Illinois Eye and Ear Infirmary
UIC Department of Ophthalmology & Visual Sciences

1855 West Taylor Street
Chicago, IL 60612

upcoming symposia 2014

April
11 7th Annual Retina Symposium

May
14 2014 Spring Glaucoma Symposium

June
13 38th Annual Alumni / Resident Day

July
25-27 Advanced Vitreoretinal Techniques & Technology

August
6-9 Midwest Ocular Angiography Conference

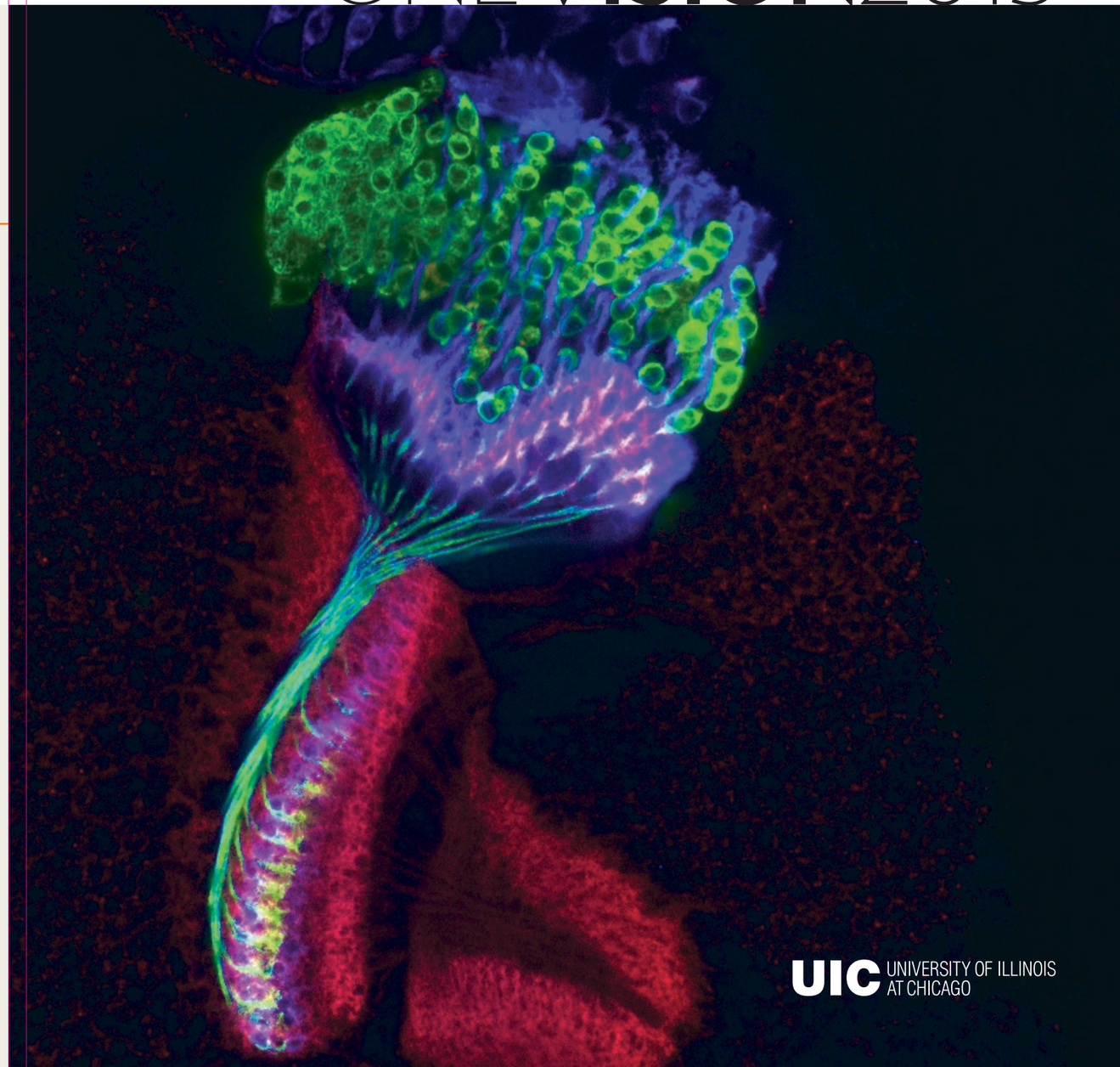
September
27 Oculoplastics & Neuro-Ophthalmology Symposium

www.**TheEye**.org

ONE**VISION**2013

Illinois Eye
ILLINOIS EYE AND EAR INFIRMARY

ONE**VISION**2013



UIC UNIVERSITY OF ILLINOIS AT CHICAGO

IN THIS ISSUE

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On the cover
Developing eye and brain in the fruit fly. With permission of Aljoscha Nern, PhD Howard Hughes Medical Institute Janelia Farm Research Campus

A MESSAGE FROM THE DEAN

Welcome to the 2013 Annual Report for the Illinois Eye and Ear Infirmary. This has been a notable year of achievements in research, clinical care and education — thanks to the combined efforts of our faculty, staff and supporters.

Overseeing this productive period as Chair of the UIC Department of Ophthalmology & Visual Sciences has been Rohit Varma, MD, MPH, Professor, Illinois Lions/Charles I. Young Chair in Ocular Research and principal investigator on a series of groundbreaking epidemiological eye studies. We say goodbye to Dr. Varma with this report, as he returns home to California to become Chair of the Department of Ophthalmology and Associate Dean at the Keck School of Medicine of USC and Director of the USC Eye Institute. We wish him well.

In 2013, we grew our capacity to innovate and test new ideas as our National Institutes of Health (NIH) research funding more than doubled, and we moved our NIH rankings into the top 10. In clinical care, we raised our aspirations and delivered on them. People noticed. More than half of *Chicago* magazine's 2014 Top Docs in Ophthalmology are part of the Illinois Eye family.

We attracted the nation's best talent to our residency program in 2013. Of the six finalists, all came from the top 25 U.S. medical schools and half from the top 10. Our philanthropic relationships also planted seeds for future growth, marked by several generous gifts from our patients and alumni, including a recent $1 million lead gift for our Surgical Education Lab.

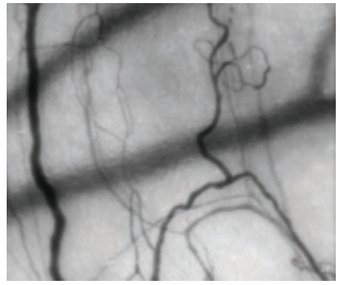
We are well poised to continue this exciting trajectory. We offer our gratitude to each of our friends, supporters and alumni partners as we invite you to join us.

Dimitri T. Azar, MD, MBA | *Dean, University of Illinois College of Medicine; Professor of Ophthalmology, Pharmacology and Bioengineering ; Distinguished University Professor and B.A. Field Endowed Chair of Ophthalmologic Research*

"We are fortunate to work in a field where asking the right questions, and never giving up on finding the answers, can result in being able to give our patients one of the most incredible gifts: the ability to see." –DR. ROHIT VARMA

Dr. Rohit Varma (left) and Dean Dimitri Azar partnered together during a notable year of achievements and transformations at Illinois Eye and the Department of Ophthalmology & Visual Sciences.

Blood vessels in eye, recorded by EyeFlow stroke predictor



EMBRACING A SENSE OF INVENTION

Imaging tools boost eye disease diagnosis

For **Mahnaz Shahidi, PhD**, the Morton F. Goldberg MD FACS Professor in Ophthalmology, inventing the latest, coolest technology is not enough — not by itself. Her passion lies in finding those technologies that can help prevent vision loss and blindness.

Dr. Shahidi, Director of the Applied Physics Lab, achieves that goal through a close collaboration with clinicians. "I begin by trying to understand what the problems are in the clinical practice," she says. "What are the limitations of the existing techniques? Then I think about how we can develop technologies that overcome those limitations and improve patient care."

Dr. Mahnaz Shahidi (left) with Justin Wanek, research specialist

Dr. Shahidi was named the 2012 University of Illinois at Chicago Inventor of the Year for one of these amazing technologies — EyeFlow. The optical imaging device measures blood flow in the conjunctiva of the eye to diagnose and screen patients who may be at risk for stroke.

Changes in the blood flow can indicate an obstruction of the larger blood vessels, which can then translate to increased risk for stroke — the third leading cause of death and the leading cause of severe long-term disability in the U.S.. Studies of EyeFlow's effectiveness in clinical patients are now underway at Illinois Eye.

EyeFlow is just one of the optical imaging technologies Dr. Shahidi's laboratory is developing to screen ailments like diabetic retinopathy, sickle cell disease, age-related macular degeneration and retinopathy of prematurity.

An imaging technique that quantitatively maps retinal oxygen tension won a U.S. patent in 2013. "This measurement is crucial because cells in all the tissues in our body, including the retina, need oxygen to maintain normal metabolism," says Dr. Shahidi. "It's important to know how much oxygen is being delivered and how much is being consumed."

Dr. Shahidi, who holds a PhD in Atomic and Molecular Physics from UIC, joined the Ophthalmology faculty in 1990, following her postdoctoral fellowship in ocular optical imaging. "From the start, I wanted to use my knowledge and training to develop new types of instruments — valuable tools — useful in diagnosing eye disease," she says. In 2010, she was named Vice Chair and Director of Research Programs in the Department of Ophthalmology & Visual Sciences. She is the principal investigator of the department's National Eye Institute (NEI) Core Grant for Vision Research and has been the Director of the Imaging Module since 1998.

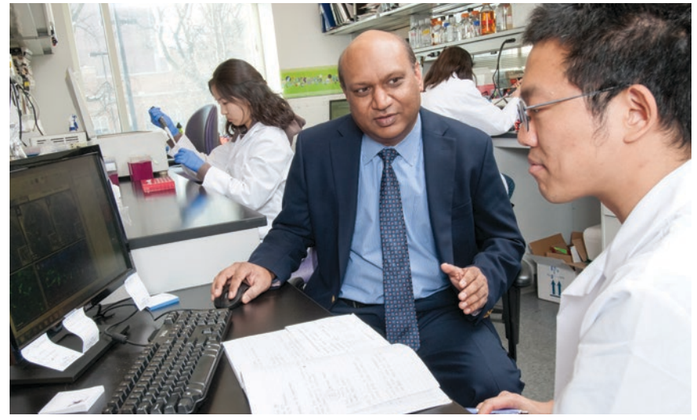
In 2008, she received the coveted Senior Scientific Investigator Award from Research to Prevent Blindness, a leading private sponsor of vision research. In addition, her innovative explorations have attracted funding from the NEI and Department of Veterans Affairs.

"Dr. Shahidi's research highlights the critical role biomedical engineering plays in potentially preventing vision loss and blindness," says **Rohit Varma, MD, MPH**, outgoing Chair of the Department of Ophthalmology & Visual Sciences. "This intersection of biomedical engineering and medical care is where we will make significant advances in the 21st century."

Dr. Shahidi has no favorites among her many sea-changing inventions: "What really excites me is that we can use these technologies to impact people's health."

OPENING A WINDOW

Corneal nerve regeneration



Dr. Sandeep Jain (center) consults with Dr. Yong-Soo Byun, postdoctoral fellow.

The cornea — that transparent dome serving as the eye's outer window — contains the highest concentration of nerve fibers of any structure in the body.

Corneal nerves are responsible for sensations of touch, pain and temperature, and they play important roles in blink reflex, wound healing and the production of tears, all of which makes understanding the molecular and cellular processes involved in corneal nerve regeneration critically important.

"The dysfunction of corneal nerves is a frequent pathological feature of corneal diseases that cause opacities (cloudiness) and result in blindness," explains **Sandeep Jain, MD**, Associate Professor and Director of the Corneal Neurobiology Laboratory at Illinois Eye. "The mechanisms responsible for corneal nerve regeneration have yet to be fully determined."

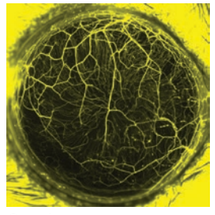
In 2013, the National Eye Institute (NEI) Corneal Disease Panel identified molecular and cellular changes in the neurons, including their regenerative mechanisms, as high-priority needs, gaps and opportunities in the field. In September 2013, Dr. Jain was awarded a $2.5 million R01 research grant by the NEI for his project, *Molecular and Cellular Aspects of Corneal Nerve Regeneration.*

His eventual goal: to discover the underlying forces that can lead to new therapies for treating corneal diseases, the fourth-leading cause of blindness. Of particular interest is neurotrophic keratitis, a condition that can cause corneal blindness and for which few specific therapeutic interventions are available.

The current project builds on previous research in the Corneal Neurobiology Laboratory, which was funded by a NEI K08 career development grant. In that investigation, Dr. Jain's team uncovered the significant role of an immune system protein or semaphorin called Sema7a. (Semaphorins act as growth guidance molecules, helping to regulate how cells migrate as well as immune responses.) They found that Sema7a increases during reinnervation, the restoration of nerve supply to a part from which it has been lost.

"This marks the first time that research is exploring the link between two powerful systems in the cornea — the neural and immune systems," says Dr. Jain. The Illinois Eye researchers hypothesize that Sema7a acts on the corneal nerve and on bone marrow cells that infiltrate the cornea nerve regeneration. If they're correct, they hope someday to be able to capitalize on that regenerative talent.

"There are significant gaps in our knowledge about the mechanisms that promote nerve regeneration," notes Dr. Jain, "and we are determined to close those gaps."



Corneal nerves

> *"The dysfunction of corneal nerves is a frequent pathological feature of corneal diseases."* –DR. SANDEEP JAIN

William F. Mieler, MD

PAYING IT FORWARD

William F. Mieler, MD, is determined to find a better way to deliver healing medication to the eye — a way that someday may extend the effectiveness of a single application up to six months.

"We're not there yet, but we hope to get there in the next couple of years," says Dr. Mieler, Professor and Director, Ocular Oncology Clinic, and interim Department Chair at Illinois Eye. "The research looks promising."

The path he's pursuing: thermosensitive hydrogels — three-dimensional, cross-linked networks of water-soluble polymers. The hydrogels are in liquid form at room temperature. At body temperature, they transform to a gel-like consistency and, in this more solid state, can prolong the drug's presence in the eye.

The discovery could be life-changing for people with visual impairment due to such conditions as age-related macular degeneration (AMD), and diabetic retinopathy (DR).

Emerging treatments for AMD and DR may lead to improved visual prognoses. They are based on a group of proteins called vascular endothelial growth factors (VEGF), which play a role in the formation of blood vessels known to damage the retina. Anti-VEGF inhibitors may prevent vision loss and improve clarity of vision in people with severe AMD and DR. However, treatments require frequent injections — extending over many months.

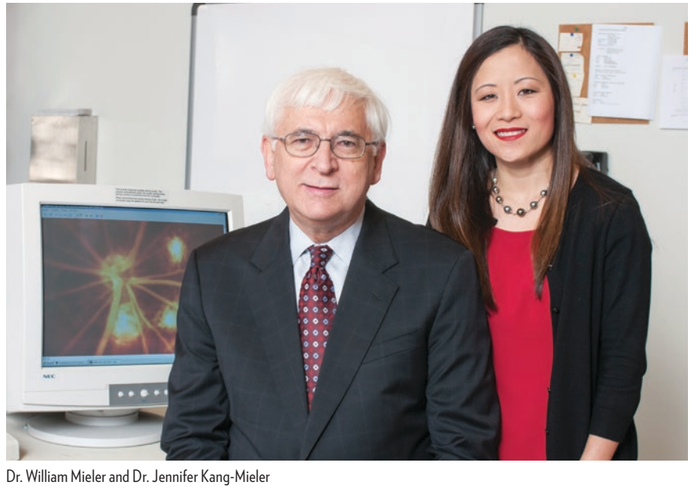
In laboratory studies at Illinois Eye and the Illinois Institute of Technology, Dr. Mieler and his colleague and wife, Jennifer Kang-Mieler, PhD, have shown that using thermosensitive hydrogels as delivery devices is safe and effective — the drugs linked into this delivery system are metabolically active and, upon release, stay viable. Even better, they remain effective for up to two months, vastly reducing the required injections. Dr. Mieler isn't satisfied. "We're trying to achieve three to-six months," he says.

Dr. Mieler is also on the search for new treatments for complex eye tumors, strategies to minimize radiation damage to eye tissues and advances in ocular imaging. He heads up a national clinical trial in diabetic macular edema, marked by an accumulation of fluid in the retina, and a second national trial in choroidal neovascularization, the creation of new blood vessels in the eye, a common AMD symptom.

As a highly respected expert in diseases of the macula, retina and vitreous, Dr. Mieler has collected a number of significant honors, including the Life Achievement Honor Award from the American Academy of Ophthalmology in 2011.

In 2013, he received another tribute that holds special meaning for him — the J. Donald Gass Medal given by the Macula Society for outstanding contributions in the study of macular diseases. During Dr. Mieler's residency at the Bascom Palmer Eye Institute, Dr. Gass was one of his teachers and role models.

Dr. Mieler has tried to emulate that mentorship at Illinois Eye, where he is Vice Chair of Education. "I only hope that even a small portion of what Dr. Gass taught me in all aspects of ophthalmology, and life in general, has rubbed off on me," he says, "and that I can pass it on to future generations."

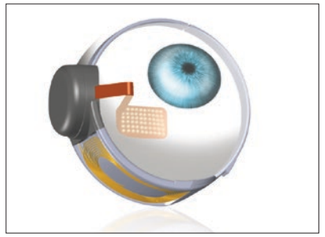


Dr. William Mieler and Dr. Jennifer Kang-Mieler

THE BIONIC EYE

Helping people see again

Special glasses containing a video camera send electrical pulses to the "chip" implanted on the patient's eye. The brain translates the signals into visual patterns.



A device reminiscent of futuristic science fiction may soon help the virtually blind see again — "almost like something out of Star Trek," says **Jennifer Lim, MD**, Professor and the Marion H. Schenk Esq. Chair in Ophthalmology Research of the Aging Eye.

Illinois Eye is now screening patients to test the bionic eye — an implanted artificial retina — more officially known as the Argus® II Retinal Prosthesis System from Second Sight Medical Products, Inc., approved for use in patients in 2013 by the U.S. Food and Drug Administration.

The UIC Hospital & Health Sciences System is the only center in Illinois selected to offer the artificial retina, which allows patients with very low or no vision to see shapes, edges and movement in black-and-white. Initially, the device is intended for patients with advanced retinitis pigmentosa (RP), a genetic eye disease where the light-sensing cells of the eye are damaged.

Doctors hope to extend its capabilities to other eye disorders that damage the retina, such as macular degeneration.

Dr. Lim, Director of the Retina Service at Illinois Eye, will lead the surgical team when a patient is chosen. The procedure begins when surgeons implant a "chip" with 60 electrodes on the retina surface.

Once the implant is in place, the patient wears special glasses containing a miniature video camera. The Argus II converts its images into a series of small electrical pulses that are transmitted wirelessly to the electrodes in the chip. These pulses stimulate the retina's remaining cells to send signals through the optic nerve to the brain, where the signals are translated into images or, more accurately, visual patterns.

Patients undergo several hours of training with the system to learn to interpret these visual patterns.

People diagnosed with advanced RP can typically only judge whether or not there is light. In clinical trials, patients equipped with the Argus II chip were able to perform better at such tasks as perceiving large letters, detecting street curbs, walking along a sidewalk and matching black, gray and white socks. "The user sees a 'pixilated' image," explains Dr. Lim, calling it "a great scientific advancement."

"We're thrilled to be able to provide this new treatment to our patients," says **Rohit Varma, MD, MPH**, outgoing Chair of the Department of Ophthalmology & Visual Sciences. "The artificial retina will give them greater freedom, independence and safety in their daily lives."

He adds, "This is an exciting time in vision research. For the first time, we have the ability to give some vision back to people who ordinarily would be blind for the rest of their lives."

NEI-FUNDED RESEARCHERS **PUSH THE ENVELOPE**

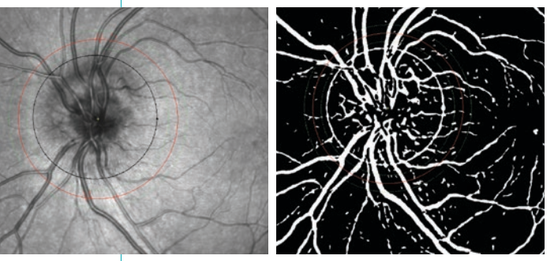
A National Eye Institute (NEI) program designed to nurture clinical scientists and advance the field of vision science is already showing promise just two years into its debut at Illinois Eye.

Four scholars funded by the K12 Mentored Clinical Scientist Development Program are creating new knowledge about the potential use of stem cells to treat severe dry eye, genetic risk factors in diabetic eye disease, vision loss due to swelling of the optic disc and improving surgical outcomes for pediatric patients.

The NEI awarded UIC a $2.5 million grant in September 2011 to launch the K12 program and increase the pool of well-trained clinical researchers. UIC is one of only seven institutions nationwide to host a K12 program in ophthalmology and visual sciences.

"To increase scientific momentum and optimize patient care, we must invest in the training and mentoring of outstanding clinical scientists. At Illinois Eye, we have made such investment a top priority," notes **Dimitri T. Azar, MD, MBA**, Dean, UIC College of Medicine, Distinguished University Professor, B.A. Field Endowed Chair of Ophthalmic Research and principal investigator of the K12 grant.

The initial K12 class at Illinois Eye encompassed **Iris Kassem, MD, PhD**, Assistant Professor, Pediatric Ophthalmology & Adult Strabismus Service; **Yannek Leiderman, MD, PhD**, Assistant Professor, Retina Service, and Director, Vitreoretinal Microsurgery Laboratory; and **Heather Moss, MD, PhD**, Assistant Professor and Director, Neuro-Ophthalmology Service. Joining them in January 2013 was **Vinay Aakalu, MD, MPH**, Assistant Professor, Oculoplastic & Reconstructive Surgery Service, and Director, Lacrimal Cell Biology Laboratory.



(Left to right) An interior view of the back of the eye showing a swollen optic nerve and blood vessels (left) is translated to a processed view to highlight automated identification of blood vessels.

Dr. Heather Moss

Elevated pressure in the brain in idiopathic intracranial hypertension (IIH) can compromise the optic nerve and its job to transmit visual information from the eye to the brain. The end result can be blindness.

Armed with K12 funding and a grant from the Illinois Society to Prevent Blindness, Dr. Heather Moss is characterizing pupil and retina responses to different types of light stimuli in the eyes of people with and without IIH. Her goal: to find a way to detect early optic nerve injury from IIH. She is also studying changes in retinal vessels in IIH and has found that they decrease in size as the disease is treated. These are the kind of markers that may yield clues for monitoring this potentially blinding condition and help patients avoid more invasive diagnostic tests such as spinal taps.

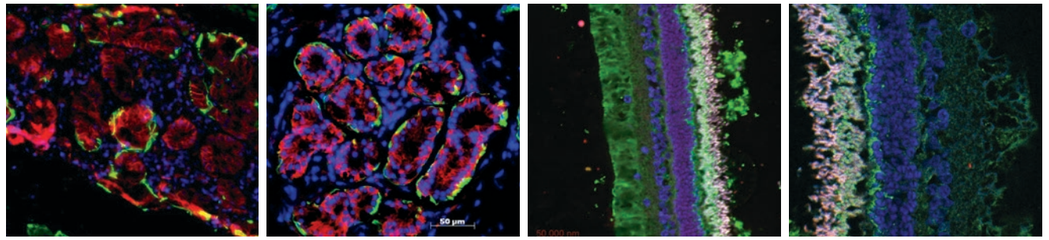
Having the support of a prestigious NEI K12 grant provides the funds and time to launch a research project. She says, "It puts us in a better position to be more competitive for research funds on a national level." Recently, Dr. Moss received her own K23 funding from the NEI/National Institutes of Health (NIH).

Dr. Vinay Aakalu

Can stem cells hold the key to new, kinder treatments for severe dry eye? Dr. Vinay Aakalu is on a mission to find out. Severe dry eye can be irritating, painful and even blinding. One cause is the decreased production of tears. Traditional treatments for severe dry eye are often difficult to tolerate and may even include ingredients similar to those used in chemotherapy drugs.

His clinical interests in the Oculoplastic & Reconstructive Surgery Service include the lacrimal system — the eye's tear-producing glands. "Seeing patients with severe cases of dry eye inspires me to make some sort of lasting contribution to their care," says Dr. Aakalu, who received an ISPB grant in 2013.

He takes that inspiration to his post as Director of the Lacrimal Cell Biology Laboratory at Illinois Eye. With support from the NEI, he is both trying to decode tear gland biology and to find and isolate stem cells in the accessory tear glands (generally in the upper lid) that might represent a source of new tissue to replace damaged tear glands.



(Left to right) Two immunofluorescent images of accessory tear glands. Two laboratory view of proliferative mitreoretinopahty (PVR), a complication of retinal detachment.

His team is working with adult eye tissue normally discarded after surgery and donated by the patients for research purposes. Not much is known about the accessory glands. "We want to understand why certain people lose their lacrimal tissue, how the body normally replaces it and eventually how to regrow it," says Dr. Aakalu. Recently Dr. Aakalu received his own K08 funding from the NEI/NIH.

Dr. Iris Kassem

Dr. Kassem's current research focus grew out of a clinical observation — that pediatric patients, after surgery for cataracts, glaucoma or ocular trauma, often had a difficult postoperative course due to inflammation and scarring (fibrosis). This contrasted significantly with adults, who did relatively well after surgery even if they didn't adhere to their postoperative medication regimen.

Two negative scenarios emerge from this phenomenon. At times, surgeons might delay or even avoid doing surgery that could improve a child's vision because of post-surgical complications. Or, rarely, inflammation and scarring could leave a child with worse vision than before surgery.

"If we can figure out why children are different, we may be able to develop ways to improve the postoperative course and help our pediatric patients achieve better surgical outcomes and improved vision," says Dr. Kassem, who received a career-starter research grant from the Knights Templar Eye Foundation in 2012. She is now assessing novel medications to prevent and treat ocular inflammation and scarring.

Participating in the K12 grant has given her the freedom to further develop her research skills and explore other areas of investigation, including pediatric eye trauma. "It's exciting to be able to go from a problem in the clinic and see if there's a scientific explanation," says Dr. Kassem. "This is what I've trained for. This is what I've always wanted to do."

Dr. Yannek Leiderman

As a member of Illinois Eye's Retina Service, Dr. Leiderman is acutely aware of the potential impact of diabetes on vision. Diabetic retinopathy — caused by changes in the blood vessels of the retina — is the most common diabetic eye disease and a leading cause of blindness in adults.

"At UIC, we have a large population of African American and Latino patients, groups that are disproportionately at risk for loss of vision from diabetic eye disease," says Dr. Leiderman. "We want to gain a better understanding of why."

He has initiated a clinical trial to conduct genetic analysis using microarray platforms — commonly known as DNA chips — to identify genomic differences among patients at risk for diabetic eye disease. The technology enables researchers to look at many small genetic differences in small samples simultaneously. The ultimate goal is earlier screening and treatment for diabetic eye disease.

K12 funding also allowed Dr. Leiderman to study retinal detachment and new treatments for restoring vision. His studies focus on the chemical signals that promote formation of scar tissue following detachment and eye trauma. "Until you understand the underlying biology or mechanism of a disease process," says Dr. Leiderman, "you can't take advantage of all the drugs available or potentially identify new drugs."

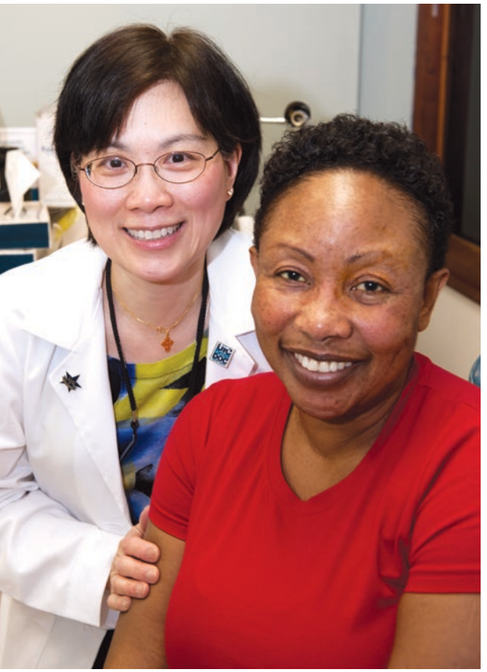
Cecilia Apiedu

VISION-RESTORING TREATMENT AVOIDS SURGERY

"Patients facing loss of vision from vitreo-macular adhesion typically had a difficult operation as their only option — until now."
–DR. JENNIFER LIM

When Cecilia Apiedu first started having vision problems two years ago, she dismissed it as tired eyes. After all, she had gone back to school and was studying hard. Within a year, she began seeing halos, along with after-images that persisted once she closed her eyes. Then she began having double vision.

She tried to cope at first. She perched the TV on her lap, inches away from her face. Finally, she admitted she needed help. At Illinois Eye, she discovered that her vision problems had a name — vitreomacular adhesion (VMA), which affects half a million people in the U.S. and is most common in women over age 50.



Dr. Jennifer Lim with Cecilia Apiedu

In VMA, the vitreous — the clear jelly-like substance filling the interior of the eye — shrinks with age and pulls the retina inward. Vision becomes distorted, and if the retina tears, serious vision loss and even blindness can result.

The standard treatment — surgery — is difficult for the patient. The ophthalmologist removes the vitreous from the eye's center, peeling it away from the retina, then inserts a bubble into the eye to help the macular hole heal. The patient must remain lying in a face-down position for two weeks.

"Ms. Apiedu is in many ways a typical VMA patient," says her Illinois Eye ophthalmologist, **Jennifer Lim, MD**, Professor and Marion H. Schenk Esq. Chair in Ophthalmology for Research of the Aging Eye. In Ms. Apiedu's case, Dr. Lim could see a hole developing, an indication that normally she would need surgery.

Instead, Dr. Lim offered Ms. Apiedu the chance to be the first patient in Chicago to try a new, non-surgical treatment for VMA. After Ms. Apiedu stopped "dancing up and down," she recalls, she agreed. On Feb. 13, 2013, Ms. Apiedu sat comfortably in an exam room in the Illinois Eye Retina Clinic and received an injection in her left eye of the drug ocriplasmin.

As an enzyme, ocriplasmin chemically attacks a natural glue that fastens the vitreous to the retina, dissolving the adhesive in minutes. It represents a major advance for patients facing loss of vision from VMA because it can allow them to bypass surgery. Dr. Lim notes that one of the first questions the U.S. Food and Drug Administration considers in approving a new drug is how it improves the patient's experience. Ms. Apiedu's procedure took under 10 minutes, and an hour later, photos showed that the impending macular hole was already resolving. Just 24 hours later, her vision was significantly improved. More studies revealed that the vitreous was no longer pulling on the macula.

Ms. Apiedu, now a certified nursing assistant, remains enthusiastic about her innovative treatment, saying, "I want other people to benefit from this."

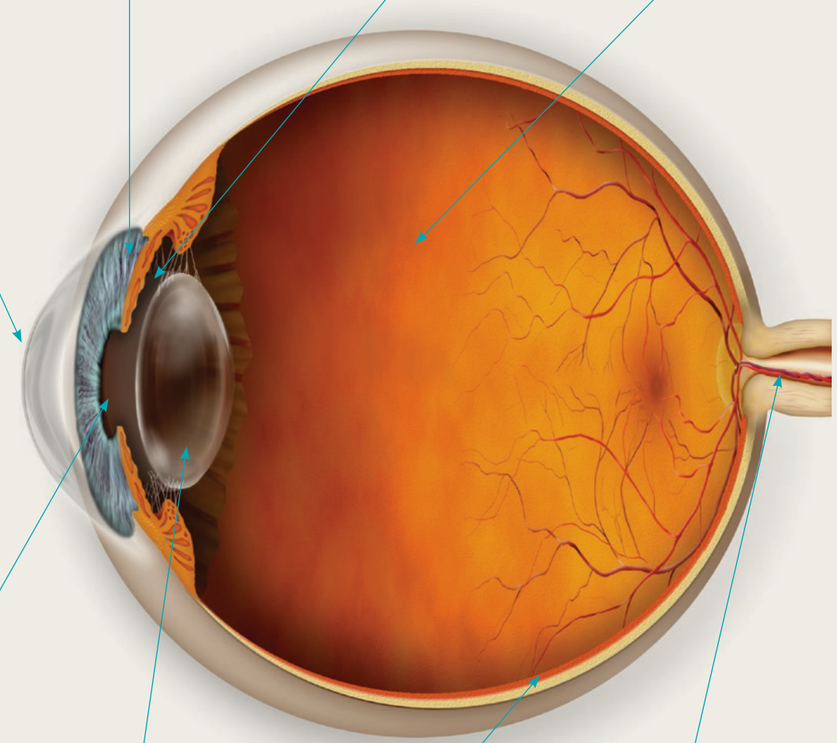
The human eye

Cornea
The clear "front window" of the eye that conducts and focuses light into the eye

Iris
The circular, colored curtain of the eye, which opens and closes to regulate the amount of light entering the eye

Aqueous humor
A clear, watery fluid circulating in the chamber of the eye between the cornea and the lens

Vitreous body
A transparent jelly-like substance, which provides a cushioned support for the rest of the eye and a clear unobstructed path for light to travel to the retina



Pupil
The dark aperture or opening in the center of the iris which gets larger or smaller as the iris adjusts to incoming light

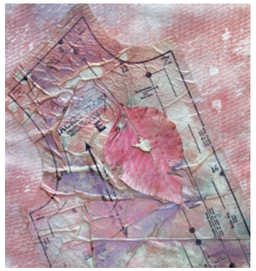
Lens
A transparent structure behind the iris that changes shape to focus light rays onto the retina at the back of the eye

Retina
The inner layer of the eye, which contains millions of light receptors called rods and cones

Optic nerve
The nerve that connects the eye to the brain and carries the impulses formed by the retina to the visual cortex

ILLUSTRATION BY JIREHDESIGN

Pat Spear
ADVANCED LENSES RESTORE ART TO AN ARTIST'S WORLD



Artwork by Pat Spear

Pat Spear

For one terrible year, Pat Spear was an artist who couldn't make art. She was a writer who couldn't write. She couldn't work on her computer — it was all too hard on her eyes.

Ms. Spear — severely nearsighted and astigmatic since childhood — started wearing glasses in third grade and contact lenses in high school. As an adult, she wore multifocal contacts, but once her eye doctor retired, she couldn't seem to get the right prescription.

Compounding her nearsightedness, she developed cataracts, but worried about having eye surgery, since she had been diagnosed with diabetes. As her vision worsened, she couldn't drive, read or see the TV. She abandoned her beloved art-making. "I couldn't do any of the things that made me who I was," says Ms. Spear.

Then a friend encouraged her to come to the Illinois Eye and Ear Infirmary. "I went online and saw that Illinois Eye had all these clinics and doctors who were the best in Chicago," she says.

Armed with that confidence, Ms. Spear met with **Aisha Traish, MD**, Assistant Professor and Attending Surgeon in Illinois Eye's Cornea Service and Director of the Pediatric Cornea Clinic. Dr. Traish outlined the risks and benefits of cataract surgery, including the possibility of using advanced technology multifocal intraocular lenses (IOLs).

Cataract surgery often reduces reliance on eye glasses, though they may still be necessary for certain activities. With IOLs, the post-surgical need for glasses is further reduced and, in some cases, eliminated. However, multifocal IOLs require a certain amount of brain adaptation for the person to achieve the best visual outcome. "It is difficult to know in advance which people will succeed with multifocal IOLs," Dr. Traish explains. "That is why we work so closely with each individual."

Dr. Traish discussed the nuances with Ms. Spear and concluded that she was a good candidate. "Dr. Traish really listened to me," Ms. Spear recalls. "I knew right away that I made the right choice."

To ensure Ms. Spear didn't have any retinal disease, Dr. Traish sent her to **Yannek Leiderman, MD, PhD**, Assistant Professor and Attending Physician in Illinois Eye's Retina Service. The news was good. Despite her diabetes and myopia, Ms. Spear did not require retinal treatment. That cleared the way for cataract surgery.

When Ms. Spear woke the morning after the procedure in October 2012, she could see clearly from her left eye without aid for the first time since third grade. Her vision tested 20/20. A second surgery on the right eye two weeks later also was a success, with her right eye testing 20/20 — without glasses. "I never expected to see the world in so much detail," says the artist. "I feel like I've been given my life back."

CHANGING THE LANDSCAPE OF EYE DISEASE
Population-based study launches

African Americans exhibit a pattern of eye disease that is not seen in other ethnicities. Yet, despite being one of the largest minority groups in the United States, they have been under-represented in studies of eye disease. That makes identifying the optimal treatment approaches elusive at best.

Rohit Varma, MD, MPH, Professor and Illinois Lions/Charles I. Young Chair in Ocular Research, wants to correct that picture. To fill in gaps in current understanding, he launched the African American Eye Disease Study (AFEDS) in October 2013, funded by the National Institutes of Health.

African Americans are believed to have higher rates of visual impairment, blindness, open-angle glaucoma and diabetic retinopathy than non-Hispanic Whites, but lower rates of age-related macular degeneration. "The problem is, most of the data that inform our estimates come from two studies conducted 20-28 years ago," says Dr. Varma, outgoing Chair of the Department of Ophthalmology & Visual Sciences. "We simply need to know more and we need to know it now."

As one of the nation's experts in population-based eye studies, Dr. Varma is building on the knowledge and experience gained from three groundbreaking epidemiologic studies for which he also served as principal investigator. The Multi-Ethnic Pediatric Eye Disease Study (MEPEDS), the Los Angeles Latino Eye Study (LALES), and the Chinese American Eye Study (CHES) changed the landscape for treatment and public policy by uncovering critical data about eye disease.

With an aging U.S. population, age-related eye diseases are expected to rise among African Americans, who are disproportionately impacted by obesity and diabetes.

"AFEDS presents a unique opportunity to develop robust estimates of the prevalence of specific eye diseases in African Americans and to evaluate how these eye diseases impact quality of life," notes **Dimitri T. Azar, MD, MBA**, Dean, UIC College of Medicine, Distinguished University Professor, and B.A. Field Endowed Chair of Ophthalmic Research.

Also crucial is determining the underlying reasons why African Americans typically receive less follow-up eye care than people from other ethnic groups.

Armed with up-to-date, comprehensive assessments, clinicians and public health experts can plan specific, preventive measures and targeted screening and treatment programs. The five-year study is expected to enroll about 6,000 participants, ages 40 years old and above, primarily from Los Angeles and one of its surrounding cities, Inglewood, chosen because it ws the general study area for Dr. Varma's previous studies.

Another key goal for AFEDS will be to clarify potential differences in the prevalence and risk factors for eye disease between African Americans, Latinos and Chinese Americans to develop a better understanding of the biology of eye disease.

AFEDS is the largest epidemiological study of its kind, a distinction shared by its predecessor study, LALES, when it debuted in 2000. Now in Phase III, LALES has made a lasting impact, as have MEPEDS and CHES.

The Pediatric Ophthalmology & Adult Strabismus Service now runs one or two clinics every weekday, including four subspecialty clinics with three more on the way.

1: Seated (left to right) Orthoptist Lisa Hartemayer; Dr. Nathalie Azar; Dr. Irene Maumenee. Standing (left to right) Dr. Vinay Aakalu; Dr. Aisha Traish; Orthoptist Micaela Quebbemann; Dr. Javaneh Abbasian; Dr. Genie Bang; Orthoptist Julie Lenth-Carver; Dr. Iris Kassem (not pictured: Dr. Marilyn Miller). 2: Dr. Azar with young patient. 3: Second-year resident Dr. Michael Andreoli at Back to School Health Fair. 4: The Service's new waiting room is kid-friendly.

A, B, See – How fast Pediatric Ophthalmology grows

Catching vision problems before they become severe or even impossible to reverse — and finding out why those visual anomalies occur in the first place — is a priority for Illinois Eye's expanding Pediatric Ophthalmology & Adult Strabismus Service.

"The longer you wait to address vision problems, many of which develop from birth, the less likely you can incur change," says **Nathalie Azar, MD**, Associate Professor and Director, Pediatric Ophthalmology & Adult Strabismus Service.

That early-intervention philosophy drives the program, the largest of its kind in the Chicago area, which has seen spectacular growth since Dr. Azar arrived in 2006 as the only full-time faculty member. Today, it boasts several full-time pediatric ophthalmologists, plus a respected genetics scientist, a team of part-time physicians, and three orthoptists, who are trained in the evaluation and nonsurgical treatment of visual disorders caused by an imbalance of the eye muscles.

One former Illinois Eye fellow has graduated to faculty level — **Iris Kassem, MD, PhD**, Assistant Professor, joined three years ago to launch an ambitious program of clinical research. In 2012, two former residents, **Genie Bang, MD**, Assistant Professor, and **Javaneh Abbasian, MD**, Assistant Professor, also returned.

With their specialty training, the faculty take on complex and difficult cases of pediatric and adult strabismus (misaligned eyes), pediatric glaucoma and cataract surgery, and craniofacial syndromes, among other conditions.

The Service now runs one or two clinics daily, five days a week, including four subspecialty clinics in cornea, neuro-ophthalmology, neurofibromatosis and oculoplastics. Planned for 2014 are three new clinics focusing on genetic disorders, craniofacial syndromes and Marfan syndrome, a genetic disorder of the connective tissue that can affect vision.

Faculty members are involved in various clinical research projects, including studies sponsored by the international Pediatric Eye Disease Investigator Group, which is helping to set new standards of care.

In 2012, the Service gained newly renovated quarters with a larger waiting room and customized exam rooms. "We looked at the design from a patient's, as well as a doctor's perspective," says Dr. Azar.

One of her requirements was extended exam rooms or "lanes" to conduct proper strabismus examinations. The lanes are now 25 feet long, with enough room to recline the exam chair, and wide enough for extended families.

Another priority is education. Faculty and fellows meet in a regular journal club to discuss recent medical literature. In 2013, the Service sponsored a day-long symposium "Pediatric Ophthalmology for the Non-Ophthalmologist" which attracted pediatricians, family physicians and optometrists from the greater Chicago area.

"Pediatricians and family physicians are at the forefront of pediatric care in every aspect," says Dr. Azar. "It's important that they are able to recognize visual problems in children at the earliest possible age."

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Nathalie Azar, MD
Director, Pediatric Ophthalmology & Adult Strabismus Service
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Javaneh Abbasian, MD
Genie Bang, MD
Kimberlee M. Curnyn, MD
Iris Kassem, MD, PhD
Lawrence M. Kaufman, MD, PhD
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Safety First: Preventing Traumatic Eye Injuries

When a 23-month-old girl was rushed to Illinois Eye and Ear Infirmary by ambulance with a gash in her right eye, pediatric ophthalmologist **Iris Kassem, MD, PhD**, found the injury curious. The girl's eyeball had been pierced by a sharp wire coil that sprung loose from a pop-up laundry hamper.

When the same injury repeated itself less than a year later, this time striking an 11-year-old boy, Dr. Kassem's curiosity not only increased, she turned her questions into action. What she and her colleagues at Illinois Eye found in their research has become important eye safety information for all parents.

Both children had been injured by the same object — a collapsible cloth-and-wire clothes hamper. The convenient construction allows the hamper to essentially fold flat when empty and "pop up" for filling. However, if the hamper's fabric edges fray, and the spiral wire pops out, it can cause serious injury, the Illinois Eye study found. The findings were published in the July 2013 issue of the journal *Pediatrics*.

"I was surprised there were two eye injuries from the same type of hampers within one year at our hospital," says Dr. Kassem, Assistant Professor and Attending Physician in the Pediatric Ophthalmology & Adult Strabismus Service.

In studying the potential danger of the popular hampers, Dr. Kassem enlisted help from the UIC Department of Bioengineering. The calculations found that the energy of the wire coil upon springing from the clothes hamper was similar to other objects that are known to cause retinal injuries — in particular, bungee cords.

Some hampers are constructed with a safety anchoring mechanism. However, the two involved in these injuries were not. "We simply want parents and caregivers to be aware of the potential risks," says Dr. Kassem.

The two children seen at Illinois Eye had happy endings. Although both required emergency surgery on their corneas, they recovered with 20/20 vision.

COVETED RESIDENCY PROGRAM

NEW-GENERATION TRAINING

"Autonomy with a safety net" — that's how **Kavitha Sivaraman, MD**, Co-chief Resident, describes residency training at Illinois Eye.

"We're exposed to an incredibly diverse, complex caseload and given responsibility for patients," explains Dr. Sivaraman, "but we also work with tremendous mentors who are committed to teaching."

Competition for a spot in the coveted residency program is fierce. The Department of Ophthalmology & Visual Sciences receives more than 500 applications annually — and accepts only six.

These applicants know that residents at Illinois Eye typically score prestigious fellowships at renowned schools. Dr. Sivaraman, for example, will join Bascom Palmer Eye Institute. Many former residents hold leadership positions in their profession, including as chairs of ophthalmology departments. One alumnus, **Paul A. Sieving, MD, PhD**, is now Director of the National Eye Institute.

Part of the appeal of this high-powered program is the broad spectrum of conditions, treatments and technologies to which residents are exposed. As a major tertiary referral center in the country's third-largest city, Illinois Eye treats nearly 60,000 patients a year.

"Our goal is to make sure that each resident is fully challenged and motivated to become the best ophthalmologist they can be," says **Rohit Varma, MD, MPH**, outgoing Chair of the Department of Ophthalmology & Visual Sciences.

Residents jump into the deep end right away. In the first year of the three-year program, they see patients in Illinois Eye's General Eye Clinic, along with taking a two-month rotation at the Jesse Brown VA Medical Center, where they gain clinical and surgical experience. In this academic environment, residents not only take on challenging diagnostic problems, they develop their bedside manner.

"Beyond the science, ophthalmology is an art," says **Kevin Patel, MD**, Co-chief Resident. "Learning how to work with a variety of people is important."

In year two, residents are immersed in Illinois Eye's renowned subspecialty clinics, such as Cornea/Contact Lens, Neuro-Ophthalmology, Glaucoma, Pediatric Ophthalmology, Retina and Oculoplastics. Dr. Sivaraman welcomed the opportunity to study specialized artificial cornea implant technology called keratoprosthesis or KPro. Illinois Eye's program is considered the top artificial cornea service in the Midwest. "I didn't get to see this procedure in medical school," she says. Now, it could be the focus of her future career. "There are a lot of unknowns to uncover. That's what interests me."

In their final year, residents also do a surgical rotation at the Captain James A. Lovell Federal Health Care Center in North Chicago. Plus, each resident is paired with an established research scientist, helping them to hone their research skills.

Co-chief Residents Dr. Kevin Patel and Dr. Kavitha Sivaraman

Along the way, they're given other one-of-a-kind experiences. First-year residents can travel to Universidade Federal de São Paulo, Brazil, while second-years can visit Keio University in Tokyo for two weeks. More recently, third-year residents can have four weeks at Aravind Eye Hospital in Madurai, India. "Their surgical techniques are so innovative, it was an eye-opener," says Dr. Sivaraman, who has relatives in India who are ophthalmologists, but is the first in her immediate family to join the profession.

Dr. Patel was born and raised in Chicago. He entered medical school right out of high school, in a special direct-entry program at UIC. Later, he interviewed at several residency programs, but chose to stay in Chicago.

What helped make his decision? Illinois Eye's stellar reputation, outstanding faculty and family feeling. "There's a strong sense of camaraderie," notes Dr. Patel. "The senior physicians treat you as a colleague. If you earn it, they value your opinion medically. Attendings actually listen to you, which is not the situation at every residency."

Dr. Patel will be moving on to a fellowship at California Pacific Medical Center in San Francisco. He and Dr. Sivaraman are finding that the excellent reputation of the Illinois Eye name extends far and wide. "Everywhere I go, people are impressed with the doctors I work with," says Dr. Patel. "This program is respected around the country."

"Being a resident here was such an amazing experience, with exposure to complex cases and great mentors. I felt well-qualified to tackle challenging problems in my fellowship and now as an attending."

–JAVANEH ABBASIAN, MD
RESIDENT CLASS 2011

"The greatest value of my training at UIC was learning from world-class faculty members who were yet so down-to-earth and approachable. They made resident education a priority and were fantastic role models."

–ERICA OLTRA, MD
RESIDENT CLASS 2013

"During residency, we develop a strong comprehensive foundation to diagnose and treat serious and complex diseases. We can continue to build on this throughout our careers. The program at Illinois Eye has inspired me to become a well-trained corneal specialist and surgeon, as well as an academic ophthalmologist."

–JOANN KANG, MD
RESIDENT CLASS OF 2013

EDUCATION

"I never teach my pupils, I only attempt to provide the conditions in which they can learn.." –ALBERT EINSTEIN

Illinois Eye faculty members balance their responsibilities as clinical specialists and researchers with a third, equally important role: teacher. Education is a top priority at Illinois Eye, which welcomes six residents each year. These new doctors gain a world-class clinical, surgical and research education, overseen by faculty members who encompass *Top Doctors* and *Best Doctors in America*.


1


2


3


4

1: Residents in the Surgical Education Wet Lab perfecting eye surgery techniques **2:** Dean Azar instructing residents **3:** Dr. Anthony Finder teaching in the General Eye Clinic **4:** Dr. Rohit Varma teaching in the classroom

ENDOWED LECTURES

Endowed gifts support valuable academic activity in the Department of Ophthalmology & Visual Sciences. We are proud to highlight just a few of the achievements of our endowed faculty and important endowed programs from the 2012–13 academic year.

Our endowed lectures are an integral component of the vibrant educational landscape at Illinois Eye. The popular lectures often feature top local, regional and national physicians in their given subspecialty. These are rare opportunities, indeed — a chance to get reports back from the leading edge of ophthalmology, delivered by the experts themselves. We thank our supporters for making these events possible.

(Left to right) Dr. Morton Goldberg, Dr. Mark S. Humayun and Dr. Rohit Varma, 37th Annual Alumni-Resident Day

2013 ENDOWED LECTURES

37TH ANNUAL ALUMNI/RESIDENT DAY
JUNE 21

Cless Best of the Best Lecture
"Retinal Ganglion Cell Replacement Therapy: Possible?"
Jeffrey L. Goldberg, MD, PhD
Shiley Eye Center, University of California, San Diego
Presentation: Cless *Best of the Best* Award – ARVO 2012

Morton F. Goldberg, MD, FACS Endowed Lecture
"Bioelectronics in Ophthalmology"
Mark S. Humayun, MD, PhD
Keck Medical Center, University of Southern California
Presentation: Distinguished Alumnus Award to R. Mark Hatfield, OD, MD, FACS

Illinois Eye and Ear Infirmary Achievement Award Lecture
"Fluidic Lenses and their Applications in Ophthalmology"
Gholam A. Peyman, MD
University of Arizona
Presentation: Illinois Eye and Ear Infirmary Distinguished Service Award to Gholam Peyman, MD

ANNUAL GLAUCOMA SYMPOSIUM
MAY 22

Samuel F. Schoenberg, MD Memorial Lecture
"Advances in Glaucoma Surgery"
Anne L. Coleman, MD, PhD
Jules Stein Eye Institute, UCLA

Jacob T. Wilensky, MD Lecture
"Oxygen: A Novel Biomarker for Glaucoma?"
Carla Siegfried, MD
Washington University School of Medicine

ANNUAL RETINA SYMPOSIUM
MARCH 22

Gerhard Cless Endowed Lecture
"Vitrectomy Surgery"
Stanley Chang, MD
Columbia University Medical Center

THE HATFIELDS HAVE A MISSION

EDUCATED GIVING

(Left to right) Dr. Morton Goldberg, Dr. Mark Hatfield and Dr. Rohit Varma, 37th Annual Alumni-Resident Day

Monica Hatfield and R. Mark Hatfield, OD, MD, FACS, believe in the power of education to change lives — and they believe in helping to ensure that the schools that shaped them can continue that vital mission.

"We have a responsibility to use what we've been given to help others, and part of that is supporting the educational programs that helped us get where we are today," says Dr. Hatfield, a retinal surgeon based in his home state of West Virginia, and a member of Illinois Eye's 1987 Resident Class, where he was named Outstanding Resident. In 2013, Dr. Hatfield received the Distinguished Alumnus Award from Illinois Eye during its 37th Annual Alumni-Resident Day.

"A week into my residency, I found what I wanted to do in life," he says. Retina was just an emerging subspecialty at the time. "I had wonderful mentors to guide me."

In recognition of one guiding force in particular, the Hatfields spearheaded the effort to establish the Morton F. Goldberg MD FACS Professorship in Ophthalmology at Illinois Eye in 2009. Dr. Goldberg, who headed the Department of Ophthalmology from 1970-1989, was an amazing mentor, says Dr. Hatfield — "a brilliant man, a caring person and a tough teacher. He made you sweat, but only so you..."

"...so you could be the best you could be," Mrs. Hatfield adds, finishing her husband's thought, adding, "We've treasured Mort's friendship and mentorship over the years."

Completing each other's sentences is a habit the Hatfields have developed over a 33-year marriage, which has produced three daughters — Meghan, Mary and Makenzie — and three grandchildren.

The couple met at Marshall University in Huntington, West Virginia, when Dr. Hatfield was attending medical school and Mrs. Hatfield was earning her Master's in Secondary Math Education. A fellow classmate introduced them, and six weeks later, they were engaged. Seven months later, they married.

Following medical school, they came to Chicago for Dr. Hatfield's residency training. For him, it was a return to his second hometown. His father, Coleman Hatfield, OD, had moved the family from West Virginia to Chicago when Mark was just a boy. The senior Dr. Hatfield became Chairman of the Vision Therapy and Children's Clinic at the Illinois College of Optometry, where his son would later graduate as well.

The Hatfields treasured their time together in Chicago during his residency at Illinois Eye, despite his jam-packed schedule and her teaching high school math and science. They remember being regaled by tales from locals about 1930s speakeasies, bootleggers and the infamous gangster Al Capone.

Dr. Hatfield is no stranger to such notoriety. He comes from a long line of Hatfields in West Virginia — including key players in the legendary feud of the Hatfields and McCoys. "Not every family has photos of their ancestors in the state archives," he jokes.

His training at Illinois Eye "put me far and above" others in his field as he headed out into the world, first to a Retina/Vitreous Surgery Fellowship at Rush Presbyterian-St. Luke's Hospital in Chicago.

Mark and Monica Hatfield

Forged by strong moral and religious values, the couple has made contributions to support residency training at Illinois Eye. Their philosophy of giving has been shaped in part by Mrs. Hatfield's experience serving on the Board of Directors of the Marshall University Foundation for 18 years. "Our education made us who we are," she says, as her husband nods in agreement. "The people ahead of us helped us. Now we do what we can so that other people can have the experience we had."

While she has stepped down from the board, Mrs. Hatfield continues to promote education as a member of four advisory boards or committees at Marshall University, including the medical school advisory committee.

Dr. Hatfield holds academic appointments as Clinical Professor of Ophthalmology, Department of Surgery at Marshall University, and Clinical Assistant Professor of Ophthalmology at West Virginia University. Twenty-five years ago, he founded Retina Consultants, PLLC in Charleston. At the time, quality specialty care was inaccessible in the region, with the closest retina specialists three-to-four hours away. "We wanted to return to West Virginia," he says, "and the need was there."

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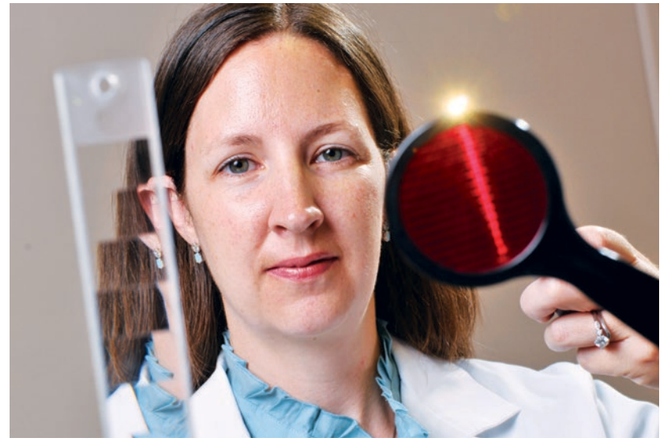

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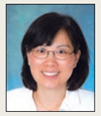

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Director, Angiogenesis Research Laboratory

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**Department Chair until March 15, 2014.*
†Interim Department Chair beginning March 16, 2014.

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Hongyu Ying, PhD
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Research Scientist

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Research Scientist
Director, Glaucoma LOCI Laboratory

Drs. Jose de la Cruz and Pete Setabutr, Co-directors of Illinois Eye at Millennium Park.

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Adrienne Berman, MD
Michael Blair, MD
Rebekah Braslow, MD
Victoria Butcko, OD
Robert Egel, MD
Steven Eiden, OD
Gerald Fishman, MD
Timothy Flood, MD
Enrique Garcia-Valenzuela, MD
Jon Gieser, MD
Molly Gilbert, MD
Daniel Greenberg, MD
Jingtao Guo, MD
Katherine Hare, MD
Bruce Kaplan, MD
Yuri Kim Kerns, MD
Bryan Kim, MD
Spero Kinnas, MD
Timothy Kisla, OD
Sheridan Lam, MD
Janet Lee, MD
David Lubeck, MD
Carol Menner, MD
David Mittelman, MD
Krishan Nagpal, MD
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Anna Park, MD
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Pervez Rasul, MD
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Michael Shapiro, MD
Marcus Solomon, MD
Sriram Sonty, MD
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Howard Tessler, MD
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Michael Cho, PhD
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Craig Foster, PhD
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Ken-Ichiro Fukuchi, MD, PhD
Richard A. Gemeinhart, PhD
Debra Goldstein, MD
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William H. Seiple, PhD
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Kazuo Tsubota, MD

FACULTY PUBLICATIONS

Illinois Eye and Ear Infirmary
UIC Department of Ophthalmology & Visual Sciences

Journal Articles
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Bold: Regular Faculty Red: Volunteer and Adjunct Faculty Blue: Residents and Fellows

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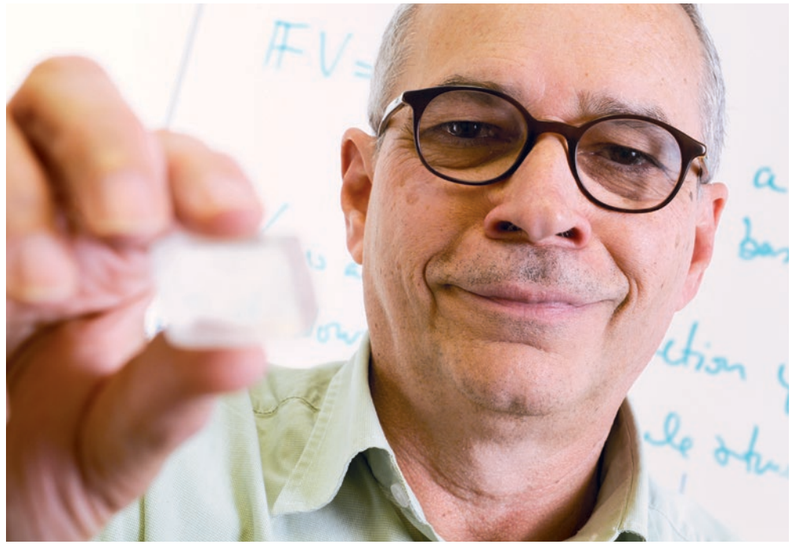

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WORKING TO ENHANCE TREATMENTS

Dr. Gholam Peyman continues his groundbreaking research

"We work always to enhance treatments and improve the outcomes for patients."
—DR. GHOLAM PEYMAN

Gholam A. Peyman, MD, recipient of the 2013 Illinois Eye Achievement Award, has never stopped being willing to pursue an inspired idea that might help people to see better.

As a professor on the UIC faculty from 1971-1987, Dr. Peyman laid the groundwork for a long list of innovations in ophthalmology, including the invention of laser-assisted in situ keratomileusis — commonly known as LASIK surgery. The vision correction procedure is designed to enable people to see clearly without glasses.

"I am gratified that our work has touched so many people," says Dr. Peyman, who was awarded the National Medal of Technology and Innovation, the nation's highest honor for technological achievement, in 2012. "We work always to enhance treatments and improve the outcomes for patients. We continue to look forward since there are many more problems to solve."

He earned the first U.S. patent for the revolutionary LASIK procedure in 1989. For many, that major accomplishment might be enough. However, Dr. Peyman holds more than 142 patents. His inventions cover a wide range of novel medical devices, improvements in surgical techniques, intraocular drug delivery, laser and optical instruments and new methods of diagnosis and treatment.

(Left to right) Dr. Rohit Varma, Dr. Gholam Peyman and Dr. Morton Goldberg, 37th Annual Alumni-Resident Day

Dr. Peyman's stint at Illinois Eye helped to launch the Infirmary as one of the nation's most cutting-edge departments.

He is considered one of the fathers of vitrectomy, the surgical removal of the vitreous (transparent gel that fills the eye from the iris to the retina). The early work for his innovative techniques, now standard practice, started in Illinois Eye laboratories.

In 2005, Dr. Peyman was voted into the Ophthalmology House of Fame. Currently, he is professor of Basic Medical Sciences at the University of Arizona-Phoenix and Professor of Optical Sciences and Engineering at UA-Tucson.

He received the 2013 Illinois Eye Achievement award during ceremonies this past June at the 37th Annual Alumni-Resident Day.

Rohit Varma, MD, MPH, Professor and outgoing Chair of the Department of Ophthalmology & Visual Sciences at UIC, regards Dr. Peyman's contributions to ophthalmology and vision science as a hallmark of the creativity and innovation that mark Illinois Eye's past, present and future. He said, "Dr. Peyman serves as a role model for all of us. His innovations have helped thousands of patients."

SPONSORED RESEARCH

FEDERALLY SPONSORED RESEARCH

INVESTIGATOR	TITLE	SOURCE
Dimitri T. Azar, MD, MBA	Metalloproteinase Expression in Corneal Wounds	National Eye Institute
Dimitri T. Azar, MD, MBA	UIC K12 Independent Clinical Vision Scientist	National Eye Institute
Dimitri T. Azar, MD, MBA	UIC Center for Clinical and Translational Science (CTSA)	National Center for Advancing Translational Sciences
Dingcai Cao, PhD	Rod-cone Interactions in Mesopic Vision	National Eye Institute
Jin-Hong Robert Chang, PhD	Inhibition of VEGF Receptor Dimerization and Signaling in the Corneal Lymphangiogenes	National Eye Institute
Ali R. Djalilian, MD	Notch Signaling in the Corneal Epithelium	National Eye Institute
Xiaoyi Gao, PhD	Mexican American Glaucoma Genetic Study (MAGGS)	National Eye Institute
Michael Grassi, MD	Genomic and Genetic Studies of Diabetic Retinopathy	National Eye Institute
Sandeep Jain, MD	Keratocyte Role in Guidance of Corneal Nerves	National Eye Institute
Sandeep Jain, MD	Reinnervation after Corneal Surgery	National Eye Institute
James Jason McAnany, PhD	Mechanisms Limiting Visual Performance in Retinal Degenerations	National Eye Institute
David R. Pepperberg, PhD	Nanoparticle-based Photo-activator of Voltage-gated Sodium Channels	National Eye Institute
Mahnaz Shahidi, PhD	Investigating Optical and Neural Causes of Vision Loss	Department of Veterans Affairs
Mahnaz Shahidi, PhD	Noninvasive Imaging of Chorioretinal Oxygen Tension	National Eye Institute
Mahnaz Shahidi, PhD	P30 Core Grant Vision Research	National Eye Institute
Deepak Shukla, PhD	Micro-nano Platforms for HSV Vaccine	National Institute of Allergy & Infectious Diseases
Deepak Shukla, PhD	Molecular Mechanism of HSV Entry and Spread	National Institute of Allergy & Infectious Diseases
Deepak Shukla, PhD	Role of Optineurin in Ocular Herpes Infection	National Eye Institute
Deepak Shukla, PhD	Significance of Heparan Sulfate in HSV-1 Spread	National Institute of Allergy & Infectious Diseases
Rohit Varma, MD, MPH	Chinese American Eye Study (CHES)	National Eye Institute
Rohit Varma, MD, MPH	Los Angeles Latino Eye Study (LALES)	National Eye Institute
Rohit Varma, MD, MPH	African American Eye Disease Study (AFEDS)	National Eye Institute
Thasarat Vajaranant, MD	Optic Nerve Aging and Glaucoma	National Eye Institute
Beatrice Y. Yue, PhD	Cellular Processing of Optineurin, the Product of a Glaucoma Gene	National Eye Institute

FOUNDATION SPONSORED RESEARCH

INVESTIGATOR	TITLE	SOURCE
Vinay Aakalu, MD, MPH	Lacrimal Stem Cells and Dry Eye Research	American Society of Cataract & Refractive Surgery Foundation
Vinay Aakalu, MD, MPH	Accessory Lacrimal Tissue Precursor Cell Biology	Illinois Society for the Preventions of Blindness
Ahmad A. Aref, MD	Omega- 3 Fatty Acid Nutritional Supplementation in the Treatment of Ocular Surface Disease Associated with Intraocular Pressure-Lowering Medications	American Glaucoma Society
Dingcai Cao, PhD	Alcohol Effects on Visual Processing in At-Risk Social Drinkers	ABMRF The Foundation for Alcohol Research
Dingcai Cao, PhD	Fight for Sight Fellowship	Fight for Sight
Dingcai Cao, PhD	IBRO Research Fellowship 2013	International Brain Research Organization
Dingcai Cao, PhD	Mesopic Visual Function Assessment and Risk Genotypes for Age-Related Macular Degeneration	Midwest Eye-Banks & Transplantation Center
Jin-Hong Robert Chang, PhD	Differential Binding of Endostatin-derived Peptides and VEGF-A, -B, -C and -D Short Peptides to VEGF Receptors 1, 2 and 3 via SPR In Vitro	Illinois Society for the Prevention of Blindness
Joseph Bogaard (Grassi)	CYP2C9 Mediated Neuroprotection in Retinal Degenerative Disease	Illinois Society for the Prevention of Blindness
Ali R. Djalilian, MD	Career Development Award	Research to Prevent Blindness
Ali R. Djalilian, MD	Mesenchymal Stem Cell Therapy for Limbal Stem Cell Deficiency	Midwest Eye-Banks and Transplantation Center
Michael Grassi, MD	Cellular Studies of Apoptosis in Retinitis Pigmentosa using Small Molecule Screening and RNA Interference	Foundation Fighting Blindness
Joelle Hallak (Jain)	BDNF Polymorphism in Dry Eye Disease and Depression	Illinois Society for the Prevention of Blindness
Joshua Hou, MD	Characterization of Melt-Associated Retroprosthetic Membranes in Patients with the Boston Keratoprosthesis use in Immunohistochemistry and In-Situ Hybridization	Illinois Society for the Prevention of Blindness
Jennifer Hu, MD	ISPB grant 2011: Effect of Hemodialysis on Intraocular Pressure and Ocular Perfusion Pressure	Illinois Society for the Prevention of Blindness
Sandeep Jain, MD	Regenerating Corneal Nerve and Inflammatory Cell Interaction	Midwest Eye-Banks & Transplantation Center
Sandeep Jain, MD	Safety and Efficacy of DNase 1 Eye Drops in Dry Eye Disease	Midwest Eye-Banks & Transplantation Center
Charlotte Joslin, MD	Racial Disparities in Ovarian Cancer Survival	American Cancer Society
Iris Kassem, MD, PhD	Fibrin Membrane Formation and Inflammation	Knights Templar Eye Foundation
Paul A. Knepper, MD, PhD	Activation of Innate Immune Toll-4 Receptor in POAG	Bright Focus Foundation (American Health Assistance Foundation)
Behrad Y. Milani, MD (Maumenee)	Gene and Mutation Identification in the Knobloch Syndrome an Entity Combining Neural Tube Defects Congenital High Myopia And Childhood Retinal Detachment	Illinois Society for the Prevention of Blindness
Behrad Y. Milani, MD	The Use of Rapamycin as an Additive to Corneal Storage Media	Eye Bank Association of America
Heather Moss, MD, PhD	Ganglion Cell Function in Papilledema	Illinois Society for the Prevention of Blindness
Rajni Parthasarathy (Pepperberg)	Detention and Quantification of Amyloid-Beta Protein in Eye Tissue	Illinois Society for the Prevention of Blindness
Paul Park (Shukla)	Targeted Therapy for HSV-Infected Corneas	Illinois Society for the Prevention of Blindness
David R. Pepperberg, PhD	Plasmonic Nano-antennas to Enhance Light Sensitivity to Retinal Molecular Devices Designed for Vision Restoration	Arnold and Mabel Beckman Foundation
David R. Pepperberg, PhD	Nano-Prosthesis for Retinal Ganglion Cell Photo-Activation	Arnold and Mabel Beckman Foundation
Mahnaz Shahidi, PhD	Senior Scientific Investigator Award	Research to Prevent Blindness
Deepak Shukla, PhD	Research to Prevent Blindness Medical Student Fellowship for Asim Farooq	Research to Prevent Blindness
Sanja Turturro, PhD (Yue)	Delivery of Active Matrix Metalloproteinase-3 using Microparticles	Illinois Society for the Prevention of Blindness
Thasarat Vajaranant, MD	A Feasibility Study to Assess the Accuracy of Self-Reported Glaucoma Outcomes and Participant Interest in Ancillary Glaucoma Studies as Part of the Women's Health Initiative (WHI) Extension	American Glaucoma Society
Rohit Varma, MD, MPH	Unrestricted Departmental Research Award	Research to Prevent Blindness
Beatrice Yue, PhD	Fibril/Oligomer Formation by Optineurin In Vitro	Bright Focus Foundation (American Health Assistance Foundation)
Hongyu Ying (Yue)	Identification of miRNAs that Regulate the Expression of Myocilin, a Glaucoma Gene	Illinois Society for the Prevention of Blindness
Xiaohua Zhuang, PhD (Cao)	Novel Psychophysical Assessment of Functional Loss in Pre-perimetric Glaucoma	Illinois Society for the Prevention of Blindness

CLINICAL INVESTIGATIONS AND TRIALS

CONTACT LENS

Charlotte Joslin, OD, PhD	Patient Navigation in Eye Disease
Ellen Shorter, OD; C. Joslin	The Use of Daily Disposable Silicone Hydrogel Contact Lenses in Patients with Dry Eyes at the University of Illinois

CORNEA

Soledad Cortina, MD; E. Shorter	Longitudinal Evaluation of Boston Keratoprosthesis
Soledad Cortina, MD; J. de la Cruz	Imaging Techniques for the Management of Patients with Keratoprosthesis
Ali Djalilian, MD	Identification of Ocular Surface Disease Biomarkers
Sandeep Jain, MD	Presence of Neutrophil Extracellular Traps (NET) in Dry Eye Disease
Sandeep Jain, MD	Symptom Analysis of Dry Eye Disease
Sandeep Jain, MD	Phase I/II Randomized Clinical Trial of DNase I Use in OGVHD Patients
Joel Sugar, MD	Cornea Donor Study – 10 year follow-up
Elmer Tu, MD; S. Cortina; A. Djalilian	Cornea Preservation Time Study
Elmer Tu, MD; C. Joslin	Parasitic Ulcer Treatment Trial (Planning Stage)

GLAUCOMA

Thasarat Vajaranant, MD	Estrogen Deficiency and Risk for Premature Aging of the Optic Nerve and Glaucoma
Thasarat Vajaranant, MD	Structure and Function of the Optic Nerve in Glaucoma
Thasarat Vajaranant, MD	Feasibility Study to Assess the Accuracy of Self-reported Glaucoma Outcomes and Participant Interest in Participating in Ancillary Glaucoma Studies (AGS)
Ahmad A. Aref, MD	Omega-3 Fatty Acid Nutritional Supplementation in the Treatment of Ocular Surface Disease Associated with Intraocular Pressure-Lowering Medication

NEURO-OPHTHALMOLOGY

Heather Moss, MD, PhD	A Prospective Case-crossover Study to Evaluate the Possible Association Between the Use of PDE5 Inhibitors and the Risk of Acute Nonarteritic Anterior Ischemic Optic Neuropathy (NAION)
Heather Moss, MD, PhD	Afferent Visual Function in Amyotrophic Lateral Sclerosis
Heather Moss, MD, PhD	Prospective Evaluation of Retinal Hemodynamics in Humans With and Without Papilledema
Heather Moss, MD, PhD	Ganglion Cell Function in Papilledema (ISPB)
Heather Moss, MD, PhD	Study of Optic-nerve Structure and Function in Thyroid Eye Disease

PEDIATRIC OPHTHALMOLOGY & ADULT STRABISMUS

Javaneh Abbasian, MD	Postnatal Growth and Retinopathy of Prematurity (G-ROP) Studies
Iris Kassem, MD, PhD	Pediatric Eye Disease Investigator Group
Iris Kassem, MD, PhD	Glasses Versus Observation for Moderate Hyperopia in Young Children (HTS1)
Iris Kassem, MD, PhD	Pediatric Cataract Surgery Outcomes Registry (CO2)
Aisha Traish, MD	Candidate Gene Screening in Peters' Anomaly: A Study of Two Pedigrees Combining Dominant Cataracts and Peters' Anomaly

Blue indicates a sponsored clinical trial. Filled rows indicate open patient enrollment.

RETINA

Yannek Leiderman, MD, PhD	Biomarkers in Proliferative Retinopathies
Jennifer Lim, MD; Y. Leiderman; F. Chau; L. Ulanski	Genes in Diabetic Retinopathy Project
Jennifer Lim, MD; Y. Leiderman; F. Chau; L. Ulanski	An Evaluation of Intravitreal Ranibizumab for Vitreous Hemorrhage Due to Proliferative Diabetic Retinopathy (Protocol N)
Jennifer Lim, MD	Spatial Temporal Imaging of Human Bulbar Conjunctival Microvascular Blood Flow in Patients with Sickle Cell Disease
Jennifer Lim, MD; Y. Leiderman; F. Chau; L. Ulanski	Effect of Diabetes Education during Retinal Ophthalmology Visits on Diabetes Control (Protocol M)
Jennifer Lim, MD; Y. Leiderman; F. Chau; L. Ulanski	Intravitreal Ranibizumab or Triamcinolone Acetonide in Combination with Laser Photocoagulation for Diabetic Macular Edema (Protocol I)
Jennifer Lim, MD; Y. Leiderman; F. Chau; L. Ulanski	A Comparative Effectiveness Study of Intravitreal Aflibercept, Bevacizumab and Ranibizumab for Diabetic Macular Edema (Protocol T)
Jennifer Lim, MD; L. Ulanski	An Experimental Approach to Maculopathy
Jennifer Lim, MD; Y. Leiderman; F. Chau; L. Ulanski	An Open-Label Study of the Safety and Tolerability of Combining IBI-20089 (Triamcinolone Acetonide Intravitreal Injection) When Used Adjunctively with Lucentis 0.5 mg Intravitreal Injection in Subjects with Subfoveal Neovascular Age-Related Macular Degeneration
Jennifer Lim, MD	A Retrospective Case Series to Assess the Efficacy of Anti-VEGF Therapy in the Treatment of Macular Edema Secondary to Retinal Vein Occlusion
Jennifer Lim, MD	Retrospective Comparison between Bevacizumab (Avastin) and Ranibizumab (Lucentis) in Diabetic Macular Edema
Jennifer Lim, MD	Surgical Outcome of 25-gauge Vitrectomy for Tractional Retinal Detachment
Jennifer Lim, MD	Foveal Structure Integrity and Visual Outcome in Diabetic Retinopathy
Jennifer Lim, MD	New Enrollment Post-Approval Study of the Argus, II Retinal Prosthesis System (Second Sight)
Jennifer Lim, MD	Genetics of AMD in African Americans
Jennifer Lim, MD; Y. Leiderman; F. Chau; L. Ulanski	A Double-Masked, Randomized, Active-Controlled Study of the Efficacy, Safety, and Tolerability of Intravitreal Administration of VEGF Trap-Eye (Intravitreal Aflibercept Injection [IAI]) in Patients with Macular Edema Secondary to Branch Retinal Vein Occlusion
Jennifer Lim, MD	Optical Coherence Tomographical Retinal Thickness Analysis of Sickle Cell Patients
Jennifer Lim, MD; Y. Leiderman; F. Chau; L. Ulanski	Treatment for Central-Involved Diabetic Macular Edema in Eyes with Very Good Visual Acuity (Protocol V)
Manhnaz Shahidi, PhD	Measurement of Ocular Aberrations and Retinal Imaging
Lawrence Ulanski, MD	Age-Related Eye Disease Study 2 (AREDS2): A Multi-Center, Randomized Trial of Lutein, Zeaxanthin, and Omega-3 Long-Chain Polysaturated Fatty Acids Docosahexaenoic Acid (DHA) and Eicosapentaenoic Acid (EPA) in Age-Related Macular Degeneration
Lawrence Ulanski, MD	Home Vision Monitoring in AREDS2 for Progression to Neovascular AMD Using the ForeseeHome Device
Lawrence Ulanski, MD	A 3-Year, Phase 3, Multicenter, Masked, Randomized, Sham-Controlled Trial to Assess the Safety and Efficacy of 700 ug and 30 ug Dexamethasone Posterior Segment Drug Delivery System (DEX PS DDS) Applicator System in the Treatment of Patients with Diabetic Macular Edema
Lawrence Ulanski, MD	AMD Phenotype and Genotype Study (APGS)
Lawrence Ulanski, MD	Multi-Center, Randomized, Single Masked Phase 2 Study of Intravitreal Injections of Sirolimus in the Treatment of Central Georgraphic Atrophy Associated with Age Related Macular Degeneration (EMMES)
William Mieler, MD; R. Jivrajka	Early Detection of Functional Changes Using Microperimetry in Patients with Subclinical Hydroxychloroquine (Plaquenil) Toxicity

To learn more about any of these investigations and trials, including how to refer patients, please call (312) 996-6591.

OPHTHALMOLOGISTS IN TRAINING

Residents

THIRD YEAR

Janet Lim, MD, MBA
MD—University of California-Irvine

Randee Miller, MD
MD—Wayne State University School of Medicine

Senad Osmanovic, MD
MD—Northwestern University

Kevin Patel, MD
MD—University of Illinois College of Medicine-Chicago

Adam Prickett, MD
MD—Stanford University School of Medicine

Kavitha Sivaraman, MD
MD—Washington University, St. Louis

SECOND YEAR

Michael Andreoli, MD
MD—Boston University School of Medicine

Asim Farooq, MD, MPH
MD—University of Illinois College of Medicine-Chicago

Sachin Jain, MD
MD—University of Illinois College of Medicine-Peoria

Bryan Kim, MD
MD—University of Washington School of Medicine

Kaitlyn Wallace, MD
MD—University of Chicago-Pritzker

FIRST YEAR

Judy Chen, MD
MD—University of Chicago

Eric Feinstein, MD
MD—University of Virginia School of Medicine

Andrew Francis, MD
MD—Boston University School of Medicine

Abed Namavari, MD
MD—Tehran University of Medical Sciences

Ketki Soin, MD
MD—Jefferson Medical College

Merina Thomas, MD
MD—Vanderbilt School of Medicine

Clinical Fellows

CORNEA
Joshua Hou, MD
MD—Washington University at St. Louis

CORNEA
Lauren Schneider, MD
MD—SUNY Downstate College of Medicine

GLAUCOMA
Sara Huh, MD
MD—Case Western Reserve University

NEURO-OPHTHALMOLOGY
Evan Price, MD
MD—Loyola, Stritch School of Medicine

OCULOPLASTIC SURGERY
Rakesh Patel, MD
MD—Medical Universtiy of South Carolina, Charleston

PEDIATRIC OPHTHALMOLOGY
Maya Bitar, MD
MD—University of Saint-Joseph School of Medicine, Beirut (7-year program)

RETINA
Kristen Nwanyanwu, MD, MBA
MD—University of Pennsylvania

RETINA
Vikram Setlur, MD
MD—University of Illinois College of Medicine-Chicago

(Left to right) Dr. Erica Oltra; Dr. Joann Kang; Dr. Renu Jivrajka; Dr. Sara Huh; Dr. Joshua Hou; and Dr. Kelly Bui. Standing: Dr. Dimitri Azar and Dr. Rohit Varma

37th Annual
ALUMNI-RESIDENT DAY

Illinois Eye alumni and residents gathered together in June 2013 for a serious immersion in the latest developments in eye therapies and vision science led by a distinguished group of Illinois Eye faculty and visiting speakers. Topics covered included glaucoma, cataract surgery, pediatric ophthalmology, neuro-ophthalmology, oculoplastics, vitreoretinal surgery, imaging, bioelectronics and ocular tumors.

Also part of the scholarly day were major awards to four honorees: Gholam A. Peyman, MD, Illinois Eye and Ear Infirmary Achievement Award; R. Mark Hatfield, OD, MD, FACS, Distinguished Alumus Award; Jeffrey L. Goldberg, MD, PhD, Cless *Best of the Best* Award-ARVO 2012; and Mark S. Humayun, MD, PhD, Morton F. Goldberg MD FACS Endowed Lecture.

1: Lecturer Dr. Jeffrey Goldberg **2:** Resident Class of 2013 (left to right) Dr. Sara Huh; Dr. Kelly Bui; Dr. Erika Oltra; Dr. Joann Kang; Dr. Renu Jivrajka; and Dr. Joshua Hou **3:** Monica Hatfield and Dr. R. Mark Hatfield **4:** Meeting room **5:** Alumnus Dr. Pete Lagouros **6:** Lecturer Joan Stelmack **7:** Dr. Jeffrey Goldberg **8:** Lecturer Dr. Mark Humayun **9:** Lecturer Dr. Jeremy Keenan **10:** Lecturer Dr. Charles Bouchard **11:** Lecturer Dr. Richard Parrish II **12:** (Left to right) Dr. Ali Djalilian; Dr. Veeral Sheth; and Dr. Amir Mehralian **13:** Reception **14:** (Left to right) Bonnie Chow; Dr. Clement C. Chow; Dr. Rohit Varma; Dr. Jennifer Lim **15:** Dr. Benjamin Ticho; Dr. Iris Kassem; Dr. Javaneh Abbasian; Dr. Genie Bang; and 2013 Pediatric Ophthalmology Fellow Dr. Senem Salar















If you wish to make a gift to support resident education, please contact the Department at (312) 996-6591, email ophgift@uic.edu, or visit our website: TheEye.org

Illinois Eye and Ear Infirmary Residency Program

UIC ALUMNI

Anniversary Classes 2013

50TH ANNIVERSARY

Resident Class of 1963
Inez Atkinson, MD
T. Earle Dukes Jr, MD
Joel A. Kaplan, MD
David S. McDaniel, MD
Alan K. Rice, MD

45TH ANNIVERSARY

Resident Class of 1968
Thomas C. Burton, MD
Lawrence I. Chapman, MD
Robert E. Gorsich, MD
David D. Moran, MD
David S. Robbin, MD
Charles Vygantas, MD

40TH ANNIVERSARY

Resident Class of 1973
John Paul Broderson, MD
Gerald Fishman, MD
Stephen M. Harrison, MD
Robert R. Herbst, MD
James F. Kammer, MD
Steven P. Koenig, MD
Edward P. Mann, MD
David Mittelman, MD
Martha J. Willi, MD

35TH ANNIVERSARY

Resident Class of 1978
Mark A. Baskin, MD
Jeffrey E. Koziol, MD
James C. Liang, MD
Paul L. Owens, MD
Michael P. Phillips, MD

30TH ANNIVERSARY

Resident Class of 1983
Thomas A. Deutsch, MD, FACS
Michael J. Elman, MD
Steven M. Gilbard, MD
Mark A. Glazer, MD
James M. Noth, MD
Michael A. Nyberg, MD
Kirk H. Packo, MD
Jon M. Ruderman, MD
Kevin O. Zweig, MD

25TH ANNIVERSARY

Resident Class of 1988
Anne L. Coleman, MD, PhD
Peggy H. Fishman, MD
Brian C. Joondeph, MD, FACS
Marian Sue Macsai-Kaplan, MD
Teddy Y. Tong, MD
Lisa M. Ward, MD

20TH ANNIVERSARY

Resident Class of 1993
Ellen Dehm, MD
Gregory J. Katz, MD
Miriam T. Schteingart Light, MD
Stephen D. McLeod, MD
Carla Siegfried, MD
Marc S. Werner, MD
Karen Winchester, MD
Seth L. Yoser, MD

15TH ANNIVERSARY

Resident Class of 1998
Rafael Chiu, MD
Eric A. Cole, MD
Stephanie Goei, MD
Reem Hanna, MD
Kurt K. Lark, MD
Bryan J. Phillips, MD
Thao N. Tran, MD
Jonathan G. Williams, MD

10TH ANNIVERSARY

Resident Class of 2003
Anjali Bhorade, MD
Kevin W. Greuloch, MD
James J. Koster, MD
Amy Lin, MD
Rakhi R. Patil, MD
Edward Sung, MD

5TH ANNIVERSARY

Resident Class of 2008
Harit K. Bhatt, MD
Lisa Nijm, MD, JD
Mansi Parikh, MD
Kiran Sajja, MD
Veeral Sheth, MD
Gregory Sulkowski, MD