

SHINE the LIGHT

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RESEARCH UPDATE

Women leaders in eye care

Only a few decades ago, women were rarities in the medical world, both as clinicians and researchers. That has changed in major ways at many leading academic medical centers and medical schools. National Women's History Month in March was an opportunity to take stock of the progress that has been made at UCI Health and the UCI Health Gavin Herbert Eye Institute.

"When I started in medicine more than 30 years ago, women were not common in the field, and many medical schools had only had one or two women studying to become physicians," says Michael J. Stamos, MD, a leading colorectal surgeon and dean of the UCI School of Medicine. "Today, I'm proud to say that seven of our 24 department chairs are women."

At Gavin Herbert Eye Institute, the number of women clinicians and researchers also has grown steadily. They

lead divisions, conduct novel research, teach and mentor new generations of medical professionals, and volunteer their time on vision-restoring international missions.

Here we highlight five of our women leaders:



Marjan Farid, MD
Chief and director of cornea, cataract and refractive surgery

Dr. Marjan Farid divides her time between patient care, teaching, and research. As director of the cornea fellowship program, she enjoys teaching medical students, residents and cornea fellows. Her research interest is focused on corneal surgery, specifically the use of the femtosecond laser in cornea transplants.

(Continued on page 2)

Farid also performs limbal stem cell transplants to treat patients with severe ocular surface disorders. Her research continues to advance corneal transplant technologies. She leads the Scientific Programs Committee for the Eye Bank Association of America (EBAA) and the Cornea Clinical Committee of the American Society of Cataract and Refractive Surgery (ASCRS). She also serves on the board of the Sight Life Eye Bank. Her work has been published in numerous peer-reviewed journals and she is the main editor of an upcoming corneal textbook.

"Women in leadership positions in academic ophthalmology are still a rarity," Farid says. "My goal is to change that and to be an inspiration to many women who aspire to not only perform at their best, but also to guide others on a similar path."



M. Cristina Kenney, MD, PhD
Professor of ophthalmology
research

Dr. Cristina Kenney has worked as an ophthalmologist and researcher for over 20 years and has published more than 160 peer-reviewed papers. She recently stopped seeing patients so that she could devote herself to identifying molecular and genetic changes in mitochondria associated with age-related eye diseases, with a primary focus on age-related macular degeneration (AMD). She also is working to identify drugs that may help keep retinal mitochondria healthy and functional.

Along with Baruch Kuppermann, MD, PhD, Kenney trains the institute's international retinal research fellows. These retinal specialists come to Gavin Herbert Eye Institute for two years, spending about two-thirds of their time learning various aspects of research. Over the years, fellows have come from India, Nepal, India, Brazil, Argentina, Guatemala and Egypt. Many continue their research work when they return to their home countries.

"The fields of medicine and medical research have changed dramatically with much greater participation of women," Kenney says. "Today there are so many opportunities for bright, energetic women to gain the educational background and move ahead in their careers as far as they desire. It benefits us all to have people with varied and diverse backgrounds providing healthcare care and conducting research here."



Stephanie Lu, MD
Residency program director

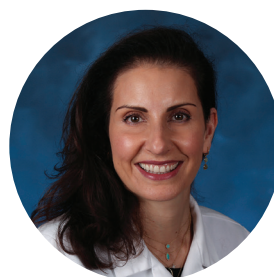
Dr. Stephanie Lu leads the ophthalmology residency program and serves as chief of ophthalmology services for the VA Long Beach Health System.

Before deciding on a career in medicine, Lu dreamed of becoming a teacher to help nurture the next generation of students. As director of the ophthalmology residency program, that's exactly what she does, passing her knowledge and skills to the next generation of ophthalmologists.

"I was fortunate enough to have great women role models as teachers and mentors," Lu says. "These people shaped my view of life. But even though there are now more women in the field of ophthalmology, few are in leadership roles, especially in academics."

Lu prizes leadership that guides others and leaves them feeling empowered and accomplished.

"My goal is to promote young women ophthalmologists to assume leadership roles — to lead not only by the head, but also by the heart — to make our world a better place," she says.



Sameh Mosaed, MD
Chief of Glaucoma Services

Dr. Sameh Mosaed divides her time between caring for patients, researching novel glaucoma treatments and teaching. She has trained dozens of ophthalmology residents and fellows over her 17 years at Gavin Herbert Eye Institute. Teaching these young doctors not only the medical skills they need but also the art of human connection is "the greatest joy and responsibility of my career," she says.

Her research has focused on minimally invasive surgery to treat glaucoma and she is among the first in the world to perform this procedure. She served as director of the American Academy of Ophthalmology's instructional course on minimally invasive glaucoma surgery (MIGS). She holds a patent for a laser imaging device to guide the surgical approach for this procedure. She has published more than 50 peer-reviewed articles in prestigious

journals and has been elected to many international and national committees, including the American Glaucoma Society's clinical care committee and the World Glaucoma Congress.

In 2017, Mosaed organized the ophthalmic division of Women for World Health, which organizes trips to perform free cataract and glaucoma surgeries in impoverished South American villages. As medical director and chief surgeon for the group, she has restored vision to hundreds of patients who were in very difficult circumstances, work she calls "the battery that charges my spirit."

Mosaed believes professional respect is earned. "When I am able to demonstrate to the women surgeons that not only can they parallel, but also exceed the achievements of their predecessors, male or female, I feel I am empowering them with the courage to do so," she says.



Dorota Skowronska-Krawczyk, PhD
Chair of the Committee of Women
in Vision Research

Dorota Skowronska-Krawczyk, PhD, studies the mechanisms of aging in such eye conditions as macular

degeneration and glaucoma.

She has received many prestigious grants and has authored many peer-reviewed publications and book chapters. She also mentors graduate students.

As founding chair of the Center for Translational Research Committee of Women in Vision Research, she is organizing discussions on the scientific and medical challenges, as well as the broader social and cultural issues facing early-career women in medicine.

"Our mission is to empower women of all backgrounds to achieve full potential in careers as researchers, clinicians and leaders, to expand the image of women in ophthalmology professions as a positive force and demonstrate the value of diversity and inclusion," Skowronska-Krawczyk says.

Faculty

Cataracts, cornea, external disease and refractive

- Marjan Farid, MD
- Sumit (Sam) Garg, MD
- Sanjay R. Kedhar, MD
- Olivia Lee, MD
- Matthew W. Wade, MD

Comprehensive ophthalmology

- Kavita K. Rao, MD

Glaucoma and cataracts

- Ken Lin, MD, PhD
- Sameh Mosaed, MD

Low vision

- Rebecca Kammer, OD, PhD

Neuro-ophthalmology

- R. Wade Crow, MD
- Lilangi Ediriwickrema, MD
- Vivek Patel, MD

Oculoplastics

- Jeremiah P. Tao, MD
- Lilangi Ediriwickrema, MD

Ophthalmic pathology

- Maria Del Valle Estopinal, MD

Pediatric ophthalmology and strabismus

- Charlotte Gore, MD
- Donny Suh, MD

Retina and vitreous

- Andrew Browne, MD, PhD
- Baruch D. Kuppermann, MD, PhD
- Stephanie Y. Lu, MD
- Mitul C. Mehta, MD
- Mohammad Riaz, MD

Uveitis

- Sanjay R. Kedhar, MD
- Olivia Lee, MD

Research

- Andrew Browne, MD, PhD
- Lbachir Benmohamed, PhD
- James V. Jester, PhD
- Tibor Juhasz, PhD
- M. Cristina Kenney, MD, PhD
- Timothy Kern, PhD
- Henry J. Klassen, MD, PhD
- Philip Kiser, PhD
- Baruch D. Kuppermann, MD, PhD
- Anthony B. Nesburn, MD – Vice Chair, Research
- Krzysztof Palczewski, PhD
- Eric Pearlman, PhD
- Magdalene Seiler, PhD
- Dorota Skowronska-Krawczyk, PhD
- Jing Yang, MD, PhD



Bringing sight-saving care to developing countries

Lean Technology Corp. knows a thing or two about visibility. The Irvine-based firm specializes in lighting airfields around the United States and abroad.

That's why the electrical engineering and technology company is supporting Gavin Herbert Eye Institute's international missions to restore sight in people who lack access to quality vision care.

Lean Technology's leadership gift will support volunteer clinical expeditions spearheaded by Dr. Sameh Mosaed, chief of glaucoma services for the UCI School of Medicine's Department of Ophthalmology.

Over the last several years, Mosaed has led a team of physicians, nurses and support staff on annual trips to remote villages in Ecuador, Peru and other developing countries to treat thousands of people with debilitating cataracts and other conditions.

Limited financial resources and the scarcity of trained ophthalmic specialists in these countries mean that many of these patients cannot find or afford care, and as a result, go completely blind. Mosaed and her colleagues restore vision with leading-edge surgical techniques at no cost to the patients.

A small company that is home to people from many different countries, Lean Technology has built lighting, navigation and power systems at more than 100 commercial and military airfields around the world. They understand and value the importance of preserving vision.

"We hope our donation can accelerate and broaden international access to the sight-saving care the Gavin Herbert Eye Institute provides to Orange County," says Carol Lean, Lean Technology's president and founder.

Gavin Herbert Eye Insitute is proud to announce that the Roger F. Steinert Endowed Chair, Ophthalmology has been completed. We are grateful to all of Steinert's friends, colleagues and grateful patients who helped us reach this important milestone.

Allergan Foundation
Ann Bajart
Anne Brownstein
CBIS Foundation
Sonya Celeste-Harris & Richard Harris
Children's Hospital of Orange County
Carol & Budge Collins
Kimberly & Glenn Cripe
Pamela & Stuart Cumming, MD
Marjan Farid, MD & Kamyar Tebyani
Foundation for Retinal Regeneration
Josephine Herbert Gleis Foundation
Melinda & Richard Hausman
G. Herbert, Inc.
Ninetta & Gavin Herbert
Herbert Family Foundation
Renee & Peter Horner
John Hovanesian
M. Cristina Kenney, MD, PhD & Tony Nesburn, MD
Jing Yang, MD, PhD & Henry Klassen, MD, PhD
Marsha Link, PhD & Bill Link, PhD
Kelly & Jim Mazzo
Betty McMicken
Martha & James Newkirk
David & Molly Pyott Foundation
Helen and Jacob Shaham Charitable Foundation
Bradford Shingleton
Joy & Scott Whitcup
Debbie & Clay Wilemon

MESSAGE FROM THE CHAIR

Normally, I would start my first message of the year with a look to our future plans for Gavin Herbert Eye Institute. But with COVID-19 infections dropping dramatically as vaccinations roll out — including at highly successful vaccine clinics run by UCI Health — I am compelled to address the bigger picture after a hard year for our region and nation.

UCI Health played an enormous role in combating this deadly pandemic. During the summer surge in cases, the average number of inpatients with COVID-19 jumped to 60 or more. By the Christmas surge, it ballooned to 180 and more. Yet the medical center still provided top-level care, even setting up a 50-bed field hospital to accommodate every patient. Every COVID-19 patient who needed an intensive-care bed had it. Everyone who needed oxygen had it.

We still delivered all necessary inpatient and outpatient care. We created safe waiting rooms with appropriate physical distancing at our medical offices. We continued to see a full roster of patients by adjusting appointments to minimize crowding.

As we move forward this year, our own Lbachir BenMohamed, PhD, is playing an important role in protecting the world's health as he and his lab team work on a pancoronavirus vaccine targeting virus structures that are slower to mutate. Such a vaccine could protect against future variants and even prevent pandemics from other coronaviruses, including the common cold and influenza strains.

I'm happy to report that Krzysztof Palczewski, PhD, leader of our Center for Translational Vision Research, has been named a Bren Professor. This is the highest award UCI can bestow on a faculty member.

We congratulate Dr. Marjan Farid on being named one of the top 100 women in ophthalmology in 2021 by the publication *The Ophthalmologist*.

Meanwhile, Gavin Herbert Eye Institute continues to grow in stature and size as we welcome five new physicians.

- Vivek Patel, MD, an internationally regarded expert in neuro-ophthalmology, joined us in late 2020 from Keck School of Medicine at USC. He is our new chief of neuro-ophthalmology.

- Olivia L. Lee, MD, comes to us from UCLA and its affiliated Doheny Eye Institute to serve as our director of anterior segment imaging. She is a leading expert in cornea issues and uveitis.

Arriving this spring are two more senior faculty members.

- Vladimir Kefalov, PhD, an electrophysiologist and retina researcher comes from Washington University in St. Louis. He will be the fifth top-ranked retina researcher to join the Center for Translational Vision Research.
- Donny W. Suh, MD, a highly respected pediatric ophthalmologist, will be joining us from the University of Nebraska and Children's Hospital & Medical Center in Omaha, Nebraska. As our chief of pediatric ophthalmology, he'll also further our relationship with CHOC, Orange County's children's hospital.

This summer, Austin Fox, MD, arrives from the University of Iowa to serve as our newest glaucoma specialist.

Summer also heralds the start of construction on the second floor of our building to expand our clinical space, which will be shared between ophthalmology and dermatology. Completion is anticipated by January 2022.

We hope the worst of the COVID-19 crisis is behind us as we strive to provide the most advanced care to our patients and continue our leading-edge vision research.



A handwritten signature in black ink that reads "Baruch D. Kuppermann". The signature is stylized and cursive.

Baruch D. Kuppermann, MD, PhD

Director, Gavin Herbert Eye Institute
Chair, Department of Ophthalmology
Steinert Endowed Professor

Children's vision advocate and researcher retires



Looking back on his years with the UCI School of Medicine and the Gavin Herbert Eye Institute, Robert W. Lingua, MD, reflects on two accomplishments that stand out.

"In 2012, two things happened that defined my time at UCI Health," says Lingua, who recently retired and moved to northern Santa Barbara County. "The first was the eye mobile; the second was my work on nystagmus."

Back then, a pediatric neurologist contacted Lingua about providing mobile eye care to underserved Orange County children. Lingua, a specialist in pediatric ophthalmology, was intrigued.

Early detection and treatment of eye problems had long been of particular importance to him because visual abilities involve the eye working with the brain.

"The brain's ability to see develops through the first 10 years of life," he says. "If eye problems are allowed to continue through that period, once vision is corrected, the brain will not be able to form a clear picture."

With an eye mobile, vision specialists could diagnose vision issues in children who might otherwise not see an eye doctor until years later.

"In 2012, the Children and Families Commission of Orange County gave us more than \$1 million to construct an eye mobile," Lingua recalls. "I had to go to a boot camp to learn how to drive this 40-foot RV."

Today, the eye mobile is still making its rounds and using photographic techniques to identify children who are at risk of developing vision problems, even kids under age 5, he says.

That same year, Lingua attended a conference that changed his view on the treatment of nystagmus, a condition that causes repetitive and uncontrolled eye movements. This often results in reduced vision and depth perception and affects balance and coordination. There, he learned about an aggressive new approach to quell the movements, which generally were not fully corrected with existing surgical techniques.

"All previous eye muscle surgeries involved detaching an eye and reattaching it in a new location so that when the muscle contracted, it moved the eye in a different way," he says.

Ophthalmologists thought it necessary to reattach the muscle to the eye or it wouldn't move. "But we found that you could remove a substantial portion of the muscle, attach it to tissue around the eye and the eye would move normally."

In 2013, he began performing the procedure — called myectomy without reattachment — on children with nystagmus and published several papers on the procedure. Despite the successes his group saw in children and adult patients, the surgery is still considered investigative.

But Lingua has seen the results. "We still are in touch with many of my early patients and that has given me the opportunity to see that they feel much better off."

Lingua hasn't made firm retirement plans but they'll certainly include continuing the work to which he's devoted his professional life.

"I may be able to contribute to the field of vision perspective and to the development of new technologies," he says, "I know if I'm not being of service to someone somewhere, it's not going to feel right."



Eyes on the road

Mike Schickerowski was legally blind for 42 of his 45 years because he suffered from repetitive and involuntary movements of his eyes. This condition, called nystagmus, often results in reduced vision and depth perception and trouble with balance and coordination.

Schickerowski could read large-print documents but the world looked fuzzy. He might see a car but couldn't tell you the make and model. Driving a car? That was a pipe dream.

Then the native of Canada learned about a surgery offered as part of a study by Robert W. Lingua, MD, at the UCI Health Gavin Herbert Eye Institute.

Called myectomy without reattachment, the surgery involves detaching certain eye muscles and reattaching them to the tissue around the eye. Although the eye institute has seen tremendous success with the procedure, it has not yet gained universal acceptance.

Schickerowski's doctors in Canada even tried to talk him out of it, pointing out that regardless of his very limited vision, he was nonetheless a successful project manager in the technology field.

"Going into it, I was the sole breadwinner for my family, and I had a lot to lose," he says.

"My family was supportive; local optometrists were not. They asked, 'Why would you do it? Does it make sense to rock the boat at this point?'

Schickerowski didn't just rock the boat; he rocked his entire world.

At first after surgery, he felt as though that was literally happening because he experienced double vision as his eye and brain readjusted.

"I walked like a drunken sailor for two or three days," he says.

He began to notice that everything looked different than it had before.

"When I saw an air conditioning vent system, I could count the vents. I wanted to count everything that I could see because I could differentiate like I never had before."

Then came an entirely new way of seeing: 3D vision.

"That was the most incredible part of it. I went to a restaurant and I had a chicken finger on a fork — it looked like a floating spaceship."

Over time, his vision has stabilized and he has realized a lifelong desire: learning to drive. Next, he bought a Corvette.

"When I drove my fancy race car to my optometrist, she was floored," says Schickerowski.

He also chose a personalized license plate to honor the person who made it all possible: LINGUA1.

UCI Health Gavin Herbert Eye Institute

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EVENTS

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Cataracts and Glaucoma

June 8, 7 p.m.

How to manage glaucoma as it relates to cataract surgery
Igor Bussel, MD

Novel technology in cataract surgery and how to prepare
Matthew Wade, MD

Aging Eyes

Sept. 14, 7 p.m.

How your eyes age
Kavita Rao, MD

How your eyes relate to illnesses of the body
Sanjay Kedhar, MD

Vision Therapies for Keratoconus

Nov. 16, 7 p.m.

Crosslinking and corneal transplantation
Marjan Farid, MD

Latest in contact lens technology
Thanh Mai, OD, FSLs



Registration is easy!
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