FUNDRAISING REACHES
$20 MILLION MILESTONE
TOWARD BUILDING THE GAVIN HERBERT EYE INSTITUTE

For more than three decades, Gavin S. Herbert dreamed of creating an eye institute at the University of California, Irvine that would cement Orange County’s reputation as the nation’s leader in eye care and research.

When Vision Becomes a Reality
Thanks to a $10 million gift from Gavin Herbert—the founder and former CEO of Allergan, Inc., an Irvine-based maker of eye care and other products including Botox® Cosmetic—along with another $10 million in donor contributions, UC Irvine has raised half of the money needed to begin construction on The Gavin Herbert Eye Institute.

“We’re close to building something special,” Herbert says. “This is something I’ve talked about for more than 30 years.”

Leader in Ophthalmic Research
The Gavin Herbert Eye Institute will become the only academic eye research center between San Diego and Los Angeles, helping to improve the visual health of the people of Orange County, the nation, and the world.

The $40-million, 60,000-square-foot project will feature operating rooms outfitted with the latest technologies and allow doctors and researchers to collaborate under one roof, helping to improve patient care and hasten sight-saving discoveries.

The Gavin Herbert Eye Institute will also house the Department of Ophthalmology, which is home to some of the nation’s top researchers in retinal disease, glaucoma, corneal disease, refractive surgery, and macular disease.

Roger Steinert, MD, founding director of The Gavin Herbert Eye Institute, says, “We’re committed to meeting the community’s needs and elevating the level of eye care in Orange County to the best found anywhere, nationally or internationally.”

Be a part of this great Institute and its groundbreaking research in eye care. Please call (949) 824-0166 or visit www.ghei.uci.edu to learn how you can help.

www.ghei.uci.edu

The new Gavin Herbert Eye Institute patient care and research facility (artist rendering).
FEELING THE PRESSURE

TO PREVENT BLINDNESS

The leading cause of blindness in the world, glaucoma, has no symptoms and no warning signs. By the time it is diagnosed, people will experience permanent vision loss. Many are not aware they have a problem until they have developed significant “tunnel vision.”

Unfortunately, there is no treatment that can restore lost vision. Currently, the most common methods of screening for glaucoma are checking intraocular pressure (IOP) and for the loss of peripheral or side vision.

The problem is, according to Donald Brown, PhD, a researcher and an assistant professor of ophthalmology at the University of California, Irvine, “There are no anatomic factors that identify eyes that are at risk, and there are no symptoms. Around 20% of people with glaucoma have normal IOP, and a positive peripheral vision screen means that you’ve already lost some vision.”

Another difficulty is that many people with increased IOP have no evidence of nerve damage or vision loss.

**Getting Down to the Mechanics**

Brown’s research is focused on understanding the mechanics of vision loss in people with glaucoma and normal IOP. Through an understanding of the changes that occur in the eyes of people with glaucoma—those with normal IOP and those with increased IOP—he hopes to be able to identify individuals with glaucoma before vision loss has occurred.

He has found two ways to examine the very small and sensitive structures in the back of the eye. One is using a very unique, highly advanced microscope, and the other is with an instrument used to assess and map the mechanical properties of the optic nerve head at a microscopic level.

“Bringing the technology into the clinic would lead to earlier diagnosis, earlier treatment, and hopefully prevention of visual loss,” Brown says.

The dedication to research at The Gavin Herbert Eye Institute at UC Irvine is leading to new ways to stop the silent thief of vision in its tracks and preventing vision loss in millions of people.

Visit [www.ghei.uci.edu](http://www.ghei.uci.edu) to learn more about The Gavin Herbert Eye Institute and the fight against glaucoma.

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ARE YOU AT RISK FOR GLAUCOMA?

You may be at increased risk for glaucoma if you are over 60 years of age, have a close family member with glaucoma, are taking steroids, have had an eye injury, or have hypertension or diabetes.

Certain ethnicities including African Americans, Hispanics, and Asians have a higher incidence of glaucoma. Because glaucoma can be present without any symptoms, it is important to have your eyes examined regularly. Your eyes should be tested:

- Every two to four years before age 40
- Every one to three years from age 40 to 54
- Every one to two years from age 55 to 64
- Every six to 12 months after age 65
- Anyone with risk factors should be tested every one to two years after age 35

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CHAIRMAN’S COLUMN

A VISION IN SITE

This issue highlights our exciting breakthroughs in glaucoma research and treatment in collaboration with NeoMedix Corporation. Your continued support of The Gavin Herbert Eye Institute and the Shine The Light campaign, with $20 million raised to date, allows us to continue to make advances and together build a world-class eye care center right here in Orange County.

Sincerely,

Roger Steinert, MD
Chair, Department of Ophthalmology

Please call Susan Totten, Executive Director of Development for UC Irvine Health, at (949) 824-0166 for more information on how you can help.

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UPCOMING EVENTS

**ORANGE COUNTY VISION SYMPOSIUM**

Learn from top doctors and researchers about symptoms, therapies, and the latest treatment technologies for eye diseases including glaucoma, macular degeneration, and retinitis pigmentosa.

**Orange County Vision Symposium**

Saturday, June 26, 2010
8:00 AM–4:30 PM
UC Irvine Student Center

Register for this free event, hosted by the Discovery Eye Foundation, by contacting Cynthia Ruiz at 310-623-4466 or contactus@discoveryeye.org.

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FACULTY MEMBERS

- George Baerveldt, MD
- Lbsahir BenMohamed, PhD
- Swaraj Bose, MD
- Donald J. Brown, PhD
- Marijan Farid, MD
- Sumit Garg, MD
- Ronald N. Gaster, MD
- James V. Jester, PhD
- Jerahmy Tao, MD
- Tibor Juhasz, PhD
- Maria Cristina Kenney, MD, PhD
- Henry Klassen, MD, PhD
- Baruch Kuppermann, MD, PhD
- Ron Kurtz, MD
- Linda S. Lippa, MD
- Donald Minckler, MD
- Sameh Mosaed, MD
- Anthony B. Nesburn, MD
- Steven L. Wechsler, PhD
- Jeremiah Tso, MD
- Jennifer Simpson, MD
- Roger F. Steinert, MD
- Sameh Mosaed, MD
- James V. Jester, PhD

TO CONTACT FACULTY MEMBERS OR TO MAKE AN APPOINTMENT, CALL 949.824.2020 [IRVINE] OR 714.456.7183 [ORANGE]
Glaucoma is a group of eye conditions that cause damage to the optic nerve. This nerve sends images from the eyes to the brain. Glaucoma is the leading cause of blindness in the world, and the second leading cause of gradual vision loss after cataracts.

There are over 2.2 million people in the United States who have glaucoma. It is estimated that the number will increase to over 3 million by 2020.

There are many different types of glaucoma, but primary open-angle glaucoma is the most common. Glaucoma is called the "silent thief of vision" because most people do not have any symptoms.

Sameh Mosaed, MD, an ophthalmologist and researcher at the University of California, Irvine, says, "The scary part is that there really are no symptoms with the majority of types of glaucoma, so the patient is unaware until they have severely impaired vision permanently."

If left untreated, people will experience a slow loss of peripheral (side) vision. This is also called tunnel vision (see Figure 1). Because the loss of vision occurs so slowly, someone who has glaucoma will not notice the changes until a significant amount of vision loss has happened.

What Causes Glaucoma?
The front part of the eye is filled with a clear fluid, which is always being made in the back of the eye. It leaves the front of the eye through channels in an area called the anterior chamber angle. Anything that slows or blocks the flow of this fluid out of the eye will cause pressure to build up in the eye. This pressure is called intraocular pressure (IOP). In most cases of glaucoma, this pressure is high and causes damage to the optic nerve.

How is Glaucoma Diagnosed?
A simple eye exam is all that is necessary to check for glaucoma. An ophthalmologist will perform a variety of tests that include checking the IOP and peripheral vision, and examining the optic nerve at the back of the eye with a special type of microscope (see Figure 2). In the majority of people with glaucoma, the IOP is increased, but for some, it can be normal.

How is Glaucoma Treated?
Although glaucoma cannot be cured, it can be treated successfully for most people, and vision loss can be prevented. When someone is diagnosed with glaucoma, the first treatment is drops placed into the eyes daily to reduce pressure. Sometimes more than one type of drop is needed, and medical treatment works for most people.

“We have medications that are very effective in treating glaucoma,” says Mosaed. “That’s why the majority of patients don’t need anything more than eye drops for treatment and to prevent vision loss.”

When drops don’t work very well, there are a number of surgical procedures that can restore the normal flow of fluid in the eye. Mosaed and her team have been looking at the newest, minimally invasive technologies, such as the Trabectome for glaucoma.

“In comparison to trabeculectomy, the standard surgical treatment for glaucoma we’ve been doing for 40 years, treatment with the Trabectome is less invasive,” says Mosaed.

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GLYCOGEN THAT IS A MEDICAL EMERGENCY

Angle-closure glaucoma, which is different from open-angle, is accompanied by symptoms and is considered a medical emergency. The rapid increase of intraocular pressure (IOP) that happens in angle-closure glaucoma can cause blindness in a few days if not treated. These symptoms include:

- Sudden, severe pain in one eye
- Decreased or cloudy vision
- Nausea and vomiting
- Rainbow-like halos around lights
- Red eye
- Eye feels swollen

Symptoms may come and go at first and then steadily become worse. To reduce IOP, treatment may include drops, pills, or medications given through an IV (intravenously). In some cases, an operation is needed to relieve the pressure and prevent it from happening again.

WATCH WHAT YOU EAT

FOODS THAT MAY HELP PREVENT GLAUCOMA

When thinking of a healthy diet, most of us think of what we should give up or eat less of. However, we must also make sure to get the right amount of nutrients that our bodies need to stay healthy and active. Here are some of the best foods and the nutrients they contain that may help lower your risk of glaucoma:

- Spinach—high in antioxidants called carotenoids, zinc
- Eggs—vitamins A, E, carotenoids, and zinc
- Broccoli—vitamins A, C, and carotenoids
- Cantaloupe—vitamins A and C
- Seafood—vitamin E and zinc

Along with a well-balanced diet, check with your doctor to see if taking vitamins or supplements is right for you.
Dr. Baruch Kuppermann’s findings from his groundbreaking research lay the foundation for developing innovative eye therapies to save the vision of his patients, as well as people around the world.

“Devices that deliver drugs to the eye will become the new standard of care, giving patients long-term benefits without frequent reinjections.”

— Baruch Kuppermann, MD, PhD

**CUTTING EDGE**

**WITHOUT THE CUTTING**

We often hear about how surgery can help our vision. However, retinas problems from aging, diabetes, or AIDS are usually treated by using a needle to inject drugs right into the eye. These drugs can’t help for long because the eye rejects them. Patients then have to return every month for treatment.

For 18 years, Baruch Kuppermann, MD, PhD, Director of Retinal Service at UC Irvine, has worked with UCI and eye care companies here in Orange County to make devices that release drugs over time, so eye treatments can last.

“This will become the new standard of care, giving patients long-term benefits without frequent reinjections.”

An Eye for the Eye

While completing a PhD in Neuroscience, Kuppermann researched how we learn to see. His study inspired him to become a medical doctor specializing in the retina, located in the back of the eye, which sends visual signals to the brain.

Though he mostly sees patients, Kuppermann also has a research lab that tests how retinal cells react to drugs and experience no symptoms for eight months or more.

Looking Forward

Kuppermann is more than a doctor and professor of ophthalmology at UC Irvine. He is also a professor of Biomedical Engineering, where he works on developing technology for new therapies. “There’s a type of crystal we can load with drugs. The crystal changes colors as the drug is put in, and when the drug is used up. When the color changes, we know the drug is fully released from the crystals and more treatment is needed.”

Kuppermann looks forward to continued collaboration with professors, researchers, and eye companies, which is only made possible at UC Irvine’s world-class Gavin Herbert Eye Institute.

“The opportunities at UCI have been fantastic,” says Kuppermann. “Through research, clinical trials, and my practice, I’m able to provide care for my patients on a long-term basis.”

WINNING THE FIGHT AGAINST GLAUCOMA THROUGH THE SPIRIT OF COLLABORATION

For most people with glaucoma, the treatment is simple—putting drops of medicine in the eye to reduce pressure will help them from going blind. When medications do not lower the pressure enough, their only option is surgery. The usual procedure, called trabeculectomy, does not work for many patients. There are also complications that happen with this procedure.

Now, there are more options for people suffering from glaucoma who need surgery. At the University of California, Irvine, there is an exciting collaboration with a local company, Neomedic Corporation, in the development of a new technology called Trabectome.

Soheila Mirhashemi, PhD, CEO of Neomedic, explains, “Trabectome is a minimally invasive surgical technology that reestablishes the natural pathways of the eye without leaving any implant in the eye. It also supports the natural physiology and anatomy of the eye.”

The Trabectome was invented by George Baerveldt, MD, of The Gavin Herbert Eye Institute. The device is now helping to treat glaucoma and prevent vision loss in over 100 leading glaucoma centers across the country and around the world.

Donald Minckler, MD, Director of Glaucoma Services at UC Irvine says, “The Trabectome specifically addresses the part of the eye that increases pressure inside the eye for glaucoma patients. This whole project could only have happened so quickly at The Gavin Herbert Eye Institute.”

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John Harrington was playing hockey and started missing passes he used to easily get. He soon realized it was because he couldn’t always see the puck.

Harrington was diagnosed with glaucoma and given drops to lower his eye pressure, but the drops weren’t working. His doctors said that without surgery, he would eventually lose his sight.

His search for the best treatment led him to Donald Minckler, MD, at UC Irvine. “It’s fantastic that I live here in Orange County and had an expert for my condition so close at hand,” says Harrington.

Three years later, Harrington’s eye pressure is still under control. “The gift of sight is something I hold precious, even more because I’ve lost some of it. After going through something like this, I look at things differently.”

“He jotted that down a lot to Dr. Minckler and UCI for giving me back my normal life,” says Harrington. “It’s great to be able to play hockey again and coach my kids. Now when I miss the puck, I know it’s because I’m getting older!”

Taking the Pressure Off

The cutting-edge procedure Minckler performed is called Trabectome, which helps to lower eye pressure. A few days after surgery, the pressure had greatly improved, to Harrington’s relief.

Three years after his glaucoma surgery, John Harrington can play hockey again and coach his kids why he kept missing the hockey puck. He needed treatment immediately to save his remaining sight, and Dr. Minckler had his back. “He put me at ease and explained everything in a way I could understand.”
Publications

Our productive faculty educators have published six book chapters and five peer-review scientific journal articles in this period.

Scientific Meetings, Lectures, and Presentations

Every faculty member has attended and presented at major national and international professional meetings, totaling over 50 events in this period.

Awards and Honors

Special recognition has been given to:

- Donald Brown, PhD, 2009 Shaffer Award for Innovative Research
- Baruch Kuppermann, MD, Foundation Fighting Blindness Special Recognition for organizing and moderating a symposium on leading-edge developments in macular degeneration
- George Baerveldt, MD, named “Super Doctor” by Los Angeles Magazine
- Jennifer Simpson, MD, named to Advisory Board of United Cerebral Palsy of Orange County
- Donald Minckler, MD, “Top Glaucoma Doctor”, Orange Coast Magazine
- Roger F. Steinert, MD, visionary Award, Foundation Fighting Blindness.

Dining in the Dark gives guests a chance to experience a unique journey of taste, sound, and touch—all in the dark. Proceeds from the event go towards helping more than 10 million Americans affected by blindness because of diseases affecting the retina.

This year, the Orange County Chapter of the Foundation Fighting Blindness presented the Visionary Awards during the Dining in the Dark Dinner at the Newport Beach Fairmont Hotel, March 25, 2010. The event honored two familiar faces at The Gavin Herbert Eye Institute: Roger Steinert, MD, its chairman and director, and Gavin Herbert, its founder.

“Dining in the Dark is an annual event held by the Foundation Fighting Blindness, which funds research for blindness prevention, treatment, and cures. It is to provide a place for the world’s best doctors and researchers to develop treatments that restore sight and eliminate diseases of the eye,” says Herbert.

Other events in 2010 held by the Foundation Fighting Blindness include the Orange County Symposium and VisionWalk in June.

For more information on the Foundation Fighting Blindness, events like Dining in the Dark, and what you can do to help, please contact Amy Thompson at (310) 207-2089 or via email at AThompson@blindness.org.