

SHINE the LIGHT

IN THIS ISSUE

| Story | Pg |
|-------------------------|----|
| New research hub | 1 |
| Message from the chair | 3 |
| Meet our faculty | 4 |
| Faculty spotlight | 5 |
| Thank you to our donors | 6 |
| Donor spotlight | 7 |
| Patient spotlight | 8 |
| Patient experience | 9 |
| Research spotlight | 10 |

BREAKTHROUGH THERAPIES

New research hub will open doors to medical breakthroughs

UC Irvine researchers seeking cures to blinding diseases such as age-related macular degeneration, diabetic retinopathy and glaucoma have a new reason to celebrate. The highly anticipated Falling Leaves Foundation Medical Innovation Building is expected to officially open its doors this spring, ushering in a new era of transformational vision research.

Designed specifically to foster “bench to bedside” research, the 215,000 square-foot facility will house some of the university’s most high-impact medical research labs, along with conference and meeting spaces to fuel collaboration and innovation.

The building’s entire top floor is dedicated to potentially groundbreaking vision research, housing the labs of 10 principal investigators from the UC Irvine School of Medicine’s Department of Ophthalmology and space for four more faculty members slated to arrive this year.

Bringing together vision researchers now working in five different buildings will make it easier to share highly specialized equipment, exchange ideas, host meetings and train the next generation of researchers while pursuing novel treatments for devastating eye diseases that affect millions of people globally.

“We will see an intellectual, educational energy created by the proximity of top researchers to one another,” says Krzysztof Palczewski, PhD, the Irving H. Leopold Chair of Ophthalmology and Distinguished Professor. “Everybody working in one place will create a healthy competition and motivation as we learn from and elevate each other.”

Palczewski, a world-renowned vision researcher, leads both the Center for Translational Vision Research and the Precision Genome Editing Program — two of 12 high-impact interdisciplinary programs powered by about 100 UC Irvine researchers moving into the building.



Krzysztof Palczewski, PhD, is counting the days until his research teams can move into the new medical research building.

They include internationally recognized researcher Philip Felgner, PhD, a professor of physiology & biophysics and director of the UC Irvine Vaccine Research and Development Center and the Protein Microarray Laboratory and Training Facility. His lab provides nanoparticles that are helping eye institute scientists edit genes linked to blinding diseases.

Gene-editing therapies being developed at UC Irvine to treat vision loss have potential applications anywhere in the body for a vast array of diseases caused by genetic mutations.

“Our goal with gene editing is not only to discover the fundamentals of visual systems, but also the pathology of human diseases so we can ultimately develop other relevant gene therapies,” says Palczewski. “Genome editing is going to revolutionize medicine.”

This new research home was made possible thanks to a generous \$30-million lead gift from Professor Robert Mah and Dr. Adeline Yen Mah’s Falling Leaves Foundation. It is strategically located adjacent to the Gavin Herbert Eye Institute as well as other health sciences schools and research facilities. It is also just a mile from the new UCI Health — Irvine medical complex.

To celebrate the opening of the new facility, the Gavin Herbert Eye Institute and the Center for Translational Vision Research will host an academic symposium, “Breaking Barriers: Trailblazing Innovations in Medical Research.” The event on Sept. 19, 2025, will bring three Nobel laureates to campus to discuss their scientific breakthroughs.

“Over the next decade, we envision the Falling Leaves Foundation Medical Innovation Building as a hub for revolutionary discoveries and leading advances in medical science,” says Eric J. Vilain, MD, PhD, director of the UC Irvine Institute for Clinical and Translational Science and an associate vice chancellor at the Susan & Henry Samueli College of Health Sciences.

“Ultimately, our overarching aim is to create a healthier future by fostering a collaborative research environment that brings exceptional innovations from the lab to patients around the world.”

Spring celebrations

This year marks the 50th anniversary of the Department of Ophthalmology at the University of California, Irvine. As our institution has grown in international recognition and acclaim, so has our department, which was founded when the Irvine campus was just 10 years old.

In 1975, UC Irvine School of Medicine Dean Dr. Stanley van den Noort and Gavin Herbert, founder of the Allergan pharmaceutical company, pulled off a remarkable feat. They convinced the world's leading expert on ocular pharmacology to leave his prestigious post as chair of the ophthalmology department at New York's Mount Sinai School of Medicine to come to the fledgling Irvine campus. As the founding chair of the UC Irvine Department of Ophthalmology, Dr. Irving H. Leopold laid a foundation of excellence and innovation that we have continued to build upon for the last five decades.

Today, we provide world-class vision research, teaching and unequalled patient eye care in Orange County. In 2024 alone, our UCI Health Gavin Herbert Eye Institute posted more than 95,000 patient visits and provided more 5,000 eye surgeries. This year, we will continue to expand our clinical team and facilities to treat even more patients.

Our research enterprise is thriving, as well. Today, Krzysztof Palczewski, PhD, who is the Irving H. Leopold Chair of Ophthalmology and Distinguished Professor, continues our founder's legacy of innovation. When the Falling Leaves Foundation Medical Innovation Building opens this spring across from the Gavin Herbert Eye Institute on the Irvine campus, the entire fifth floor will be dedicated to groundbreaking research at the Center for Translational Vision Research and the Genome Editing Research Program, both led by Palczewski.

Celebrations this fall will mark the opening of the medical innovation facility. Among the festivities, which serendipitously aligns with our department's 50th anniversary, will be an academic symposium featuring lectures by three Nobel laureates. This convergence of great minds will certainly set the tone for game-changing and inspired research projects expected to take place in the foundation building.

I'm also delighted to report that ophthalmology and biomedical engineering faculty member James V. Jester, PhD, the Jack H. Skirball Endowed Chair earned the title Distinguished Professor — an honor reserved for those who have achieved the highest levels of scholarship — and it is a testament to his professional longevity and research productivity. Jester's current work focuses on treating corneal thinning, astigmatism and refractive errors with a laser technique called nonlinear optical corneal collagen crosslinking. Additionally, he is researching the function of the meibomian gland to better understand its role in evaporative dry eye disease, which affects so many of our patients.

We are pleased to welcome Amy Hellem, PhD, as the new director of the National Keratoconus Foundation. Hellem, who previously served as editor-in-chief of the Review of Optometry, brings extensive experience in science communications to the national nonprofit, which is housed in our department. We extend our heartfelt gratitude to the foundation's previous director, Mary Prudden, JD, for her excellent stewardship of the organization. We wish her the best in her retirement.

Currently, we are in the final stages of recruiting two new faculty members: one in visual neurosciences, the other in genome editing. We look forward to welcoming them to our campus in the fall.

As the Department of Ophthalmology marks its anniversary, we have many visionary leaders on campus and in the community to thank for our growth. They — along with our dedicated clinicians and staff members — have created an institution that our university and our community can be proud of. Most important, we have served countless patients over the last half century who entrusted us with one of their most treasured resources: their vision. We appreciate and celebrate them all, as we look forward to our next 50 years.



Baruch D. Kuppermann

Baruch D. Kuppermann, MD, PhD

Director, UCI Health Gavin Herbert Eye Institute
Chair, Department of Ophthalmology,
UC Irvine School of Medicine

Our team

Clinical

Cataracts, cornea, external disease and refractive

Soroosh Behshad, MD, MPH

Carol Duong, OD

Marjan Farid, MD

Vice Chair, Diversity, Equity, and Inclusion

Sumit (Sam) Garg, MD

Vice Chair, Clinical Ophthalmology

Sanjay R. Kedhar, MD

Vice Chair, Clinical Research

Olivia Lee, MD

Kailey Marshall, OD

Annabelle Storch, OD

Matthew W. Wade, MD

Comprehensive ophthalmology and cataracts

Alpa Patel, MD

Glaucoma and cataracts

Austin Fox, MD

Ken Y. Lin, MD, PhD

Director, Medical Education

Sameh Mosaed, MD

Vice Chair, Faculty Development

Andrew Smith, MD

Low vision

Karen Lin, OD

Nilima Tanna, OT

Neuro-ophthalmology

R. Wade Crow, MD

Lilangi Ediriwickrema, MD

Vivek Patel, MD

Vice Chair, Academic Affairs

Samuel J. Spiegel, MD

Ocular oncology

Kapil Mishra, MD

Oculoplastics

Lilangi Ediriwickrema, MD

Seanna Grob, MD

Jeremiah Tao, MD

Ophthalmic pathology

Maria Del Valle Estopinal, MD

Optometry

Joseph Bui, OD

T. Scott Liegler, OD

Pediatric ophthalmology

Charlotte Gore, MD

Stephen B. Prepas, MD

Annabelle Storch, OD

Donny Suh, MD

Kimberly Walker, OD

Retina and vitreous

Andrew Browne, MD, PhD

Baruch D. Kuppermann, MD, PhD

Chair, Department

of Ophthalmology

Stephanie Y. Lu, MD

Vice Chair, Education

Mitul C. Mehta, MD

Kapil Mishra, MD

Mohammad Riazi, MD

Strabismus

Charlotte Gore, MD

(adults and pediatrics)

Vivek Patel, MD

(adults)

Stephen Prepas, MD
(pediatrics)

Annabelle Storch, OD
(pediatrics)

Donny Suh, MD
(adults and pediatrics)

Kimberly Walker, OD
(pediatrics)

Uveitis

Sanjay R. Kedhar, MD

Olivia Lee, MD

Research

Lbachir Benmohamed, PhD

Andrew Browne, MD, PhD

Rui Chen, PhD

James V. Jester, PhD

Tibor Juhasz, PhD

Vladimir Kefalov, PhD

Vice Chair, Research

Timothy Kern, PhD

Philip Kiser, PhD

Henry J. Klassen, MD, PhD

Baruch D. Kuppermann, MD, PhD

Audrone Lapinate, PhD

Anthony B. Nesburn, MD

Krzysztof Palczewski, PhD

Director, Center for Translational Vision Research

Eric Pearlman, PhD

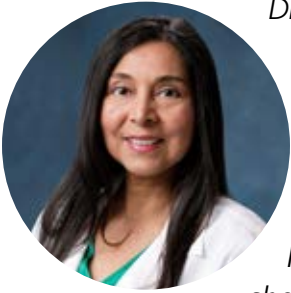
Magdelene Seiler, PhD

Dorota Skowronska-Krawczyk, PhD

Gulab Zode, PhD

Q&A with comprehensive ophthalmologist

Dr. Alpa Patel



Dr. Alpa Patel recently joined the Department of Ophthalmology as an associate professor of ophthalmology and she provides comprehensive eye care services at the UCI Health Gavin Herbert Eye Institute. For the previous 18 years,

she worked in private practice and trained UCLA ophthalmology residents as an assistant professor at the VA Greater Los Angeles Healthcare System.

Q. What is a comprehensive ophthalmologist and who should see one?

A comprehensive ophthalmologist is your go-to eye doctor. We manage most eye conditions and can refer patients to ophthalmic subspecialists when needed. The American Academy of Ophthalmology recommends patients under age 50 have a comprehensive eye exam every other year until age 50, then annually thereafter.

However, patients with diabetes or a family history of glaucoma or other eye disease may want to start annual eye exams at a younger age. It surprises people how many medical conditions have ocular manifestations. Age-related eye diseases may begin at about age 50. These conditions are easier to manage and treat when they are identified and addressed early in the disease course.

Q. Why did you choose comprehensive ophthalmology?

As a little girl, I had a lot of eye infections so I often saw an ophthalmologist, which sparked my interest in eyes. When I became a doctor and went through ophthalmology residency training, I enjoyed all the ophthalmic subspecialties and didn't want to be limited to just one. With comprehensive ophthalmology, I love the variety of conditions I can treat and know that I can easily collaborate with experts in other subspecialties here at UCI Health.

Q. What advanced technologies do you use for cataract and glaucoma surgery?

Now is a very exciting time in ophthalmology: 2024 marked the 75th anniversary of the first intraocular lens (IOL) implantation during cataract surgery. Since then, great strides have been made to improve the efficiency,

safety and outcomes of these procedures. Standard IOLs can only correct for distance vision. More advanced technologies, such as a specialized laser for key parts of the operation, make the procedure more precise and less traumatic to the eye.

In addition, during cataract surgery, we can implant a toric lens, which reduces pre-existing astigmatism for sharper vision, or presbyopia-mitigating IOLs, which correct for reading (near vision) or computer glasses (intermediate vision). We also have IOLs that correct for astigmatism and presbyopia at the same time! There's never been a better time to have cataract surgery because our accuracy and advanced technologies allow us to meet our patients visual goals.

Similarly, it wasn't so long ago that we could only treat glaucoma with eye drops or perform invasive surgeries. Now we can implant micro shunts in the angle of the eye, which prove very effective at lowering pressure within the eye, alleviating the need for daily eye drops. These procedures are often performed in conjunction with cataract surgery. I have had patients who underwent laser-assisted cataract surgery, toric- and presbyopia-mitigating IOL implants and a micro shunt — all as part of a single operation!

Q. What did you enjoy about treating veterans?

I love our veterans. The sacrifices they have made are incredible and they are a wonderful group of people. My patients had a variety of ophthalmic complaints and diseases, some of which may have been a consequence of their service. I truly appreciated the opportunity to help them to the best of my ability.

Q. What stands out to you about the eye institute so far?

The collaborative culture is amazing! I just had a young patient referred to me by a community eye care facility. I determined that she needed a neuro-ophthalmologist. I was able to send a message with my exam notes to my neuro-ophthalmology colleague and we were able to collaborate on her care right away. It was great to get her such quick access to an expert.

Thank you to our donors

We extend our heartfelt gratitude to our generous supporters — friends, patients, faculty and staff — whose contributions of \$1,000 or more between July 1, 2024 and April 2, 2025, have been instrumental in advancing our mission. Your support enables us to develop cutting-edge technologies for diagnosing and treating eye diseases, provide our patients with the most advanced medical and surgical eye care, and support educational programs that prepare the next generation of ophthalmic leaders.

Kathleen Allen
American Endowment Foundation
Nancy and Paul Arentsen
Argyros Family Foundation
Dorothy and Rudy Baldoni, MD
Terry Belmont
Annie & Ronald F. Bennett
and Family Foundation
Dennis and Lynn Blackburn
William and Cynthia Bone
Wilma and Terry Boyer
Andrew Browne, MD, PhD, and
Lilangi Ediriwickrema, MD
Mary Buckingham
Ruth and Robert Burns, MD
John and Mary Carrington
Esther and Jim Cavanaugh, PhD
Nancy and Irving Chase
Lawrence and Carol Cohn
Philomena Cullen
Lesly Lane Davenport and
John Davenport
Peter Dervan and Jacqueline Barton
Discovery Eye Foundation
Christine and Roy Dormaier
Doyle Foundation
Roberta Feuerstein
Fidelity Charitable Gift Fund
Ronald Ford
Foundation for Retinal Regeneration
Cystinosis Research Foundation
Foundation Fighting Blindness
Sanford and Kelly Ganz
Romi and Sam Garg, MD
Deborah Sassoon and Daniel Gil
Jasson and Kelly Gilmore
Glaukos
John Graether, MD
Pramila Gupta
Carolyn and Richard Helmuth
Josephine Herbert Gleis Foundation

Gavin and Kerry Herbert
Herbert Family Foundation
Gavin and Ninetta Herbert
Barbara Holloway
Renee and Peter Horner
Howard Building Corporation
Michael and Pamela Howard
Howard & Helen House
Family Foundation
Peter Hungerford
Jewish Community Foundation
of Orange County
Axton and Kristi Jones
Paul and Faye Kanan
Cindi and Steve Kirby
Henry Klassen, MD, PhD,
and Jing Yang, MD, PhD
Knights Templar Eye Foundation
Jan and Barry Kuppermann, MD, PhD
Patricia and David Lamb
Carol and Doron Lean
Lean Engineering
Robin and JK Leason
Olivia Lee, MD
Gary and Julie Lobel
Claudia Looney
Geneva M. Matlock, MD
Mitul and Shilpa Mehta
Medical Foundation
Cynthia Mjolsness
Debra and George Mokhiber
John and Diane Murphy
Anthony Nesburn, MD
Jane and Ray Neufeld
Nicholas Endowment
OneOC
Orange County Community
Foundation
Nancy and Larry Pasquali, MD
Yvette Pergola
Elise and Carl Perkins

Quality Aspirators
Ibrahim and Fawzia Ramzy
William and Penny Rauth
Recordati Rare Diseases
Barbara Reed
R. Reese and Christopher Leslie
Research to Prevent Blindness
Retina Research Foundation
Thomas Roberts
Ernest and Jennifer Romo
Stanley Rosenstock
Jodi Salerno
Schoellerman Foundation
Sandra Shepherd
Ronald and Sandi Simon
Leonard and Myrna Simon
James and Glenys Slavik
Mike and Polly Smith
Staar Surgical
Stanley E. Hanson Foundation
Walter Stearns
Scott Sussman
Shannon Tarnutzer
Tarsus Pharmaceuticals Inc.
U.S. Charitable Gift Trust
Krish Venkataraman
Janna and Matthew Wade, MD
Rodney and Karen Walker
Vivien and Ezzat Wassef, MD
Noly and Ted Wei, MD
Carolyn and Roger Williams
YPO Gold Southern California Chapter
Samantha and Scott Zidbeck

To learn how you can support
the Gavin Herbert Eye Institute,
please contact Nikki Gaitan
at nmgaitan@hs.uci.edu
or Amber Harness
at aharness@uci.edu

A legacy of vision: the Argyros family builds on its commitment to excellence in eye care



Gavin Herbert, George and Julia Argyros, alongside then-UC Irvine Chancellor and current UC President Michael V. Drake, M.D., stand at the entrance of the Argyros Surgery Center at the opening of UCI Health Gavin Herbert Eye Institute. Photo captured in 2013.

The Argyros family's vision for advancing eye care has had a lasting impact on the UCI Health Gavin Herbert Eye Institute, and their legacy is now inspiring and shaping the future of ophthalmology through a new generation.

In 2011, Julia and George Argyros made a transformative \$5-million gift, which played a pivotal role in establishing the state-of-the-art Julia & George Argyros Ambulatory Surgery Center at the eye institute. This generous donation helped fund one of the most advanced eye care and research facilities on the West Coast, solidifying the Argyros family's place as visionary leaders in the field of ophthalmology.

Their gift was part of a larger commitment to create a world-class facility that would provide exceptional care and advance vision research. The 70,000-square-foot eye institute, which opened in 2013, continues to serve as a cornerstone for both patient care and leading-edge research. With a focus on patient-centered care, education and innovation, the Argyros family's support has helped the institute become a national leader in eye care and research.

In 2024, daughters Stephanie and Lisa Argyros built on that legacy, honoring their parents' vision with a \$2-million donation.

As a meaningful tribute, their gift has supported two state-of-the-art operating rooms within the Julia & George Argyros Ambulatory Surgery Center: the Lisa Argyros Operating Room and the Stephanie Argyros Operating Room. These dedicated spaces not only recognize their parents' pioneering 2011 gift, but also reinforce the family's unwavering commitment to the mission of the eye institute.

The bond between the Argyros family and the institute's namesake, Gavin Herbert and his family has been integral to this enduring legacy. For decades, George and Julia Argyros worked alongside their close friends, Gavin and Ninetta Herbert, to create something truly special for Orange County and the region.

"I've known and respected my good friends George and Julia Argyros for decades and have admired their substantial contributions to Orange County," Gavin Herbert said of the Argyros' deep-rooted community commitment.

"I'm delighted that they're joining me in helping provide these much-needed vision services to the community."

The Argyros family's continued support of the Gavin Herbert Eye Institute alongside the Herbert family is a testament to the power of collaboration, innovation and generosity in shaping the future of vision care. Their family's contributions, past and present, have created a lasting legacy of excellence that will touch countless lives for years to come.

Removing blinding cataracts brightens teen's outlook



Thiago Rojas and his mother, Sherry Sandoval, reunite with Dr. Donny Suh.

When 13-year-old Thiago Rojas began rubbing and tapping his eyes, Sherry Sandoval thought her son might simply be exhibiting new “stimming” behavior — repetitive self-stimulating movements that people with autism or ADHD often use to self-regulate.

Thiago's doctor examined him then referred him to pediatric ophthalmologist Dr. Donny Suh at the UCI Health Gavin Herbert Eye Institute for further evaluation. Suh has extensive experience providing vision care to young patients with autism, Down syndrome, developmental delays and severe attention deficit/hyperactivity disorder (ADHD).

Thiago's face lit up and he flashed a big smile when he saw the eye specialist at a recent visit. Their first meeting in fall 2024 was decidedly different. The teenager was angry and unpredictable.

“Some kids don't like to be touched on their face or they don't like lights shining in their eyes,” explains Suh. “Or they are afraid of fast movements. Every child is different, so our entire team has to be adaptable. We offer different tools and equipment for pediatric patients who may not be able to cooperate with a traditional eye exam.”

Sandoval immediately sensed the physician's empathy for Thiago, who has been diagnosed with autism, ADHD and developmental delays. In that first visit, Suh quickly identified the source of the boy's frustration. He had severe, blinding cataracts in both eyes and had been navigating the world through a thick, blurry fog, unable to convey his problem to those who loved him most. It was understandable that he felt angry and was acting out.

Thiago's case is extremely rare, with cataracts seen in fewer than .01% of children. Surgery to remove a child's cloudy lens — so common for older adults — usually requires general anesthesia and modified techniques to account for their softer and small eyes.

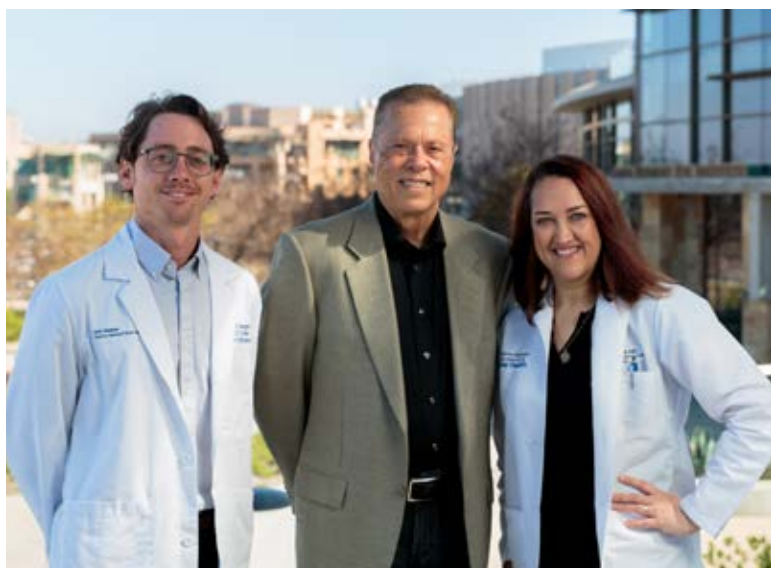
Suh operated twice on Thiago in 2024, removing the cataracts one eye at a time. Within days of each surgery, the teenager's vision improved dramatically, completely changing his day-to-day experiences at school, at play and at home with his two siblings. Now he joyfully engages in all his favorite activities, including solving jigsaw puzzles and watching music videos.

The habit that first caught Thiago's mother's attention — tapping his eyes — has disappeared. Suh notes that children experiencing vision problems often wipe and rub their eyes to try and see more clearly, a signal that an eye exam might be needed.

“It's especially important for kids with developmental delays to receive careful and comprehensive eye examinations,” he says. “If these children have vision impairment, it can further hinder their emotional, physical and social development at a very critical time in their lives.”

As his beaming smile for his eye doctor at the recent checkup shows, Thiago is seeing his own future more brightly now.

Shingles complications threatens patient's vision and life



Dr. Samuel Spiegel, left, and Dr. Marjan Farid, right, pose with grateful patient Bill Rowcliffe.

Bill Rowcliffe says he owes not just his vision, but also his life to his ophthalmology team at UC Irvine. Last summer, doctors at the UCI Health Gavin Herbert Eye Institute found an inflammation in his optic nerve that required a trip to the emergency room.

Rowcliffe ultimately spent six days in the hospital, his care coordinated by specialists in ophthalmology, neurology and infectious diseases.

"The ophthalmology team did a great job treating him while he was at the hospital," says Rowcliffe's wife, Clayre Petray. "I think they're the reason he's alive today."

In spring 2024, he developed a zoster infection, commonly known as shingles. Caused by the same virus as chickenpox, shingles is a painful red rash that occurs most often in older adults. When the rash appears on the face, as it did with Rowcliffe, it can cause inflammation in the cornea and other areas of the eye, potentially leading to irreversible vision loss.

He sought care at the eye institute, where he was prescribed antivirals and eye drops. They can help prevent vision loss in shingles patients — as long as the inflammation is treated before causing permanent damage to the cornea.

"Shingles on the face is considered an eye emergency because it can lead to serious complications if not treated urgently," says UCI Health neuro-ophthalmologist Dr. Samuel J. Spiegel. "But after he was seen and treated for this rare presentation of shingles, the patient had an extremely uncommon neurological side effect caused by the disease."

Rowcliffe thought he was on the mend until a few weeks later when he returned to the eye institute complaining of blurred vision. Cornea specialist Dr. Marjan Farid examined the optic nerve in his left eye and immediately called Spiegel. They huddled outside the exam room to confirm their diagnosis: post-shingles inflammation was causing fluid buildup on the optic nerve, which could lead to vision loss and even blindness. They sent him straight to the emergency room at UCI Medical Center in Orange.

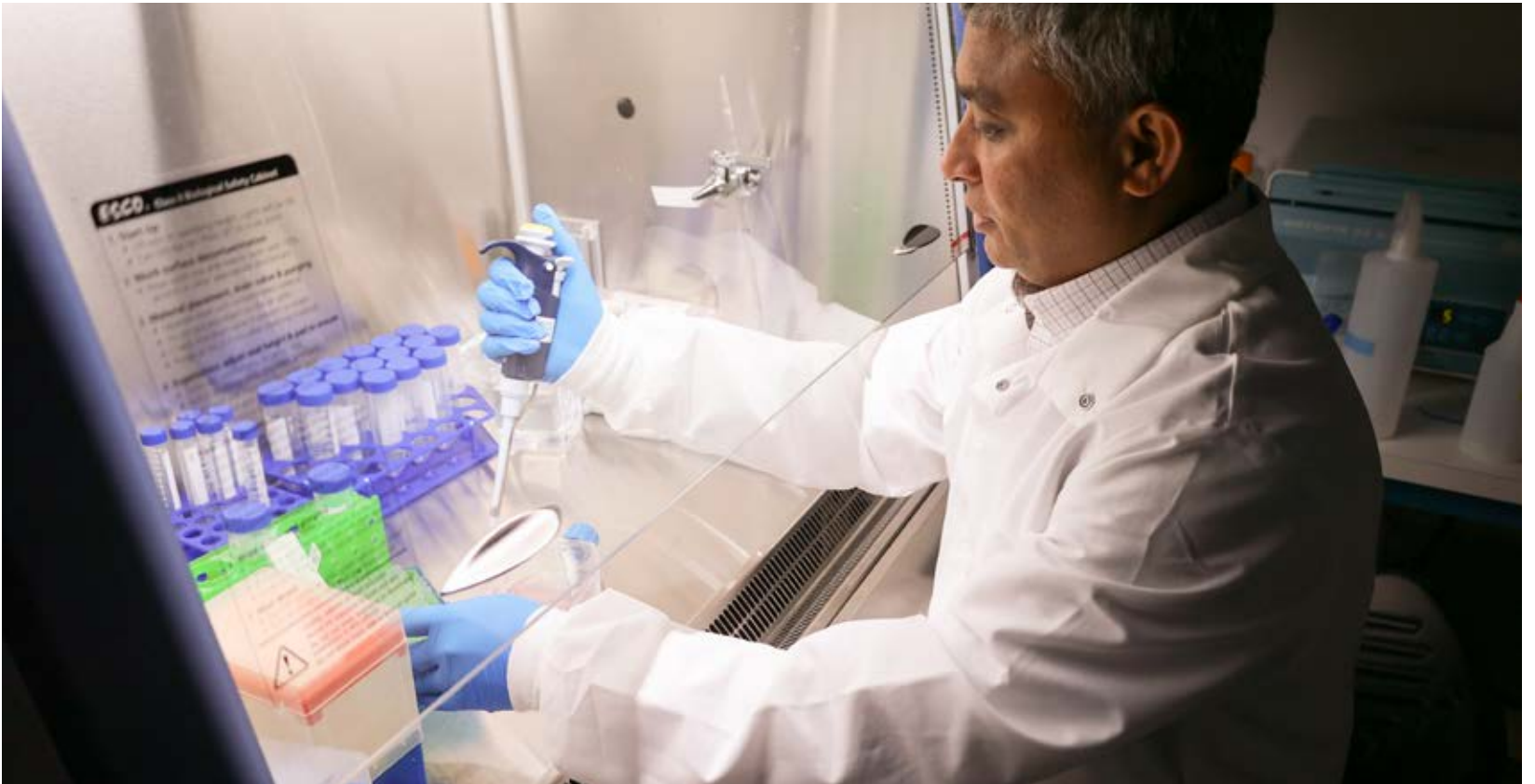
Farid and Spiegel continued managing Rowcliffe's care after he was admitted to the hospital, coordinating with neurology, infectious disease and emergency medicine specialists.

Cases of post-shingles inflammation of the optic nerve are so rare that there is no widely accepted best practice for treatment. Farid and Spiegel consulted across departments and even other academic medical institutions before deciding to proceed with high-dose intravenous steroids in addition to anti-viral treatment, which reversed the inflammation.

"My overall experience — other than it being the worst thing that's ever happened to me — is that UCI Health has a great team," says Rowcliffe.

With ongoing eye care, his vision continued to improve. He has resumed his regular routine: driving, reading and playing pickleball.

"I can see to make contact with the ball again on the pickleball court," says Rowcliffe, whose vision is back to 20/30. "I'm very grateful to my all doctors, especially my ophthalmologists."



Gulab Zode, PhD, at work in his laboratory.

Award supports researcher's hunt to find a genetic cure for glaucoma

Gulab Zode, PhD, dreams of the day when glaucoma can be cured with a single shot. Support from the Research to Prevent Blindness foundation brings him a step closer to that day.

Zode has dedicated his career to studying the genetic causes of glaucoma. He specifically focuses on juvenile-onset glaucoma, a rare subset of the disease that affects children and teens and may lead to vision loss and blindness at an early age.

In both young and older patients, glaucoma's mechanism is the same: fluid in the front of the eye does not flow freely through the trabecular meshwork and into the bloodstream. Instead, it builds up like water around a clogged drain, creating high pressure in the eye that can eventually damage the optic nerve and lead to vision loss.

"Often, these kids need multiple eye surgeries by age 30, and they still will eventually lose vision," Zode explains. "If we can treat the root cause of the disease early on,

they may never need additional glaucoma treatment. That's not just saving money over their lifetime, it's improving their quality of life."

Previously, Zode discovered a genetic mutation in the myocilin gene that kills the healthy cells of the trabecular meshwork, essentially damaging the eye's drainage system and increasing eye pressure. Because it causes 30% to 50% of juvenile glaucoma cases, this mutation is an ideal target for emerging gene-editing treatments.

Zode has proposed using the Nobel Prize-winning gene-editing technology CRISPR/CAS9 to remove the genes that produce the mutated myocilin in the eye. To deliver that gene editor to the cells in the eye, he proposes using lipid nanoparticles provided by Philip Felgner, PhD, a UC Irvine School of Medicine professor of physiology and biophysics. Feigner's pioneering work in gene editing helped contribute to the development of mRNA vaccines, including the vaccines developed to combat COVID-19.

Zode's proposal attracted the attention of Research to Prevent Blindness, a nonprofit foundation that supports high-impact vision research.

Last summer, the foundation awarded him its prestigious Stein Innovation Award in Ocular Genetics and a \$300,000 grant to support "high-risk/high-gain vision research that is innovative and demonstrate out-of-the-box thinking."

The funds already have enabled Zode and postdoctoral scholar Balashankar Kaipa, PhD, to conduct experiments that successfully cured mice models of juvenile glaucoma. He hopes to begin testing the treatment in human patients in the near future.

Although this form of juvenile glaucoma affects a relatively small number of people, the success of this treatment would not only be life-changing for those patients, but also represents a major step in the development of other gene-based therapies for eye diseases.

It may even be a game-changer for older adults with the same genetic mutation — which is about 5% of patients with primary open-angle glaucoma.

"We hope that this work will take the field forward, especially as we learn more about genes that cause glaucoma," says Zode. "Our research can help show that the genetic approach to curing eye diseases is not just possible, but within reach."

Learn more about glaucoma:

<https://ophthalmology.uci.edu/research>



Browne selected for prestigious vision fellowship

Andrew Browne, MD, PhD, has been selected for the prestigious Council of Vision Editors Fellowship program, established by the National Eye Institute (NEI). The two-year NEI fellowship offers early-career vision scientists an invaluable opportunity to gain insights into academic peer review, the publication process, and editorial board functions.

Browne's selection reflects his exceptional contributions to ophthalmic research and education. His research interests involve radiation retinopathy, solar and phototoxic retinopathy, retinal organoids and developing intraocular technologies for surgery and disease management. His papers have appeared in such publications as the *Journal of Refractive Surgery*, *Glaucoma*, *Brachytherapy*, *Retina* and *Investigative Ophthalmology & Visual Science*.

As a dedicated faculty member at the UCI Health Gavin Herbert Eye Institute, his work continues to advance our understanding of retinal diseases and imaging innovations.

VISIT THE OPTICAL SHOP

Call 949-824-7690 to schedule your appointment.

Monday–Friday: 8 a.m.–4:30 p.m.
Closed for lunch: 11:30 a.m.–1 p.m.

Proceeds from our optical shop support sight-saving research and help patients diagnosed with keratoconus pay for specialty lenses not covered by insurance.

EVENTS

2025 community lectures



Registration is easy for these virtual lectures, held from 7 to 8 p.m. Use the QR code to access the registration form or register at: www.ophtalmology.uci.edu/events
Call 949-824-7243 for more information.

Headaches

June 3, 2025

Perspectives from both sides
of the optic nerve
*Crystal Jicha, MD (Neurology);
Samuel Spiegel, MD*

Double vision

July 15, 2025

What is double vision
and how do you treat it?
Donny Suh, MD

Autoimmune diseases that affect the eye

Aug. 5, 2025

How autoimmune diseases
affect your eyes and how to
manage your symptoms?
Soroosh Behshad, MD

Age-related macular degeneration

Sept. 2, 2025

Retinal degeneration and
stem-cell therapy
*Henry Klassen, MD, PhD;
Kapil Mishra, MD*

Pediatric ophthalmology

Oct. 7, 2025

Myopia in children:
What you need to know
Charlotte Gore, MD

Diabetes

Nov. 4, 2025

Diabetic eye disease:
What is it and how it's treated;
Dietary management of diabetes
*Kapil Mishra, MD;
Hussain Mehboob, MD
(Endocrinology)*

Dry eyes

Dec. 2, 2025

What is dry eye and how is it treated?
Olivia Lee, MD



Clinical trials

Patients can gain access to innovative care while helping researchers study the prevention, diagnosis and treatment of eye conditions.

To participate in a clinical trial, scan the QR code or email CCREnrollment@hs.uci.edu

CLINIC LOCATIONS

UCI Health Gavin Herbert Eye Institute — Irvine

850 Health Sciences Road
Irvine, CA 92617

To make an appointment, call 949-824-2020

UCI Health Gavin Herbert Eye Institute — Orange

101 The City Drive South, Pavilion 2, Building 30A
Orange, CA 92868