserving sight, research ultimately has a direct, positive impact on patient outcomes and the training of new clinicians and researchers.

It is part of the reason UC Davis is known for developing quality science and why such quality ophthalmologists and research scientists opt to join the program. It is also why the vision research group is one of the top 20 funded vision science programs in the nation.

And while gradual and continual progress has occurred, many factors are increasingly coming together in a short period of time. “I don't believe it is an exaggeration to say that we just leap-frogged every other institution in the U.S., in terms of opportunity to translate basic discovery into improvements in clinical care,” says Center for Vision Science director Paul FitzGerald, Ph.D.

Symposia Cultivate Cross-Disciplinary Interaction

The program's collaborative nature is exhibited in a variety of ways beyond everyday work. Two annual meetings sponsored by the department cross-fertilize the thinking of clinicians and basic scientists. On the clinical side, the annual Napa Symposium serves as an example of how clinicians share information. The event

Top: Zelijka Smit-McBride, Ph.D.
Middle: Ala Moshiri, M.D., Ph.D.
Bottom from left to right:
Jan Nolte, Ph.D. and
Susanna S. Park, M.D., Ph.D.

brings together ophthalmologists from across the country in an intimate setting. “This meeting focuses on providing the perfect blend of clinical pearls and the latest and greatest research and development,” says symposium course director Roma Patel, M.D. Year after year, symposium attendees agree.

And on the basic science side, the UC Davis Center for Vision Science under the direction of Paul FitzGerald, Ph.D., pulls together the broad vision science community of UC Davis, both basic scientists and clinicians. The event is held each January to celebrate scientific accomplishments of the campus.

The program includes presentations by a mix of new and senior faculty, as well as predoctoral and postdoctoral trainees. They present traditional presentations but also participate in a “datablitz,” where speakers are limited to six minutes and three slides. As Dr. FitzGerald notes, “It’s amazing how rapidly some of our colleagues can speak!”

Two keynote addresses cap the day, one clinically oriented and one more focused on basic research. Each year a different pair of the most recognized researchers in their fields are invited from across the nation to present the leading-edge research occurring in their laboratories. “The breadth and depth of vision science accomplishments presented, both from UC Davis researchers and the invited speakers, never fails to amaze,” says Dr. FitzGerald.

Core Research Group Shapes the Vision

Dr. John Keltner and Professor Emeritus Leo Chalupa led the Vision Science Research Group (VSRG), a precursor to what exists today. They, along with an exceptional group of Ph.D.s. that included John S. Werner, Paul FitzGerald, Marie E. Burns, Larry Hjelmeland, Charles E. Thirkill, Margaret Burns, Ted Reid, Andrew Ishida, Martin Wilson, Ken Britten, Barbara Chapman and Chris A. Johnson, did much to create the Think Tank model that exists today.

Faculty of what is now the Center for Vision Science (CVS) draw from 16 departments in five schools and colleges. These encompass the UC Davis School of Medicine, School of Veterinary Medicine, College of Biological Sciences and College of Engineering.

Former National Eye Institute director Dr. Paul Sieving is the latest addition to this award-winning faculty. He joins a group of rising M.D. and Ph.D. stars—Nicholas Marsh-Armstrong, Glenn Yiu, Ala Moshiri, Ravi S. Jonnal, Robert J. Zawadzki, Min Zhao, Susanna Soon-Chun Park, M.D., Ph.D., Lawrence S. Morse, M.D., Ph.D., and Anna LaTorre (UC Davis Department of Cell Biology and Human Anatomy)—who will lead the department’s next generation of research.

“It’s amazing how rapidly some of our colleagues can speak!”

Dr. FitzGerald

UC Davis-style interdisciplinary research brings about many inspiring, data-driven outcomes. These range from groundbreaking clinical studies to the establishment of the Optical Coherence



Top photo
Left to right: Paul FitzGerald, Ph.D., guest speaker, Mark J. Mannis, M.D., F.A.C.S., Nicholas Marsh-Armstrong, Ph.D., and John L. Keltner, M.D. at the annual Center for Vision Science Symposium in 2019.

Bottom photo
John L. Keltner, M.D. examining the retina at the veterinary ophthalmology Grand Rounds.

“The research led to significant discoveries as well as a \$5 million award to test approaches such as stem cells and viral vectors in primates for rescuing that genetic defect.”



August Produce Bananza — All animals at the CNPRC enjoy fresh, seasonal produce every week throughout the year. The monkeys enjoyed fresh zucchinis on a recent summer morning

Macaca mulatta ©2014 Kathy West/
California National Primate Research Center

An optical coherence tomography (OCT) image showing all the layers of the retina in a rhesus monkey, providing an unprecedented view of retinal pathology in living animals

Tomography (OCT) Reading Center, the Translational Retinal Research Laboratory, the UC Davis Eye-Pod and the newly conceived Center for Ocular Regenerative Therapy.

Another prime example is the Ocular Hypertension Treatment Study (OHTS), which is perhaps the most significant piece of glaucoma research ever conducted. It was the largest, federally funded glaucoma clinical trial in the United States, and the 1994 study continues to receive frequent quotes and references in glaucoma literature. The study was conducted with the Visual Field Reading Center (VFRC) co-developed and directed by John Keltner, M.D., and Chris Johnson, Ph.D., now at the University of Iowa.

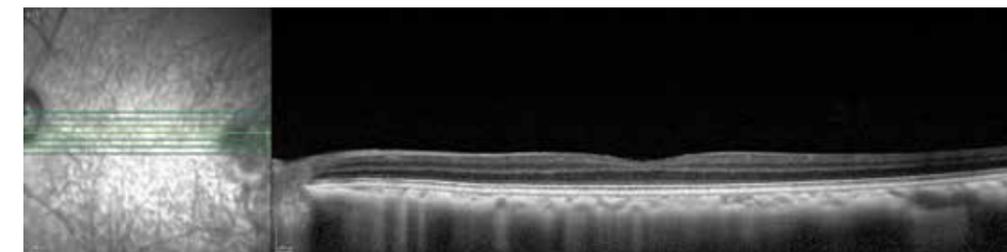
An important outcome of this study was that James D. Brandt, M.D., who had the most participants in the trial, also discovered corneal thickness as an important biomarker for glaucoma—another significant development in understanding and treating the disease.

UC Davis Features One of Seven U.S. Primate Centers

John H. Morrison, Ph.D., directs the California National Primate Center (CPRC) at UC Davis. He focuses the center’s research primarily on the neurobiology of aging and neurodegenerative disorders, particularly as they relate to cellular and synaptic organization of the cerebral cortex. With the three major eye diseases—macular degeneration, glaucoma and dry eye—in the nation all related to aging, the center recently received a major grant from the National Aging Institute to maintain a colony of older animals.

Further, the primate work provides models for vision research by dedicating space and contributing to a complete ocular phenotyping facility at the CPRC staffed by UC Davis D.V.M.s with consultation from Drs. Chris Murphy and Sara Thomasy. The research led to significant discoveries as well as a \$5 million award to test approaches such as stem cells and viral vectors in primates for rescuing that genetic defect.

Complementing this ambitious work is breakthrough macular degeneration research by Dr. Yiu, gene therapy work by Dr. Ala Moshiri and translational stem cell work by Dr. Susanna Park. Meanwhile, research targeting the use of gene editing techniques, such as CRISPR, in primates proceeds under the direction of CPRC staff scientist Alice F. Tarantal, Ph.D. (UC Davis Department of Cell Biology and Human Anatomy), through a \$9 million award. ■



BUILDING THE RESEARCH FOUNDATION

While several talented researchers helped build the program's reputation for excellence, John S. Werner, Ph.D., clearly represents a cornerstone. He came to the Eye Center after serving as a professor in the Department of Psychology and Neuroscience at the University of Colorado—Boulder. During his tenure at the university, he directed a laboratory for visual psychophysics with an emphasis on basic visual processing and changes in vision across the life span.

His impressive body of work attracted the attention of the Eye Center's John Keltner as well as Leo Chalupa from the UC Davis Department of Neurobiology, Physiology and Behavior. The two department leaders took a creative approach and co-recruited Dr. Werner to join the UC Davis team. Dr. Werner accepted their offer. "I was intrigued by the excellent vision science community and the opportunity to engage with clinical vision scientists," he says.



John S. Werner, Ph.D.

Setting High Standards

Dr. Werner's accomplishments are simply too numerous to list. Asked which projects he considers most significant, Dr. Werner points to research demonstrating the function of all three classes of cone photoreceptors by about five weeks of age, followed by decreases in their sensitivity from adolescence to old age. "I define old age as older than me," he quips. This important study further indicated that despite these changes in retinal responses with age, the visual system recalibrates itself continuously to maintain stability in color appearance throughout the life span.

Another major research project involved a collaboration with Lawrence Livermore National Laboratory and a talented cadre of postdoctoral and graduate students. He and his group imaged single photoreceptor cells in the normal and diseased retina. They also developed methods for imaging the vasculature of the retina and choroid.

Teacher, Mentor and Author

Currently holding the rank of "Distinguished Professor" at the UC Davis Eye Center, Dr. Werner has taught a wide range of courses for undergraduates, graduate students and medical residents during his career. His influence spans the globe through former students who now hold tenured positions in Asia, Europe and North America.

Dr. Werner has also published numerous research papers and co-edited books that are widely used in graduate courses. These include *Visual Perception: The Neurophysiological Foundations*, *Color Vision: Perspectives from Different Disciplines* and *The Visual Neurosciences*.

Research Past and Future

When Dr. Werner came to UC Davis, he continued the lines of research established at Colorado. But he quickly expanded to new areas, including multifocal electroretinograms (ERGs), optical coherence tomography and adaptive optics. "At that time, there was no research in these areas at UC Davis, so it required that I compete for significant NIH grant funding and develop a number of new labs. Research in all these areas has further to go, and it is gratifying that Chair Mark Mannis continues to foster research in these areas," he says.

As one would expect, Dr. Werner's prolific research brought many honors and recognitions from his peers. Among the most significant was the Alexander von Humboldt Research Award for Senior Scientists in the natural sciences, which he received at age 43. This is a prize granted in recognition of a researcher's entire achievements to date for fundamental discoveries, new theories or insights that have made an important impact on their own discipline and who are expected to continue to produce cutting-edge achievements in the future.

Considering the substantial amount of quality research Dr. Werner and his teams produced over the years, he clearly fulfilled his potential as an accomplished senior scientist. ■

Transformative Basic Science to Cure Glaucoma

Living in Sacramento feels like coming full circle to Dr. Nicholas Marsh-Armstrong—at least as far as the climate. He spent his first 14 years living with his family on the southern coast of Spain, and he sees many similarities. “We love the lifestyle and outdoor opportunities that the Sacramento region offers,” he says. “There is not only a nostalgic feeling for me, but the entire family enjoys the area’s unique lifestyle and culture.”

But his ultimate journey to Sacramento took some time. From high school on, Dr. Marsh-Armstrong’s family lived in the eastern United States, where he experienced most of his formal education. Naturally, it included a large dose of science. His love for scientific discovery began while working in labs in high school, and he is quick to admit that he can only go so long without a science fix.

So, he pursued a rigorous science education with enthusiasm and at the highest levels. His college experience began at Haverford College, a leading liberal arts college located just outside Philadelphia, where he earned a bachelor’s degree in chemistry and philosophy. He then completed his graduate studies in 1994 at Harvard University’s Department of Neuroscience, followed by postdoctoral training at the Carnegie Institution for Science Department of Embryology in Baltimore.

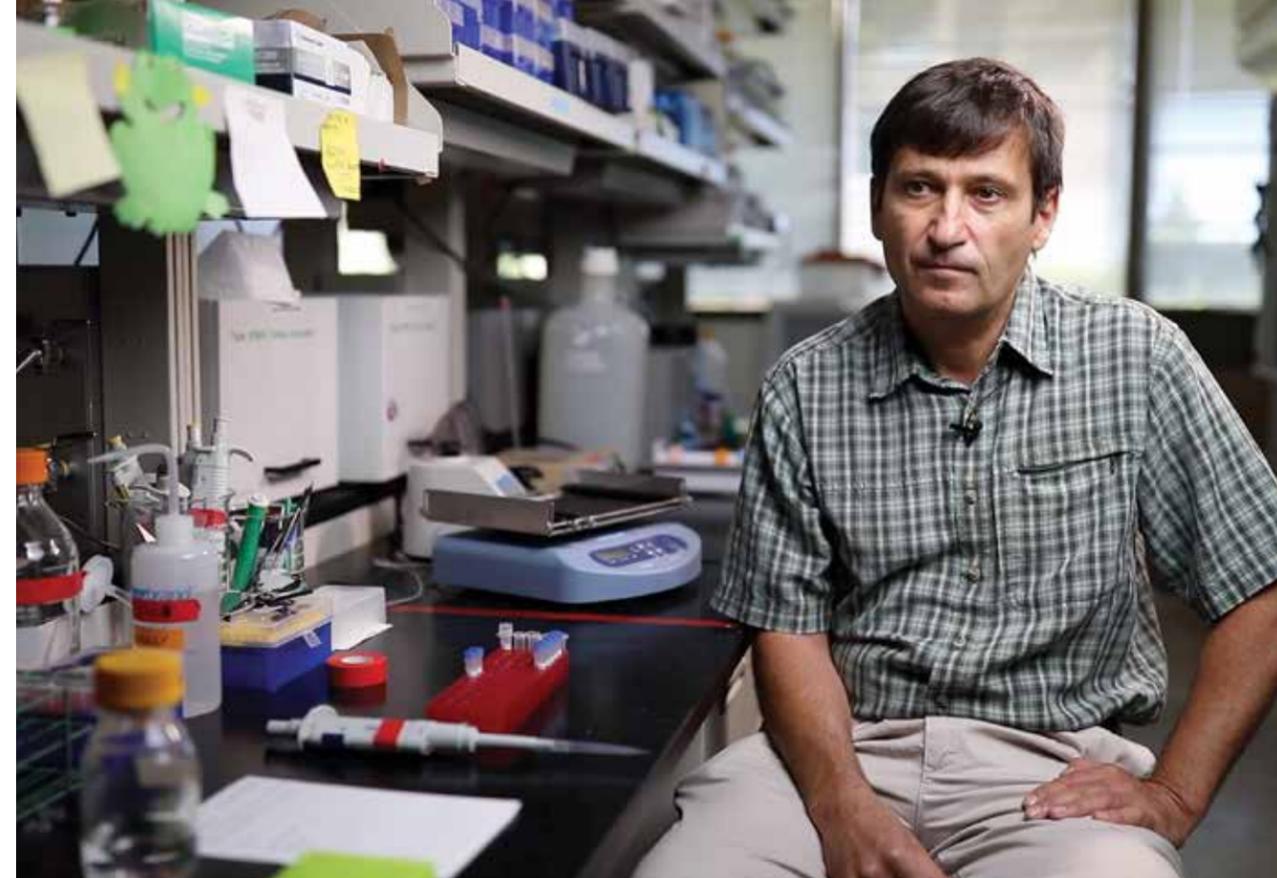


“Mr. Tschannen, who has a strong commitment to glaucoma research, supported the idea of applying basic science research to help solve the riddle of this sight-threatening disease.”

Launching a Storied Research Career

Dr. Marsh-Armstrong joined the highly ranked neuroscience department of Johns Hopkins University in 2001. He soon thereafter also joined its ophthalmology department and served as associate professor at Johns Hopkins until 2016. His glaucoma research became well recognized throughout the scientific community. It was at a highly productive, mid-career point when the UC Davis Eye Center came into the picture.

An intriguing opportunity materialized when funding from benefactor Ernest E. Tschannen and the university created a new research position. Mr. Tschannen, who has a strong commitment to



Dr. Nicholas Marsh-Armstrong



“The interaction with clinicians and basic scientists is both refreshing and highly productive.”

glaucoma research, supported the idea of applying basic science research to help solve the riddle of this sight-threatening disease.

Dr. Marsh-Armstrong moved to Davis, where his laboratory is located, and continues his research into the basic biology of glaucoma. This work includes intensive study of the optic nerve head and comprehending the unusual biology involving the mitochondria, the batteries of cells where—according to Dr. Marsh-Armstrong’s discovery—blindness precisely occurs in glaucoma. A second major interest of Dr. Marsh-Armstrong’s research is understanding how frogs and some other species can regenerate their optic nerves, a line of investigation he hopes will lead to restoring vision to those who have lost it due to glaucoma.

An Intense but Collaborative Environment

In summarizing the research environment at the UC Davis Eye Center, Dr. Marsh-Armstrong echoes the commonly heard theme of collaboration. “The interaction with clinicians and basic scientists is both refreshing and highly productive,” he says. “This is a non-insular environment. For example, my lab group meets weekly with four other vision labs to explore how our research relates to the other labs’ work.” Dr. Marsh-Armstrong believes that it is this collaborative spirit that provides the major catalyst propelling the Eye Center’s meteoric rise from under the radar to the academic forefront. ■

Christopher J. Murphy, D.V.M., Ph.D.
 Diplomate, American College of Veterinary Ophthalmologists

Let's Hear It for the Team

Anyone entering the lab of Dr. Chris Murphy better brush up on team building. Oh, you will hear him mention the influence and contributions of many outstanding UC Davis staff (team members) like Drs. Paul Russell, Mark Mannis, Sara Thomasy, Brian Leonard, Jennifer Li, Paul FitzGerald, Glenn Yiu, Kent Lloyd and Ala Moshiri, among others. But the conversation always drifts back to the team and, more specifically, team science.



As Dr. Murphy says, "The story of my research is really about the teams we have built and the missions we have undertaken. I believe my greatest strength in science lies in an ability to harness disparate talents and personalities in service to specific scientific missions. I couple this with a sense of knowing when to get out of their way."

He ensures team longevity by blurring the lines so that no one cares where anyone comes from in terms of departments or schools. He points out that this is a fundamental approach also embraced by Drs. Mannis and FitzGerald that has helped shape the evolution of vision science at UC Davis. The result is mission-driven, highly collaborative interdisciplinary research.

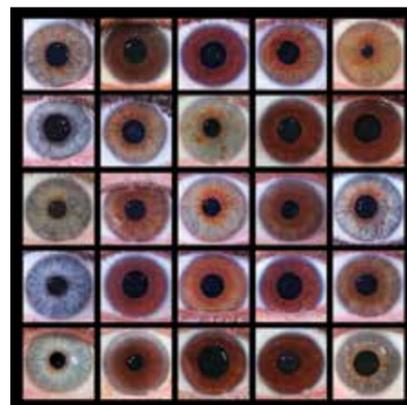
Case in point: The Murphy-Russell-Leonard-Thomasy Lab, which is a single research enterprise with four principal investigators and involves collaboration among the California National Primate Research Center, the Mouse Biology Program, and the Schools of Medicine and Veterinary Medicine. It enables researchers to study vision disorders in greater depth than ever before. The results have been noteworthy to say the least.

Travels Across the US

Reaching his current position at UC Davis involved a 48-year journey that began after high school in 1972. A native New Yorker, Dr. Murphy earned his B.S. ('78), D.V.M. ('83) and Ph.D. ('84) degrees at Cornell University. While attending Cornell, Dr. Murphy also met his wife, Joanne Paul-Murphy, D.V.M., a professor of companion animal and pet exotic medicine at the UC Davis School of Veterinary Medicine. Their educations and career paths have been forever intertwined (he insists she is the smart one), with each making distinctive professional marks.



Left to right:
 Brian Leonard, D.V.M., Ph.D., DACVO
 Paul Russell, Ph.D. (emeritus)
 Sara Thomasy, D.V.M., Ph.D., DACVO
 Christopher Murphy, D.V.M., Ph.D., DACVO



The irises of the veterinary ophthalmology research team members.
 Murphy-Russell-Leonard-Thomasy Lab

"The story of my research is really about the teams we have built and the missions we have undertaken."

Dr. Christopher J. Murphy

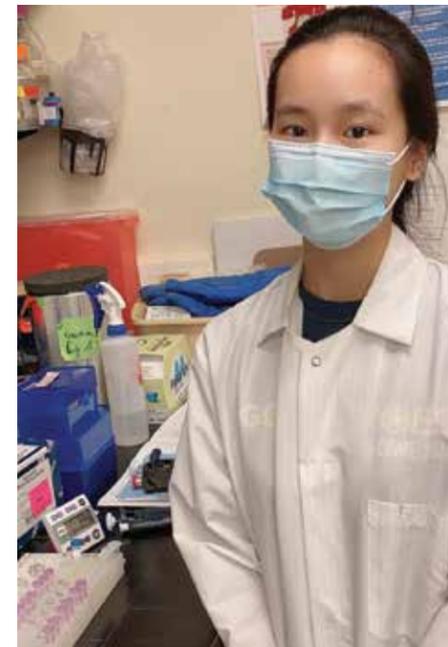


He left New York for California to undertake his residency training in comparative ophthalmology at the School of Veterinary Medicine, finishing in 1987. He then became the first cornea fellow of Dr. Mark Mannis, who was then a young assistant professor. To his knowledge, Dr. Murphy remains the only member of the veterinary profession to have completed a formal cornea fellowship. He then became a research assistant professor in the UC Davis Department of Ophthalmology & Vision Science, working with Drs. Mark Mannis and Ted Reid, while seeing veterinary ophthalmology patients two days a week in private specialty practice.

He was lured away to join the faculty at the University of Wisconsin-Madison in 1991, where he rose through the ranks to full professorship. During this time, he established a 25-person lab at the university, obtained durable extramural funding and began focusing on using engineering principles to address fundamental issues in biology and vision science.

Dr. Murphy returned to UC Davis in 2009, along with Dr. Russell, and was tasked with forming a solid interdisciplinary research enterprise and lending his expertise in entrepreneurial activities to the campus culture (he co-founded four companies). The entrepreneurial, collaborative environment at UC Davis provided the ideal atmosphere to thrive—and he has.

As Dr. Murphy observes, "The culture was here. The intentions were here. The continuity of engagement between the ophthalmology programs at the schools of medicine and veterinary medicine was here. The Murphy-Russell-Leonard-Thomasy Lab has simply helped some elements mature and has contributed to the collaborative culture that is a signature feature of the vision science research environment at UC Davis." Go team! ■



Research scholarship recipient Tzu-Ni Sin

◀ The Dept of Ophthalmology has granted Tzu-Ni Sin a summer undergraduate research scholarship to conduct research in Dr. Glenn Yiu's laboratory. Tzu-Ni is a junior at UC Davis and interested in pursuing a career in medicine and biology. She will be participating in cutting-edge studies using CRISPR-based gene editing technology as a potential treatment for wet macular degeneration.

EDUCATION

EDUCATION EYE CENTER STYLE

The importance of education and training at medical schools is a given. And the UC Davis Eye Center is no exception. Part of the department's core mission is teaching: to develop young, bright minds—including medical students, residents and subspecialty fellows—in the field of ophthalmology for the future of our profession and the good of our patients.

Residents, having completed medical school a year prior and an internship year in medicine, surgery or pediatrics, enter residency training with plenty of enthusiasm but relatively little or no knowledge about eye disease or surgery. Jeffrey J. Caspar, M.D., who served as program director for the residency for almost two decades, deserves much of the credit for building the program to its current status. He says, "The way the faculty works very closely with the residents, we really become a part of their practicing rather than viewing them as just residents who are here to do work."

Creating Educational Excellence

One of the country's longest serving residency directors in the nation, Dr. Caspar undertook a complete redesign of the residency training curriculum during his tenure as program director. The program emerged as a national leader in surgical training, pioneering earlier surgical exposure and a stepwise approach to attaining surgical skills. Dr. Caspar's work as program director passed to Nandini Gandhi, M.D., the Byron Demorest Chair in Pediatric



Jeffrey J. Caspar, M.D., performing surgery and teaching students

Ophthalmology. Dr. Gandhi, a dedicated clinician-educator, has moved the program to yet the next level, building on the long investment of Jeffrey Caspar.

In 2014, the department established the Lanie Albrecht Microsurgical Training Laboratory. This leading edge, seven-station surgical lab serves as a surgical training center for UC Davis Eye Center residents and fellows, as well as veterinary eye residents. In the operating room, the addition of laser cataract surgery made the Eye Center one of the few

residency programs in the nation to offer this training.

The concept of residency training extended well beyond the campus. Jeffrey Caspar introduced international opportunities as well. One was through the Ispahani Islamia Eye Institute and Hospital in Dhaka, Bangladesh. The second was through an association with Liga International to provide cataract surgery to the poor in San Blas, Sinaloa, Mexico, in conjunction with volunteer clinical faculty. These opportunities provided

Top - Teaching in the Lanie Albrecht Microsurgical Lab; Nathan Gebhard, M.D., with volunteer clinical faculty J.P. Perlman, M.D.

Bottom - Jefferson Berryman, M.D., performing an eye exam on a horse at the UC Davis Veterinary Medicine Hospital

residents with valuable hands-on experience while also allowing them to plant the seeds of service that permeate the Eye Center's culture.

Throughout the program-building process, our two program directors have received accolades from the residents for their instructional prowess.

Working in concert with Dr. Gandhi, Dr. Jennifer Li, director of the cornea service, has devised a comprehensive lecture series that covers all the subspecialties in ophthalmology as well as an introduction to the basic sciences. Every Friday morning is devoted to clinical case discussions, instructional sessions in optics and refraction, and lectures in the various subspecialty areas.

Reaching Out to the Medical Students

Medical school curricula do not allow much time for exposure to ophthalmology, but students are instructed in basic examination techniques, and for those whose interest is piqued, there are opportunities for further exploration of our field. Dr. Annie Baik, Instructor of Record in ophthalmology for the medical students, stewards our students through their basic and advance rotations. She also serves as adviser for the Special Interest Group in ophthalmology and ensures that students who undertake clinical rotations in the Eye Center have a productive and worthwhile experience.

The Community-based Difference

Medical schools have their individual philosophies and traditions, and that's where the UC Davis Eye Center stands apart. The difference begins with

the program's well-documented community founding under the chairmanship of Byron Demorest, M.D. Volunteer ophthalmologists gave—and continue to give—their time to train residents. The instructors' grounding in community practice and life experience provide a unique flavor to the training program.

According to Vice Chair James Brandt, M.D., "All of the faculty are experienced surgical teachers—surgical mentors. And cases don't go to the operating room without a lot of thought about how we are going to bring this resident to the next level."

Volunteer ophthalmologists—who complement the widely respected, full-time faculty—continue to play an important

role. These volunteers make the training very special by providing residents with the opportunity to interact with practicing community ophthalmologists. Volunteer clinical faculty member Tyrone Glover, M.D., says this about the volunteers: "We just want to make sure that the residents are well trained. There is a commitment and a love for teaching. It's a responsibility."

The bottom line is that the access residents have to each faculty member is unusually direct. The relationship with the community practitioners also remains very strong. We can thank the unique vision of founding chair Byron Demorest for that and all the faculty for embracing that wisdom. ■



Jeffrey J. Caspar, M.D. teaching students

Community Spotlight:

Orbis Experience Provides Training Beyond the Campus

Orbis is an international nonprofit organization founded to address a lack of eye care and ophthalmic teaching in developing nations where preventable blindness is widespread. Orbis began in the 1980s with the world's first Flying Eye Hospital; it has expanded over the years to encompass a global footprint of long-term, country-specific programs as well as world-leading tele-education and telemedicine.

The UC Davis Eye Center has been an Orbis partner for more than a decade, first under the leadership of Mary O'Hara, M.D., who traveled to Wuhan, China, in 2006. She later handed the torch to current leader James D. Brandt, M.D., director of the Glaucoma Service and vice-chair for International Programs and New Technology. Dr. Brandt has a

particular interest in the medical and surgical management of pediatric glaucoma.

As Dr. Brandt points out, "Pediatric glaucoma is a major focus because there is a severe shortage of ophthalmologists in developing countries trained in treating this sight-threatening disease. Without treatment, most of these children go blind."

Dr. Brandt and his traveling band of UC Davis Eye Center faculty residents and fellows have made one- and two-week missions to countries like Nepal, Ethiopia, Zambia, Peru, El Salvador, Cameroon, Vietnam, Indonesia and the Republic of Ghana. Trips have included Flying Eye Hospital missions as well as longer, hospital-based training with one or two trainees. The team has performed as many as



20 pediatric surgeries in less than a week.

"Our participation in Orbis has blossomed into a global footprint for the UC Davis Eye Center and something unique for our trainees," says Dr. Brandt. He also points out that residents' commitments often extend beyond their initial Orbis experience.

For example, Dr. Nathaniel Gebhard, who learned fluent Mongolian as a Mormon missionary, returned to the region with the Orbis team to give ophthalmology lectures in Mongolian. Recently graduated resident Dr. Sophia Fang accompanied the Orbis team in Peru in her senior year. She is now completing a two-year fellowship in pediatric and global ophthalmology and plans a career in the field.

Left to right:
James D. Brandt, M.D.
Mark J. Mannis, M.D., F.A.C.S.
Mazen Choulakian, M.D.
Edie DeNiro, M.D.
Susanna Park, MD, Ph.D.



EDUCATION

50 YEAR Anniversary Milestones



- 1966** UC Davis School of Medicine is founded.
- 1969/70** UC Davis Eye Center opens with Byron Demorest, M.D., as founding chair; ophthalmology becomes the university's first residency program.
- 1971** Gerald L. Portney, M.D., appointed the first full-time department chair and attracts John Keltner, M.D., Alan M. Roth, M.D., and George O. Waring, M.D., F.A.C.S., FRCOphth.
- 1977** John Keltner, M.D., becomes the third chairman and serves a distinguished 26 years.
- 1977** First Annual UC Davis Eye Center Symposium begins nationally recognized clinical meeting.
- 1977-89** Substantial faculty growth including the addition of James D. Brandt, M.D., Margaret S. Burns, M.D., Phillip H. Choo, M.D., Paul FitzGerald, Ph.D., Leonard M. Hjelmeland, Ph.D., Andrew T. Ishida, Ph.D., Chris A. Johnson, Ph.D., Maurice Landers, M.D., Mark J. Mannis, M.D., F.A.C.S., Linda A. Margulies, M.D., Lawrence S. Morse, M.D., Ph.D., Ted Reid, Ph.D., and Ivan R. Schwab, M.D., F.A.C.S.
- 1985** Byron Demorest, M.D., serves as president of the American Academy of Ophthalmology.
- 1989** Alhambra Plaza facility opens to further serve the Sacramento region.
- 1989** First grand rounds that include ophthalmology and veterinary ophthalmology residents.
- 1990** The cornea fellowship is established.

- 1992-93** John Keltner, M.D., serves as president of the Association of University Professors (AUPO).
- 1994** Visual Field Reading Center (VCRC) is established.
- 1997** John Keltner, M.D., serves as chairman of the American Board of Ophthalmology.
- 1999** Support for campus-wide infrastructure comes from a National Eye Institute grant and a Vision Research Core Grant initially under Leo Chalupa and later John Werner.
- 2000** John Werner, Ph.D., joins the UC Davis Eye Center and that same year receives a Jules and Doris Stein Professorship Award from Research to Prevent Blindness (RPB).
- 2000** Leo M. Chalupa, Ph.D.'s joint appointment in the Department of Ophthalmology begins. He and John Keltner form the Vision Science Research Group (VSRG) to bring together faculty from both sides of the causeway.
- 2003** Mark J. Mannis, M.D., F.A.C.S., is named the Eye Center's fourth chairman.
- 2005** Further support for campus-wide vision science education comes from a National Eye Institute grant for training graduate students and postdoctoral researchers. The program is now at the Center for Neuroscience under Marie Burns, Ph.D.
- 2005** The first publication on AO-OCT by R.J. Zawadzki, J.S. Werner, et al., appears in Optics Express, 13, and makes the journal's list of top cited papers.

- 2008** Mark Mannis, M.D., F.A.C.S., serves as president of the Cornea Society through 2010.
- 2009** Chair Mark J. Mannis initiates a series of leading vision scientist hires, beginning with Christopher J. Murphy, D.V.M., Ph.D., and Edward Pugh, Jr., Ph.D., later followed by Nicholas Marsh-Armstrong, Ph.D. (2016), Sara Thomasy, D.V.M., Ph.D. (2017), and Paul A. Sieving, M.D., Ph.D.
- 2011** AO-OCT technology for the measurement of cellular function in the living human retina is developed by Professor Werner and Dr. Zawadzki.
- 2012** Alumnus of the Year Award presented to Michael J. Schermer, M.D.
- 2013** Alumnus of the Year Award presented to Neil E. Kelly, M.D.
- 2014** Orbis International and the UC Davis School of Medicine establish a long-term memorandum of cooperation to bring the expertise of UC Davis faculty and staff to Orbis' global mission.
- 2014** The Lanic Albrecht Microsurgical Training Laboratory is established as a leading edge, seven-station surgical lab.
- 2014** Alumnus of the Year Award presented to Cynthia A. Toth, M.D.
- 2014** Fosse Endowed Chair in Vision Science Research currently held by Mark Mannis is established and becomes active in July.

- 2016** Alumnus of the Year Award presented to Richard Lewis, MD.
- 2016** Ernest Tschannen makes historic \$38.5 million cumulative gift to fund the Ernest E. Tschannen Eye Institute.
- 2016** Barbara Fingerhut, Jim and Mary Jo Streng, Alan Roth and Dr. Michael and Shelley Schermer, the family of Claire Burns and Dr. Robert and Sonia Miller make gifts to fund special features of the Ernest E. Tschannen Eye Institute.
- 2017** Alumnus of the Year Award presented to Linda Margulies, MD.
- 2017** The Eye Center receives Certificate of Excellence from MES Vision California based on feedback from patients who rated their care as excellent in all surveyed categories.
- 2017** Dr. Neil and M.J. Kelly fund the Neil and M.J. Kelly Presidential Endowed Chair in Vitreoretinal Research to be held by Paul A. Sieving, M.D., Ph.D.
- 2018** Alumnus of the Year Award presented to Robert Wendel, MD.
- 2019** Paul A. Sieving, M.D., Ph.D., former director of the National Eye Institute, joins the Eye Center to assume the Neil and M.J. Kelly Presidential Endowed Chair in Vitreoretinal Research.
- 2019** Alumnus of the Year Award presented to Robert Miller, MD.





Jefferson Berryman, M.D.,
and Roma Patel, M.D., MBA,
at the Lanie Albrecht Foundation
Microsurgery Training Laboratory

PHILANTHROPY

DONORS BOND COMMUNITIES AND THE EYE CENTER

Those who work within the Eye Center are acutely aware of the medical advancements that deliver positive patient outcomes. Yet the research path to those outcomes is not always predictable. We have witnessed what initially seems like an audacious idea culminate in a therapeutic miracle.

The truth is that medical advancements require strong doses of imagination and knowledge and considerable scientific labor. They also require the financial support of our communities—patients, faculty, alumni, foundations, corporations and individuals. In fact, the many research and treatment successes of the Eye Center rest squarely on the ability of our communities to unite in supporting the center’s mission.

Donor Relationships Evolve Over Time

Oftentimes, giving is the result of a donor’s journey. One such example is the \$38.5 million cumulative gift from Ernest Tschannen. His financial commitment provided startup funding for the Ernest E. Tschannen Eye Institute. This incredibly generous gift set a new standard of giving at the Eye Center, in addition to placing Mr. Tschannen on the 2017 Forbes List of America’s Top 50 Givers. Yet that is only part of the story.

The fascinating narrative begins when the Swiss-born Tschannen migrated to Canada and then to the United States before settling in Sacramento. An engineer by training, he proved to be an equally astute businessperson who established a successful nationwide property development and management company.

“Ernest Tschannen is a man who understands how fortunate he has been in life and wants to turn that good fortune into something for others. Whenever we are together, the conversation always turns to what he can do to help people regain vision.” Mark Mannis



Left to right - Former Mayor Kevin Johnson, Julie Freischlag, Ernest E. Tschannen, and Mark J. Mannis, M.D., F.A.C.S.

When Mr. Tschannen developed vision-threatening eye disease later in life, he was referred to the Eye Center’s Michele C. Lim, M.D., a glaucoma specialist who now serves as vice chair and medical director. Grateful for the surgery that preserved his sight, Ernest responded with what he describes as a modest gift to the Eye Center. The relationship blossomed as he learned more about the center’s remarkable work. And his growing commitment over the years eventually resulted in the significant seed money for the new institute.

As Chair Mark Mannis says, “Ernest Tschannen is a man who understands how fortunate he has been in life and wants to turn that good fortune into something for others. Whenever we are together, the conversation always turns to what he can do to help people regain vision.”

Now, that may seem like the end of a wonderful story, but it is really only the beginning. True to form, the Tschannen gift inspired other donations that will help the Eye Center achieve new heights of patient care.

Loyal backers from Barbara Fingerut, the Burns family, and Jim and Mary Jo Streng to Alan Roth, Michael and Shelley Schermer, and Robert and Sonia Miller have contributed to funding important features of the new institute. They are joined by many other donors who cumulatively enabled this vital project along with many other initiatives related to advancing the Eye Center.

While we often bring the Ernest Tschannen story to the forefront, many other people have made significant financial contributions over the Eye Center’s 50-year history. These gifts have enabled important research and funded vital chair positions and numerous other projects. We invite you to view a sampling of these gifts in the Milestones section. And to anyone who has ever made a donation to the Eye Center, we extend our heartfelt thanks. You have made a real difference in people’s lives.

Mapping Your Donor Journey

For all the strides we have made together in eradicating sight-threatening eye disease, there is still much to accomplish. Fully funding the Ernest E. Tschannen Eye Institute is a core development objective. Chair Mark Mannis has also identified funding a Center for Ocular Regenerative Therapy (CORT) as a priority, in addition to endowing faculty chairs and professorships. And as you might imagine, there are a number of other important, potentially life-altering research initiatives that require support.

Guiding Medical Students Toward Ophthalmology

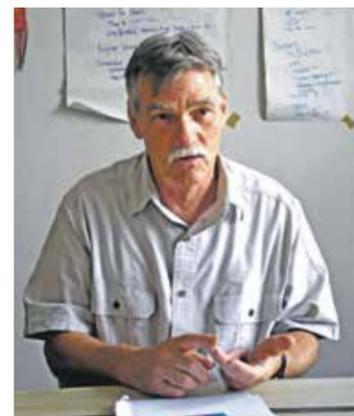
Advancing the Eye Center’s mission comes in many forms, including attracting the most promising medical students to ophthalmology. Ann Kohl embraced this challenge by funding the J. William Kohl, M.D., Summer Scholarship for Medical Students in memory of her husband, Bill Kohl. Dr. Kohl was a founding member of the department and community ophthalmologist who was passionate about providing exposure to ophthalmology for medical students.

This unique opportunity provides a stipend of \$2,500 for students undertaking mentored research in the vision sciences. Four scholarships are available each summer.

Associated with this program is the J. William Kohl Research Travel Grant, which provides a \$1,200 stipend per student. The travel grant helps defray the cost of travel to national ophthalmology conferences for the purpose of presenting the research developed during the summer. ■

“According to the CDC, an estimated 93 million adults in the United States are at high risk for serious vision loss, but only half visited an eye doctor in the past 12 months. I believe that everyone has a right to health care and that includes access to eye care services. UC Davis Eye Center not only strives to make the highest quality vision care accessible to those in need, but cutting edge vision research is making great advances towards ending unnecessary blindness and visual impairment. That earnest desire to provide eye care services and research for our community and the world is what inspires me to serve as a donor and volunteer for the UC Davis Eye Center”.

Jack Blanks



Jack Blanks, grateful patient and volunteer



Architectural renderings for the Tschannen Eye Institute



PHILANTHROPY



ADVOCATING AND SUPPORTING EYE HEALTH IN OUR COMMUNITIES

Community is a key part of the code that determines the characteristics of the entity known as the UC Davis Eye Center. In short, community is part of our DNA. And what began as a venture of the collaborative spirit between local ophthalmologists and academics has blossomed in countless ways that positively impact patients and communities.

The UC Davis Eye Center faculty and alumni have a rich history of reaching out to poor, underserved parts of the worldwide community.

In fact, one of the most important outcomes is that we now define community as going well beyond the Sacramento region. While we maintain and expand strong local partnerships, our faculty, staff and many distinguished alumni also participate in sight-saving initiatives worldwide.

Partnering to Found the Local Eye Bank

Recognizing a need, the Northern California Lions Sight Association, the Junior League of Sacramento and the UC Davis Department of Ophthalmology founded the Sacramento Valley Eye Bank—later named the Lions Eye & Tissue Bank—that is now part of Sierra Donor Services. This well-respected organization oversees organ, eye and tissue donations, as well as their fair and ethical distribution.



Jeffrey J. Caspar, M.D., providing community outreach with Orbis

UC Davis transferred its donation program in 1996 to DCI Inc. of Nashville, Tennessee, changing the name to Sierra Eye and Tissue Donor Services. The organization continues to focus on donors, donor families and the lives of those impacted, being a stable community member and putting patients first. We remain active participants.

The Department of Ophthalmology also works hand in hand with our local resources such as the Society for the Blind. Pediatric ophthalmologists at the Eye Center appreciate and utilize the expanded pediatric services that include parent support groups and children's Braille classes. The department chair serves on the Society's Board of Directors, representing the UC Davis Health System with this important service provider.

Since the Eye Center treats patients with the most severe eye diseases, Dr. Mark Mannis sees the partnership as a natural one, bringing together medical and surgical ophthalmologic services with optometry and visual rehabilitation.

Making a Global Presence

The UC Davis Eye Center faculty and alumni have a rich history of reaching out to poor, underserved parts of the worldwide community. They spend rewarding weeks helping to address vision-threatening, treatable diseases that plague many communities, both local and international. These programs are filled with direct patient care and clinical teaching to local ophthalmologists.

COMMUNITY

Eye Center international outreach teams, partnering with Orbis International and other organizations, have traveled to Peru, Ethiopia, Vietnam, El Salvador, India, Ghana and many other countries. Each trip makes a lasting impact on the communities they visit by ensuring that there is a transfer of skills to local physicians in those countries. The inter-physician relationships that developed have stimulated ongoing exchanges of information and expertise between UC Davis faculty and local trainees.

For example, UC Davis participants in the Ethiopian trip witnessed patients make exhausting six-day walks in hopes



James D. Brandt, M.D., providing community outreach with Orbis

In addition, members of the faculty partner with members of our practice community twice a year in expeditions to Sinaloa, Mexico, to provide cataract and pterygium surgeries to communities where these sight-restoring surgeries are not available.

Whether near or far, Eye Center faculty, staff and alumni continue to address unmet needs. Our pride in each person's work is immense. We look forward to the next 50 years of sharing stories of making a difference in communities both down the road and across the globe. ■

of having their vision restored. Four surgeons screened hundreds of patients and performed numerous cataract surgeries, glaucoma filtering procedures and corneal transplants. Most importantly, the Eye Center team left valuable knowledge and tools for local ophthalmologists to continue improving patient outcomes.



Reaching Out to Neighboring Communities



UC Davis Eye Center faculty, medical students, fellows and residents participate in Sacramento's Paul Hom Asian Clinic, which is the oldest existing medical clinic in the United States serving the Asian population. It is a student-run, nonprofit organization that started in 1971 when a group of UC Davis medical students, led by Paul Hom, M.D., held meetings with a group of activist undergraduate students from the California State University of Sacramento in response to the need to improve health care for elderly Asians of Sacramento. The students saw that many elderly Asians, as well as newer immigrant families, were struggling to obtain adequate health care. Socioeconomic and language barriers were the issues, and the students decided to start a free clinic targeting this problem. Currently, the clinic is directed by Dr. Ronald Jan, an extremely dedicated vascular surgeon who practices in the Sacramento community.



UC Davis undergraduate medical students are the heart and soul of the Paul Hom Asian Clinic. The undergraduates serve as program administrators and interpreters, and the medical students provide the clinic work. Undergraduate volunteers must complete a rigorous application process that includes participating in a mock patient encounter. The students must translate the visit spontaneously in their chosen Asian language to demonstrate fluency and knowledge of medical terminology. Languages spoken at the Paul Hom Asian Clinic

include Mandarin, Cantonese, Vietnamese, Hmong and others. When undergraduate students pass the interview, they are called "patient advocates."

The UC Davis medical students provide the clinical help and gain hands-on experience and education in conducting ophthalmologic exams, which is priceless since ophthalmology is no longer part of the core medical school curriculum. At the same time, patients are grateful for the free medical care, referrals and help with navigating the health-care system in their own language.

The UC Davis Eye Center's Michele C. Lim, M.D., and Glenn Y. Yiu, M.D., serve as co-directors of ophthalmology services for the clinic. The organization holds three eye clinics per year, plus an eye screening event at the Paul Hom Annual Health Fair held each fall on the UC Davis campus. "You don't necessarily need to travel internationally to help an underserved population," says Dr. Lim. "People in our own communities need our help."

The Eye Center also participates in the Shifa Community Clinic. This student-run, nonprofit organization mainly serves non-English-speaking persons with Middle Eastern origins. Its volunteers understand and respect the beliefs of its mainly Muslim patients and provide translation services in a variety of languages. Additionally, UC Davis Eye Center volunteers affiliate with a free community clinic in Eden Township as well as a clinic targeting low-income Hispanics.

Serving the Community During the Coronavirus Crisis

The COVID-19 pandemic has posed extraordinary health-care challenges to communities, including eye care patients in the Sacramento area. Many private practices closed because they simply did not have the resources—such as personal protective equipment—to treat patients safely. That left large medical centers like UC Davis Health to pick up the slack.

The Eye Center immediately devised a plan to protect patients and medical personnel by offering alternatives to in-person visits. All non-urgent appointments were cancelled and rescheduled at a later date when more clarity on the pandemic's duration became available. This protected patients and medical staff while freeing up availability for urgent needs.

Then, the department set up video visits with patients to address several kinds of needs: (1) patients with non-urgent, external conditions such as redness or swelling of the eye; (2) patients with suspected viral conjunctivitis, or "pink eye"; (3) neuro-ophthalmology patients; and (4) review of recent testing.

In addition to outpatient clinical services, the Eye Center has continued to provide high-level, specialized trauma care at the UC Davis Medical Center. Throughout the crisis, the UC Davis Health Eye Center remained a part of the community that eye patients could count on, just as they always have. And to quote Medical Director Michele Lim, M.D., "We came through this challenge in the same way we have met any challenge—together."



Michele C. Lim, M.D. providing eye patients with alternatives to office visits during the pandemic



ALUMNI IN SERVICE

Daniel G. Rich, M.D.

Saving the Sight of the Migrant and the Indigent

One of the challenges of having so many alumni dedicated to community service is recognizing their selfless work in such limited space. With that in mind, we chose the outstanding work of Daniel G. Rich, M.D., as representing the community efforts of so many Eye Center graduates.

Dr. Rich earned his medical degree from the UC Davis School of Medicine in 1986. Then, after receiving his internal medicine credentials, he completed residency training at the UC Davis Eye Center from 1988 to 1991. Dr. Rich served 10 years with Kaiser Permanente in Rancho Cordova, California, and then in Santa Rosa, California, before entering private practice at the Eye Care Institute in Santa Rosa with his business partners, Dr. Gary Barth, Dr. Robert Anderson and Dr. Bruce Abramson.

Operation Access Day

Dr. Rich and his partners are active in the Sonoma County chapter of Operation Access, a Bay Area nonprofit that connects needy people with

Operation Access Day, when doctors and other medical volunteers tackled a specific health issue plaguing the indigent people they served.

The focus of 2011's Access Day was on pterygium, a disorder that manifests as an elevated, wedge-shaped growth of tissue on the eye that starts on the white of the eye and can invade the cornea. This sometimes disfiguring, uncomfortable and sight-altering condition is more prevalent among Latinos and those with high UV exposure, thus creating a perfect storm for many migrant workers.

Following patient prequalification, Dr. Rich, his partner surgeons and his volunteer team went into action, performing 30 surgeries in one day. It is an incredibly



Community Service as a Core Value

Dr. Rich sums it up this way: "Our practice has always been community minded with a true spirit of service. Operation Access Day is fun and team-building and makes each of us feel good about serving the community and especially those members who have so little. They are always very appreciative and remind us of what we really do."

The event drew national attention. USA Today Network recognized the initiative with an Unsung Heroes Award in the health-care category, which included a \$10,000 grant to further expand this vital community work. Dan Rich has represented his training program with honor and pride. We thank him for his good work.

"Our practice has always been community minded with a true spirit of service."

the vital medical resources they desperately require. In earlier days, the organization tried to work cases on an ad hoc basis, but that proved difficult. The group instead began an annual

moving and rewarding experience for all the participants. One former colleague still travels back from Utah to participate in the yearly event.

EYE CENTER ALUMNI MAKE THEIR MARKS

Training the next generation of ophthalmologists is one of the major goals of the Eye Center. We are extraordinarily proud of the graduates of our residency and fellowship training programs. Our graduates have excelled in a broad range of professional activities, including successful private practice, domestic and international community outreach, academic ophthalmology, education and research. This is a small sampling of the accomplishments of our former trainees, who are a credit to the ophthalmic community and to the Eye Center.

ALUMNUS ACCOMPLISHMENTS



Luciene Barbosa de Sousa, M.D. A prolific clinician and researcher who has participated in more than 83 research studies and serves as professor of ophthalmology at Federal University of São Paulo, Brazil.



Richard Davidson, M.D. A professor of ophthalmology at the University of Colorado, his responsibilities include co-medical director of the Rocky Mountain Lions Eye Bank, co-director of cornea, external disease and refractive surgery fellowship, and vice-chair of clinical affairs and quality at UHealth Eye Centers. Some of his many honors include: 2008 Achievement Award, American Academy of Ophthalmology; 2010 President's Award, University of Colorado Hospital; 2012 Top Doc," U.S. News and World Report.



Enrique O. Graue-Hernández, M.D., M.Sc. Received a post-doctoral research fellowship in cornea and external disease from the UC Davis Eye Center and went on to become director of the cornea and refractive unit at Instituto de Oftalmología Fundación Conde de Valenciana, México; medical director at the Red Cross Eye Bank, Mexico City; assistant professor in cornea, refractive surgery and external disease at Universidad Nacional Autónoma de México (UNAM).



Luis Izquierdo Jr., M.D. Received the 2015 Achievement Award and the 2020 Senior Achievement Award from the American Academy of Ophthalmology®. He served as president of the Latin American Society of Cataract and Refractive Surgeons (ALACCSA-R/LASCRS) from 2016 to 2018 and president of the Peruvian Society of Ophthalmology from 2017 to 2019. In 2008, Dr. Izquierdo was honored with a medal and award from the Peruvian Congress as Gran Caballero and was elected a Peru Grand Ambassador by the Peruvian government in 2016.



Neil E. Kelly, M.D. Founded Retinal Consultants in Sacramento and conducted groundbreaking clinical work that discovered and developed macular hole surgery. He and his wife, M.J. Kelly, funded the Neil and M.J. Kelly Presidential Endowed Chair in Vitreoretinal Research now held by Dr. Paul A. Sieving. Dr. Kelly and his partner, Robert T. Wendel, M.D., were awarded the prestigious Founders Award in 1998. This annual award recognizes excellence in vitreoretinal medicine and is awarded by the American Society of Retina Specialists “to individuals who have made major contributions to the advancement of vitreoretinal surgery, treatment, research, surgical instrumentation, and patient care.” He received the 2013 Alumnus of the Year Award from the UC Davis Eye Center.



Richard A. Lewis, M.D. Former director of glaucoma at UC Davis Eye Center, he co-founded Sacramento’s Capitol City Surgery Center and Sacramento Eye Consultants. Recipient of the American Academy of Ophthalmology Honor and Senior Honor Awards for his contributions in teaching and leadership and for initiating the AAO Subspecialty Day meeting. He served as president of the American Glaucoma Society (AGS) from 2001 to 2002. Dr. Lewis later became president of the American Society of Cataract and Refractive Surgery (ASCRS) in 2014, leading the second largest ophthalmic organization in the world. He also received the 2016 Alumnus of the Year Award from the UC Davis Eye Center.



Linda J. Margulies, M.D. First female graduate of the UC Davis ophthalmology residency program in 1985. Served as president of the Association of Veterans Affairs Ophthalmologists (AVAO) from 2008 to 2010. Voted Professor of the Millennium in 2000 by graduating UC Davis ophthalmology chief residents for her teaching and role model excellence. Graduating ophthalmology residents voted her a Role Model and Mentor in 2011. Received the 2017 Alumnus of the Year Award from the UC Davis Eye Center. Graduating ophthalmology residents voted her the 2018 Clinical Teacher of the Year. Currently serves as chief of Eye Care Services, Veterans Affairs, Northern California Health Care System and professor of clinical ophthalmology, UC Davis Eye Center.



Charles “Chaz” Reilly, M.D. Served as the U.S. Air Force Surgeon General’s consultant for refractive surgery. Chairman and flight commander for the Wilford Hall Ophthalmology Department. Flight Surgeon of the Year for Air Mobility Command and received the Air Force Surgeon Excellence Award.



Michael Schermer, M.D. His service includes volunteer eye surgery in overseas medical missions to Mexico, the Philippines, China and Vietnam. Received the 2012 Alumnus of the Year Award from the UC Davis Eye Center. He was also the 2016 honoree for the Outstanding Volunteer Fundraiser Award presented by the California Capital Chapter of the Association of Fundraising Professionals (AFP). Recipient of the 2017 Distinguished Achievement Award from the UC Davis Aggie Alumni Association for his professional, personal and community service accomplishments to UC Davis and the community. Recipient of the 2018 Ernest E. Tschannen Visionary Award. The American Society for the Blind awarded Dr. Schermer the 2020 Migel Award in the volunteer category for his dedication and achievements to improve the lives of people who are blind or visually impaired.



Christian Serdahl, M.D. Served as chief of ophthalmology at both Mercy General and Sutter Hospitals in Sacramento. President of the Alta Ophthalmologic Society. Medical director of Vision Service Plan (VSP). President of the board of directors of Communicare Health Centers. Clinical professor of ophthalmology at UC Davis Medical Center. Editor of Sacramento Medicine. Served as president of the Sierra Sacramento Valley Medical Association in 2019. He has performed free cataract surgery on medical missions in Mexico, the Philippines and Fiji, and he annually takes visually impaired students to learn how to ski at Achieve Tahoe in Alpine Meadows.



Cynthia Toth, M.D., Ph.D. Pioneered both the first use of a research hand-held spectral domain OCT system for infant examination and the first intraoperative OCT-guided ophthalmic surgical system.



Evan L. Waxman, M.D., Ph.D. Recipient of the 2008 Pennsylvania Academy of Ophthalmology’s Humanitarian Service Award for establishing a mobile eye clinic that provides free examinations to uninsured patients across Western Pennsylvania. His current roles at the University of Pittsburgh School of Medicine include associate professor of ophthalmology; vice-chair, medical and resident education; director, UPMC Eye Center Mercy; director, comprehensive eye service; director, inpatient consult services. He received the 2018 Straatsma Excellence in Medical Student Education Award from the Association of University Professors of Ophthalmology (AUPO).



Denise Satterfield, M.D. A practicing pediatric ophthalmologist in Sacramento, she is one of Sacramento’s premier pediatric specialists. She served continuously on the Eye Center’s volunteer faculty throughout her career. Dr. Satterfield was also a member of the Alumni Board of the UC Davis Medical School for eight years with two terms as board president. Her emphasis has been helping students target the right career goal. She was the 2012 Byron Demorest Memorial Lecturer and received the 2019 Golden Stethoscope Award from the Sierra Sacramento Valley Medical Association.



Robert Miller, M.D. Medical director of Advanced Valley Eye Associates in Yolo County. Dr. Miller received the 2014 Humanitarian Award from the UC Davis School of Medicine for the thousands of miles he has logged to ensure vision for those in need around the world. As the head of Yolo SightSavers, he and a group of doctors travel regularly to Sinaloa, Mexico, providing cataract surgeries to patients with little or no resources. Dr. Miller has been able to focus on serving the underserved and uninsured in the local area while also creating one of the finest refractive surgery practices. Graduating ophthalmology residents voted him the Volunteer Clinical Faculty Teacher of the Year in both 2011 and 2015. He received the 2019 Alumnus of the Year Award from the UC Davis Eye Center.

LEADERSHIP



Mark J. Mannis, M.D., F.A.C.S
Fosse Endowed Chair in Vision Science Research
Distinguished Professor and Chairman, Cornea and External Disease



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Susanna S. Park, M.D., Ph.D.
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Glenn C. Yiu, M.D., Ph.D.
Associate Professor, Vitreo-retinal Surgery
Director Tele Medicine

Patient comments:

Dr. Baik has been great, both responding very promptly to concern that was raised about the pressure in my eye and explaining carefully what needed to be done and how. She has always been extremely prompt and still takes time to explain everything to me.

Dr. Kim and staff are very knowledgeable, kind and professional. It is truly appreciated.

VETERANS AFFAIRS NORTHERN CALIFORNIA HEALTH CARE SYSTEM



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Principal Optometrist



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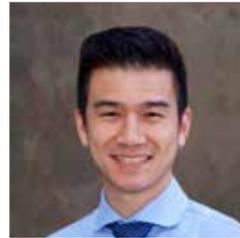
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Third Year Resident 2021



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Evan Chang, M.D.
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Edward Lee, M.D.
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Saumya Copparan, M.D.
First Year Resident 2023



Kiran Malhotra, M.D.
First Year Resident 2023



Sasha Rosen, M.D.
First Year Resident 2023



Benjamin West, M.D.
First Year Resident 2023

Patient comments:

So pleased with Dr. Brandt. The results of eye surgery show he really performed exceptionally. Very grateful for his knowledge.

Dr. Mannis and his Fellow were very polite and attentive. I felt that they cared about me and my health and did a wonderful job. It was also nice to see all of the Covid precautions for everyone's safety!

Dr. Lim and her staff are always prompt and responsive to my medical needs. She is saving my eyesight.

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Jeffrey Ma, M.D.

Assistant Professor | Comprehensive Ophthalmology

Dr. Ma is an assistant professor of ophthalmology at UC Davis Eye Center. He has a particular focus in ocular surface disease, including dry eye disease, allergic eye disease, neurotrophic keratopathy, graft-versus-host disease and others. He also specializes in complex cataract surgery, laser vision correction (LASIK/PRK), corneal diseases and corneal transplantation, including penetrating keratoplasty and endothelial keratoplasty (DSAEK/DMEK).

Dr. Ma received his undergraduate and medical education from Stanford University. He completed his residency training at Northwestern University, followed by fellowship training in cornea, external disease and refractive surgery at the Cleveland Clinic Cole Eye Institute. He is an advocate for medical student and resident education.



Parisa Emami, M.D., M.P.H.

Assistant Professor | Ophthalmology, Vitreoretinal Surgery, Uveitis

Dr Emami is a vitreoretinal surgeon and uveitis specialist at UC Davis Eye Center. She specializes in both medical and surgical management of various retinal diseases, including macular degeneration, diabetic retinopathy, retinal vascular disease, retinal degeneration, macular hole, epiretinal membrane and uveitis.

Dr. Emami's research interests include retinal imaging, pathogenesis and management of ocular inflammation/uveitis.



Lauren Guajardo, O.D.

Principal Optometrist | Ophthalmology

Dr. Guajardo appreciates her patient's unique visual needs and experiences, and she works with them for optimal success.

Dr. Guajardo enjoys providing comprehensive eye care to patients of all ages. Through her residency training, she has developed advanced patient management skills in the care of individuals with visual problems, ocular disease and ocular manifestations of systemic disease.

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Construction has begun on the Ernest E. Tschannen Eye Institute building.

To learn more about naming opportunities in the building, please visit <https://fliphtml5.com/dddac/scdv>

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