

InSight



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Curiosity-Driven Research

Dr. Kaustabh Ghosh Links Vascular Stiffening to Vision Loss



Kaustabh Ghosh, Ph.D.

Curiosity, guided by disciplined, interdisciplinary methodology, drives the science of Kaustabh Ghosh, Ph.D. A research scientist at Doheny Eye Institute and an Associate Professor of Ophthalmology at the David Geffen School of Medicine at UCLA, Dr. Ghosh is a biomedical researcher on a mission to identify and block previously unknown mechanisms that contribute to diabetic retinopathy and age-related macular degeneration (AMD), the leading causes of vision loss in the global diabetic and aging population.

Dr. Ghosh has broad expertise in the fields of vascular biology, inflammation, mechanobiology, and bioengineering that enables a holistic understanding and potential treatment of these debilitating eye diseases.

Basic science research, the focus of Ghosh's lab, is investigation led by curiosity. As Dr. Ghosh explains, "A basic research scientist is ultimately a philosopher who continually utilizes the Socratic method of inquiry, which applies reason, keeps things simple, connects the dots, and knows and remembers the context."

Dr. Ghosh's ongoing research aims to investigate whether and how the "stiffening" of blood vessels in the eye contributes to their progressive degeneration in diabetes and aging, a hallmark of early diabetic retinopathy and AMD. "If larger blood vessels in the heart can become stiffer in diabetes and aging, perhaps so could the smaller capillaries in the eye," reasons Dr. Ghosh. His recent work, using models of early diabetic retinopathy and AMD, have confirmed this idea. Crucially, his findings have revealed that blocking the diabetes-induced stiffening inhibits capillary degeneration and mitigates the loss of contrast sensitivity, a common visual defect in early diabetic retinopathy patients.

"A basic research scientist is ultimately a philosopher who continually utilizes the Socratic method of inquiry, which applies reason, keeps things simple, connects the dots, and knows and remembers the context."

— Kaustabh Ghosh, Ph.D.

Current treatments for diabetic retinopathy and AMD only target the late stages when irreversible vision loss has already occurred. By focusing on the role of vascular stiffening in the early stages, Dr. Ghosh aims to identify new classes of drugs that normalize vascular stiffness in the eye and prevent vision loss. His approach embodies the general wisdom that "prevention is better than cure."

As in the heart, changes in vascular stiffness might also alter blood flow in the eye. If so, Dr. Ghosh's work would provide the basis to develop new sensitive imaging techniques that measure changes in stiffness-associated retinal blood flow for early detection of diabetic retinopathy and AMD. Through collaborations with clinicians, scientists, and imaging experts at Doheny and UCLA Ophthalmology, he envisions achieving this goal sooner than later.



Srinivas Sadda, M.D., FARVO

Dr. Srinivas Sadda Named to Irvine Chair

In Support of His Continuing Vision Research

Srinivas Sadda, M.D., FARVO, Director of Artificial Intelligence and Imaging Research at Doheny Eye Institute and Professor of Ophthalmology at the David Geffen School of Medicine at UCLA, has been named to the A. Ray Irvine, Jr., M.D., Endowed Chair in Clinical Ophthalmology.

“Dr. Sadda’s impact on the field of ophthalmology and vision research has been remarkable. He is recognized internationally for his leadership and expertise,” said Deborah A. Ferrington, Ph.D., Chief Scientific Officer at Doheny Eye Institute. “His pioneering use of artificial intelligence in imaging at Doheny has led to numerous breakthroughs in the understanding of, as well as the earlier diagnosing of, ocular diseases.”

“Being appointed as an endowed chair holder is a tremendous honor and will support my research for many years to come,” said Dr. Sadda. “In recent years, tremendous strides in vision research have led to breakthrough treatments, yet there is still much to be done. Utilizing the power of artificial intelligence combined with state-of-the-art retinal imaging will enhance and speed the diagnoses of eye diseases and is crucial to help save people’s sight.”

Currently, Dr. Sadda is President of the Association for Research in Vision and Ophthalmology (ARVO) for the 2024-2025 term and President of the Macula Society. He has been honored with numerous awards from the Macula Society, Retina Society, ARVO, and the American Academy of Ophthalmology, among others.

Dr. Sadda is the second person to hold this chair. The first chair holder was John Irvine, M.D.



A. Ray Irvine, Jr., M.D.

History of the Irvine Chair

The A. Ray Irvine, Jr., M.D., Endowed Chair in Clinical Ophthalmology was established in honor of its namesake, who, along with his father A. Ray Irvine, Sr., M.D., was instrumental in establishing the Estelle Doheny Eye Foundation in 1947, as well as the laboratories of ocular pathology, microbiology and the tissue culture/eye bank. The Eye Foundation in turn provided the initial funding to create Doheny Eye Institute.

Dr. A. Ray Irvine, Jr. was the first ophthalmic pathologist and Medical Director of the Eye Foundation from 1962 to 1977. Throughout his life, he continued his active participation in the teaching of residents at Doheny Eye Institute during Grand Rounds, or regular faculty gatherings and presentations, and in the ophthalmic pathology laboratory.

Endowed chairs are a high honor bestowed upon faculty who demonstrate excellence in their work and are established by generous gifts from donors who support the mission of the institute. The chair has been held by John Irvine, M.D., the son of A. Ray Irvine, Jr. M.D., since it was established. To learn more about establishing an endowed chair at Doheny, please contact Molly Ann Woods, CFRE at mwoods@doheny.org.

“Over many years of working together, I have seen Dr. Sadda’s strong commitment to and gift for fostering collaboration among vision scientists and ophthalmologists both at Doheny and amongst colleagues worldwide. He is accomplished as a scientist, a facilitator, a teacher, and a mentor. And, above all, I know he is a caring physician...”

— Marissa Goldberg, CEO



DEAR FRIENDS

It is my honor and pleasure to announce that Srinivas Sadda, M.D., FARVO, Director of the Doheny Imaging and Artificial Intelligence program at Doheny Eye Institute and Professor of Ophthalmology at the David Geffen School of Medicine at UCLA, has been appointed as the second holder of the A. Ray Irvine, Jr., M.D. endowed chair by the Doheny Eye Institute Board of Directors.

Endowed chairs are one of the highest honors which can be bestowed upon faculty in higher education and scientific research, and are given to those who demonstrate exceptional academic excellence in fulfilling an institution’s mission. In both his leadership and scientific contributions at Doheny Eye Institute, as well as his global prominence in ophthalmology, Dr. Sadda exceeds this mark. The philanthropic gift which created this endowed chair will support and leverage his talents in accomplishing further ground-breaking research.

During his tenure at Doheny, he has proved to be an exceptional global ambassador, frequently invited to speak at the world’s leading ophthalmology conferences about his research into a range of retinal conditions, but especially on his pioneering use of artificial intelligence (AI) in retinal image reading and disease diagnosis. Recently named the 2024-2025 President of the Association for Research in Vision and Ophthalmology (ARVO) and the President of the Macula Society, Dr. Sadda has been honored with numerous awards from leading ophthalmic organizations including the Macula Society, Retina Society, ARVO, and American Academy of Ophthalmology (AAO), among others.

Over many years of working together, I have seen Dr. Sadda’s strong commitment to and gift for fostering collaboration among vision scientists and ophthalmologists both at Doheny and amongst colleagues worldwide. He is accomplished as a scientist, a facilitator, a teacher, and a mentor. And, above all, I know he is a caring physician who is passionately dedicated to patients and furthering the conservation, improvement and restoration of human eyesight.

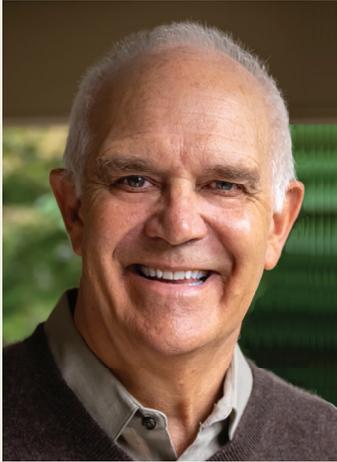
The A. Ray Irvine, Jr., M.D. endowed chair was previously held by John Irvine, M.D., from 2001 until his recent retirement. It is a tribute to Dr. Sadda’s wide-ranging achievements that he will now hold the A. Ray Irvine, Jr., M.D. endowed chair, named in honor of one of our pioneering leaders who was pivotal in establishing the Doheny Eye Institute.

A handwritten signature in black ink, appearing to read 'M Goldberg', written in a cursive style.

Marissa Goldberg
Chief Executive Officer

Playing the Long, Long Game—

Dr. John Irvine Shares Personal Reflections on Doheny's History, Mission, and Future



John Irvine, M.D.

Q. You are the third generation of Irvines at Doheny Eye Institute. Which family members were there at the beginning?

A. My grandfather, Ray Irvine, Sr., had three sons. The eldest was Rod, an ophthalmologist. The middle son, Richard, known as Dick, worked for Disney. And then there was my father, Ray Irvine, Jr. [or Sandy], the youngest, who was

also an ophthalmologist. Rod's youngest son, Alex, was a vitreoretinal specialist on faculty at UC San Francisco and occasionally lectured at Doheny. And the other Irvine was a second cousin by the name of Wendell, or Lad, who was in practice with my grandfather, my dad, and Rod.

Your grandfather was Mrs. Doheny's ophthalmologist. How did their relationship help establish the foundation?

As I was told, it was my grandfather who tried to comfort Mrs. Doheny when she lost her vision and he also showed her—by guiding her as she established the Estelle Doheny Eye Foundation—how to make lemonade from lemons.

Rod and my dad helped Mrs. Doheny make the initial decisions about setting up the foundation. However, Rod's wife, Mary, a chemist, who later worked in the Doheny Eye lab, became a confidant to Mrs. Doheny and helped her to expand the overall scope beyond her original plans.

When Doheny was established, was it effectively an ophthalmology outpost?

That's right. At the time it was founded, the Estelle Doheny Eye Foundation was the only ophthalmic service laboratory available in the Western United States. At first, it was only set up to provide ophthalmic pathology services. Physicians could send their specimens or biopsies to Doheny for analysis. And the turnaround was much faster, too.

Where had West Coast ophthalmologists been sending specimens for testing?

Previously, most specimens had been sent to the Armed Forces Institute of Pathology (AFIP) in

Washington, D.C. The Doheny Eye Lab changed all that. The first year it received about 300 specimens, and the second year about 900 specimens. It continued growing quite quickly. Then they added microbiology services—because of the faster turnaround, soon, the lab was receiving specimens from all over.

That was extraordinary growth—

Yes, they did some pretty amazing things. They added microbiology and photography, which provided fluorescein angiography service, and they did basic science—they had a tissue lab where they would grow specimens in tissue culture.

And, through my grandfather's patient, Walt Disney, and Dick's guidance, the engineers at Disney helped design a way to shoot time-lapse photography of cell cultures growing and dividing in vitro. These films made possible the study of disease progression and how cell cultures were affected by different medications and toxins. While primitive today, it was a big jump ahead at the time.

Doheny was doing a lot with very little. How did they make it work?

Doheny had very little space to begin with—initially, they were given two rooms in the basement of St. Vincent's Hospital. There was no patient care at that point—it was all diagnostic services. My dad served as Medical Director... he also designed the laboratory space. He developed an interest in how microbiology and pathology labs worked during his residency and he really enjoyed the design process.

Dad's pattern was to see patients in the mornings at his office on Wilshire and then show up at the eye lab in the afternoons. He did this for a long time until the board decided the enterprise needed a full-time medical director. So, dad helped recruit Dr. Bill Spencer, an ophthalmic pathologist, from Northern California, whose tenure continued until the arrival of Dr. Steve Ryan.

You've had a front row seat throughout much of Doheny's history. How aware were you of that at the time?

I was always aware of Doheny because my dad was always going to the eye lab... he did a lot of his work on weekends and at nights. He would take me through the lab so I could see what was being done... I even worked in the lab part time during summers in college.

When did you first meet Dr. Stephen J. Ryan?

I was in college when Steve Ryan was being recruited to Doheny. Dad was very supportive of Steve's recruitment so we had Steve and Anne over to our house for several

dinners during this period—it was a good time with lots of enjoyable conversations.

However, I also remember a night at the Hollywood Bowl — after Steve was at Doheny — over dinner, dad and Steve were locked in a heated discussion. Steve wanted to move ahead and build an eye hospital, but my dad was vehemently opposed. Dad said, “Don’t put the money into bricks and mortar, put it into programs—that’s what will produce results.” My dad later admitted, “Steve was right — well, we were both right — but Steve had the foresight to know that we needed an eye hospital in order to attract and retain the best clinicians.”

“I don't think you appreciate what the preservation and restoration of sight means until you start taking care of patients—you perform a surgery and then, afterwards, you take off the patch, they see the light, and they smile.”

—John Irvine, M.D.

Prior to that time, our faculty were going off to Huntington Hospital or Alhambra Hospital, or wherever, to do surgeries — for which travel was a complete waste of time. For Doheny to recruit top-notch young doctors, coming out of the best institutions, Steve knew that the operating room needed to be right next door — Doheny needed an eye hospital. That was the impetus, the pivot point if you will, for Doheny’s next era ... it was the long, long game that Steve was playing.

I understand you weren’t planning on being an ophthalmologist—

No, I wanted to follow my own path. So I entered a Ph.D. program in experimental pathology at USC.

But, in the fall of 1978, I learned a student had dropped out of the medical program and because the term was so far along, the spot could only be filled by a candidate that was already enrolled in the classes.

Since I'd been taking the same classes as the medical students during my pathology studies, I was the only one who could jump into that position, so I petitioned the Dean, Dr. Allen Mathies. On a Friday evening in early December, I got a call from Allen and he said, “John, pack a lunch on Monday—you start then.”

When I started, I didn't know what I wanted to do. I wanted to be my own man. So, I checked out everything else. I thought I wanted to be a pediatrician — or be an orthopedic surgeon — anything but an ophthalmologist.

Eventually, you embraced your grandfather’s and father’s passion for ophthalmology. What changed?

I don't think you appreciate what the preservation and restoration of sight means until you start taking care of

patients — you perform a surgery and then, afterwards, you take off the patch, they see the light, and they smile.

There’s the elderly patient who is brought to clinic because his cataracts are so bad he has stopped functioning — the day we remove the patch, he tells me it’s the first time he has seen blue sky in decades and next as he recovers he’s painting — and then dancing with the gals at the party — he’s alive again! Or being able to operate on infants, give them corneal transplants, and then see them as children, then teenagers, and later on as young adults, and they have full productive lives. Oh—it’s quite gratifying.

To further answer your question, ophthalmology is also really fascinating both intellectually and academically. There are so many facets to it—you can find a population that suits you, whether it be pediatrics or geriatrics. If you have an interest in rheumatology and inflammation, or the retina, or the cornea — there are whole subspecialties—it’s unbelievable. And the surgery is exquisite and the technology is fabulous. And they’re constantly developing new techniques...we have come such a long way.

Can you give an example of the rapid change in ophthalmic care you’ve witnessed?

Of course — when my father moved out of his office, he had all of his files stored in our garage, much to my mother’s dismay. And he told me, “John, don’t ever ditch these. There’s valuable information here—you can learn a lot from them.” So, for a long time, I would go back and read his charts.

I remember reading a communication from my dad or my uncle to a referring physician regarding a patient who had a herpes infection of the eye. Now, this chart would have been from the late '50s or early '60s — and there was no good treatment. So, the note said, “It may be necessary for the eye to be removed at some point.” And my thought reading this decades later: “No, don’t do that, we can help you!”

We have come a long way in treating eye disease. Even in my tenure at Doheny since 1987, our approach to eye disease, our approach to glaucoma, retina, and optic nerve disease as well as our corneal transplantation techniques have changed dramatically and with better outcomes. Today, a notation like that would be rare — we know so much more today.



A. Ray Irvine, Sr., M.D.



From left: John Irvine, M.D., A. Ray Irvine, Jr., M.D., Alex Irvine, M.D., Rod Irvine, M.D., and Doheny Medical Director, Ron Smith, M.D., circa 1993

You have spent your career in the academic setting. What reflections do you have?

Generally speaking, there are three paths in medicine—private practice, academics, and industry, each with varying degrees of patient care, teaching, and research mentoring. Those who have a certain curiosity, and an interest in academics that stimulates them, choose to be in an environment where they can keep exploring and growing. Some want to teach or do research, others want to mentor—they choose to offer their talents to extend the boundaries of knowledge and enhance the education of others. It’s what lights them up. Quite honestly, I didn’t think I was destined to be one of them. I always thought I would be in private practice with my father — well, Ron Smith and Steve Ryan had other ideas.

Steve called one day and said, “Why don’t you come down and look at the program.” So, I did, and I was mesmerized. I saw the opportunity and realized you can go from academics to private practice, but you can’t go the other way—“The money won’t be as good,” I thought, “but I’ll try it for five years.” Well, it’s now been over three and a half decades between Doheny and its academic affiliates — a lifetime.

It’s been a good ride. There have been times I’m tired then I walk into clinic and two hours later, I’m invigorated, full of energy. I go home and I’m pumped—it’s great. It’s really been a good life.

What benchmarks of Doheny’s excellence would your father recognize today?

First, curiosity, it was fundamental to my father—next innovation—and recruiting people who are enthusiastic scientists and physicians who can both think for themselves and collaborate. He also believed in patient centric care—his primary goal was to always put the patient and their eyesight at the center of care. Don’t do unnecessary surgery—let the patient know what you can and can’t do for them.

I’ll give you an example. My first year at Doheny, back in 1988, I was referred a patient by a comprehensive ophthalmologist who was a good friend of my father’s. His patient had suffered a traumatic eye injury when he was in his teens. His cornea was scarred, he lost his lens, and lost part of his iris—at the time of the injury, this doctor told him, “Son, we don’t have the technology or the skills to be able to improve your vision right now, but in the future we will.” Decades later, with his referral, I was able to fulfill the doctor’s promise and after surgery the patient was 20/40 best corrected—vision restored—that’s patient-centric care, playing the long game.

What possibilities excite you when looking at Doheny’s next generation of researchers and doctors?

Well, I think the available resources, both technical and academic, to be applied to the problems that young researchers want to tackle are phenomenal.

When you see the images that are generated by some of the technology like OCT or that developed by Yuhua Zhang, which also supports the brilliant research that Steve Barnes and Kaustabh Ghosh are doing, it’s mind boggling because now we can see into the retina at such an unimaginable level of detail. The advent of AI is expanding the ability of our physicians, especially in retina and glaucoma, to understand the genesis of certain diseases.

The other thing that’s incredible is how young people can collaborate quicker with colleagues all over the world. Steve Ryan was a big proponent of bringing in people to collaborate from all over the world. But now we can have that diversity of ideas at our fingertips, which expands our capabilities and possibilities logarithmically. This absolutely accelerates how we share information, ideas, and find solutions going forward. It is exciting and a marvelous legacy to be embraced as Doheny moves forward.



RIMR 2024 Opening Session



Srinivas Satta, M.D., FARVO



Left: Yuhua Zhang, Ph.D.



Deborah Ferrington, Ph.D.



Alfredo Sadun, M.D., Ph.D.

RIMR: Science in Action

A Collegial Dialogue and Iterative Discourse Inspired by Stephen J. Ryan, M.D.



Giulia Corradetti, M.D., Jewel Hu, Ph.D.

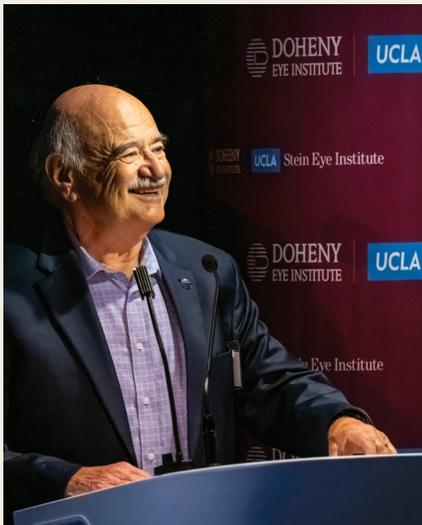


Task Group Work Session

From April 4-6 the Stephen J. Ryan Initiative for Macular Research (RIMR) convened at the Beckman Center in Irvine, California. Each year this interdisciplinary macular research program brings together basic scientists, engineers, medical researchers, and clinicians from around the globe to explore the open questions, obstacles, and possible paths of investigation to develop treatments for atrophic age-related macular degeneration (AMD). Named in memory of Dr. Stephen J. Ryan, longtime President of Doheny Eye Institute and an internationally recognized retina expert, the conference has met annually since 2009. RIMR's ongoing goal is to constantly encourage new thinking and collaborations across the traditional boundaries of institutions, specialties, basic science, and clinical care to better advance the research.

Atrophic AMD, commonly known as dry AMD, accounts for more than 85% of AMD cases, and affects more than 10 million Americans. Despite being the number-one cause of vision impairment and blindness in older Americans, no effective treatments are currently available for this form of AMD.

These images document this year's process of collegial dialogue and iterative discourse first inspired by Dr. Ryan. The program has evolved over the years through input from participants. At April's conference, eight task groups explored emerging technologies, discoveries, and ideas on eight separate challenges currently facing AMD investigators. Doheny researchers and clinicians were well represented, both as participants and moderators. The novel approaches discussed were documented by eight attending science writers, one per task group, and then shared in a combined report made available to all RIMR attendees to both recap the ideas generated and provide a road map forward.



Alfredo Sadun, M.D., Ph.D.



Neil R. Miller, M.D., Wilmer Eye Institute



Benjamin Bert, M.D., FACS

A Day of Education and Celebration

Annual CME Conference Anchors Special Day

On Saturday, March 23, Doheny Eye Institute hosted the 53rd Annual Continuing Medical Education (CME) Conference at its on-campus conference facility.

Ben Bert, M.D., FACS, Medical Director of Doheny CME, welcomed nearly 100 attendees for a day of research and clinical presentations by Doheny alumni, Doheny and UCLA Stein faculty, and other guest presenters. During the day, 19 presentations provided state-of-the-art, breakthrough information on diagnosing and treating macular degeneration, glaucoma, and other ocular disorders affecting both adult and pediatric patients. This year's Course Directors were Julie Chen, M.D., Hugo Y. Hsu, M.D., and Peter Quiros, M.D.

The keynote speaker, Neil R. Miller, M.D., the Frank B. Walsh Professor of Neuro-Ophthalmology from the Wilmer

Eye Institute, John Hopkins University, presented the Irvine Memorial Lecture. In the afternoon, following his presentation at the conference, Narsing A. Rao, M.D., Professor of Ophthalmology and Pathology, Keck School of Medicine at USC, was inducted into the Doheny Society of Scholars by John Irvine, M.D. This special moment marked the first induction into the Society since 2019.

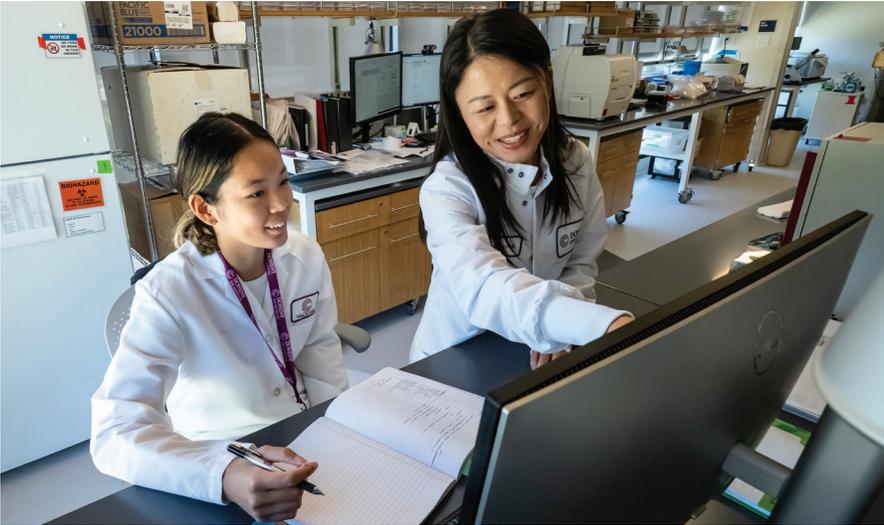
Larry Chong, M.D. was presented this year's Doheny Distinguished Alumnus recognition at Doheny's Annual Alumni Dinner, held at The Valley Hunt Club in Pasadena immediately following the conference. The Distinguished Alumnus Award is given to those who trained at Doheny and have made significant contributions to the welfare of ophthalmology.



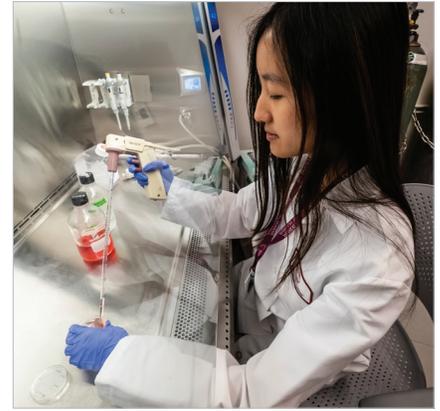
After his CME lecture, Narsing Rao, M.D. receives Doheny Scholar's Honor from John Irvine, M.D.



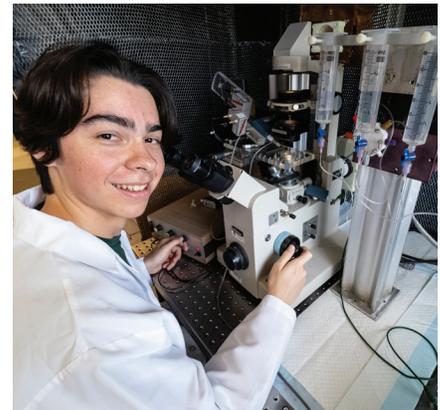
Larry Chong, M.D. responds to Alumni Salute



From left: Nova Wei-Navarro works with Doheny's Peng Shang, Ph.D.



Annie Hu



Lucas Flach

Caltech Fellows Assist Summer Research at Doheny

SURF Program Pairs Undergraduates with Doheny PIs

This summer, three California Institute of Technology (Caltech) undergraduates, Lucas Flach, Annie Hu, and Nova Wei-Navarro, from Caltech's renowned Summer Undergraduate Research Fellowship (SURF) program interned in Doheny's labs supporting Doheny Principal Investigators: Steven Barnes, Ph.D., Deborah Ferrington, Ph.D., and Kaustabh Ghosh, Ph.D. These positions not only bolstered the regular lab staff, but benefited the students as they received valuable hands-on experience and peer mentoring in a real-world research environment.

The SURF program is one of the "crown jewels" of Caltech. Established in 1979, SURF gives undergraduate students the opportunity to conduct research under the guidance of experienced mentors working at the frontier of their fields through paid internships.

SURF is modeled on the grant-seeking process. Prior to conducting their summer research, the students collaborated with their assigned Doheny principal investigators to define the area of research they would be conducting. Written proposals were then submitted as part of the

initial process. Over a 10-week period between June and August, the students carried out their research assignments and at the conclusion, each SURF student prepared a report on their findings for each principal investigator and their team.

Doheny enjoys a unique relationship with the Caltech program, as it is very rare for an outside research institution to offer summer opportunities through SURF. Most student researchers work on the Caltech campus or at the affiliated NASA Jet Propulsion Laboratory.

Occasionally, students will enterprise an opportunity at a university they are considering for graduate school. However, thanks to the initiative of Dr. Ferrington, Doheny's Chief Scientific Officer, and her conversations with Dr. Candace Rypisi, SURF Director, the Doheny-SURF relationship became a reality.

Carol Casey, SURF Associate Director, sums up the summer collaboration this way: "Based on the feedback from both scientists and students, working with Doheny was a fruitful collaboration, which we hope will continue!"

OTHER DOHENY SUMMER INTERNS & VOLUNTEERS

In addition to Doheny's inaugural cohort of Caltech SURF fellows, there were many accomplished summer interns and volunteers assisting in the labs.

Doheny Image Reading & Research Lab (DIRRL)

Principal Investigator (PI):

Srinivas R. Sadda, M.D., FARVO

Summer Research or Short Term Volunteers:

Roxan Mansoori Dara,
Amr Elfert, Ibrahim Abboud,
Lisa Lampis, Giacomo Boscia

Doheny Image Analysis Laboratory (DIAL)

Research Scientist:

Zihong (Jewel) Hu, Ph.D., ECE

Summer Research Intern:

Aahan Sharma

Doheny Advanced Ophthalmic Imaging Laboratory (DAOIL)

Principal Investigator:

Yuhua Zhang, Ph.D.

Summer Research Intern:

Celine Pei

Luncheon Celebrates Donors that Plan Ahead

Annual Gathering Recognizes Doheny's Committed Supporters



Srinivas Sadda, M.D., FARVO, presents AI's impact on digital retinal imaging

On Thursday, June 6, more than 70 generous Doheny Eye Institute donors and friends enjoyed a late spring day to visit our Pasadena campus for the annual Planned Giving Luncheon. This annual event is intended to offer guests, comprising long-time supporters and donors, the opportunity to learn more about the benefits of planned giving through their estates to support Doheny's vision research long into the future.

Held in the Doheny Conference Center, the luncheon provided guests an opportunity to mix and visit before sitting down to a luncheon prepared and catered by Julienne Fine Foods and Celebrations in San Marino.



Sandip Bhagat, CIO Whittier Trust



Trish Ryan



Marissa Goldberg, CEO Doheny Eye Institute



Alfredo Sadun, M.D., Ph.D. touring guests



Kaustabh Ghosh, Ph.D. explains imaging operations in his lab

PLANNED GIVING

Kicking off the gathering, Marissa Goldberg, CEO, opened the program with a warm welcome and a quick update on Doheny's research. Next, Patricia Ryan, daughter of legendary Doheny Eye Institute leader, Stephen J. Ryan, M.D., offered an impromptu expression of her appreciation for how leadership and supporters had perpetuated and expanded the institute's extraordinary research and progress in the decade since her father's sudden passing.

We are thankful for the generous commitments made by Doheny's Circle of Caring members, the institute's legacy society. By including Doheny in their estate plans, our donors ensure that the important sight-saving research conducted at Doheny will continue to benefit future generations.

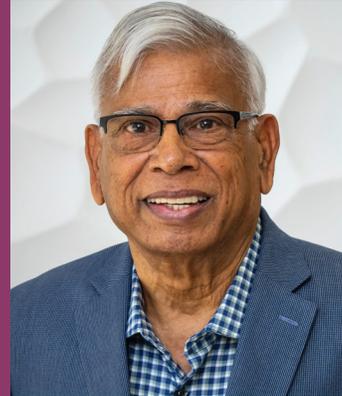
Following lunch, Sandip Bhagat, Chief Investment Officer at Whittier Trust, gave a positive report on the solid indicators for continued long-term growth in the equities markets, as well as his anticipation of two Federal Reserve interest rate cuts by year's end.

SriniVas Satta, M.D., FARVO, Doheny's Director of Artificial Intelligence & Imaging Research and Professor of Ophthalmology at the David Geffen School of Medicine at UCLA, then shared important news, explaining how the institute's advancement in successfully applying the power of artificial intelligence (AI) to retina imaging will meet the future needs of diagnosing the increasing cases of diabetic retinopathy across the globe.

The afternoon concluded with a tour of the Doheny campus. Guests were guided through the research labs by two Principal Investigators, Kaustabh Ghosh, Ph.D., and Alfredo Sadun, M.D., Ph.D., and shown the spaces that are helping to accelerate research in key areas, including age-related macular degeneration, immunology research, and AI applications to imaging diagnostics.

We are thankful for the generous commitments made by Doheny's Circle of Caring members, the institute's legacy society. By including Doheny in their estate plans, our donors ensure that the important sight-saving research conducted at Doheny will continue to benefit future generations.

Please remember the experienced staff at Doheny can help you to achieve your philanthropic goals. For more information, please contact Associate Director of Planned Giving, Heidi Simpson-Sandoval, at hsimpson-sandoval@doheny.org.



Ram Kannan, Ph.D., FARVO

Dr. Kannan, Acclaimed Ph.D., Announces Retirement

Ram Kannan, Ph.D., FARVO, a Principal Investigator at Doheny Eye Institute and an Adjunct Professor of Ophthalmology at the David Geffen School of Medicine at UCLA, announced his retirement on June 30, 2024, and stepped down from full-time duties. He will continue in a part-time capacity through the year's end.

In his 22 years at Doheny, Dr. Kannan's research has focused on age-related macular degeneration (AMD), specifically anti-oxidative mechanisms in the retinal pigment epithelium and the retina. His research has considered damages caused by oxidative stress, as well as possibilities that may exist in stimulating anti-oxidative defense mechanisms. Kannan's research has generated novel therapeutic approaches for the prevention of atrophic and neovascular AMD.

His career has spanned the globe and crossed specialties. Beginning at Osmania University, Hyderabad, India, his first postdoctoral fellowship was with Nobel Laureate Bengt Samuelsson in Stockholm, Sweden. Next, he completed a Heinrich Hertz Fellowship at the University of Cologne, Germany. In Cologne, he published the first of his 140 research papers. Connections made through his European mentors then brought him to California. His expertise in organic chemistry found broad application and leading to research in cardiology and neurology before he began his groundbreaking work in ophthalmology. The winner of the prestigious FARVO Award in 2019, Kannan has gained international recognition across fields, leaving a legacy of research and knowledge for his current and future colleagues.

Shirley's contagious enthusiasm springs from personal experience.... Shirley has been a long-time patient of Dr. Benjamin Bert and this last year her husband began receiving monthly treatments for age-related macular degeneration (AMD).



Shirley Arendt, Treasurer NSSDA City of Roses Chapter

City of Roses Chapter of the NSSDA Makes Annual Gifts

Your Annual Giving to Doheny Can Make a Big Difference Too!

"I'm a big Doheny fan—we just love you guys!" exclaims Shirley Arendt, Treasurer of the Pasadena City of Roses Chapter of the National Society Southern Dames of America (NSSDA). A national lineage society whose members trace their roots back to the southern U.S., NSSDA's philanthropic mission is dedicated to supporting vision research and providing assistance to those who are visually impaired. In keeping with this mission, the City of Roses chapter, along with the three other chapters in California, make annual gifts to Doheny Eye Institute.

Shirley's contagious enthusiasm springs from personal experience. Both she and her husband are patients of the Doheny Eye Center UCLA in Fountain Valley. Shirley has been a long-time patient of Dr. Benjamin Bert and this last year her husband began receiving monthly treatments for age-related macular degeneration (AMD). The positive impact her husband's care provides she describes with one word: "Hope!" She finds all of Doheny's developments in AMD research very exciting.

With a career in banking, beginning with two decades at Bank of America, followed by a decade in regional banking, and concluding in the finance department of the City of Anaheim, Shirley Arendt sees the big picture and is in a unique position to appreciate the positive impact regular annual gifts can make.

If you or your organization wish to make an annual or monthly commitment to support Doheny's research, simply go to our website, doheny.org/give-now, and with one click, you become a Doheny supporter. Join Shirley Arendt, and the City of Roses Chapter of the NSSDA, in making a difference.

MAKE A DIFFERENCE!

From *InSight's* headlines, it would be easy to assume that Doheny receives all of its support from research and foundation grants, or the philanthropy of very generous donors making major gifts or endowing faculty chairs. However, the institute's successful support is also facilitated by a variety of committed donors through planned giving and especially annual giving.



DOHENY
EYE INSTITUTE



Peng Shang, Ph.D., Doheny Scientist

EMERGING VISION SCIENTIST

“Policy advocacy changes your awareness, expanding it from research to the personal impacts and economic burdens on the patients.”

— Peng Shang, Ph.D.

Dr. Peng Shang Named NAEVR 2024 Emerging Vision Scientist

In June 2024, Peng Shang, Ph.D., a Doheny Scientist, was accepted into the 2024 National Alliance for Eye and Vision Research (NAEVR) Emerging Vision Scientist Program. NAEVR’s main objective is to secure optimal eye and vision care for all Americans through dedicated advocacy and education initiatives focused on promoting eye and vision research. Each of these young scientists was selected because their work is innovative and demonstrates the promise to result in therapeutic patient treatment.

The program participants met September 16–17 in Washington, D.C. Thirty-four early-stage investigators gathered from around the country, representing both basic science and clinical vision researchers who have not yet received their first investigator-initiated (R01) grant from the National Eye Institute (NEI). Together, these scientists held 58 meetings with Congressional Representatives and Senators or staffers from 16 states to not only advocate for vision research funding, but also to explain the significant negative economic impacts of untreated eye diseases. Dr. Shang explains, “Policy advocacy changes your awareness, expanding it from research to the personal impacts and economic burdens on the patients.”

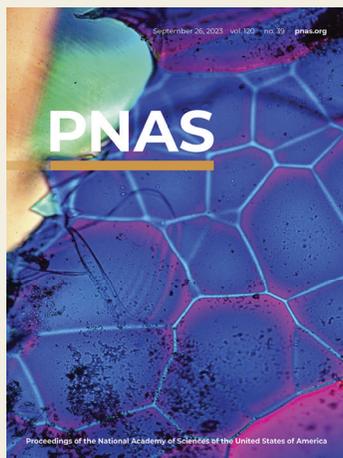
A collaboration with Deborah Ferrington, Ph.D., Dr. Shang’s dry age-related macular degeneration (AMD) research studies the retinal pigment epithelium (RPE), the primary pathological site of the disease. A key component of her work is understanding how a gene called complement factor H (CFH), which has a high-risk variant present in about 50% of individuals diagnosed with AMD, might trigger the disease. In studying the proteome, or the molecular make-up of different proteins present in AMD, changes in biological molecules associated with the presence of high-risk CFH variant are noted. This data is developed using mass spectrometry and bioinformatic analysis. The same data is also applied to understand the role of environmental factors associated with AMD, such as smoking. The overall objective of the research is to uncover how this variant triggers the RPE to develop disease, like AMD, in patients.



MORE TO KNOW

The retinal pigment epithelium (RPE) is a single layer of cells that acts as a selective barrier, playing a key role in retinal function. Through the activity of specific proteins, it regulates the transport of nutrients and removes waste from the retinal cells that convert light into signals for the brain. The RPE also protects the outer retina from excessive high energy light, produces essential enzymes for the visual cycle helping reset vision, and cleans up photoreceptor outer segments, which are shed every day, through a process called phagocytosis.

Doheny News In Brief



PNAS Publishes Dr. Alfredo Sadun and Dr. Steven Barnes LHON Research

PNAS, Proceedings of the National Academy of Sciences, has published a paper senior authored by Doheny Eye Institute's Alfredo Sadun, M.D., Ph.D., and Steven Barnes, Ph.D. entitled *Coenzyme Q10 Trapping in Mitochondrial Complex I Underlies Leber's Hereditary Optic Neuropathy (LHON)*. In LHON, inheritance of a specific, single mitochondrial DNA mutation can produce the sudden onset of permanent blindness first in one eye and then the other eye within months. This disease typically occurs in young adulthood. The mutation affects proteins in mitochondrial complex I that produce energy for retinal neuron activity, but the mechanism by which the mutation causes mitochondrial dysfunction is unclear. The paper describes how computational biochemistry tools were used to compare molecular interactions in the mutated protein and showed that electron transfer to Coenzyme Q10 is massively slowed, creating conditions favorable for initiating a cascade of events that may lead to blindness.

Dr. Yuhua Zhang Part of Interdisciplinary Team to Receive 3 Year NIH Grant

Yuhua Zhang, Ph.D., Principal Investigator at Doheny Eye Institute and Professor of Ophthalmology at the David Geffen School of Medicine at UCLA, is among a multidisciplinary group of scientists to receive a major award from the National Institutes of Health (NIH) Common Fund Venture Program Oculomics Initiative. The \$4.7M a year award will be distributed annually for three years among the scientists collaborating to develop a noninvasive ocular imaging approach that can detect and characterize cerebral small vessel disease (CSVD), a common central nervous system disorder that causes failures of blood flow and contributes to vascular cognitive impairment and dementia. "Through optical imaging, the retina offers a unique, non-invasive window into the central nervous system's vascular system," says Dr. Zhang. "Capillary rarefaction—a hallmark of microvascular degeneration—serves as a predictor of multiple end-organ damage and life-threatening cardiovascular conditions."



Yuhua Zhang, Ph.D.



Michael Ip, M.D.

Dr. Michael Ip Elected to the American Ophthalmological Society

Michael Ip, M.D., has been elected to the American Ophthalmological Society (AOS). This honor reflects Dr. Ip's high standing amongst his peers. Candidates for AOS membership must be in good professional standing, must be certificated by the American Board of Ophthalmology, and have demonstrated excellence in ophthalmology in one or more of the following areas: clinical practice, scientific productivity, education, administration, or public service. Generally, a candidate should have produced a minimum of six articles in major refereed journals within the five years preceding his or her nomination. Once nominated, a candidate must produce and present an original thesis. At the spring session of AOS, Dr. Ip presented his imaging findings compared with treatment outcomes following anti-VEGF therapy for macular edema resulting from retinal vein occlusion.



Glaucoma Symposium Presenters

6th Annual Doheny-UCLA Glaucoma Symposium Convened

On September 28, 2024 the 6th Annual Doheny Glaucoma Symposium was held in the conference center at Doheny Eye Institute. Led by Doheny-UCLA Course Co-directors Vikas Chopra, M.D. and Brian Francis M.D., M.S., 13 speakers addressed the gathering of close to 100 ophthalmologists and related specialists, covering the latest scientific observations, surgical techniques, and other therapeutics for glaucoma diagnosis and treatment. Donald Minckler, M.D., Doheny Glaucoma Lecturer, Kuldev Singh, M.D., MPH, Professor of Ophthalmology and Director of the Glaucoma Service at Stanford Medicine, and Keynote Speaker Teresa C. Chen, M.D., Associate Professor of Ophthalmology and Senior Scientist at Harvard Medical School headlined the event.

Doheny Eye Institute Again Ranked in Top Five by *U.S. News & World Report*

Once again, *U.S. News & World Report* ranked Stein and Doheny Eye Institutes, UCLA Medical Center among the Top 5 Best Ophthalmology Hospitals for fiscal year 2024–2025. Doheny has been included in the Top 10 list of Best Ophthalmology Hospitals each year since the list originated in 1993, and in the Top 5 since our affiliation with UCLA Stein Eye Institute began in 2013. The rating is based on the expert opinions of physicians and ophthalmology specialists across the country, who regard Doheny as one of the best programs in the field of ophthalmology. This ranking is a testament to the pioneering research and collaborative efforts of the leading vision scientists at Doheny.



Dr. Srinivas Satta Co-authors Paper in *Nature Biomedical Engineering*

This fall, Srinivas Satta, M.D., FARVO, co-authored a paper on SLice Integration by Vision Transformer (SLiViT), which is a groundbreaking deep-learning model that accurately and rapidly measures disease-related risk factors in 3-D, volumetric biomedical imaging with accuracy comparable to specialists. Unlike traditional learning models, SLiViT adapts across multiple imaging modalities, such as retinal scans, MRI, OCT, and ultrasound videos while requiring only hundreds of training samples. This technology can be used to save resources, reducing the burden on clinicians, expediting ongoing research, and consequently, improving patient healthcare. The paper is featured in the Oct. 1 issue of *Nature Biomedical Engineering*. *Nature*, an international scientific journal reporting the finest peer-reviewed research, was first published in 1869.

FINAL COUNTDOWN

To Opening of Doheny Eye Center UCLA Pasadena

The relocation of the clinic to Doheny's campus will bring both clinicians and researchers together under the same roof, facilitating the types of interactions that encourage collaborative research and medicine.



The Doheny Eye Center UCLA Pasadena clinic will open in January 2025.

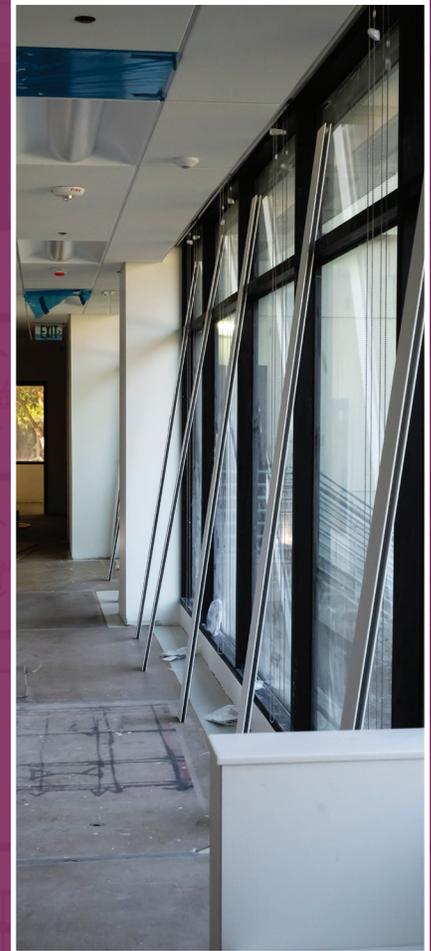
Completion of this project will make over 17,000 square feet on the Doheny Eye Institute campus at 150 N. Orange Grove Boulevard the clinic's permanent home. This space will accommodate 23 Doheny-UCLA faculty physicians and 35 staff members.

Appointed with state-of-the-art equipment and imaging systems, the new clinic will provide the highest quality of vision care through the detection, diagnosis, and treatment of all ocular diseases. This space will also support academic medicine activities, including teaching rounds and clinical research. Additionally, the relocation of the clinic to Doheny's campus will bring both clinicians and researchers together under the same roof, facilitating the types of interactions that encourage collaborative research and medicine.

Facilities will include:

- 36 fully equipped exam rooms
- 2 convenient in-office procedure rooms
- 3 advanced laser and injection rooms
- 3 certified clinical research rooms
- A state-of-the-art imaging center
- A dedicated pediatric ophthalmology suite
- A dedicated ocular plastics, cataract, and refractive suite

For the latest updates, follow us on Instagram, X, LinkedIn, and Facebook or check your inbox for our InSight-at-a-Glance e-news.



Thank you!

We thank our generous supporters and friends who help make the successful accomplishment of our mission possible. In appreciation of their generous contributions made from July 1, 2023 through June 30, 2024, Doheny Eye Institute recognizes the following donors:

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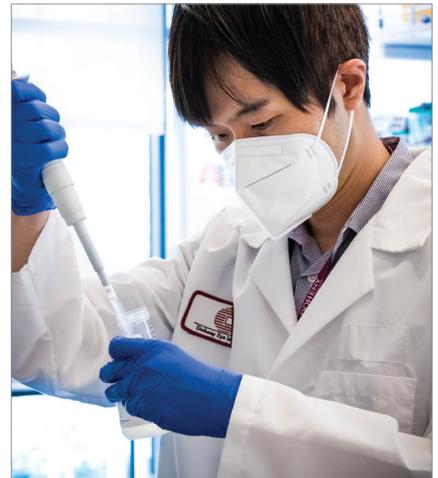
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