

DUKE EYE CENTER

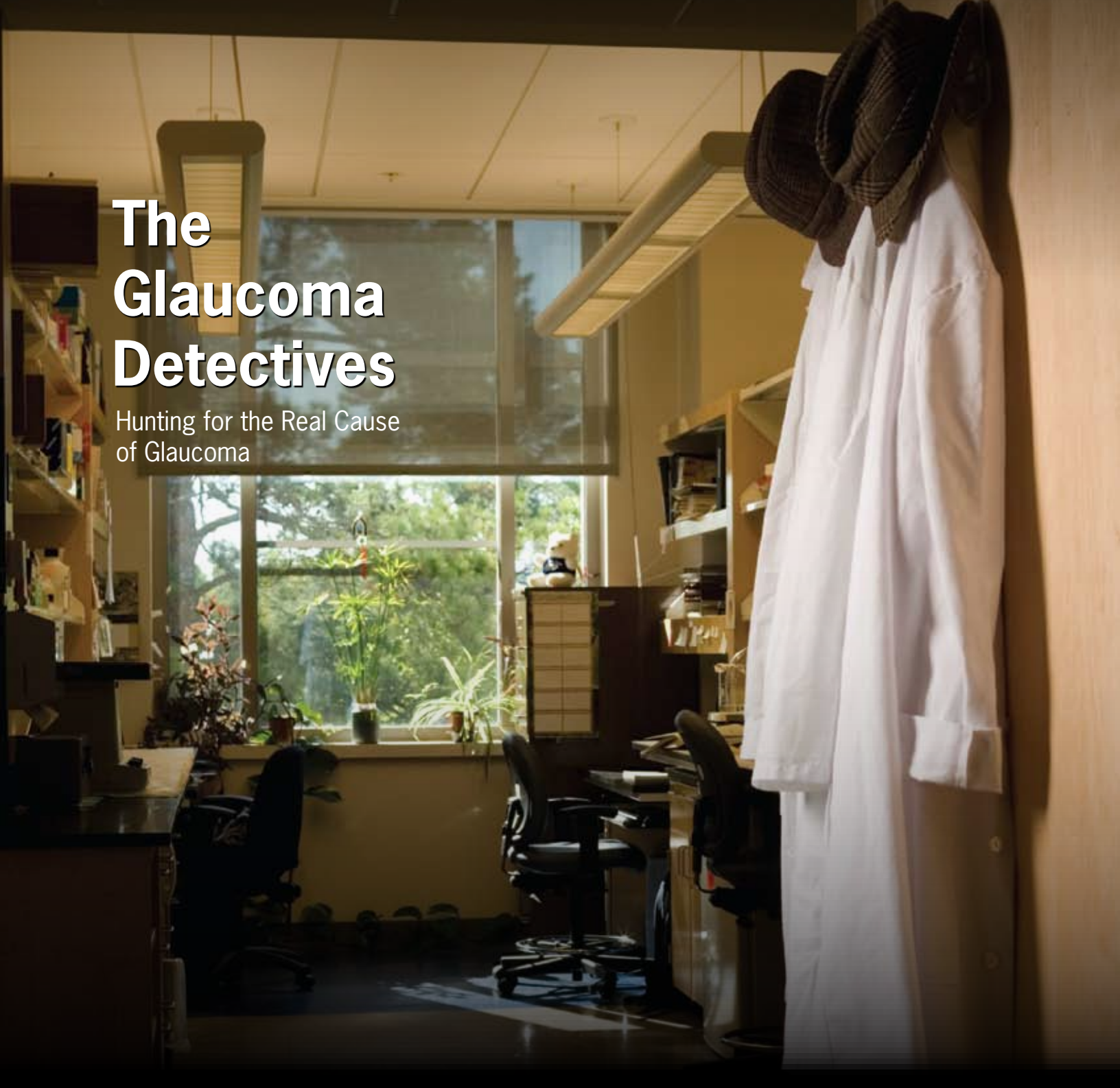
VISION



FALL/WINTER 2007 VOLUME 23, NUMBER 2

The Glaucoma Detectives

Hunting for the Real Cause
of Glaucoma



PATIENT CARE + RESEARCH + EDUCATION



CHAIRMAN'S CORNER

It has been another extraordinary year. As we continue our non-ending quest to solve blinding eye diseases, support from the National Eye Institute (NEI)/National Institutes of Health (NIH) has increased substantially, and we have moved up in our ranking in several areas. The latest NEI funding for institutions ranks us number six with \$11,135,979; that's up from a number seven ranking and \$6,583,199 funding the previous year. Additionally, in the fall, Dr. Gordon Klintworth received a five-year, \$3.1 million grant from NEI to investigate the gene(s) that lead to a common age-related corneal disease that affects females much more often than males. We attribute these major successes to the Eye Center's world-class researchers, outstanding faculty, and the intellectual environment of our new Albert Eye Research Institute.

We also are gratified by the national accolades we have received. Both the *U.S. News & World Report* and *Ophthalmology Times* have recognized our achievements and have raised us higher in their rankings. The Eye Center has moved from number eight to number seven in *U.S. News & World Report*, while *Ophthalmology Times* has named us number five; that's up from number six in the Best Overall category.

The Eye Center prides itself on being a leader in delivering the highest quality medical care, and our planning for an increasing volume of patients is at the forefront. Currently there is no 'growing' room at the 34-year-old Wadsworth Building which has over 75,000 patient visits annually. We are expanding our satellite services to accommodate growth, but there is an urgent need to have the capacity to provide more patient care here at the Duke campus. With the support of our donors and Duke Administration, we plan to develop the Eye Center Pavilion, a clinical and clinical research facility in front of the Wadsworth building. A parking deck adjacent to the facility is scheduled to begin construction in 2008.

In this issue, you will learn more about our Eye Center faculty pursuing the fundamental causes of eye diseases, as well as utilizing the latest technologies for patient care. In the cover story, our glaucoma researchers have taken the lead to find the cause of and, subsequently, the potential cure for glaucoma. With an estimated 70 million people worldwide who have glaucoma, and seven million of these people blind, glaucoma is indeed a major public health issue. In another article, a glaucoma surgeon is one of the few surgeons around the country, and the first in North Carolina, to have performed a cutting-edge surgery called canaloplasty. The novel surgery may yield fewer surgical complications for patients.

There is also an inaugural annual review insert in this issue to highlight some of our 2006-07 achievements. It affords us the opportunity to thus honor our faculty, donors, and our future ophthalmologists.

Our success would not be possible without the leadership and support of our Eye Center Advisory Board, our donors, patients, alumni, faculty, staff, and the Duke University Health System. I want to express my gratitude to all of you for your dedication and generous support. To each of you, I wish a safe and happy holiday season and New Year.

A handwritten signature in blue ink that reads "David L. Epstein, M.D." The signature is written in a cursive, flowing style.

David L. Epstein, MD

Chair, Department of Ophthalmology

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Duke Eye Center researchers are searching through cells and genes, hunting for the real cause of glaucoma.

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Cutting-Edge Surgery

Duke Eye Center glaucoma specialist Leon Herndon, MD, performed a new surgery that may become the standard in glaucoma surgery because it may yield fewer complications for patients.



Annual Review

The Eye Center highlights accomplishments for the Fiscal Year 07 (July 1, 06 - June 30, 07) in an inaugural publication insert.

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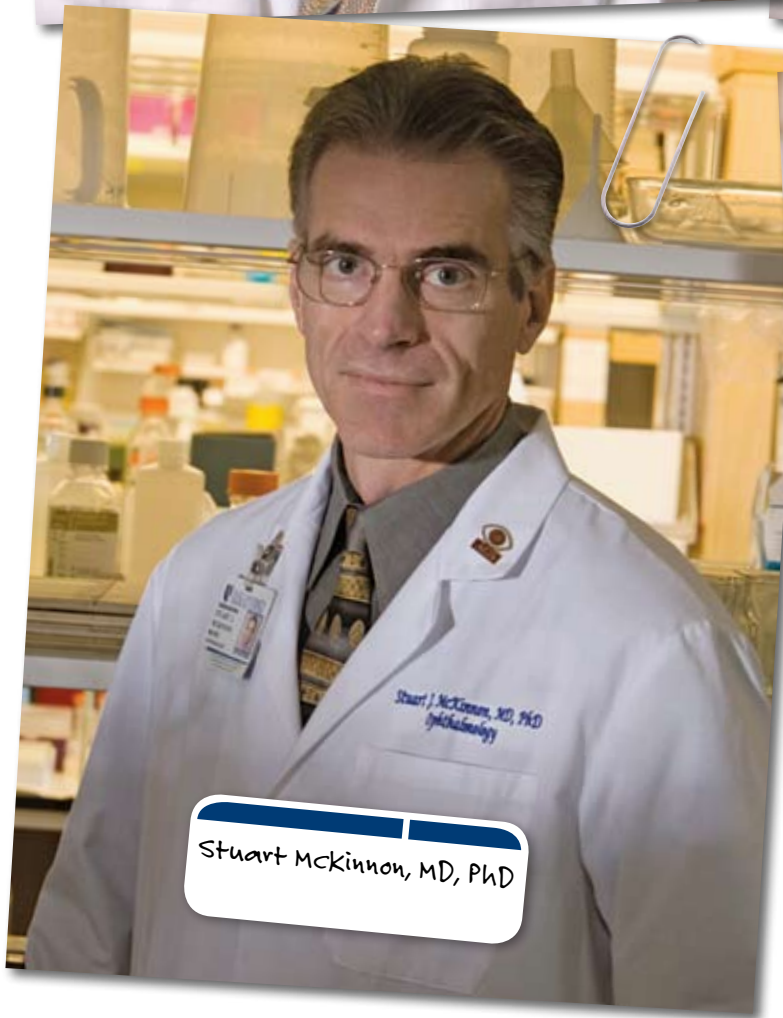
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The Glaucoma Detectives

Duke Eye Center's researchers are searching through cells and genes, hunting for the real cause of glaucoma

URNS OUT, IT'S NOT SO SIMPLE.

For years the medical community thought elevated pressure inside the eye was the main cause of most glaucoma cases, the leading source of incurable blindness in the United States and the world. Based on that belief, most treatments were aimed at reducing intraocular pressure.

Recently, however, there has been a growing awareness that perhaps as many as a third of the people who develop glaucoma have normal or near-normal intraocular pressure. In fact, in some populations, including Mexican-Americans and Japanese, over 80 percent of those with glaucoma have normal eye pressure.

So if increased intraocular pressure *isn't* the only cause of most glaucoma, *what is?*

That's what researchers at the Duke Eye Center are trying to figure out. In the laboratories of the Albert Eye Research Institute, they are delving into the inner function of the eye from every angle. Once they pinpoint the cause, it's just a matter of time before better treatments and, ultimately, a cure for this devastating disease is found.

Glaucoma is an optic nerve disease (actually a group of more than 60 diseases) characterized by the loss of optic nerve tissue, which ultimately leads to vision loss and blindness. Elevated eye pressure is a major risk factor for most forms of glaucoma because it can cause damage to the optic nerve. However as many as 25 to 30 percent of individuals who develop glaucoma do so with normal or near-normal intraocular pressure, and their glaucoma is indistinguishable from that of people who have elevated pressure. Of all the individuals who have an elevated eye pressure, only about 10 percent will develop glaucoma.

One of the biggest challenges with glaucoma is that, in most cases, it is an asymptomatic disease. It rarely causes pain or symptomatic vision loss until late in the course of the disease. Vision loss from glaucoma is not reversible, so while we strive to find a cure for glaucoma, *diagnosing* it at a treatable stage remains a major goal.

“Your eye pressure can be normal, and you can develop glaucoma, or your pressure could be elevated, and you may not develop glaucoma. So pressure is a terrible way to screen whether you have glaucoma,” explains Rand Allingham, MD, chief of Duke’s Glaucoma Service.

Worldwide an estimated 70 million people have glaucoma; seven million of these people are blind. That makes glaucoma a major public health issue, one that creates a tremendous burden on the individuals, their families, and society-at-large.

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Current treatments for glaucoma include medication, laser surgery, and conventional surgery that lower eye pressure to slow or stop the progression of the disease, and, in some cases, surgery to clear a plugged fluid drain. Even in cases where pressure is not elevated, treatment is directed at lowering eye pressure (from the high-normal range to the low-normal range). Now it is still the only proven way to control vision loss from glaucoma.

When elevated eye pressure does occur, it is caused by a blocked fluid drain in the eye. Aqueous humor is the colorless liquid that fills the eyeball. It is pumped through the eye continuously, even before birth. It circulates within the eye, nourishes it, and keeps the eye inflated. The aqueous fluid is constantly produced by the ciliary body, and it must be drained continuously through a fluid flow drain. When the drain doesn’t work efficiently, eye pressure increases. The elevated eye pressure damages the optic nerve, more specifically the nerve fibers within the optic nerve that carry all visual information to the brain.

In many glaucoma cases where pressure is elevated, the fluid flow drain isn’t working well. Duke basic science researcher Pedro Gonzalez, PhD, associate professor in ophthalmology, is studying how the drain works at the molecular level.

“Glaucoma usually has a very slow progression and, in general, it affects people after the age of 40,” says Gonzalez, who worked at the National Eye Institute laboratories before coming to Duke. “We want to know, first, how normal drain tissue works, and then what goes wrong with that mechanism in glaucoma. If we can understand what is responsible for the failure of this tissue in the fluid drain, we can develop treatments to delay the disease’s progression.”

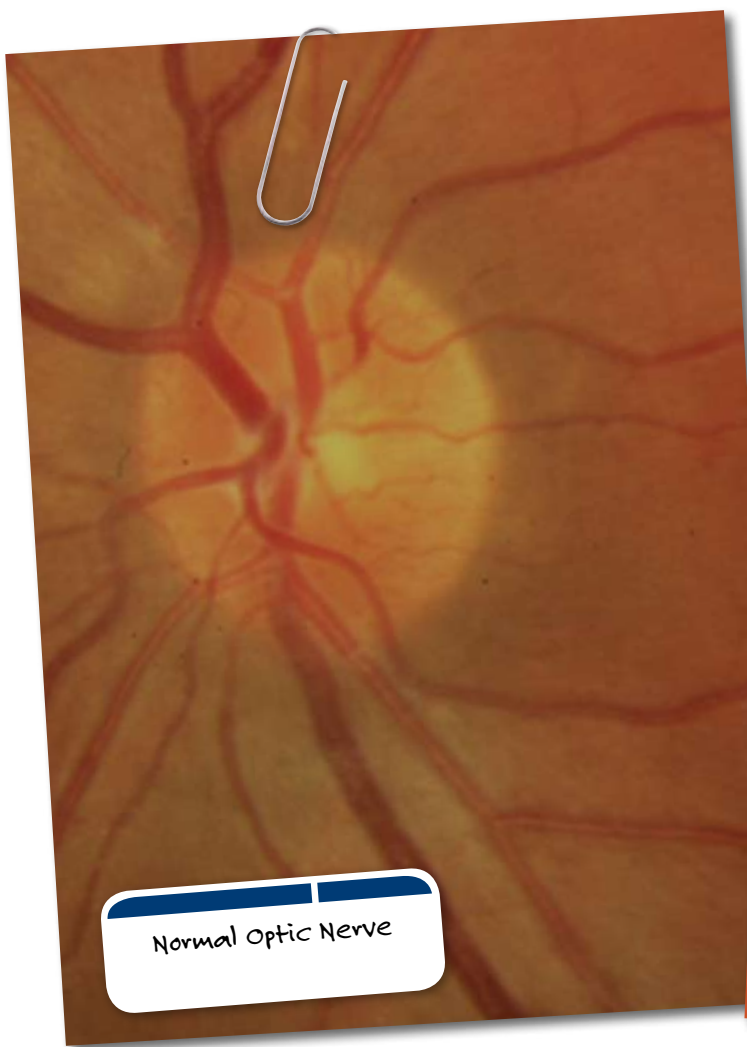
Gonzalez and his research team use pig eyes for most of their studies. They take tissue samples from the front of the eye (the part responsible for draining the aqueous humor), pump fluid into these samples, and measure the speed at which the liquid drains. They also modify cells in this tissue by genetically introducing, altering, or removing genes related to the drainage process to determine the impact on the rate of fluid drainage. They are studying this process in both healthy eye tissue and tissue from eyes with glaucoma.

Gonzalez’s lab is currently focusing on oxidative stress as one of the main factors that could cause glaucoma. Oxygen is used by cells to breathe and to obtain energy. But it can also form a series of molecules that can damage the cells in the drainage system.

“We think it may be possible for us to develop medications that could prevent the damage caused by oxidative stress so the drain tissue will be functional for a longer time. In the laboratory, we’re testing molecules that seem to be promising in helping to protect the cells from this oxidative damage, and we’re hoping to be able to begin testing in animal models very soon.”

Researcher Stuart McKinnon, MD, PhD, associate professor of ophthalmology, is starting there. The optic nerve, which is in the retina in the back of the eye, is made up of about 1.5 million nerve





Normal Optic Nerve



Optic Nerve w/Glaucoma

fibers that arise from ganglion cells that transmit signals between the eye and the brain. In glaucoma these ganglion cells begin to die, which causes vision loss. McKinnon is trying to understand the molecular process by which this cell death occurs.

“Now that we know elevated intraocular pressure is not the cause of glaucoma, it’s important to find therapies to protect the optic nerve itself. We’re trying to determine the important events in the cell death process and ways to delay or prevent those events from happening,” McKinnon explains. “Glaucoma is a long-term, chronic disease, and the longer we can delay the process, the more useful vision people will have. If we can make the optic nerve healthy and strong so it’s not susceptible to damage by elevated eye pressure, then we won’t have to worry as much about controlling that pressure.”

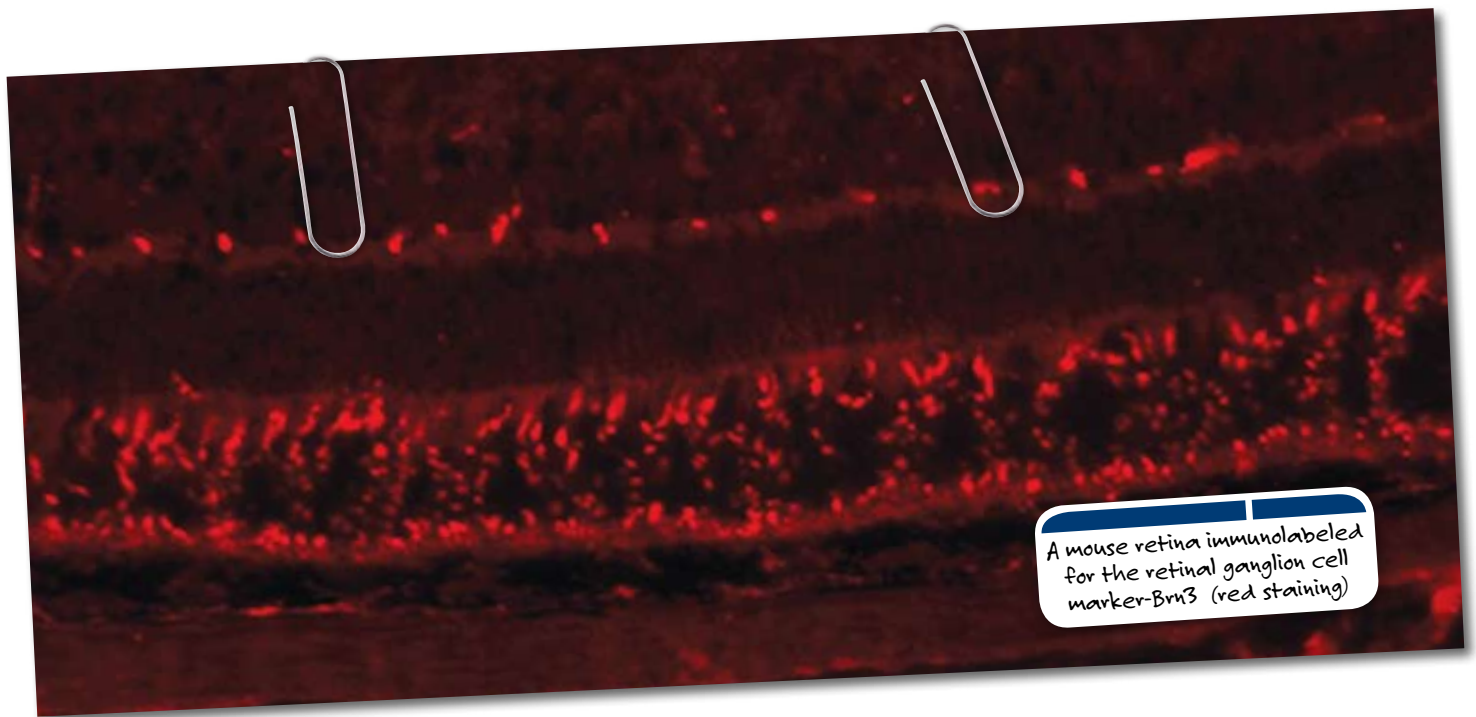
McKinnon’s lab uses rodents to test different therapeutic approaches, such as using viruses to deliver genes that will produce proteins capable of protecting the ganglion cells. The scientists elevate the pressure in one eye of each animal and then deliver either a treatment or a sharp control treatment to these eyes. They then determine whether there is any protection from glaucoma damage in optic nerves in the treated group when compared to the optic nerves from the control group. If successful in animal models, McKinnon will take these treatments to human clinical trials with

the ultimate goal of translating this laboratory research into effective treatments for glaucoma patients.

McKinnon was the first researcher to discover that molecular events that take place in glaucoma are similar to those that occur in Alzheimer’s disease, a finding recently confirmed by British researchers. Proteins that affect the brains of people with Alzheimer’s also appear to cause the death of the optic nerve cells in glaucoma. This means that therapies used to treat Alzheimer’s could be used to

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treat glaucoma, McKinnon says. Pharmaceutical companies are already conducting human clinical trials for several medications that are FDA-approved for treating Alzheimer’s disease to see if they are effective in treating glaucoma. McKinnon says gene therapy and immunological treatments may also be promising, given those findings. He is conducting a pharmaceutical company-sponsored trial to determine if immunotherapy directed against amyloid-beta,



the neurotoxin molecule found in the senile plaques in Alzheimer's disease, can prevent optic nerve damage in his rodent glaucoma model.

In the research laboratory next door to McKinnon's, Vasanth Rao, PhD, associate professor in ophthalmology with a secondary appointment in the Department of Pharmacology and Cancer Biology, is applying his expertise in cell biology and cytoskeletal signaling to both the aqueous fluid flow drain and the optic nerve. Rao's research efforts are divided between glaucoma and cataract.

"The immediate goal of our lab in the area of glaucoma is to understand the cell biology of the aqueous humor drainage pathway," Rao says. "Every cell has a structural framework, the cytoskeleton, which operates like the human skeleton in that it holds up and gives shape to the cell. Our lab is trying to understand how the cytoskeleton of the cells around the drain works, and how it influences other cellular activities under normal conditions and in eyes with glaucoma, so that we can find specific molecules in these cells that we can target with drugs or molecular therapy to increase fluid flow and lower intraocular pressure."

Using human and pig eyes as samples, Rao's lab has already found several molecular targets that increase aqueous outflow, and pharmaceutical companies are now running clinical trials on some of the promising drugs and drug-delivery systems to target these molecules effectively and safely. The research team is also using animal models to investigate whether issues with the cytoskeletal signaling of the drain cells may be linked to the development of glaucoma.

Rao's research interests complement those of David Epstein, MD, professor of ophthalmology and chairman of the Department of Ophthalmology, a renowned glaucoma researcher in his own right. Rao is also collaborating with McKinnon to explore, at the cellular level, how changes in cytoskeleton and intraocular pressure affect the survival—or death—of the ganglion cells in the back of the eye.

And then there's genetics. Researchers have found that possessing certain genes can cause an individual to be more susceptible to developing some forms of glaucoma. More specifically it appears

that the genes make someone more susceptible to damage of the optic nerve or fluid drains, explains Allingham, who has been leading a large-scale study to find the genes that cause glaucoma in the United States and in Ghana, West Africa, where the prevalence of glaucoma is especially high—even in the younger population.

"Many forms of glaucoma are inherited. If we can understand exactly what is inherited genetically that increases our risk of glaucoma, then we'll be able to do DNA testing to identify those at high risk long before damage occurs. If the risk is very high, we could even treat the disease preventively."

Once the genetic links are understood, as well as the molecular workings of the optic nerve and fluid flow drain, targeted treatments could be developed that are specific to the cause of each form of glaucoma, rather than treating high eye pressure generally, Allingham says. "That's important because elevated eye pressure and/or vision loss is the last thing that develops – a series of other things have gone wrong before that. Understanding the genetics can help us intervene earlier in the disease process, before it gets too far along."

Allingham, Gonzalez, McKinnon, Rao, and other glaucoma laboratory researchers and clinician-scientists at Duke are in close communication, sharing their findings and collaborating on several projects. Allingham's genetic findings can tell Gonzalez which genes or proteins to look at in the drain tissue he's studying, for instance, or guide McKinnon to study those genes in his mice. Or Gonzalez may find proteins that appear to play an important role in fluid flow in the eye, and Allingham can use that information to look at candidate genes.

What is the cause of glaucoma? The answer, when it is found, will clearly be complex. As these Duke Eye Center "detectives" pursue every lead, each new insight raises more questions and more investigative avenues to pursue. But together, they're approaching the eye from every angle—which means it won't be long before their suspect is cornered.





Cutting-Edge Surgery

Glaucoma Surgery May Yield Fewer Complications for Patients

For years the gold standard for glaucoma surgery has been a trabeculectomy. This procedure creates a new drain in the eye, relieving the elevated intraocular pressure caused by a build-up of aqueous fluid when the natural drain isn't working properly. But a procedure, one that reopens the natural drainage channel rather than creating a new one, could someday become the new standard.

Duke glaucoma specialist Leon Herndon, MD, associate professor of ophthalmology, is one of the few surgeons around the country who has performed the cutting-edge procedure called canaloplasty. This summer at the Eye Center, he performed the first two canaloplasties in North Carolina.

"In patients with open-angle glaucoma, the drainage canal has collapsed. The canaloplasty procedure opens the canal just as a stent opens a blood vessel in someone suffering from heart disease," he explains.

"Traditional trabeculectomy surgery involves creating a new drain for the eye by creating a 'bleb' on the eye," Herndon says. "A bleb is a tiny flap cut into the sclera, the white part of the eye, to allow aqueous fluid to drain from the eye in a new direction. While this type of surgery is effective in lowering intraocular pressure, it also can lead to complications. Since the bleb is elevated, it may cause discomfort or irritation. And since the tissue is very thin, these blebs may leak over time, putting the patient at a risk of infection, which may ultimately cause vision loss."

Although canaloplasty is a more complicated surgery than trabeculectomy because surgeons don't create a bleb, it is a superior procedure because it reopens the Schlemm's canal, the eye's natural drainage channel. In many glaucoma cases, particularly in primary

open angle glaucoma (POAG), the Schlemm's canal has collapsed, blocking the flow of aqueous fluid out of the eye. Canaloplasty allows the surgeon to reopen the canal and restore flow by using a tiny specialized catheter to go inside the canal and thread a suture 360 degrees around its walls—just as a stent holds open a collapsed artery.

Popularized by a South African ophthalmologist, canaloplasty has gained popularity in the past year, especially since this summer when the first clinical study was published and showed promising results.

Canaloplasty is not right for every glaucoma patient in need of surgery, Herndon notes. For now it is best suited for patients who

In patients with open-angle glaucoma, the drainage canal has collapsed. The canaloplasty procedure opens the canal just as a stent opens a blood vessel in someone suffering from heart disease.

have open-angle glaucoma, have not had previous glaucoma surgery, and do not require extremely low intraocular pressures. It may also appeal to contact lens wearers since contacts can irritate blebs and cause them to leak or become infected.

Herndon says, "Canaloplasty is a great addition to our arsenal for glaucoma surgery, allowing us to fine-tune the appropriate surgery for each patient. I'm excited about the potential—the likely decreased risk of significant complications and the ability to give patients a better quality of life."



NEW FACULTY



After five years as a comprehensive ophthalmologist and cornea specialist at Kaiser Permanente in the Washington, D.C., area, Tina Singh, MD, is thrilled to be returning to her home state and to academic medicine.

As the Duke Eye Center's newest comprehensive ophthalmologist, Singh provides urgent care, routine eye exams as well as treatment and management of glaucoma, cataracts, macular degeneration, and

I really missed the academic environment. It is invigorating to teach students and to be challenged by their questions. It is an honor to be here at Duke—an institution that is at the forefront of research and teaching.

diabetic eye diseases. She sees patients at the Eye Center's campus location and the satellite clinic at Southpoint. Singh is also involved in teaching Duke medical students and residents.

Coming to Duke from private practice is a great change, says Singh, who joined the Eye Center faculty as assistant professor of ophthalmology in September. "I really missed the academic environment. It is invigorating to teach students and to be challenged by their questions. It is an honor to be here at Duke—an institution that is at the forefront of research and teaching."

Singh's father was a professor of biology at Winston-Salem State University, and while growing up in Winston-Salem, she had the opportunity to sit in on some of his classes. From her early years, she shared her father's passion for the biological sciences. Singh volunteered at a local hospital when she was 13, and that experience motivated her to pursue a career in medicine. After earning her undergraduate degree in biology at UNC-Chapel Hill in 1992, Singh went to East Carolina University School of Medicine. At first general surgery really appealed to her, but a rotation in ophthalmology changed her career path.

"The eye is such a complex and fascinating organ," she says. "I realized that a career in ophthalmology would fulfill my surgical interests as well as allow me to have continuity of care with my patients."

She returned to her hometown to complete her ophthalmology residency and a fellowship in cornea and refractive surgery at Wake Forest University School of Medicine.

"I really enjoyed my fellowship training as I was involved in numerous challenging medical and surgical cases."

At Kaiser Permanente, where she went after completing her fellowship in 2002, Singh provided not only routine eye care but used her comprehensive experience while still performing cornea transplant surgeries and other ocular procedures. "There was such a great amount of pathology in that patient population. I was performing many laser retinal and glaucoma surgeries as well."

Paul Lee, MD, JD, who helped recruit Singh to the Comprehensive Service, was impressed by her ability to put patients at ease. "She has a wonderful way of communicating, and in addition to her comprehensive ophthalmology skills, she brings additional expertise in corneal and external diseases to our patients."

Singh and her husband, Lalit Verma, MD, a hospitalist at Durham Regional Hospital, have two young sons, so life outside of work generally revolves around them. When time permits, she enjoys cycling, swimming, and yoga, as well as reading and traveling.

At Duke, in addition to caring for her patients, Singh is excited about helping to train the next generation of ophthalmologists. "My mentors made a lasting impression on my education and how I practice medicine, and so I'd love to contribute to the field through education and research."

Tina Singh, MD
Comprehensive Ophthalmologist





Tammy Yanovitch, MD

Pediatrics and Strabismus

With a mother who was a nurse and a grandfather who was a research scientist, Tammy Yanovitch, MD, the newest member of the Eye Center's Pediatrics and Strabismus Service, was practically destined to become a physician-scientist.

Yanovitch completed her undergraduate studies at the University of Tulsa, then medical school, an internship, and ophthalmology residency at the University of Oklahoma. In July 2006 she came to Duke for a one-year fellowship in pediatric ophthalmology. During her fellowship, she studied a topical glaucoma medication that had been tested extensively in adults, but little was known about its safety or efficacy in treating childhood glaucoma.

Eye Center leaders, impressed by Yanovitch's research and clinical acumen, invited her to join the faculty this summer. As added incentive, they offered her a prestigious K12 training grant. These highly competitive grants, funded through the National Eye Institute's Mentored Clinical Scientists Development Program, help academic institutions train promising young physicians to become clinician-scientists.

Sharon Freedman, MD, professor of ophthalmology and pediatrics, who mentored Yanovitch during her fellowship, says, "The Pediatric Service is delighted to have Dr. Yanovitch join us as a faculty member. As a K12 grant recipient, she will spend the majority of her time engaged in clinical and basic science research related to pediatric ophthalmology. She will also build a clinical practice and contribute her talents to

this well-rounded service."

Yanovitch spends three days a week at Duke's Center for Human Genetics, where she is working with Terri Young, MD, professor of ophthalmology and pediatrics, to identify the genes that may predispose preterm infants to develop retinopathy of prematurity.

"Retinopathy of prematurity is a disease that affects very low birth weight babies," Yanovitch explains. "These infants develop abnormal blood vessels in the back of the eye, and these abnormal blood vessels can leak, causing retinal detachment, which can lead to blindness.

"In some preterm infants, the process of developing retinopathy of prematurity begins, then improves spontaneously. But in others, the disease continues to progress and worsen. That leads us to believe that there's some sort of underlying genetic basis for why some infants get worse, and others get better—so that's what we're looking for. I feel very passionate about this project because it's something that can really help these babies."

In the clinic, Yanovitch performs routine vision exams, treats refractive error and lazy eye, cares for young patients with strabismus and cataracts, and performs surgery to correct these conditions. She is also studying the value of an alternate vision testing method for children with Down syndrome who may have difficulty with the traditional method of reading letters from a chart. By measuring the electrical impulses that visual stimuli generate in the patient's brain, this new method could help assess the vision of children who may be unable to communicate their visual abilities.

Among her reasons for choosing a career in pediatric ophthalmology, Yanovitch says is the opportunity to work with children. "Kids are so much fun, and it's great coming to work when you know you'll get to be with them all day. Plus I believe that if you can help a child, you're helping them for their entire life, which is very rewarding."

Yanovitch and her husband Rob, a golf pro, live in Chapel Hill. An avid runner, she particularly enjoys running the trails in Duke Forest. She is thrilled by the opportunity to remain at Duke and to have been chosen to

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receive a K12 award. "I'm very thankful for the wonderful mentorship I received during my fellowship here, and I look forward to continuing to help improve the lives of our young patients."

Rand Allingham, MD,

Glaucoma Service, found in a recent study funded by a philanthropic gift, that major glaucoma genes may exist and be prevalent among certain populations. The POAG (Primary Open-Angle Glaucoma) genetic research team, including Michael Hauser, PhD, and Silke Schmidt, PhD, from the Duke Center of Human Genetics, are studying the DNA of over 1,000 research subjects to pinpoint the gene location and very possibly the gene itself. In a related study of the Aeta population of Luzon, Philippines, Allingham's research team found that this isolated population has a very low incidence of glaucoma. Research also shows that the Australian Aborigine population has almost no glaucoma. Allingham's current research with the National Geographic Society has determined that these two populations are very closely related. These findings suggest that genes may exist which protect against glaucoma, providing another powerful approach to curing this disease. Research of this nature will ultimately lead to individualized diagnosis and treatment for glaucoma. His research is funded by the National Eye Institute of the NIH, private foundations, and individuals.



Sanjay Asrani, MD,

Glaucoma Service, was named one of America's Top Ophthalmologists 2007 by the Consumers' Research Council of America. He presented a keynote talk at the Congress of the European Association for Vision and Eye Research in October and presented at the Glaucoma Subspecialty Day at the American Academy of Ophthalmology annual meeting in November.



Srilaxmi Bearely, MD,

Vitreoretinal Diseases and Surgery Services, spoke at the DIRECT Dry Age-related Macular Degeneration meeting at Duke in October, where she presented her ongoing research into mechanisms of geographic atrophy progression as well as the role of fundus autofluorescence imaging in geographic atrophy. She and coauthor Scott Cousins, MD, have a manuscript accepted for publication by the *British Journal of Ophthalmology* titled "The Role of Dynamic Indocyanine Green Angiography in the Diagnosis and Treatment of Retinal Angiomatic Proliferation."



Tariq Bhatti, MD,

Neuro-Ophthalmology Service, recently published "Cells, Cells and More Cells" in the *Survey of Ophthalmology* and "Orbital Syndromes" in *Seminars in Neurology*. He is one of the principal investigators for ELONS, the extended longitudinal optic neuritis study that recently submitted 15 years of study results for publication. Bhatti is faculty editor for the 2009 major revision of Neuro-Ophthalmology (section 5) Basic and Clinical Science Course for the American Academy of Ophthalmology.



Dana Blumberg, MD,

Glaucoma Service, received the American Glaucoma Society Clinician Scientist Award from the Helen Keller Foundation and Pfizer Ophthalmics for her project involving gonioscopy skills transfer. It has been successfully pilot tested, and she plans to expand the scope of the project. The initial manuscript has been submitted for publication, and the results were presented at the Duke Glaucoma Symposium. Blumberg has also recently completed a textbook chapter on glaucoma diagnosis and management in Curbside Consult.



Catherine Bowes Rickman, PhD,

Research, received a \$240,000, three-year grant from the Macula Vision Research Foundation for her research, "Rescue and Pathogenesis in a Murine Model of AMD." These studies use the APOE4 TR mouse model of AMD to test if amyloid peptide deposition is a toxic, pathogenic component of basal deposits in AMD. Her recent presentations include "Multifactorial Animal Model of Dry and Exudative Age-related Macular Degeneration: Replication of Human Pathologies and Suitability for Preclinical Trials" at Rinat Neuroscience in San Francisco; "APOE4/APOE4 Targeted Replacement Mice" at the Eleventh Annual Vision Research conference in Fort Lauderdale, Fla.; "The Role of Amyloid in Age-related Macular Degeneration Pathogenesis-Lessons from a Murine Model" at the Distinguished Scholar Seminar Series, Emory University School of Medicine; "Modeling Age-related Macular Degeneration Using a Multifactorial Murine Model" at the Cole Eye Institute Distinguished Lecture Series in Cleveland, Ohio; and "APOE Model of AMD" at the first DIRECT Dry AMD Meeting at Duke. She also received a \$60,000 Research to Prevent Blindness William and Mary Greve Special Scholars Award.



Edward Buckley, MD,

Pediatric Ophthalmology and Strabismus Service, became president of the American Association of Pediatric Ophthalmology and Strabismus (AAPOS), which represents over 1,500 pediatric ophthalmologists worldwide. The AAPOS organization provides educational activities for physicians and information for patients. He is also the chair of the American Board of Ophthalmology, the organization that certifies ophthalmologists. Buckley was the E.A. Baker lecturer for the Canadian Ophthalmology Society and delivered the Richard Scobee Memorial Lecture at the American Orthoptic Association's annual meeting in October.



Alan Carlson, MD, Cornea and Refractive Surgery Services, spoke at recent meetings in Atlanta, Ga., Jackson, Miss., and Austin, Tex. His lecture topics included research and recent developments in laser



vision correction surgery, cataract surgery, corneal transplantation, ophthalmic imaging, and new treatments for keratoconus. In September Carlson presented his annual LASIK course for the 10th consecutive year, certifying doctors in the southeast region, including Louisiana and Texas, for the VISX and Intralase lasers. Currently his research interests focus on preventing complications in cataract surgical patients who use Flomax and optimizing the outcomes of patients who receive multifocal intraocular lenses. He spoke on eight topics addressing anterior segment eye surgery at the recent Duke Lecture Series. He serves on the advisory board for the *Review of Ophthalmology* and as a reviewer for several journals, including *The Journal of Refractive Surgery* and the *Journal of Cataract and Refractive Surgery*.

Pratap Challa, MD, Glaucoma Service, along with collaborators in the Duke glaucoma laboratory, presented his work in modifying gene expression at the Association for Research and Vision meeting in Fort



Lauderdale, Fla. He and coauthors from the Glaucoma Service published a paper in the *Journal of Glaucoma* describing a technique for removal of Ex-Press shunts. Challa, Paul Lee, MD, JD, and other coauthors also published a paper in *Ophthalmology* describing the use of a new survey instrument to measure patient satisfaction with resident care.

David Epstein, MD, chairman of ophthalmology, was visiting professor at the University of Arizona. (While there, Dan Stamer, PhD, arranged for him to meet Lute Olsen, the basketball coach of the University of Arizona Wildcats.)



Sharon Fekrat, MD, FACS, Vitreoretinal Diseases and Surgery Services, discussed a case study of branch retinal vein occlusion in *Retina Times* Counterpoints column published in the fall and spoke at the Midwest Ocular Angiography Conference in Newfoundland in August. Fekrat was appointed an Eye Center representative on the Institutional Review Board that approves medical center research studies. She has been selected as a member of the Eye Center's ophthalmology resident selection committee for 2007-2008. *All about Your Eyes*, a book she coedited with Jennifer Weizer, MD, recently received an outstanding review in the *Archives of Ophthalmology*. Fekrat received a Best Doctors award and has been chosen as a member of the North American Consortium of Ophthalmology Medical Education Directors for her work with the second-year Duke medical student ophthalmology selective program. Fekrat was named chair of the American Academy of Ophthalmology's Retina/Vitreous Panel for the extensive COMPASS project that provides online information for ophthalmologists around the world.



Sharon Freedman, MD, Pediatric Ophthalmology and Strabismus Service, recently had several manuscripts accepted for publication. "Optical Coherence Tomography as a Tool for Monitoring Pediatric Pseudotumor Cerebri," coauthored by current fellow Mays El-Dairi, MD, and colleagues Sandra Holgado and Edward Buckley, MD, was published



in the *Journal of AAPOS*. "Central Corneal Thickness: Congenital Cataracts and Aphakia," first authored by new faculty member Kelly Muir, MD, with coauthors Laura Enyedi, MD, David Wallace, MD, and Lois Duncan, CO, COMT, will be published in the *American Journal of Ophthalmology*. One of Freedman's projects, "Success and Long-term Complications of Aqueous Drainage Device Surgery in Children with Glaucoma," coauthored with new faculty colleague Tammy Yanovitch, MD, and former clinical associate Erin Schotthoefer, MD, was presented at the AAPOS 2007 annual meeting. It also received an award from the Pediatric Glaucoma & Cataract Family Association (PGCFA), an organization dedicated to families of children with cataracts and glaucoma. Freedman continues as chair of the Annual Program Committee for the American Association for Pediatric Ophthalmology and Strabismus (AAPOS), and participates on the board of directors for AAPOS and on the editorial board of the *Journal of AAPOS*.

Parag Gandhi, MD, Oculoplastic and Reconstructive Surgery Service, Winston-Salem, presented his fellowship thesis, "Ophthalmic Complications Following Treatment of Primary



Orbital and Paranasal Sinus Rhabdomyosarcoma," at the Fall 2006 meeting of ASOPRS (American Society of Ophthalmic Plastic & Reconstructive Surgery) and was accepted for membership in ASOPRS. At the Fall 2006 AAO meeting in Las Vegas, he lectured on "Transnasal Fixation Technique," and served as faculty for the hands-on skills transfer course on orbital plating, and also was an instructor in the course at the 2007 Fall AAO in New Orleans. In June 2007 he organized a hands-on short course on the "Management and Repair of Orbitofacial Fractures" for Eye Center residents. He helped introduce an updated craniofacial reconstruction set at Forsyth Medical and Medical Park Hospitals in Winston-Salem, and he coauthored with the oculoplastics and ENT faculty at UT-Memphis, "Transblepharoplasty Approach to Sequestered Disease of the Lateral Frontal Sinus with Ophthalmologic Manifestations,"

FACULTY UPDATE

which was published in the *American Journal of Rhinology*. He also lectured on selected topics in oculoplastic surgery at the spring and fall McKinley Conferences in Winston-Salem. Recently he began staffing the oculoplastics clinic for the Eye Center residents who are rotating at the Asheville VA Medical Center. (Note: Gandhi's faculty update was inadvertently omitted from Spring/Summer 2007 issue of *VISION*.)

Leon Herndon, MD,

Glaucoma Service, served as grand rounds speaker at the Eye Foundation of Kansas City Department of Ophthalmology and presented at the Kaiser Ophthalmology Symposium in Anaheim, Calif., and the Arthur C. Chandler Scientific Symposium in Chapel Hill, N.C. Herndon was the first surgeon in North Carolina to perform a successful canaloplasty procedure for glaucoma in July. Canaloplasty is an advanced, nonpenetrating procedure designed to enhance and restore the eye's natural drainage system to provide reduction of intraocular pressure without creating a filtering bleb. He served on the maintenance of certification review course faculty this summer and was grand rounds speaker at the Scheie Eye Institute in Philadelphia this fall. Herndon was course director of Duke's 19th Annual Fall Glaucoma Symposium in September and lectured at the Glaucoma Subspecialty Day at the AAO meeting in New Orleans in November.



Glenn Jaffe, MD,

Vitreoretinal Diseases and Surgery Services, presented "Reimplantation of a Fluocinolone Acetonide Sustained Drug Delivery Implant for Posterior Uveitis" at the Retina Society meeting in Boston in September. Jaffe and codirectors Scott Cousins, MD, and Karl Csaky, MD, PhD, organized the "DIRECT Meeting on Dry Age-related Macular Degeneration" in Durham in October. At the pre-academy Retina



Subspecialty meeting in New Orleans in November, he presented new data on the use of the fluocinolone implant. He was senior author for a paper published in *Investigative Ophthalmology and Visual Science*, which describes the importance of Bcl-XL on the survival of human retinal pigment epithelial cells. Additionally Jaffe and Nanfei Zhang, MD, former Duke medical student in Jaffe's lab, published in the *American Journal of Ophthalmology*, a report that describes excellent agreement among well-trained readers at the OCT Reading Center at Duke who grade optical coherence tomographic scans that are obtained during the conduct of clinical trials of new treatment for wet macular degeneration.

Terry Kim, MD,

Cornea and Refractive Surgery Services, and Anthony Kuo, MD, clinical associate, recently published "Anterior Chamber Bubbles with IntraLase" in the *Journal of Cataract and Refractive Surgery*. He and Mark Grinstaff, MD, published "New Adhesives for Corneal Wound Repair" in *Investigative Ophthalmology and Visual Science (IOVS)* and coauthored with Maria Duarte, MD, "Sutureless Lamellar Keratoplasty," that was published in *Cornea*. Kim joined the editorial board of *EyeWorld*, which adds to his other editorial duties for the journals *Cornea*, *Cataract & Refractive Surgery Today* and *Review of Ophthalmology*. At the 2007 ASCRS meeting in San Diego, Kim presented at Cornea Day and participated in numerous lectures, courses, and symposia, including the entertaining Challenge Cup. He was the Wilfred E. Fry lecturer at Wills Eye Hospital and visiting professor at Emory, Vanderbilt, and Yale. He lectured at the Storm Eye/ASCRS Meeting in Kiawah Island, S.C., the ASCRS meeting in Stockholm, Sweden, and the North Carolina South Carolina State Society meeting in Asheville, N.C. In November Kim presented at the annual AAO meeting in New Orleans, La., and he graduated from the Leadership Development Program.



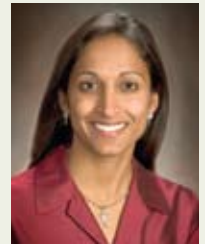
Gordon Klintworth, MD, PhD,

Research, is principal investigator for a \$3.1 million NEI/NIH five-year grant "Study of Genetic Basis of Fuchs Corneal Dystrophy." The project is a study to find the gene(s) that lead to a common age-related corneal disease that affects females much more often than males (75-80 percent of affected individuals are women). The research team includes the Eye Center's Natalie Afshari, MD, and Simon Gregory, PhD, and Yi-Ju Li, PhD, from the Duke Center for Human Genetics.



Aaleya Koreishi, MD,

Cornea and Refractive Surgery Service, joined the service after working with the Comprehensive Service for the past year. She treats medical and surgical diseases of the cornea and performs laser vision correction surgery as well as the latest surgical techniques for cataract surgery and corneal transplantation. Koreishi sees patients at the Duke Eye Center main campus as well as the Cary and Southpoint satellites. She also serves as a cornea attending physician at the Durham VA hospital. Recently she coauthored the "Focal Points" module on "Ocular Surface Neoplasia," published by the American Academy of Ophthalmology. She was awarded membership in the Cornea Society and also the Cornea Specialty Information Team (SIT) for the American Academy of Ophthalmology.



Jill Koury, MD,

Comprehensive Service, is teaching both residents and ophthalmology technician students in her clinics. She lectured to the residents and the ophthalmology technicians in July, giving them an introduction to the treatment of glaucoma.



Paul Lee, MD, JD,

Glaucoma Service, was session moderator at the Prevent Blindness America CDC symposium on the “Burden of Visual Disorders in the United States” and spoke on “Pay for Performance Indicators for Eye Care” at the AAO Mid-Year Forum in Washington, D.C., in April. He was one of two keynote speakers at ARVO in May, and spoke at both the New England Ophthalmological Society (NEOS) meeting in Boston and the Tennessee Academy of Ophthalmology at Vanderbilt in June. He received an award notice for a new research project grant (RO1) from the National Eye Institute of the National Institutes of Health for his research on patient-provider partnerships in glaucoma.



Goldis Malek, PhD,

Research, received a \$100,000 grant from the International Retinal Research Foundation. She and collaborator Scott Cousins, MD, are investigating “The Role of Polyunsaturated Fatty Acids and Oxidative Stress in the Pathogenesis of Dry Age-related Macular Degeneration.”



Brooks McCuen, MD,

Vitreoretinal Diseases and Surgery Services, was an invited guest lecturer in Beijing, Xi’an, and Shanghai, China, in September, speaking about “Modern Techniques in Vitreoretinal Surgery” as well as “New Concepts in Pharmacological Vitreolysis.” He helped organize the 40th annual meeting of the Retina Society in September in Boston, Mass., and in November he participated in the annual meeting of the American Academy of Ophthalmology in New Orleans.



Stuart McKinnon, MD, PhD, Glaucoma

Service, received the prestigious 2006 Lew R. Wasserman Award from Research to Prevent Blindness (RPB). The RPB Wasserman Award is given annually to mid-career scientists and physicians. McKinnon will use the \$60,000 award to further his research in glaucoma neuroprotection and imaging of the optic nerve in glaucoma patients.



Frank Moya, MD, Glaucoma

Service, Winston-Salem, continues to volunteer at Winston-Salem’s Community Care Center, a free health clinic for underserved populations.



Prithvi Mruthyunjaya, MD, Vitreoretinal

Diseases and Surgery Services, participated in the International Congress of Ocular Oncology in Siena, Italy in June where he presented reports on rare developmental ocular tumors. Mruthyunjaya has been invited to participate in the American Academy of Ophthalmology-sponsored COM-PASS panels in retinal diseases and ocular oncology and pathology. These panels are developing a web-based learning tool to bring up-to-date information to general ophthalmologists, specialists, and trainees worldwide.



Eric Postel, MD, Vitreoretinal

Diseases and Surgery Services, was nominated and submitted an application for a Research to Prevent Blindness physician scientist award. He was also promoted to associate professor with tenure.



William Rafferty, OD,

Cornea and Refractive Services, Winston-Salem, was elected vice president of the Association of Regulatory Boards of Optometry at its annual meeting in Boston in June. He was reelected to a two-year term on a National Joint Board Certification Project Team and presented a talk on “Complementary and Alternative Medicine in Eye Care” at this meeting. Rafferty was reappointed to the North Carolina State Optometry Board by Governor Mike Easley in August.



Terry Semchyshyn, MD, Cornea and

Refractive Services, Winston-Salem, served as an examiner for the American Board of Ophthalmology’s oral board exam in Philadelphia in June. He is the team ophthalmologist for the minor league hockey team in Winston-Salem, the Twin City Cyclones, which plays in the Southern Professional Hockey League. His LASIK practice received the “best place to have LASIK” award, which was voted on by the readers of the *Winston-Salem Journal*.



Ivan Suñer, MD,

Vitreoretinal Diseases and Surgery Services, was a visiting professor at the Yale Eye Center. He also lectured and taught courses at the American Academy of Ophthalmology Annual Meeting in New Orleans and the Retina Society meeting in Boston. He delivered a keynote address at the German Society of Ophthalmology in Berlin on “Novel Techniques in Retinal Imaging” and presented at the North Carolina Society of Eye Physicians and Surgeons annual meeting. He also was an examiner for the oral board examination for the American Board of Ophthalmology.



FACULTY UPDATE

Cynthia Toth, MD,

Vitreoretinal Diseases and Surgery Services, was an invited speaker at several international ophthalmologic and retinal congresses this year. Her presentations "Advances in Spectral Domain Optical Coherence Tomography (OCT)" and "Macular Translocation Surgery in the Era of Anti-VEGF Therapy" were translated into Portuguese at the Brazilian Vitreoretinal Society Meeting last spring. Her presentations, "Is Spectral Domain OCT Useful in AMD?," "Pediatric Vitreoretinal Surgery Challenges," and "Macular Translocation Surgery in the Era of Anti-VEGF Therapy" were translated into Spanish at the XI Congreso de la Sociedad Española de Retina y Vitreo in Madrid, Spain. In May she presented "L'Évolution du Traitement Chirurgical de la DMLA avec Neo-Vaisseaux (Evolution of Surgery for Neovascular AMD)" at the 113th Congres de la Société Française d'Ophthalmologie in Paris. Toth presented "Spectral Domain OCT Imaging of Early AMD" and "Perhaps the End of the Beginning" at the Vail Vitrectomy meeting, where she was also part of the international cast in the entertaining Star Wars-based production of "The Quest." An active mentor to residents and fellows, she received the Duke Ophthalmology Golden Globe Residents' Teaching award in May.



Robin Vann, MD,

Comprehensive Service, has written a book chapter in *Essentials of Cataract Surgery* and participated in the third annual Harvard Intensive Cataract Surgery Training Course. He spoke to ophthalmic technicians at the North Carolina Eye Physicians and Surgeons' meeting in Asheboro in September and at the National JCAHPO meeting in New Orleans in November. Vann also participated in teaching a course on cataract surgery curriculum at the American Academy of Ophthalmology in New Orleans in November.



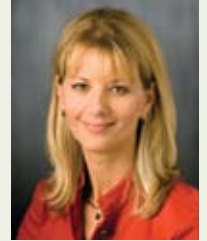
David Wallace, MD, MPH, Pediatric

Ophthalmology and Strabismus Service, was awarded the Research to Prevent Blindness Disney Amblyopia Grant to study the reliability and validity of fixation preference tests for diagnosing amblyopia. He was appointed to the editorial board of the *Journal of the American Association for Pediatric Ophthalmology & Strabismus*. The American Academy of Ophthalmology recently honored Wallace with a Secretariat Award, given for special contributions to the AAO and ophthalmology. He serves as vice-chair of the AAO's Ophthalmic Knowledge Base Panel for Pediatric Ophthalmology & Strabismus, was an instructor for the MOC Exam Review Course, and represents the AAO on the Surgical Quality Assurance Committee. With Sharon Freedman, MD, Wallace coauthored "A Pilot Study Using 'ROPtool' to Quantify Plus Disease in Retinopathy of Prematurity," published in the *Journal of AAPOS*. At ARVO, he presented "Treatment of Bilateral Refractive Amblyopia in Children 3 to 10 Years Old." At the AAPOS meeting, Wallace led a workshop on retinopathy of prematurity, and he presented at workshops "Amblyopia Treatment Studies" and "State-wide Preschool Vision Screening."



Diane Beasley Whitaker, OD, Vitreoretinal

Diseases and Surgery Services, presented "Driving with Vision Loss" at the Duke Glaucoma Symposium in September. She attended the Geriatrics Education for Specialty Residents Summit in Washington, D.C., in October. Whitaker and Heather Whitson, MD, are participating in a NEI funded study that investigates the cognitive impairment as a result of vision loss.



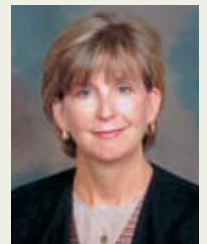
Terri Young, MD,

Pediatric Ophthalmology and Strabismus Service, presented at the "Vision Research and Imaging for the Twenty-First Century" meeting in Cardiff, UK, in September. She, along with research associate Ravikanth Metlapally, MD, and Thomas Norton, MD, of the University of Alabama at Birmingham, coauthored a book chapter "Myopia," for *Garner and Klintworth's Pathobiology of Ocular Disease*. Five scientific abstracts from her research laboratory were accepted for presentation at the American Society of Human Genetics annual meeting in San Diego. Young has hired Erica Burner, MGC, a genetics counselor.



Carol Ziel, MD, Glau-

coma Service, Winston-Salem, attended the Women in Ophthalmology conference in Sedona, Ariz. Ziel presented "New Advances in Glaucoma Therapy" to ophthalmologists in Chicago and St. Louis and participated in the Duke annual glaucoma symposium, discussing "Refractive Surgery Options in Patients with Glaucoma."



Jim Pait New Director of Finance

In May, James “Jim” Pait, MBA, joined the Duke Eye Center as director of finance. He oversees the day-to-day financial functions of the Eye Center, including payroll, check requests, petty cash, grants, and clinical trial close-outs. His team also participates in financial audits, effort reporting, PDC, as well as university budgeting and financial reporting.

Born into a Navy family in Goldsboro, N.C., Pait’s family moved several times up and down the East Coast. His family eventually settled in Florida where he spent his undergraduate years at Palm Beach Atlantic University, earning a bachelor’s degree in accounting with a minor in management information systems in 1994.

After graduation Pait began his career at an accounting firm in Florida where his responsibilities included everything from personal tax returns to corporate audits. During that time, he met his wife, Jodie, whom he married in June 1996. After the wedding, they moved to North Carolina when he became a financial supervisor with United Parcel Service. Eventually he accepted a position at IBM as commercial financial analyst with clients including Waste Management, Pathmark Stores, and Belk. After his division of IBM merged with Lenovo, he became a worldwide distribution coordinator, charged with a budget of \$330 million and 186 employees spanning the globe.

While at IBM, he began graduate studies at Meredith College in Raleigh and earned his MBA degree in May. Upon completion of his degree, he joined the Duke Eye Center administration where he has been enjoying his new challenge. He says it was while he was still in graduate school that he decided he wanted to work in the health-care industry. “I asked folks outside of Duke what they thought of the Eye Center. Everyone had great things to say about the faculty and staff; I knew that this was the place for me,” he recalls. “I am fascinated with the stories I hear from the physicians and our research team about what they are doing to help patients.”

He and Jodie are currently building a house in North Raleigh for their family, which includes two daughters: Natalie, 4, and Abby, 1. In his spare time he enjoys rugby—a sport he played for several years with the Raleigh Vipers, a USA Rugby Division 2 team.



Biomedical Scientist/Engineer Applies Expertise to Eye Research

In his free time, Hyuncheol Kim, PhD, enjoys gazing at the stars. If this new research faculty member is successful in his mission to develop more efficient methods for delivering medications in the eye by combining engineering, science, and medicine, the sky’s the limit for treating patients with a wide range of eye conditions.

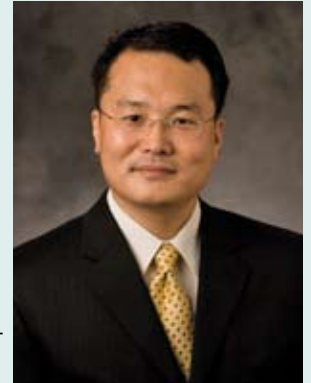
Kim first became interested in ocular drug-delivery systems as a graduate student at the University of Maryland. He came to the United States in 1999 after completing college in his native South Korea, to access the most advanced biotechnology and medical research. He earned master’s and doctoral degrees at Maryland, then joined the National Eye Institute as a post-doctoral research fellow.

“I found many challenges in the area of ocular drug-delivery,” Kim says, “so I decided to apply my engineering knowledge to this field.”

This summer drawn by its strong research program, state-of-the-art facilities, and collegial environment, Kim joined the Duke Eye Center as an assistant professor. He continues to work on new drug-delivery methods, including devices implanted in the eye that release doses of medication over time.

“The current procedures to treat retinal disorders such as age-related macular degeneration and diabetic retinopathy are limited because we don’t have an appropriate drug delivery system,” he says. “For instance some patients need an intravitreal injection frequently which can be very painful. If we had a wonderful drug-delivery system, one injection would be enough to control retinal disorders—and would be much more comfortable for patients. Ultimately I’d like to find a way to provide comfort to patients through this research.”

One of Kim’s biggest inspirations for his work, besides his newborn son, is something a colleague said at the National Eye Institute. “Our research team developed a sustained release device to deliver cyclosporine A for two to three years. When the device was approved for clinical trials, one of my collaborators told me, ‘Finally, we will contribute to public health.’ I will remember those words forever. That is one of the reasons I pursue this research career, especially ocular drug delivery. Someday, I hope to see at least one patient achieve happiness as a result of my research.”



Eye Center Statistician Lectures in Dominican Republic



Earlier this year, Sandra Stinnett, DrPH, assistant professor of biostatistics and bioinformatics and ophthalmology, traveled to Elias Santana Hospital in Santo Domingo in the Dominican Republic to give a series of lectures. Juan Batlle, MD, a Duke graduate, is chief of the Elias Santana Hospital. Under his direction, Tripper Sauer (Duke 2006) had been helping the residents translate their research into English with hopes of getting it published in English-language journals. Realizing that some of the research lacked the proper statistical analysis and study design to be published in respected ophthalmology journals, he invited Stinnett, the Eye Center's expert biostatistician, to share her knowledge of research design and statistical methods with the ophthalmology residents. She spent a week lecturing, teaching them to use a software package, coaching them on their projects, often in Spanish, and carrying out some analyses for them.

"The gratitude and warmth of these residents will stay with me forever," she says. "I have never been so appreciated!"

CME Events

Sixteenth Advanced Vitreous Surgery Course
April 24-26, 2008
The Washington Duke Inn and Golf Course
Durham, NC

Contact: Renee Wallace
walla023@mc.duke.edu
919-684-6593

Eye Center PACU Receives Strength, Hope, and Caring Award



Members of the Eye Center PACU received a Strength, Hope, and Caring Award in the clinical staff category. Kevin Sowers, Duke Hospital chief operating officer, presented the award in June.

The awards program recognizes a clinical staff member, a non-clinical staff member, a physician, or a team who consistently demonstrate "going above and beyond." The Duke University Hospital Human Resources Advisory Committee, composed of Duke employees, selects the winners.

Klintworth Receives \$3.1 Million Grant

Gordon Klintworth, MD, PhD, is the principal investigator for a \$3.1 million NEI/NIH five-year grant "Study of Genetic Basis of Fuchs Corneal Dystrophy." The project is a study to find the gene(s) that lead to a common age-related corneal disease that affects females much more often than males (75-80 percent of affected individuals are women). The disease affects the layer of cells that line the back of the cornea (the corneal endothelium). The cornea is the transparent part of the eye through which light must pass to reach the retina for objects to be seen. When the corneal endothelial cells do not function properly, the cornea accumulates water, becomes thickened and loses its transparency, and vision becomes impaired. The research team includes the Eye Center's Natalie Afshari, MD, and Simon Gregory, PhD, and Yi-Ju Li, PhD, from the Duke Center for Human Genetics.



Morris Receives Ocular Innovation Award

Carrie Morris, MD, was presented the Duke Eye Center Ocular Innovation Award at the Annual Residents' and Fellows' Day in June. She received the award for "Prostaglandin Analog Eyelash Gel in Breast Cancer Patients" at the annual dinner event.

The cash award is presented to the resident who has produced the best published article in a national eye journal (peer or peer reviewed) during the year. The article must represent original concept, operation, instrument, or invention in ophthalmology. Innovation is weighted heavily in determining the recipient of this award. Reviews of the literature, reports on a series of operations, descriptions of diseases or cases, or quantification of former concepts do not weigh as strongly with the judges. The award is sponsored by a former Eye Center resident.



Berdahl Receives the Machemer Award

John Berdahl, MD, received the prestigious Robert A. Machemer Research Award at the Annual Residents' and Fellows' Day program in June for his research "Cerebrospinal Fluid Pressure in Primary Open-Angle Glaucoma," which will be presented at ARVO in April.

The Robert A. Machemer Research Award recognizes a resident, clinical fellow, or research fellow whose clinical or basic science research proposal demonstrates high intellectual curiosity, outstanding scientific originality, and has a significant impact on the clinical management of persons with ophthalmic disease. The award honors Robert A. Machemer, MD, a past chairman of the Duke Department of Ophthalmology.



2007 Residents' and Fellows' Day



Pratap Challa, MD, Joan O'Brien, MD, and David Epstein, MD

Eye Center faculty, residents, and fellows celebrated the culmination of a year of research at the Annual Residents' and Fellows' Day in the Albert Eye Research Institute auditorium in June. At the two-day scientific symposium, residents, fellows, and Duke medical students, who participated in a one-year ophthalmology research program, presented their research papers.

Joan O'Brien, MD, professor of ophthalmology at the University of California, San Francisco, was the keynote speaker and presented "Retinoblastoma: Current Research" and "Retinoblastoma: Clinical Management."

Following the two-day program, the Eye Center honored the graduating residents and fellows with a celebration dinner at the Durham Hilton.

Duke Eye Center Ranks in the Top Ten U.S. News & World Report

Ophthalmology #7

Moved up in the rankings from #8 to #7 in 2007



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