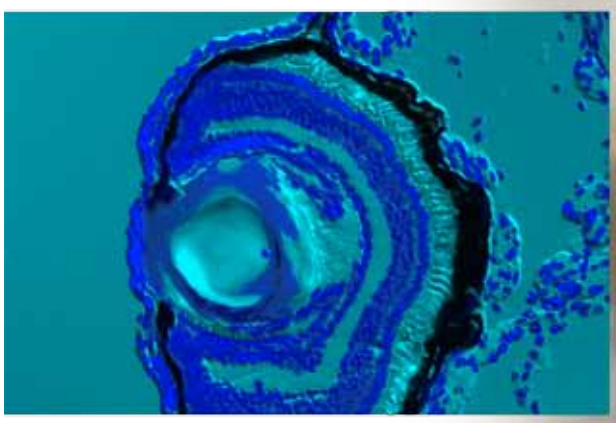
University Hospitals
Eye Institute

Cleveland | Ohio

# *in*SIGHT

## ANNUAL 2008



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**inSIGHT** is an annual publication of the University Hospitals Eye Institute.

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*The UH Eye Institute and Department of Ophthalmology and Visual Sciences at Case Western Reserve University School of Medicine will become recognized as leaders in pioneering translational and clinical research, providing our patients with cutting edge treatments and superior clinical outcomes.*

**JONATHAN LASS, MD**
Director, University Hospitals Eye Institute
Professor and Chairman, Department of Ophthalmology and Visual Sciences at Case Western Reserve University School of Medicine



# Letter from the Chairman

*Dear Friends,*

*It is with pleasure I present to you our 2008 Annual Review. This was a year of unparalleled achievement in our department and its tripartite mission of excellence in clinical care, teaching and research.*

*In 2008, we celebrated the formation of the University Hospitals Eye Institute, enhanced our curriculum by introducing a research requirement for all residents, completed a historical NIH/NEI clinical trial which was 10 years in the making, and were the recipients of research grants and awards at an unprecedented level.*

*As you read through our highlights and share in our accomplishments, know that our momentum continues and our passion is strong. Our physicians, residents and programs are the lifeblood of the UH Eye Institute's success. Their devotion will serve our community; their purpose will change the world.*

*The UH Eye Institute benefits from our affiliation with Case Western Reserve University (CWRU) School of Medicine. In doing so, we are able to enhance our clinical care through emerging technology and research that takes place at the CWRU School of Medicine.*

Jonathan Lass, MD
Director
UH Eye Institute

Jonathan Lass, MD
Director, University Hospitals Eye Institute
Charles I Thomas Professor and Chairman, Department of Ophthalmology and Visual Sciences at Case Western Reserve University School of Medicine

# Leading Vision

In a June 2008 memo to the University Hospitals community, Fred Rothstein, MD, Executive Vice President, University Hospitals and President, University Hospitals Case Medical Center, announced the formation of the University Hospitals Eye Institute. Jonathan Lass, MD, will serve as director.

The UH Eye Institute is the culmination of the impressive growth and development of the Department of Ophthalmology and Visual Sciences at CWRU School of Medicine over the past 15 years. The department now employs 24 clinical and research faculty members, of which 14 are nationally recognized vision specialists and 15 are noted vision researchers. The institute is also home to two state-of-the-art national reading centers analyzing images of the retina and cornea (REDIARC, SMRC), the Vision Research Coordinating Center and the Visual Science Research Center.

Case Western Reserve University School of Medicine and joint faculty at the University Hospitals Eye Institute will receive more than $42 million from the National Institutes of Health over the next five years.

## The University Hospitals Eye Institute is comprised of three Centers of Excellence:

**The Center for Anterior Segment Diseases and Surgery**

**The Center for Pediatric Ophthalmology and Adult Strabismus**

**The Center for Retina and Macular Disease**

Collectively, these Centers of Excellence meet a variety of growing needs in the community, offering the latest treatments to patients while remaining accessible to all individuals in need of high-level care. The UH Eye Institute is present at six UH satellite locations throughout Northeast Ohio.

Our physicians specialize in many of the leading eye conditions such as amblyopia, cataracts, corneal scarring and swelling, adult and pediatric strabismus, retinopathy of prematurity, diabetic retinopathy and age-related macular degeneration (AMD). In addition, the institute provides routine eye exams, medical and surgical care for complex and common vision disorders, diagnostic testing and simple and complex adult and pediatric contact lens fittings.

The Centers of Excellence embody University Hospitals' model of translational medicine by providing superior care in an academic environment, as well as ample opportunities for caregivers to educate patients and the community at large about important issues related to vision care.

Suber S. Huang, MD, MBA
Director, The Center for Retina and Macular Disease

Edward N. Burney, MD
Director, The Center for Anterior Segment Diseases and Surgery

Jeffrey Bloom, MD
Director, The Center for Pediatric Ophthalmology and Adult Strabismus

Faruk Örge, MD
Associate Director, The Center for Pediatric Ophthalmology and Adult Strabismus

# Knowledge in Focus

The Center for Retina and Macular Disease represents an important Center of Excellence at the University Hospitals Eye Institute. The growth of the center offers profound possibilities for increased knowledge of the function of the retina, which leads to new approaches to retinal and macular diseases that currently plague millions of people.

The center occupies a unique position in the world of academic medicine: poised between the world-class educational and research environments of CWRU School of Medicine and the advanced patient care provided by the UH Eye Institute.

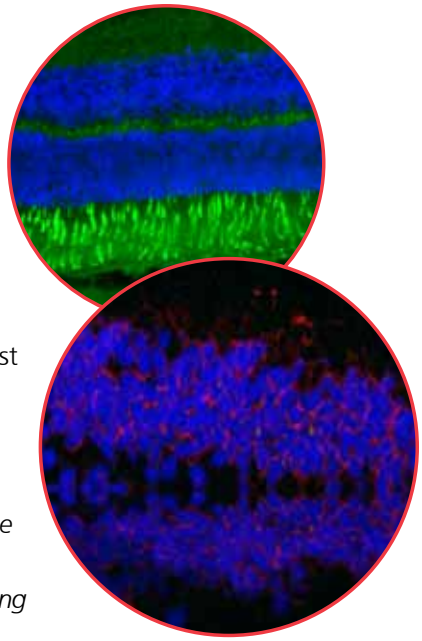
This synergy is known as translational research – a model of care that puts physicians and researchers into dynamic relationship for the benefit of patients. New findings are quickly incorporated into innovative protocols – and research is advanced in novel ways.

**The Center for Retina and Macular Disease has been designed to push the boundaries of vision research.**

## Translational Medicine Provides a World of Possibilities

**Suber Huang, MD, MBA, sees an almost unlimited potential for the Center for Retina and Macular Disease.**

*"The work at the center has the potential to impact millions of people," says Dr. Huang, who serves as Vice Chairman of Clinical Research in the Department of Ophthalmology and Visual Sciences at CWRU School of Medicine as well as the Director of the Center for Retina and Macular Disease at UH Eye Institute. "In many ways, we are the best-kept secret in the country."*



For Dr. Huang, the math is simple. The Center offers research strength in two of the most common vision ailments in the world: diabetic retinopathy and age-related macular degeneration.

*"We are doing important research into the conditions that are the most common causes of blindness in our population today," says Dr. Huang. "Diabetic retinopathy is the leading cause of blindness in working-age Americans. And macular degeneration is the leading cause of blindness in people who are over the age of 65. By taking on those two areas, we're attacking the eye diseases that are affecting the greatest number of people."*

# Excellence in Every Area

Dr. Huang points to the center's strengths in four areas of research as the primary affiliate of CWRU School of Medicine: biochemistry, immunology, molecular genetics and biostatistics. "Exciting things are happening in all four of those areas," he notes. "We're now at the point where we are in the top 10 highest-funded eye research institutions. And a lot of that research is centered around explorations of the retina. The Department of Ophthalmology and Visual Sciences at the CWRU School of Medicine is well-positioned to be part of some very exciting research projects and to be the recipient of significant grant funding."

The Center for Retina and Macular Disease is the first center in the country to include special emphasis on macular disease as part of its title. Under Dr. Huang's leadership, the center seeks to map new directions in retinal care.

*"One of our goals is to develop a new drug or other innovative therapy," he says. "I would like to see us develop a breakthrough drug that would help the growing number of people who suffer from blinding retinal disease."*

As a physician and researcher, Dr. Huang embodies the vision of translational research that is one of the distinctions of an academic medical center such as CWRU School of Medicine.

*"When you are involved in research, you develop an inquiring mind, appreciate new findings and incorporate those findings into your care," he notes. "Perhaps in the course of your research or your patient care, you might notice a pattern, and understanding this pattern can lead to discoveries."*

The opportunity to participate in research trials is also a significant benefit for patients, Dr. Huang says. Ultimately, patient care is enhanced in an environment where research is strong.

*"If patient care is conducted in a vacuum, without the balance of research experience, you won't have the same perspective," says Dr. Huang. "For instance, we know that diabetics who diligently monitor their blood sugar can still suffer from diabetic retinopathy. Understanding the molecular basis for abnormal blood vessel growth and the mechanisms which cause leakage makes for a deeper understanding of how new treatments succeed or fail. The opportunity for patients to learn about emerging treatment and to participate in clinical trials is one of the most sought after benefits of the UH Eye Institute."*

Dr. Huang points to the talents of researchers as well as the leadership of the UH Eye Institute as important strengths.

*"The focus now is, how do we leverage this global strength? I think the answer is to put the right people in place and let them do what they do. Plan, prepare, perform and always – patients first. That's how we will continue our success."*

## Retina Facts

The retina is an extension of the brain. It forms the interior lining of the eye and contains millions of light-sensitive nerve endings (rods and cones). These nerve endings receive light and transform it into image-forming signals which are transmitted through the optic nerve into the brain. It is similar to the film in a camera.

### The family of vitreo-retinal diseases include:

- diabetic retinopathy
- macular degeneration
- retinal detachments or tears
- macular holes
- retinopathy of prematurity
- retinoblastoma
- uveitis
- eye cancer
- flashes and floaters
- retinitis pigmentosa

Diabetic retinopathy affects up to 80 percent of all patients who have had diabetes for 10 years or more.

Approximately 1.8 million Americans age 40 and older have advanced macular degeneration, and another 7.3 million people with intermediate macular degeneration are at substantial risk of vision loss. By 2020 there will be an estimated 2.9 million people with advanced macular degeneration.

# Exceptional Care Helps Patient Regain Vision

Martin Blake remembers his low point. During a brief layover in one of the world's busiest airports, Blake felt utterly isolated.

*"My problems started in 2002, and within a year, my vision was extremely poor. I couldn't drive or function independently," he recalls. "I remember one time when I was flying to our home in Florida. I had a layover in Atlanta. There I was, in this massive airport, needing help to get from one gate to another. Several people assisted me, but it was such a helpless feeling."*

The semi-retired Beachwood attorney had a condition known as serpiginous choroidopathy. The condition is an insidious, relentlessly progressive, idiopathic inflammatory disease affecting the retinal pigment epithelium and inner choroid. The cause is unknown. Sufferers notice blurry and decreased vision – and that was certainly true in Blake's case.

His search for answers to his problem took him to retina specialists around the country.

*"I talked to 13 different doctors, and not much helped," Blake says. "They said there was no known cause of the condition. I was legally blind."*

## UH Eye Institute Offers Answers

In 2004, Blake's journey came full circle as he looked for help close to home.

*"My wife recalled the name of a doctor at University Hospitals," he says. "She suggested I call Dr. William Reinhart. Although Dr. Reinhart doesn't specialize in retinal problems, he suggested I call Dr. Suber Huang for a consultation."*

Dr. Huang serves as Vice Chairman of Clinical Research as well as the Director of the Center for Retina and Macular Disease. For Blake, Dr. Huang was the 14th doctor whom he consulted. Initially, Dr. Huang suggested a treatment regimen of steroid injections.

*"Injections into the eyeball sound awful, but it turned out to be no problem," says Blake. "I couldn't feel anything, so I was fine."*

Unfortunately, this approach didn't provide long-term help.

*"There was a bit of improvement, but it didn't last. Things were very up and down in terms of getting vision back."*

## An Effective Treatment Option

After making minimal progress, Dr. Huang decided on a treatment option that, in his words, combined "ocular, periocular and systemic anti-inflammatory therapies." It was a treatment regimen that involved only medication, rather than surgery.

**"He asked me if I wanted to do it," Blake recalls. "He had an idea that he thought might work. I said I was willing to go for it. For me, the alternative was blindness, so I was willing to try the treatment."**

Blake's condition improved almost immediately. His visual abilities returned, and he was able to perform simple functions again.

*"I don't have 20/20 vision, but my life has improved greatly," he says. "I can read a menu at a restaurant, and I can drive, though I'm very cautious about where I go and how long I drive. I've given up a few things like handball and tennis, because I can't track the flight of the ball, but otherwise I'm enjoying my independence again."*

## Patient-Focused Care

Blake is particularly impressed by Dr. Huang's personal, compassionate approach.

*"He took the time to listen to me," Blake says. "That meant a lot, because this was a very difficult time. Today, I consider him a friend."*

*"I'm still a patient of Dr. Huang and always will be," he adds.*

For his part, Dr. Huang believes the intangibles – the human touch, a relaxed environment, taking time to listen – play a significant role in successful clinical care.

"When Martin Blake came to me, he was truly distressed," says Dr. Huang. "It is devastating to be facing blindness after an entire lifetime of perfectly normal vision. Marty was discouraged, helpless, angry – you name it. As a physician, it is important to help a patient process all of that and work through it. Many conditions and therapies are very complex. Our approach is not just to diagnose and treat. Instead we offer a very comprehensive approach." Helping patients understand their disease is fundamental to patient-focused care. Dr. Huang engages the patient, his or her family, and his entire staff to promote a team approach.

Dr. Huang points out that Blake's recovery coincided with several elements of good care.

*"The treatment that we developed was effective, but I don't see it as particularly groundbreaking," says Dr. Huang. "I think everything added up to a great patient experience. Marty Blake found an environment where people helped him, listened to him and worked through some difficult issues, and he was tremendously grateful for the relationship that has developed. We came up with some treatment options that worked. All of those positive things worked together to really make a difference for him. I think that holistic model is something that sets the UH Eye Institute apart as an amazing place for patients."*

Martin Blake remains a patient of Dr. Huang. He is delighted that exceptional patient care and vital research are available to everyone in the area.

*"It is great having such a fine center here in Cleveland. Research brings answers to difficult problems," says Blake. "It extends life and expands the quality of life for people who are ill. In my case, talented people came up with answers. That's why research is so important."*

# Historical NIH/NEI Cornea Donor Study Restores Quality of Life for Eileen Butler

Ask a group of people if they'd ever consider participating in a clinical trial and many will reply with a quick "no." Thankfully, however, enough brave people answer "yes," and their contributions are helping many of the finest research institutions in the world unlock medical mysteries and develop new procedures to enhance human health.

Berea resident Eileen Butler is one of those who answered the call. Her participation as a research volunteer is helping the Vision Research Coordinating Center at University Hospitals Case Medical Center* conduct one of the largest (and most advanced) long-term clinical trials in the study of visual health. Sponsored by the National Institutes of Health/National Eye Institute, funded through CWRU School of Medicine, the Cornea Donor Study (CDS) is a nationwide effort – and Butler has proved to be the "perfect patient" for this investigation.

Diagnosed with cataracts many years ago, the now 81-year-old Butler knew she was faced with continued vision loss and possibly blindness. What this spry woman didn't know was that she also had Fuchs' Dystrophy in both eyes. Fuchs' Dystrophy is a suspected genetic vision disease affecting the corneal endothelium, the delicate back cell layer of the cornea that keeps the cornea clear. As her vision worsened, Butler was treated by Dr. Jonathan Lass, Director, UH Eye Institute, Professor and Chairman, Department of Ophthalmology and Visual Sciences at Case Western Reserve University School of Medicine and Medical Director, Cleveland Eye Bank. According to Lass, the only realistic treatment was to receive corneal transplants on each eye.

The surgeries were successful, and Butler was pleased with her improved vision. And in the spirit of gratitude, she eagerly enrolled in the Cornea Donor Study, a trial that has the potential to restore vision to thousands of people every year.

*"I really didn't have an expectation of anything at all by participating in the study. I just knew I liked to help people; I have long donated blood, and if this would help too, I wanted to be part of it," says Butler.*

* Among the nation's leading academic medical centers, University Hospitals Case Medical Center is the primary affiliate of Case Western Reserve University School of Medicine. The Case Western Reserve University School of Medicine is a nationally recognized leader in medical research and education.

## National Study Provides Key Insights

The CDS is a long-term study that began in 2000. It was designed to determine whether the graft success rate over a five-year period is equivalent with corneal tissue from donors older than 65 years of age, compared with tissue from younger donors less than 65 years of age. The study recruited 1,101 patients across 80 sites and 31 eye banks nationally; UH Case Medical Center enrolled 33 of those patients, including Eileen Butler. The study is led by Dr. William Reinhart, physician in the Department of Ophthalmology and Visual Sciences at CWRU School of Medicine and member of the Cornea Service at UH Case Medical Center.

The CDS produced startling results, demonstrating that cornea transplants from older donors have similar rates of survival as transplants which use tissue from younger donors. The five-year transplant success rate was 86 percent for donors 66-75 years of age – the same success rate reported for those donors in the 12-65 year age group.

**More than 33,000 corneal transplants are performed each year in the United States. Northeast Ohio averages 600 transplants per year, but meeting the demand for organ donation continues to be a struggle. By showing that "age doesn't matter," the study gives health care providers hope that a greater number of donations will be possible.**

*"The study outcome plays an important role in the future of corneal transplants and the ability to increase organ donor participation nationwide," said Dr. Lass. "By validating the health of the cornea regardless of the chronological age of the donor, we have a greater capacity to treat patients who would otherwise have to wait longer for transplant due to an insufficient supply of cornea donations."*


*Photo: Tonya Sims, Cleveland Eye Bank*

## Transplant Restores Vision and Vitality

For Butler, one of the first to enroll in the CDS, the corneal transplants have meant a return to business as usual. This energetic, self-described "someone-who-doesn't-like-to-sit-around" woman has no use for idle time. Her first love as a draftsperson led her in 1996 to study AutoCad, where her skill has allowed her to develop a flair for kitchen design along with her other hobbies of sewing, knitting and woodworking.

This grandmother of three and great-grandmother of two designed and built her own custom cabinetry, and in 2008 she partnered with a friend to showcase her talents at a Holiday Bazaar. "I couldn't imagine having the same quality of life without my hobbies," she says. "I now have excellent vision, but the important thing is that I am helping other people, not just myself."

CLEVELAND EYE BANK

# Edward N. Burney, MD, Marks 25 Years at University Hospitals and Case Western Reserve University

To Edward N. Burney, MD, spending a quarter of a century on the staff of University Hospitals and faculty member at Case Western Reserve University School of Medicine since 1983, can be summed up as a cliché, "The best laid plans, I never made!"

A graduate of CWRU School of Medicine, Dr. Burney continues to write his legacy with those he heals and those he inspires.

He learned early he would face numerous barriers to success. Dr. Burney drew on his strong faith in God for perseverance and looked to his parents as mentors – two strong-willed people who sought the best for their five children despite their own lack of opportunity. Raised in southern and central Ohio in the late 1950s and '60s, it was made apparent to a young Edward that his major obstacle would be based on "color." During a time of national transformation, his family was committed to the importance of education for their son, who showed tremendous potential at a young age. Following college prep school with his sights set on medicine as a career, he entered Ohio Dominican University.

There he would learn another valuable lesson. During his freshman year, his chemistry professor and premed advisor told him, "Your 3.5 GPA may not be good enough to get you into medical school; you need to do better." He quickly understood, and upon graduation three years later, was the number one student in their rigorous honors premed program. In addition, he was accepted into six of the seven medical schools to which he had applied.

At Case Western Reserve, Dr. Burney learned how to approach medical problems. His mentorship abilities and "colleagues in learning technique" (a learning technique that made use of the student/professor relationship), became a powerful and effective method, which would later define his teaching style.

He serendipitously came across the field of Ophthalmology during March of his final year of medical school. For Dr. Burney, it was "love at first sight." Firm in his conviction, Dr. Burney knew where he wanted to be. He applied through the match program, boldly listing just one institution, University Hospitals.

Filled with hope and trepidation during the annual Match Day ceremony, Dr. Burney took a long, deep breath when he opened the envelope that contained the answer to his solitary request…

A match was made.

## Defining Moments

Following residency at UH, he approached then-chairman, Edward W. Purnell, MD, for a letter of recommendation for a position at Cleveland's Mt. Sinai Hospital. On the spot, Dr. Purnell offered Dr. Burney a position as a member of the full-time faculty at University Hospitals; as a result, Dr. Burney became the first comprehensive Ophthalmologist to join the then Ophthalmology division's full-time faculty. He later founded the Glaucoma Section of the University Hospital Ophthalmology Department.

*"This was a period of time that is best described as a 'defining moment,' both personally as a physician and within the context of the business of health care. No one could have ever imagined the rapid change in the landscape of hospitals during the 1980s," commented Dr. Burney. "The small, community hospitals sold their assets and the larger growing institutions were buying these hospitals and creating megasystems of regional health care," he added. "I was bothered to see Mt. Sinai close; this was where I thought I would be able to do the most good – and my experience at Mt. Sinai as a resident on rotation reaffirmed my idea that as a physician, I wanted to go beyond healing patients, to 'do more.' Mt. Sinai helped those in our community who didn't have the means to afford health care and my deepest concerns were for these patients."*

Dr. Burney with Pat Brown.

After two years on faculty, Dr. Burney decided to specialize, and chose Glaucoma. He trained for a year with Harry Quigley, MD, at the Wilmer Eye Institute at Johns Hopkins in Baltimore. Completion spawned several lucrative offers to return to UH where he established the Ophthalmology Department's glaucoma service. While he continues to head that section, he has risen to the level of full professor at CWRU School of Medicine. In addition, he has served as the Director of Ophthalmology for the Louis Stokes Cleveland VA Medical Center for the past 23 years. In January 2009, Dr. Burney became the first director for the Center for Anterior Segment Diseases and Surgery of the UH Eye Institute.

## Inspiration Through Dedication

Dr. Burney states it has been amazing watching the birth and growth of the Department of Ophthalmology and Visual Sciences out of the parent CWRU School of Medicine, and witnessing first-hand the emergence of translational medicine and its ability to impact human health care.

Dr. Burney has trained numerous residents and medical students through the Case Affiliated Hospitals Ophthalmology Residency Program. However, it is with great pride when he recalls five years ago, three of the six graduation residents chose to enter the area of glaucoma. He leads by example, and insists that the residents learn how to analyze problems rather than memorize answers. In a benign way, he becomes their coach, psychologist and minister. Dr. Burney is driven to "do the best I can for each and every resident and patient."

*"I reflect back to the beginning of my career and yes, we have come a long way with patient care, but there is still a lot more we can do as a whole – and it will come as we unite; we have many physicians, residents and patients of color, we need to insist on treating without barriers to color, economic status or gender, not just at this institution, but health care across the world. It is my hope my legacy will be to inspire those I help to help each other."*

A dedicated and committed man to God and his family, Dr. Burney remains active in his church and is somewhat of a self-proclaimed "health nut." He tries to balance his day with weight training, cycling and eating a balanced diet. Dr. Burney has also raised two very successful daughters – one, an RN in the graduate nurse practitioners program at Johns Hopkins, and the other a successful entrepreneur with a foreign language business in the Midwest. He credits his secretary of the past eight years, Patricia Brown, for keeping the administrative aspects of his clinical practice running smooth.

"I have had several moving and defining stories over the past 25 years – a two-month-old with multiple neurological defects, hydrocephalus and congenital glaucoma, which required bilateral surgery. He is now 15 years old and still sighted…or the 5-year-old referred with eye pressures in the 50s and light perception vision. Emergency surgery reduced his eye pressures and gradually returned his vision in the right eye to 20/100 and the left to 20/25. This patient is currently a college student living in Atlanta, Ga. The outwardly gracious and thankful patients are most evident during the Christmas season." Dr. Burney has been seen on more than one occasion hauling gifts from patients to his car. It is that caring that resonates through his patients and to our world.

# Dedication to Safer Vision-Care Products Earns Loretta Szczotka-Flynn, OD, MS, Seat on FDA Panel

As a 17-year clinician of the University Hospitals Eye Institute and director of the UH Eye Institute's Contact Lens Service, Dr. Szczotka-Flynn has witnessed firsthand what happens when products and therapies designed to help the consumer develop
adverse outcomes.


**"Since 2005, we have faced two major contact lens solution recalls. With 35 million contact lens wearers in the U.S., there was a significant human health risk for developing vision-threatening conditions from use of these products."**

The recalls centered on a national outbreak of infectious keratitis associated with *Fusarium* and *Acanthamoeba* species which resulted in the FDA's reassessment of their current guidelines on multipurpose contact lens care products.

The FDA Ophthalmic Devices Panel convened and since has addressed general issues concerning the postmarket experience with various contact lens care products. Last year, Dr. Szczotka-Flynn was nominated to serve on the FDA panel by both the American Optometric Association and the American Academy of Optometry because of her expertise in contact lens clinical care and research, silicone hydrogel contact lenses and biofilm development on contact lenses. As a result, she was selected to serve as consultant to the FDA Ophthalmic Devices Panel.

*"I am honored to be at the forefront of the decision-making process of the future of contact lenses, ophthalmic solutions and vision measuring devices that ultimately make it into the U.S. market to be used by the public," said Dr. Szczotka-Flynn.*

Dr. Szczotka-Flynn was Ohio's 1997 Young Optometrist of the Year and received the Nissel Award from the British Contact Lens Association in London, England, in 2000. She also received a Patient Oriented Research Career Development Award in 2004 from the National Eye Institute to study infiltrative complications with silicone hydrogel lenses. She is the recipient of two Ezell Fellowships for the years 2004-05 and 2005-06 from the American Optometric Foundation, a Female Scholar Award from Prevent Blindness Ohio in 2007 and a CLAO Educational Research Foundation Award in 2007 which all support her research in silicone hydrogel related infiltrative complications.

# Bright Future

## Pediatric Ophthalmology and Adult Strabismus Redefines Vision Care for Children

The Center for Pediatric Ophthalmology and Adult Strabismus, under the direction of Jeffrey Bloom, MD, a division of University Hospitals Rainbow Babies & Children's Hospital, is home to a team of physicians who, in addition to routine vision care, are noted for their innovative approaches to some of the most complex vision-threatening conditions affecting infants, children and young adults.

The center experienced tremendous growth in 2008, having tripled its surgical volume in a year's time through a redesigned business model which allowed us to accommodate increased demands from the market by our recognized experts in the field and collaborations with other clinical and research departments for patients with co-existing conditions. At present, we have many research projects in development under the translational medicine model.

## Pediatric Ophthalmology Facts

The center specializes in the treatment of pediatric and adult strabismus (crossed eye), motility disorders and amblyopia (lazy eye) in addition to the common conditions listed below:

- Blocked tear ducts
- Pediatric contact lenses and glasses
- Ptosis/droopy eyelid
- Sports-related vision injuries

And unique pediatric conditions such as

- Cataracts
- Congenital abnormalities
- Corneal diseases
- Eye trauma
- Genetic disorders
- Glaucoma
- Neuro-ophthalmology disorders
- Ocular tumors
- Refractive errors
- Retinal disorders
- Retinopathy of Prematurity (ROP)

University Hospitals

Rainbow Babies & Children's Hospital

# Exceptional Vision

## Faruk H. Örge, MD

The Center for Pediatric Ophthalmology and Adult Strabismus Associate Director Faruk H. Örge, MD, has an international reputation for successfully treating very complex and technically difficult pediatric vision procedures.

Setting new benchmarks in pediatric glaucoma surgery in 2008, Dr. Örge was the first in the nation and second in the world to perform a very complex pediatric procedure for congenital glaucoma – Endoscopic Goniotomy.

**"We are privileged University Hospitals recognizes and supports emerging technology in clinical care. These procedures are very precise and require a high level of skill. We are also first in this region to have performed other glaucoma surgeries such as micro-catheterization trabeculotomy. This procedure replaces three surgeries a child would have needed just two to three years ago and some children have had to endure up to 20 surgeries to prevent blindness."**

Dr. Örge, recruited in late 2007, joins Center Director Jeffrey Bloom, MD and pediatric optometrist Sara Schoeck.

**Naomi Singer:**

# A Passion for Vision

Naomi Singer will never forget her first glimpse of the pediatric ophthalmology program at University Hospitals Rainbow Babies & Children's Hospital.

*"They brought me to a room where a woman was standing over a five-month-old infant, placing contact lenses on the baby's eyes," she says. "It was such delicate work. Later I found out the woman was Dr. Loretta Sczcotka-Flynn. I also learned how important her work is, and that she is helping children who otherwise would lose their ability to see."*

For Mrs. Singer, this important work struck a deep nerve. As a child growing up in Akron, Ohio, she struggled with her own vision problems – a disability that often left her feeling like an outsider.

*"I was myopic – in other words, near-sighted. They told me my vision was 20/200," she recalls. "The Akron Public Schools had a special program, called 'Sight-Saving Classes,' for visually impaired children. The idea was, if the children were not required to do challenging things, they could 'save' their vision. So we did not write in cursive or attend gym class or read music."*

**For most of her life, Mrs. Singer wore thick glasses. And she was determined to overcome her limitations. After leaving Sight-Saving Class in the eighth grade, she enrolled in high school but refused help from a state-provided tutor.**

*"The tutor's job was to go to classes with me and read my assignments aloud," she says. "I refused. I wanted to be like the other kids. So I told my mother and our doctor that I was going to read all of my work. They were skeptical but let me try. And I did it!"*

Internalizing the advice of Sight-Saving teachers who taught the children to "never feel sorry for yourselves," Mrs. Singer has worked hard to ensure that vision problems are not a disability. She graduated from Ursuline College, taught herself to play tennis (after age 40), and eight years ago had cataract surgery. "I can see things that I never could before," she says.

Today, Mrs. Singer is a champion for those whose vision problems are jeopardized by disease or dysfunctions. And she is an avid supporter of the work of Dr. Sczcotka-Flynn.

# Advocate and Philanthropist

*"She works with corrective contact lenses that help a child retain vision until he or she is done growing. At that point, corrective surgery becomes an option," she says. "But the lenses are necessary so the child does not go blind. And what frustrated me was learning that people were unable to afford these lenses. It's not only uninsured people, but many people with insurance find out that the lenses are not covered. I could not believe that when I heard it."*

Naomi and her husband, Ed Singer, along with several friends, started a unique endowment fund at UH Rainbow Babies & Children's Hospital which helps many families pay for the corrective lenses.

*"I hope the UH Eye Institute will grow and expand its reach," she says. "People need to know that there is a place where they can get excellent care."*

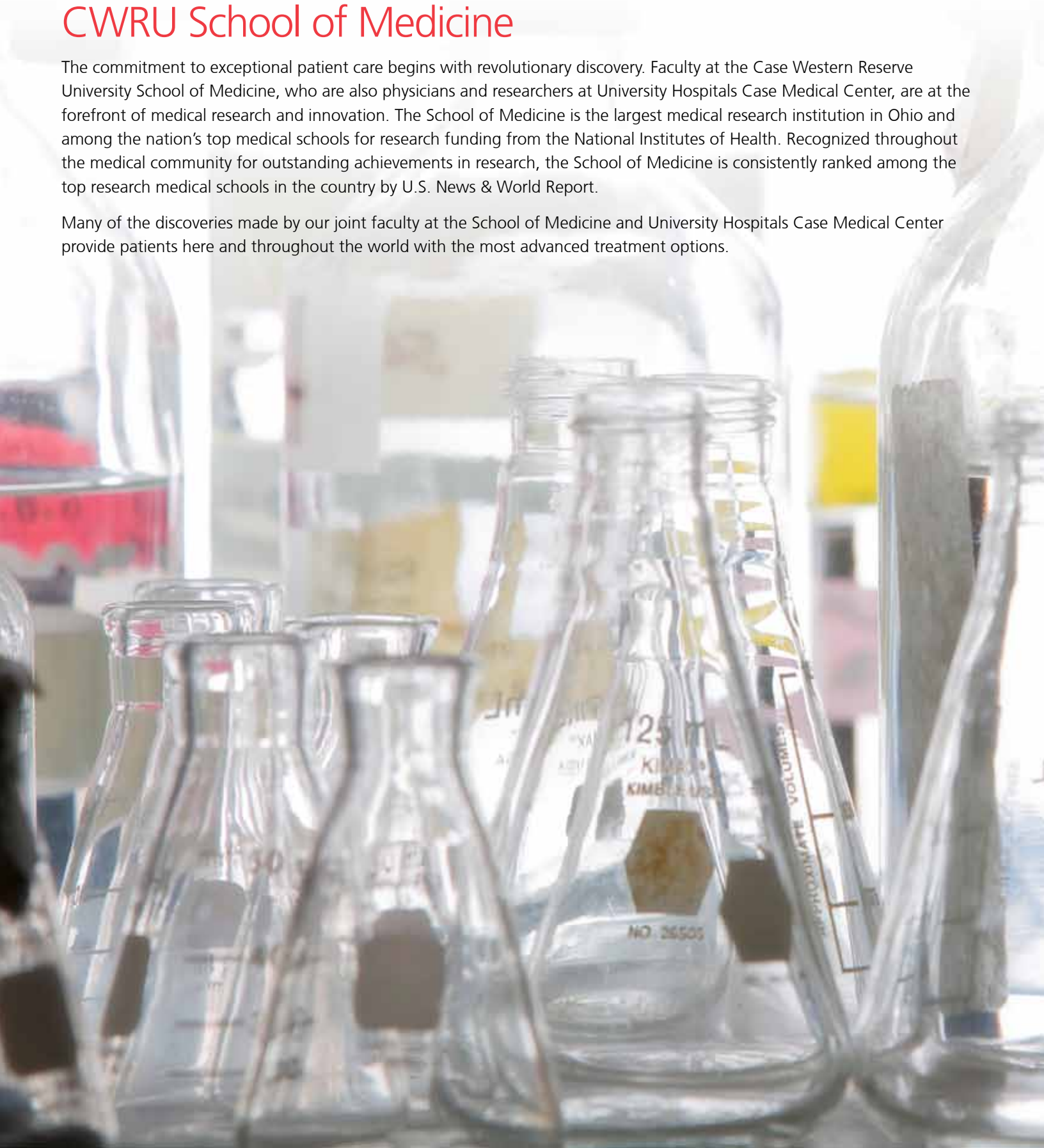
University Hospitals
Case Medical Center

Case Western Reserve University
School of Medicine

# Research at UH Case Medical Center and CWRU School of Medicine

The commitment to exceptional patient care begins with revolutionary discovery. Faculty at the Case Western Reserve University School of Medicine, who are also physicians and researchers at University Hospitals Case Medical Center, are at the forefront of medical research and innovation. The School of Medicine is the largest medical research institution in Ohio and among the nation's top medical schools for research funding from the National Institutes of Health. Recognized throughout the medical community for outstanding achievements in research, the School of Medicine is consistently ranked among the top research medical schools in the country by U.S. News & World Report.

Many of the discoveries made by our joint faculty at the School of Medicine and University Hospitals Case Medical Center provide patients here and throughout the world with the most advanced treatment options.



# Researchers Earn Coveted Grants from Research to Prevent Blindness Foundation

The Department of Ophthalmology and Visual Sciences at CWRU School of Medicine and UH Case Medical Center closed 2008 on an impressive note – the announcement that three of its primary investigators had secured grant funding totaling nearly $1 million from the Research to Prevent Blindness Foundation. Since 1997, the program has received $2,712,500 from RPB, the world's leading voluntary organization supporting eye research. This grant cycle represents an unprecedented achievement; these are the most grants awarded in a single year to the CWRU School of Medicine Department of Ophthalmology and Visual Sciences.

Irina Pikuleva, PhD, a national leader in cytochromes P450 research, the enzymes in cholesterol elimination, was awarded the prestigious $650,000 Jules & Doris Stein RPB Professorship – the RPB's premier award. Pikuleva was the sole recipient in the nation out of 400 candidates whose criteria includes recruitment into a primary appointment in an ophthalmology department with a secondary appointment in the basic sciences.

Pikuleva was recruited to CWRU School of Medicine in the fall of 2008 from the University of Texas Medical Center, Galveston, to apply her expertise along with the newly funded National Eye Institute and other National Institutes of Health-related grants to examine whether there are similar mechanisms in the development of atherosclerosis, Alzheimer's disease and age-related macular degeneration (AMD).

Also awarded was Paul Shin-Hyun Park, PhD, assistant professor in the Department of Ophthalmology and Visual Sciences. Park received a four-year, $200,000 RPB Research Career Development Award which is designed to attract young physicians and basic scientists to research positions in ophthalmology.

Ram Nagaraj, PhD, the Carl F. Asseff, MD, Professor in the Department of Ophthalmology and Visual Sciences and a past RPB Wasserman Merit honoree, was awarded the $75,000 Senior Scientific Investigator Award in recognition of his contributions to the understanding of the pathogenesis of cataract and diabetic retinopathy.

*"The designation of these grants is a great testament to the depth of our research programs and recognition of our scientists' dedication to advance human health."*
*– Eric Pearlman, PhD, Research Director, CWRU School of Medicine Department of Ophthalmology and Visual Sciences and faculty at CWRU School of Medicine*

# Johnny Tang, MD, is a physician-researcher who looks at the basic building blocks of retinal function.

"Retinoid flow is the most fundamental aspect of human vision, and without it, sight cannot take place," says Johnny Tang, MD. His lab is exploring problems in the pathways of retinoid flow and rhodopsin metabolism that are common to many types of retinal diseases.

*"If we can understand the pathways, the results may be universally applicable to the entire group of diseases," says Dr. Tang. "Looking at this retinoid cycle is a wonderful place to look for answers to solve our most challenging questions regarding disease mechanisms and to look for treatments."*

Dr. Tang is researching possible pharmaceutical solutions to the problem of macular degeneration.

*"The mutation generates an amount of what I refer to as 'garbage,' or waste product," he explains. "If the body can't regulate it, the waste will build up and kill healthy material. Now, if we can slow that development with the right pharmacologic interventions, we can prolong healthy function."*

A practicing physician, Dr. Tang says it is frustrating when patients have few treatment options. That's why he is a strong supporter of the UH Eye Institute's model of translational research.

*"It's another great reason for patients to come to University Hospitals," he says. "Our model of patient care helps us excel as physicians because of our research at CWRU School of Medicine."*

In his daily work in the lab and with patients funded by a United States Veterans Administration Career Development Award, the SOM, and the UH Eye Institute, Dr. Tang embodies the balance between research and patient care.

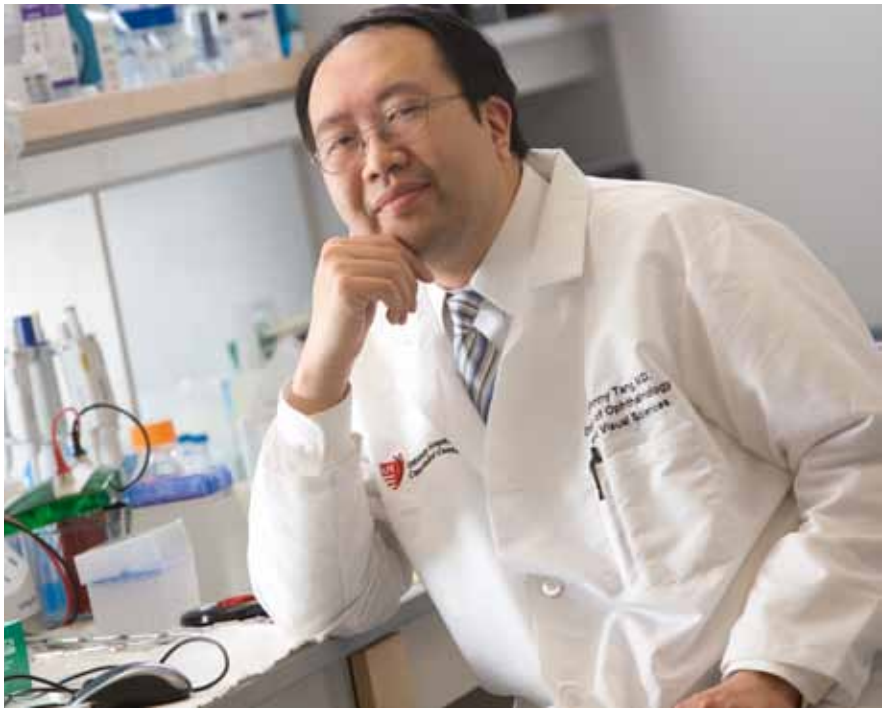
*"Physicians who do research are a unique breed," he says. "What sets us apart – besides our complete lack of free time – is that we've made a conscientious commitment to doing research as part of our desire to being the best doctors we can be. I suppose it's an overactive curiosity. It would be easy to simply have a research scientist explore questions for us, but we'd rather do it ourselves and try to make a contribution."*

Dr. Tang offers an example of how patient care issues can quickly lead to relevant research projects.

*"On a typical day, a mother might come in to see me, complaining that her child is having vision difficulties. Maybe it's something we don't normally see as doctors. At most institutions, a doctor can do little more than make phone calls (if he has time) or refer the child to a specialist. But here, we can immediately go back to the lab and try to mimic this exact problem through a small experiment. There aren't too many places where this kind of real-world marriage between patient care and research takes place. It allows us to generate insightful answers for our patients."*

At the UH Eye Institute, doctors and researchers work in close proximity so that this cross-disciplinary work can occur as often as possible. And for Dr. Tang and other physician-researchers, this cross-disciplinary work is a way of life.

*"It takes a serious time commitment," he laughs. "I suppose we're nuts in that way. But the payoff for patients is so important."*



## Understanding How Things Work

# The research of Paul Park, PhD, helps us understand a key mechanism of the retina – and, this knowledge is essential to finding cures.

He is mapping the mechanism of action of rhodopsin and other G protein-coupled receptors (GPCRs). Rhodopsin is a pigment of the retina that is responsible for both the formation of the photoreceptor cells and the first events in the perception of light.

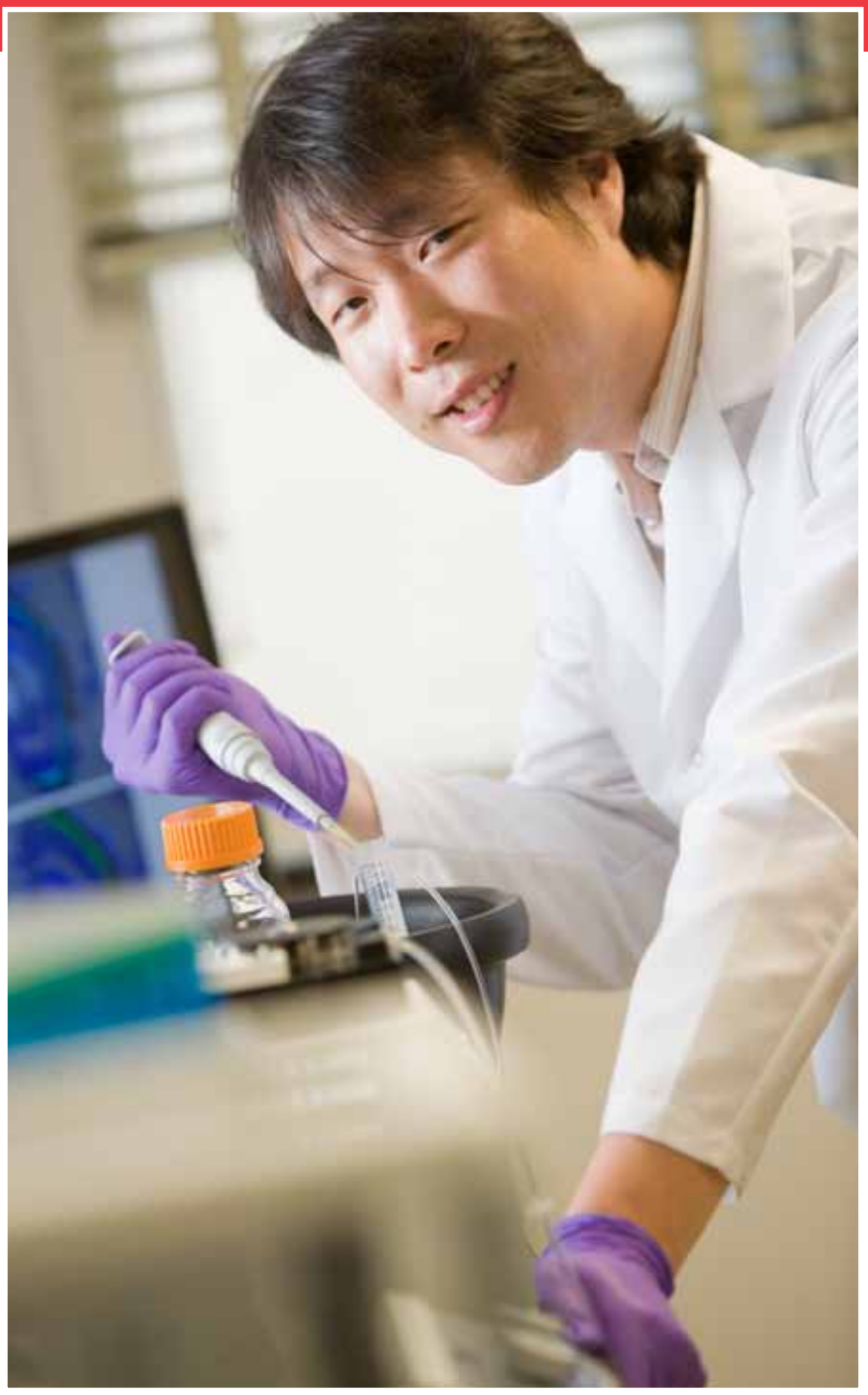
**"If you don't know the details at the molecular level, you won't understand how the entire system works," says Park. "We want to know how things come together and create the mechanisms that provide vision. And once we understand the system, we can see the ways in which disease disrupts the system."**

GPCRs represent the largest class of cell surface proteins.

*"This family of proteins is involved in virtually every physiological process," he says. "Dysfunctions in these systems can lead to diseases such as blindness, addiction, diabetes and heart disease. Understanding the molecular mysteries of these systems will lead to the development of more effective therapeutic solutions."*

For Dr. Park, the collaborative environment at UH and CWRU School of Medicine is a remarkable asset to his work.

*"Few eye institutes can boast a combination of strong basic science and exceptional clinical care," he says. "What you'll often find is a place where you can get very good patient care, but research is an afterthought. However, because we have them intermingled, we are able to find new ways of combating eye diseases."*



Although his research focuses on the basics of physiology – i.e., the essential biological processes that contribute to vision – Dr. Park sees his work as having a direct impact on patient care.

*"When we have a firmer grasp on how vision works, we can develop better strategies for treatments. That foundational work is important and really helps us take an informed look at what's going wrong in a patient."*

# VSRC Researchers Receive a $2.4 Million Grant to Study Fungal Infections of the Cornea

Researchers in the Department of Ophthalmology and Visual Sciences and the Center for Medical Mycology at Case Western Reserve University School of Medicine were awarded a $2.4 million grant from the National Eye Institute (NEI) to study the fungal pathogens that cause severe corneal disease.

The five-year grant is earmarked to study corneal infections (keratitis) caused by the filamentous fungi *Aspergillus* and *Fusarium. Fusarium* was the cause of the 2005-06 corneal infections related to contact lens solutions. During that time, over 300 people in the U.S. and Singapore were infected, with many requiring corneal transplant. *Aspergillus* and *Fusarium* are major causes of microbial keratitis in the southern U.S. and in developing countries.

Eric Pearlman, PhD, Professor and Research Director in the Department of Ophthalmology and Visual Sciences, and Mahmoud Ghannoum, PhD, Director of the Center for Medical Mycology in the Department of Dermatology are leading the research. Dr. Pearlman is an expert in microbial infections and immune mechanisms in the cornea, and Dr. Ghannoum is an expert in fungal pathogenesis.

Dr. Pearlman is focusing on the immune response to *Fusarium*, and *Aspergillus*, and has identified specific markers of the host response that contribute to the severity of these infections and survival of the fungi. In addition, Dr. Pearlman recently returned from India where he established collaborations to examine the host response in infected individuals. Dr. Ghannoum's research follows their published study that described the molecular basis for *Fusarium* formation of biofilm on silicone hydrogel contact lenses. Biofilm formation, in which the fungi release extracellular carbohydrates, allows the organisms to adhere tightly to the substrate, in this case the contact lens, and increases resistance to antifungal agents such as those in multipurpose contact lens solutions.

Mahmoud Ghannoum, PhD and Eric Pearlman, PhD.

*"The awarding of the grant recognizes the global importance of these fungi and their impact on human health and vision."*
*– Dr. Eric Pearlman*

# Vision Quest

Spending time in their modest lab on the third floor of the Pathology building at the Case Western Reserve University Department of Ophthalmology and Visual Sciences, the husband and wife team of Akiko and Tadao Maeda are relatively unassuming – two very quiet people by nature, yet on the verge of a research discovery that has the potential to improve the quality of life for millions suffering from age-related macular degeneration (AMD).

Having met as college students in Sapporo City, Japan, Akiko, who focused on immunology and cell biology, and Tadao, who studied biochemistry and physiology, worked together through their undergraduate degrees, married after graduation and continued their education to earn their PhDs and MDs. Both were fascinated by diseases of the retina and early on, made a decision to dedicate their lives to better understand what biological conditions are associated with retinal diseases.

Japanese research is not subsidized by universities or government. To earn a living, they worked as physicians in ophthalmology at the major Hokkaido city hospitals where, on some of the busier days, they would treat more than a hundred cases. Once the clinic day concluded, they traveled to the Department of Ophthalmology at Sapporo Medical University to conduct experiments and lab work, most often working until 2 a.m. seven days a week. Despite four years at this grueling pace, the Maedas were energized – in their mind, they were just getting started.

## "It is our dream to share our discoveries, experience and knowledge with scientists around the world." – Tadao Maeda

The Maedas shared a common goal of translational medicine in ophthalmology and set their sights on the opportunities in the United States to continue their work. They knew their research independent of each other bore significance, but wanted more for the betterment of human health by working together. In 2001, they left Japan for Seattle and joined the University of Washington and the well-known and nationally recognized research team of Krzysztof Palczewski to study the biochemistry of vision and the crystal structure of rhodopsin.

After five years in Seattle, the Palczewski team, complete with Akiko and Tadao, were recruited to CWRU School of Medicine and the Department of Pharmacology. For the Maedas, the prospect to grow again and expand their vision research was exhilarating; the move from Washington to Cleveland and Case Western was opportunistic for research partnership. Now, four years later and building their own lab, Akiko works to better understand the biochemical basis underlying the mechanism of neurodegenerative retinal diseases and is developing new therapies for currently incurable retinal degenerative diseases. Tadao is focused on understanding the mechanism of retinal degenerative diseases and with that, seek target molecules to develop promising therapies for these diseases.

*"Our interests are completely research focused; it is how we spend our days working together and what we talk about after work. We have dedicated our lives to discovery; it is our hope this research will be ever-changing, ever evolving – and the investigators who come after us will continue our work to advance vision science," said Tadao.*

## "We have a feeling we are very close to finding a therapy."

The Maedas' work in vision science combined with Dr. Palczewski's pharmacology team has created an exceptional environment of research excellence; for the Maedas, this has fulfilled a lifetime of what was needed to close in on the AMD goal. Their AMD research includes Stargardts disease (a macular dystrophic condition that begins early in life – patients are typically under a year old) and with the Palczewski team, have correlated the genetics of Stargardts with AMD. Presently, they have passed phase 1 trial in Leber Congenital Amarosis and are now looking to phase 1b clinical trial, hopefully by the summer.

# Exploring the Cholesterol Link

*The research team of Irina Pikuleva, PhD*

While cholesterol is typically linked to conditions like heart disease and high blood pressure, the impact on eye disease is not as well known. Recent research has shown that high cholesterol is a risk factor in the onset of macular degeneration in both men and women.

UH Eye Institute researcher Irina Pikuleva, PhD, is exploring this important link. Her work examines cytochrome P450 enzymes, which metabolize a wide variety of substrates and play key roles in many biological processes, including the regulation of cholesterol in the body. In essence, cytochromes are involved in the detoxification system of the body, acting on a wide variety of potentially toxic compounds.

Pikuleva is researching the foods we eat, and how those foods impact the ways cholesterol is synthesized and eliminated in the human body. Enzymes in the body determine how cholesterol is catalyzed.

*"We are trying to see if we can increase the efficiency of those enzymes," says Pikuleva. "Is there anything we can do to make those enzymes work more effectively?"*

Her research projects are looking at the body in a systematic way.

*"If we see a deficiency in the body's ability to process cholesterol, we know the metabolism is impaired or degraded," she explains. "It can be compared to a fracture. The question is: how can we repair this fracture?"*

Pikuleva is pleased to bring her research to Case Western Reserve University, which provides an ideal base for collaboration and analysis.

*"I'm in basic research, but I collaborate very closely with physicians who see patients all day," says Pikuleva. "This relationship has tremendous benefits for research. For example, when we are developing a research project, we might receive some extremely valuable input from a physician who can describe the trends he is seeing. That's critically important to our research efforts."*

**Pikuleva sees a "gap" that exists in health care. Many physicians are simply too busy to get involved in research, or they have no opportunity to interact with researchers. As a result, a lot of knowledge is lost.**

*"I'm a researcher, but I'm also part of a clinical department. Usually in clinical settings you don't have such a strong research presence. At the CWRU School of Medicine, we have an impressive collection of researchers who are supported by significant funding from the NIH and other sources."*

Pikuleva's work is an example of the benefits of collaboration. She studies the ways in which cholesterol metabolizes in the eye, and in order to be effective, her research must include examinations of actual patients who agree to be part of a research study – something she can do thanks to the close relationship with UH Case Medical Center.

*"Our ultimate goal is to help treat disease," she says. "And Case Western Reserve University and the University Hospitals Eye Institute bring together clinicians and basic scientists, both of whom are attempting to treat diseases of the eye. We learn a great deal from each other and can offer our resources to each other."*

# Case Affiliated Hospitals Residency Program in Ophthalmology

## Shaping Lives. Making a Difference.

Training ophthalmologists for over 70 years, the Case Affiliated Hospitals Residency Program in Ophthalmology (CAHRPO) has earned a reputation of excellence among applicants, alumni and rival teaching hospitals across the nation.

Offering surgeries in all areas of ophthalmology and sub-specialties, the program has grown to an average of 375 applicants per year vying for six openings per match. The competitive nature is reflected in the highly skilled and diverse pool of candidates the past several years – a testament to the depth and breadth of the program.

The program is ever-evolving – 2008 marked the first year for residents to complete a research requirement. This provides an added dimension to learning and an opportunity to explore medical science in an active, dynamic context allows the residents to express their individual interests by choosing an ophthalmological field of study and selecting their faculty mentor. They develop a timeline, conduct research and present their findings at the annual Resident Research Day – a mere nine months later.

*"As one of the oldest and largest ophthalmology residency programs in the country, we focus on three factors that contribute to the ongoing success of the program: our faculty, our facility and the caliber of residents we accept each year." – Robert Tomsak, MD, PhD, Residency Program Director*


## Unique Programming

Outside of research, the program holds the distinction of offering surgical rotations with University Hospitals along with four local hospitals including the Louis Stokes Cleveland Veteran's Administration (VA), St. Vincent Charity Hospital, MetroHealth Medical Center and its affiliated sites. "The experiences we provide our residents through our hospital affiliations allow them to have a broad exposure to a variety of patients, processes and procedures," said Dr. Tomsak.

The program also offers an elective rotation, during which third-year residents work four weeks at the L.V. Prasad Eye Institute in Hyderabad, India. "The take-away of the India elective is an exceptional international experience during which the resident gains an appreciation for conditions not commonly seen in the U.S. In addition, they are exposed to a variety of surgical techniques and methods of dealing with more common ophthalmic problems," added Dr. Tomsak.

Looking ahead, the program understands the need to stay competitive in curriculum, technology and delivery. The program has received a grant to begin the implementation of the American Academy of Ophthalmology (AAO) Resident Education Center (REC) curriculum Web site. In the age of 'going electronic,' this will allow online postings of rotations, digital didactic lectures as well as the opportunity to create an entire online curriculum. While this will not replace on-site learning, it will become an essential tool to amplify the educational experience, in much the same way the electronic health record will improve patient care. The full implementation should be completed by July 1, 2009.

# Accolades

**Jeffrey Bloom, MD**, was invited to participate in the *Ohio Amblyopia Registry project*, which provides assistance with amblyopia. He is also participating in the revision of the American Academy of Ophthalmology's Basic and Clinical Science Course for Pediatric Ophthalmology, which is used by ophthalmology residents throughout the country.

**Edward Burney, MD**, was chosen as one of the area's "Best Doctors" by Cleveland Magazine and also named as one of "America's Top Ophthalmologists" in 2008.

**Suber Huang, MD, MBA**, serving as Director, Innovative Techniques in Vitreoretinal Surgery, presented Advances in Microincision Vitreous Surgery at the American Society of Retina Specialists Symposium, World Ophthalmology Congress in Hong Kong.

**Loretta Szczotka-Flynn, OD, FAAO**, was an invited speaker at the British Contact Lens Association (BCLA) meeting in Birmingham, England, in May 2008. She gave two talks on her research to silicone hydrogel contact lenses and corneal infiltrates.

*Over 120 researchers, residents and faculty attended the combined lectures and festivities of the 10th Annual VSRC Symposium and 14th Annual Resident Research Day to hear guest speaker Paul Sieving, MD, PhD, director of the National Eye Institute, National Institutes of Health.*

*The Symposium is the culmination of year-long research and discoveries presented to highlight the visual science researchers and their collaborative basic science departments. More than 40 posters were presented representing over 90 researchers and investigators.*

*"An Evaluation of Global Corneal Staining Scales in Soft Contact Lens Wear" by Matthew Albright, MD, was chosen as the winning presentation.*

**Jonathan Lass, MD**, an accomplished cellist, was selected as a member of the World Doctors Orchestra for its 2008 inaugural performance held in Berlin, Germany. He then secured and organized the United States debut of the WDO held in February 2009 at Severence Hall, Cleveland. The event raised over $20,000 for charity which included local proceeds for the Free Medical Clinic of Greater Cleveland.

## University Hospitals Eye Institute

11100 Euclid Avenue • Cleveland, OH 44106 • UHhospitals.org/eyes

For Appointments call:
216-844-3601 I 1-866-UH4-CARE

**Jonathan Lass, MD**
*Director, University Hospitals Eye Institute*

*Professor and Chairman,*
*Department of Ophthalmology and Visual Sciences*
*Case Western Reserve University School of Medicine*

**Suber S. Huang, MD, MBA**
*Professor and Vice Chairman,*
*Department of Ophthalmology and Visual Sciences*
*Case Western Reserve University School of Medicine*

### Eye Institute Sub-Specialists

**David Bardenstein, MD**
*Ocular Oncology, Ocular Pathology*
*Professor*

**James Bates, MD**
*Neuro-Ophthalmology*
*Assistant Professor*

## Eye Institute Centers

**The Center for Anterior Segment Diseases and Surgery**

*Edward Burney, MD, FACS*
*Director*
*Professor*

*Julie Belkin, MD*
*Assistant Professor*

*Jonathan Lass, MD*

*William Reinhart, MD*
*Professor*

*Anna Singh, MD*
*Assistant Professor*

*Thomas J.W. Stokkermans, OD, PhD, FAAO*
*Assistant Professor*

*Loretta Szczotka-Flynn, OD, MS, FAAO*
*Associate Professor*

*Kristina Thomas, MD*
*Senior Instructor*

*Stefan Trocmé, MD*
*Professor*

**The Center for Retina and Macular Disease**

*Suber S. Huang, MD, MBA*
*Director*

*Johnny Tang, MD*
*Assistant Professor*

*Shawn Wilker, MD*
*Assistant Professor*

**The Center for Pediatric Ophthalmology and Adult Strabismus**

*Jeffrey Bloom, MD*
*Director*
*Professor*

*Faruk Örge, MD*
*Associate Director*
*Assistant Professor*

*Sara Schoeck, OD*
*Senior Instructor*

**University Hospitals Eye Institute**

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UHhospitals.org/eyes

**Eye Institute Locations**

UH Case Medical Center
11100 Euclid Avenue
Bolwell Bldg., Ste. 3200
Cleveland, OH 44106

UH Hudson Health Center
5778 Darrow Road
Hudson, OH 44236

UH Landerbrook Health Center
5850 Landerbrook Drive, Ste. 120
Mayfield Heights, OH 44124

UH Westlake Health Center
950 Clague Rd., Bldg. B
Westlake, OH 44145

UH Willoughby Health Center
4212 State Route 306, Ste. 120
Willoughby, OH 44094

**Affiliate Locations**

Geneva
Medina

For inquiries regarding the UH Eye Institute, please contact Jacqueline Kaska at 216-844-8590

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