The Arnold and Mabel Beckman Foundation, which carries on the legacy of medical device company Beckman Instruments' founder and his wife, has demonstrated its commitment to treatment of retinal diseases by awarding the Gavin Herbert Eye Institute with $2 million to establish a new fellowship program. The first retinal fellowship will start in July 2014. Each fellowship will be two years in length and could focus on topics such as what causes retinal disease or the development of new medical, stem cell or gene therapies. Fellows will work with distinguished institute faculty including Barry Kuppermann, MD, PhD; Cristina Kenney, MD, PhD; Henry Klassen, MD, PhD; and Stephanie Lu, MD.

Screening of the applicants is already under way. Fellows will be required to have a medical degree or PhD, as well as a demonstrated long-term interest in basic science or translational research. Preference will be given to specialists in age-related macular degeneration, the most common cause of vision loss for people over 60 years old.

Fellows will have the unique opportunity to work in a clinical setting at the Gavin Herbert Eye Institute building, within a hundred yards of the research labs at Hewitt Hall and the Sue & Bill Gross Stem Cell Research Center. “Between the three buildings, we have state-of-the-art research, clinical and surgical facilities,” says Dr. Cristina Kenney. “We can literally take research from the lab bench to the patient. Dr. Barry Kuppermann, Dr. Henry Klassen and I are MD/PhDs with strong backgrounds in research, which provides a rich experience for fellows in applying their research to new treatments for patients. This program will help to make clinical studies available to patients at the institute.

“Providing a strong foundation of training for these fellows shows tremendous foresight from the Beckman Foundation. Partnering young researchers with clinicians who perform research is how you get the treatments and cures for tomorrow. It is a wonderful investment in the future of eye care.”

already a supporter of the building campaign, the Arnold and Mabel Beckman Foundation has given the Gavin Herbert Eye Institute $2 million for fellowships specializing in retinal degeneration.

THE ARNOLD AND MABEL BECKMAN FOUNDATION’S $2 MILLION GIFT ESTABLISHES FELLOWSHIP FUND

The Gavin Herbert Eye Institute Residency Program

Here From the Start: Larry Pasquali, MD

Getting Her Vision Back

Winter 2014

SHINE THE LIGHT

Thank you for supporting the Shine The Light Campaign

Gifts of $25,000 and above received since June 1, 2013, to support construction of the Gavin Herbert Eye Institute:

Abbott Medical Optics
Arnold and Mabel Beckman Foundation
Bausch + Lomb
Robin and William C. De La Peña, MD
The Garg Family
Josephine Herbert Gleis Foundation
Sylvia and Ronald Hartman, MD
Ninetta and Gavin Herbert
Diane and Harry Johnson
Nancy and Larry Pasquali, MD
Jennifer Simpson, MD, and Ron Kurtz, MD
Lorraine and Robert M. Sinskey, MD
The Robert M. Sinskey Foundation
WaveTec Vision

Gifts of $25,000 and above received since June 1, 2013, for research:

ASCRS
Arnold and Mabel Beckman Foundation
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Judith and Charles Frisch, MD
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Diane and Harry Johnson
Richard P. Kratz, MD, DSc
Beth L. Koehler
Geneva M. Matlock, MD

For more information about the Gavin Herbert Eye Institute, please call (949) 824-0091.

www.eye.uci.edu/winter
R
to drug therapies that could reverse or
Rachel Martin hopes to pave the way
her research on cataract formation, Dr.
cataract surgery isn’t available. With
regions with less advanced medical care,
cataracts that should be treatable. In
According to the World Health
Cataracts are the leading cause of
blindness in developing countries. Ac
to a major milestone in Dr. Martin’s
proteins causes cataracts has been
structures are observed using nuclear
Dr. Martin uses recombinant DNA
to study cataract structures. Using a
bacterial plasmid, she encodes the gene
for the desired protein. The bacteria take
up the DNA and produce the proteins,
which are then purified. Finally, protein
structures are observed using nuclear
magnetic resonance (NMR), the same
technique that MRIs are based on.
Discovering how a mutation of crystall
proteins causes cataracts has been
a major milestone in Dr. Martin’s research. There are three kinds of

### Cataract Formation

#### The Nature and Denaturing of Crystallin Proteins

Rachel Martin, PhD, researches proteins
that lead to cataract formation.

**In the developing world**, cataract surgery has
been unaffordable for many, leading to blindness.

**Cataracts**, once the leading cause of blindness
in developing countries, are caused by theโปร
terior lens clouding due to protein denaturation.

**Keeping in the Clear**

A graduate of Yale with a PhD in
e studies cataracts on a molecular
level since 2005, specifically protein–protein
interaction and other interactions that
fulfill biological functions in the eye.

The crystallin proteins in the lens are
special: Normal proteins are broken
down to amino acids and recycled
frequently, every few hours or weeks.
However, this protein cycle does not
exist in the eye’s lens because of its
transparency. The process would scatter
light and obscure vision.

“A cataract is what happens when transparency is lost,” Dr. Martin
explains. “Age, diabetes, UV exposure and genetics are factors. Something goes
wrong with the protein interactions, resulting in an opaque clouding of the
lens. Because the proteins in the eye’s lens are not recycled, the proteins you
are born with are there for your entire life.” If proteins denature and clump
together in the eye over time, they also
do not break down.

Along with a team of graduate students,
Dr. Martin uses recombinant DNA
to study cataract structures. Using a
bacterial plasmid, she encodes the gene
for the desired protein. The bacteria take
up the DNA and produce the proteins,
which are then purified. Finally, protein
structures are observed using nuclear
magnetic resonance (NMR), the same
technique that MRIs are based on.

**Looking Ahead**

Dr. Martin and her team are now
studying a second protein mutation.
While it does not occur naturally in
human eyes, it could shine a light
on what happens when proteins are
exposed to UV rays, a major factor in
developing cataracts. "Researchers
have looked at lenses from people who
have cataracts and seen the same
modifications over and over again. So we
designed a mutation that mimics these
changes and are learning how it works.

"Age, diabetes, genetics: We’re interested
in studying all of these mechanisms.
This is just the beginning,” asserts Dr.
Martin. "As our research on cataracts
continues, we hope to collaborate with
the Gavin Herbert Eye Institute to keep
improving treatments for cataracts."

TO CONTACT FACULTY MEMBERS OR TO MAKE AN APPOINTMENT, CALL (949) 824-2020 (IRVINE) OR (714) 456-7183 (ORANGE)
Take an in-depth look at the Gavin Herbert Eye Institute Residency Program, with insights from Jeremiah Tao, MD, Residency Program Director, and Ken Lin, MD, PhD, Chief Resident.

**EDUCATION FOCUS**

**THE GAVIN HERBERT EYE INSTITUTE RESIDENCY PROGRAM**

How has the Gavin Herbert Eye Institute Program been active?

The residency program has existed in some form since 1965. Initially a community hospital-based program at the Orange County Medical Center (now the UC Irvine Medical Center), it became part of the newly established UC Irvine Ophthalmology Department in 1975. The program expanded to include the Long Beach Veterans Administration (VA), Kaiser Foundation Hospital-Bellflower and eventually facilities on the UC Irvine campus.

How are the residents selected? How many residents are in the program?

The residents are chosen from a pool of up to 250 applicants. About ten percent of the applicants are interviewed, and a matching company helps to narrow down, rank and place them. The Gavin Herbert Eye Institute (GHEI) accepts three residents per year for the three-year residency program, for a total of nine residents at a given time. “The residency program strives to train new minds for newer solutions for ophthalmology, in addition to making residents competent surgeons and clinicians. We have a high percentage of MD/PhDs because we attract younger physicians with a background in research, which is very unique to our program,” says Dr. Ken Lin.

What facilities and experiences do they have access to as part of the program?

“Residents are exposed to a broad spectrum of patients and facilities across varied conditions. Through rotations at the UC Irvine Medical Center, Long Beach VA, Kaiser and the institute’s new building on the UC Irvine campus, they see and interact with different healthcare delivery systems,” details Dr. Jeremiah Tao. “The institute’s new building also offers state-of-the-art equipment, a floor dedicated to practicing surgery, administrative offices and the ability to view live feeds of surgeries performed in our operating rooms.”

“Orange County has a rich mixture of patients with different ethnic and socioeconomic backgrounds,” Dr. Lin shares. “We see patients with very advanced stages of diabetes, bad eye infections in people who have had no access to care, and we serve more affluent patients for cosmetic procedures. There is an art to treating such varied patients, which the institute prepares us very well to do.”

How does the faculty interact with the residents?

“As the institute is on the cutting edge of research and patient care, residents have the chance to work with leaders in each of their respective fields,” says Dr. Tao. “They participate in innovation and in a culture of curiosity—they have the robust and extensive experience of taking care of patients with a good balance of autonomy and supervision. They have their own patients along with a shadowing and mentoring system where they can work in the same clinics as their role models and see how they practice.”

“Residents are given a lot of responsibility and autonomy. But if help is needed, it’s available,” Dr. Lin adds. “Faculty members are very generous with their time. The culture of the institute is very friendly and collegial. While we all keep very busy, we help each other to excel both clinically and surgically. They not only mentor us, but are our friends and peers.”

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How do residents remain connected to the institute after their residency is completed?

Many residents go on to practice or complete a fellowship at the institute. A good number of faculty members are former residents, fellows or both. Former residents also remain connected through newsletters and attending the GHEI annual colloquium or alumni events at national ophthalmic conferences.

How is the GHEI Residency Program unique?

“The institute offers the full spectrum of specialties within a smaller program. This allows residents to have close relationships with the faculty at all levels, which can become more profound than in some of the bigger programs,” Dr. Tao emphasizes.

“Orange County is truly a mecca for ophthalmologic technology and innovations. Due to the institute’s relationships with the surrounding industry, we have access to new technology and products, often before they become public,” Dr. Lin points out. “For example, we work with a variety of different intraocular lenses and phaco instruments for cataract surgery during residency. We are also exposed to different models and tools. When we graduate, we all feel very comfortable operating with a wide range of surgical center setups, with many different surgical techniques and approaches ready to apply to helping our patients regain their vision.”

“Dr. Roger Steinert and the staff here at GHEI are turning Orange County into the Silicon Valley of eye care: a hub of research, patient care, teaching and innovation, with the Gavin Herbert Eye Institute at the center,” concludes Dr. Lin. “I can’t wait to see what’s in store ten to twenty years from now.”

“Faculty members are very generous with their time. The culture of the institute is very friendly and collegial…”

“We help each other to excel both clinically and surgically.”

— Ken Lin, MD, PhD, Chief Resident
A successful ophthalmologist who has practiced in Southern California for more than three decades, Larry Pasqualli, MD, was one of the first residents of the UC Irvine (UCI) Ophthalmology Department. He has remained close to what became the Gavin Herbert Eye Institute (GHEI) throughout his career by serving as a Clinical Professor to residents at the Long Beach Veterans Administration (VA) Hospital.

Dr. Larry Pasqualli grew up in San Jose, California, studied at MIT and UCLA, and practiced ER medicine in Hawaii before beginning his residency in 1975. “World-renowned ophthalmologist Irving Leopold was brought to UCI by Gavin Herbert to work with him at Allergan. Even at that time, Orange County was a leading center for innovation for eye care technology including then-controversial lens implants,” explains Dr. Pasqualli. “Dr. Leopold was the first chairman of the new UCI Ophthalmology Department, and I was fortunate enough to be a part of it.

“The residency at UCI and Long Beach VA was a very strong clinical program,” Dr. Pasqualli recalls. “Through it, I met Dr. Ronald Hartman, an attending in private practice. I joined him in practice in 1978. We’re still partners, colleagues and friends. Our practice, Southern California Eye Physicians and Associates, has grown with the addition of his son, Dr. Carl Hartman, and Dr. Trinh Nhu, both trained at UCI, Dr. Emma Clay, and most recently my son, Dr. Ted Pasqualli. We all serve as attending clinical instructors at UCI and the Long Beach VA, and take pride in assisting the residents and Veterans.”

Larry Pasqualli, MD

“Having followed the department for 40 years, I’m excited by its remarkable growth and achievements. Now there’s a world-class facility for a world-class department, a new and better platform for research and development for preventing blindness, improving vision and curing eye diseases. GHEI is a major center for eye care, and I am honored to be a contributor. I often send patients to the institute for consultation because of the special expertise and have attended many of the annual colloquiums over the years, which help me stay current so I can better care for my patients.

“Ophthalmology is the best field in medicine,” says Dr. Pasqualli. “The procedures we do to help people see better amaze me, even while I’m doing them. I’m particularly proud of my affiliation with UC Irvine and the Gavin Herbert Eye Institute, as they have played such a meaningful role in my career. I’ve been in the presence of giants of ophthalmology past, present and future including Dr. Irving Leopold, Gavin Herbert, Dr. Roger Steinert and the exceptional current faculty of the institute.”

Patients who have had vision restoration procedures at the Gavin Herbert Eye Institute can now tell their story and want to see the work Dr. Steinert has done.

From the age of three, Lynn Rahn would only rely on one of her eyes (GHEI) to help her get through the day. When the edge of a cereal box accidently hit her in the right eye, it tore the iris and caused a trauma induced cataract that left her with lasting damage to her vision. From then on, no vision exam she ever took went beyond the top line and the big letter E—which she could only vaguely make out. In spite of wearing glasses, Lynn experienced vision issues into adulthood. Her archery would be Ditche away from the target, and driving tests were a challenge.

The hope for full vision restoration hadn’t even entered her mind until she was referred to the Gavin Herbert Eye Institute. But now, after decades of dealing with the significantly impaired vision in her right eye, Lynn, Senior Assistant Vice Chancellor at UC Irvine, sees the world with perfect vision through both eyes. All thanks to a cataract procedure she received under the care of Roger Steinert, MD.

“I waited a year before I got up the nerve to finally see Dr. Steinert,” recalls Rahn, who was referred to the Gavin Herbert Eye Institute after being treated for a vision migraine. “Sitting through the initial examinations and listening to him explain my situation to the Fellows in the room was really fascinating. Dr. Steinert was the first doctor who said it might be possible to restore my vision.”

Rahn describes the vision in her right eye before the procedure as blurry and ignored it having petroleum jelly smeared over the pupil. Today, seeing with both eyes has improved her quality of life tremendously, and she is often greeted with enthusiasm from Fellows and physicians who have heard her story and want to see the work Dr. Steinert has done.

“I have been so amazed and impressed by the level of care I’ve experienced with the Gavin Herbert Eye Institute,” says Rahn. “Everyone is so nice, and they walked me through every step. I just think they are all amazing.”

Larry Pasqualli’s vision was fully restored at the Gavin Herbert Eye Institute.

ANNUAL COLLOQUIUM STRENGTHENS LOCAL EYE CARE COMMUNITY

The 7th Annual Colloquium “Advances and Controversies in Ophthalmology” was held in the new Gavin Herbert Eye Institute building on October 11th and 12th, 2013. Many of the institute’s faculty members presented on topics including basic science research, clinical trials and current issues relevant to the ophthalmology community.

They were joined by guest speakers who are leaders in their fields. Retinal specialist Mark Blumenkranz, MD, spoke on emerging trends in digital ophthalmology and refining laser therapy treatment. Incoming president of the American Society of Cataract and Refractive Surgery, Richard Lewis, MD, presented on surgical techniques and imaging issues in glaucoma. David Haritton, MD, a leader in cataract surgery, shared his best practices for patients receiving toric intraocular lenses. Additionally, Richard Kratz, MD, DSc, and Robert Simskey, MD, were honored for their longstanding contributions to ophthalmology.

Attendees could receive continuing medical education credits and included community physicians, residents, fellows, medical students, researchers and eye care company representatives.

“The annual colloquium solidifies the institute as the predominant center of ophthalmic care in Orange County,” said event co-chair Sumit (Sam) Garg, MD.

“We bring in speakers with national prominence, along with many of our own nationally recognized faculty, so local doctors can receive quality continuing education. This benefits their patients and strengthens collaboration within the Orange County eye care community and industry, as we learn from and interact with each other.”

(From left) Co-chair Sumit “Sam” Garg, MD, Institute Director Roger Steinert, MD, Richard Kesten, MD, DSc, and co-chairs Mayun Pinski, MD, and Robert Lingua, MD.

Dr. Richard Kesten was presented with a lifetime achievement award at the 7th Annual Colloquium by the event’s co-chairs.

BRIGHT LIGHTS bringen ein Bogen auf die Fläche.

HERE FROM THE START

www.eye.uci.edu/winter
As a faculty member of the Gavin Herbert Eye Institute, Sumit (Sam) Garg, MD, has many roles. Among them, he is Vice Chair of Clinical Ophthalmology, Medical Director, a professor and a surgeon specializing in cataract surgery, corneal disease and surgery, and refractive surgery. After five years at the institute, he, along with his wife Romi and his parents Vim and Santosh, have added the role of donor to the list with a charitable gift toward the institute’s newly opened, state-of-the-art facility.

“As the only academic eye institute in Orange County, we are the leading center for both routine and complex eye care. It is important for patients to know that we are here, and that we have a very comprehensive and specialized offering of all the subspecialties in ophthalmology. Our faculty members are also all educators who are teaching the next generation of ophthalmologists.”

An Orange County native who grew up in Fullerton, Dr. Garg became a doctor because he wanted to follow in his parents’ footsteps—he is a pediatrician, and his mother is a psychiatrist. “My parents have supported me since day one,” shares Dr. Garg. “I asked if they would also like to donate, and they said absolutely. They were very happy to join me in contributing to the institute’s new building and ongoing vision.” In honor of the Garg family’s donations, the institute’s operating room manager’s office will be named “Gift of Vim, Santosh, Romila and Sam Garg.”