In This Issue

Features

01 Making the Impossible Possible

02 An Eye to the Future: Robert Cizik Eye Clinic and Ruiz Department of Ophthalmology Expansion Offers Patients Comprehensive Subspecialty Care

07 Diagnosis and Management of Ocular Malignancies

10 Randy Whitesides: A Floridian Travels to Houston for World-class Care

11 Amy Truong: Successful Treatment Inspires a Young Woman to Study Nursing

12 Brendan Diffley: Meticulous Surgery Saves a Young Trauma Patient’s Vision

Research

13 On the Clinical and Research Utility of Confocal Microscopy

News of Note

14 Dr. Bhavani Iyer Awarded SightFirst Grant to Help Patients with Low Vision

Six UTHealth Medical School Ophthalmologists Named Among Houstonia Magazine’s Top Doctors

Moran Pediatric Eye Clinic Celebrates Grand Opening

The Ophthalmology Basic Science Course: 45 Years of Residency Training

In the Media

Selected Publications

Abstracts

Book Chapters

Lectureships

Presentations

Honors and Awards

Grants
Making the Impossible Possible

It’s been said that nothing is impossible for those with the courage to try. Over the last three years, the Robert Cizik Eye Clinic and Ruiz Department of Ophthalmology and Visual Science have doubled in size and expertise; affiliated physicians now offer diagnosis and treatment within all subspecialties of ophthalmology. An experienced multidisciplinary team provides the highest level of care, with an across-the-board track record of quality outcomes. Using highly advanced technology, they perform complex procedures that preserve sight and improve vision. In this issue, you’ll read about the experiences of three patients who benefited from the clinical excellence of affiliated faculty.

In 2014, we welcomed two new faculty members: Stella Kim, M.D., who joined us after 12 years at The University of Texas MD Anderson Cancer Center and is internationally recognized for her work in ocular graft versus host disease, and Alla Kukuyev, M.D., director of the uveitis service, who is the only provider in Texas with dual fellowship training in vitreoretinal surgery as well as uveitis and ocular inflammatory disease. The two physicians complete the department’s subspecialty services and ensure that we are fully equipped to meet the needs of the hospital, medical school and community.

In this issue Dr. Kim, Amy Schefler, M.D., and ophthalmic plastic and reconstructive surgeon Margaret Phillips, M.D., address our capabilities to treat ocular malignancies, including conjunctival melanoma, uveal melanoma and retinoblastoma. Children’s Memorial Hermann Hospital is the only center in the south-central United States routinely offering intra-arterial chemotherapy and intravitreal chemotherapy for the treatment of retinoblastoma, which requires a large multispecialty team.

To be trusted with the most precious of senses is the highest compliment. We extend our thanks to Randy Whitesides, Brendan Diffley and his parents Kathy Perry and Shane Diffley, and Amy Truong for sharing their personal stories of courage in the face of potential vision loss. Mr. Whitesides found his way to us from South Florida after suffering loss of vision due to long-term uveitis. Twelve-year-old Brendan Diffley arrived through the Emergency Center after shooting himself in the eye with a pencil while playing with a makeshift paper crossbow. Ms. Truong underwent an emergent corneal transplant after developing a difficult-to-treat fungal infection following LASIK surgery at another institution.

Congratulations to the members of our department who were singled out for recognition in Houstonia magazine’s 2014 listing of Top Doctors in Houston. We’re proud of their clinical accomplishments, commitment to teaching and research productivity.

As always, we’re grateful for the ongoing support of UTHealth President Giuseppe Colasurdo, M.D., Memorial Hermann-TMC CEO Craig Cordola and Children’s Memorial Hermann Hospital CEO Susie Distefano. Their support, along with that of the Hermann Eye Fund, the Memorial Hermann Foundation, Research to Prevent Blindness and the National Eye Institute, has given us the opportunity to dream big and achieve our goals.

Sincerely,

ROBERT M. FELDMAN, M.D.
Distinguished Professor and Chairman
Ruiz Department of Ophthalmology and Visual Science
UTHealth Medical School
An Eye to the Future: Robert Cizik Eye Clinic and Ruiz Department of Ophthalmology Expansion Offers Patients Comprehensive Subspecialty Care

Over the last three years, the Robert Cizik Eye Clinic and Ruiz Department of Ophthalmology and Visual Science at UTHealth Medical School have doubled in size. With the addition of Stella Kim, M.D., to the cornea and external disease service and ocular oncology service and Alla Kukuyev, M.D., as chief of the uveitis service, the department now covers all subspecialties within ophthalmology.

“WE’RE PROUD OF OUR TEAM OF AFFILIATED SUBSPECIALISTS AND THE EXPERTISE THEY BRING TO HOUSTON AND THE SURROUNDING REGION. IN ADDITION TO CLINICAL ACCOMPLISHMENTS, THEY HAVE INCREASED OUR RESEARCH PRODUCTIVITY.”

Dr. Kim, a clinical professor of ophthalmology, joined the cornea/external disease and ocular oncology services in July 2014. After receiving her bachelor’s in biochemistry from Louisiana State University in Baton Rouge, she spent the next 10 years at Harvard Medical School, where she received her medical degree and completed two research fellowships as a Karin Grunebaum Cancer Fellow and the Howard Hughes Medical Institute Medical Student Fellow, a medical internship at Mount Auburn Hospital and her ophthalmology residency at Massachusetts Eye and Ear Infirmary. For her cornea fellowship, she spent one year as a Heed Fellow at the Moran Eye Center at the University of Utah.

After her training, Dr. Kim joined The University of Texas MD Anderson Cancer Center. For more than 12 years, she served as a faculty member at MD Anderson with a clinical focus in ocular surface diseases in cancer patients, conjunctival tumors, ocular surface reconstructions and complex cataract surgery. She is internationally recognized for her work in ocular graft versus host disease (GVHD). Dr. Kim joined the Robert Cizik Eye Clinic and the Ruiz Department of Ophthalmology and Visual Sciences to provide care for patients with corneal and external diseases, in particular with severe ocular surface diseases, conjunctival/cornea tumors and GVHD, as well as cataract and other corneal disorders.

Dr. Kukuyev, assistant professor of ophthalmology, joined the retina service of the Robert Cizik Eye Clinic and the Ruiz Department of Ophthalmology and Visual Science at UTHealth Medical School in September 2014, and is chief of the uveitis service.

She received her combined B.S./M.D. degree from the University of Akron and Northeast Ohio Medical University and completed her residency in ophthalmology at the Havener Eye Institute at the Ohio State University Medical Center. She completed fellowship training in uveitis and ocular inflammatory diseases at the Jules Stein Eye Institute at the University of California, Los Angeles, and then completed additional fellowship training in vitreoretinal surgery at Retina and Vitreous of Texas. Dr. Kukuyev is the only provider in the state of Texas with dual fellowship training in vitreoretinal surgery as well as uveitis and ocular inflammatory disease. She is certified by the American Board of Ophthalmology and holds memberships in the American Academy of Ophthalmology, the American Society
Glaucoma specialist Nicholas Bell, M.D., and corneal disease specialist Nan Wang, M.D., Ph.D., examine a patient using the confocal microscope for anterior segment corneal imaging.

of Retina Specialists and the Houston Ophthalmological Society. Her clinical interests include medical and surgical management of diabetic retinopathy; retinal detachment; macular hole; epiretinal membrane; retinal vascular diseases; endophthalmitis; uveitis associated with autoimmune diseases, including juvenile idiopathic arthritis and sarcoidosis; and white dot syndromes and inflammation secondary to infectious diseases including AIDS, tuberculosis, toxoplasmosis and herpetic infections of the eye.

Preceding Drs. Kim and Kukuyev in the expansion at Memorial Hermann-Texas Medical Center and UTHealth Medical School are Lauren Blieden, M.D., Gene Kim, M.D., Kartik Kumar, M.D., and Grace Lindhorst, M.D., who joined the department in 2012, and Margaret E. Phillips, M.D., Karina Richani Reverol, M.D., and Ore-ofe Adesina, M.D., who were recruited in 2013. Ocular oncologist and retinoblastoma specialist Amy Schefler, M.D., now provides care through Cizik Eye Clinic.

Dr. Blieden received her medical degree at Baylor College of Medicine in Houston and completed her residency in ophthalmology at the same institution, followed by a fellowship in glaucoma at Bascom Palmer Eye Institute in Miami. An assistant professor of ophthalmology, she is board certified by the American Board of Ophthalmology, with clinical and research interests that focus on pediatric glaucoma and surgical outcomes. As part of her practice, Dr. Blieden is active in the Childhood Glaucoma Research Network (CGRN), an international organization comprised of clinicians and scientists who specialize in the treatment of children with glaucoma.

LAUREN BLIEDEN, M.D.
Assistant Professor
Ruiz Department of Ophthalmology and Visual Science
UTHealth Medical School

GENE KIM, M.D.
Assistant Professor
Ruiz Department of Ophthalmology and Visual Science
UTHealth Medical School

Dr. Gene Kim received his medical degree at the University of Pittsburgh and completed his residency in ophthalmology at Emory University, followed by a fellowship in cornea, ocular surface disease and refractive surgery from the John A. Moran Eye Center in Salt Lake City. An assistant professor of ophthalmology, Dr. Kim performs cataract surgery, corneal transplantation and LASIK and PRK vision correction.
correction surgery. He has a special interest in artificial corneal transplantation and performs keratoprosthesis surgery for severely damaged corneas. His research interests focus on corneal imaging using confocal microscopy and anterior segment optical coherence tomography.

A vital addition to the pediatric ophthalmologic service at Children’s Memorial Hermann Hospital, Dr. Kartik Kumar joined the ophthalmology team after completing a fellowship in pediatric ophthalmology at the Children’s National Medical Center in Washington, D.C. He received his medical degree at The University of Texas Southwestern Medical School in Dallas, followed by a residency in ophthalmology at the University of Kansas Medical Center, where he was chief resident. An assistant professor, Dr. Kumar’s clinical interests include all areas of pediatric ophthalmology, including amblyopia, strabismus, eyelid ptosis and cataracts. His research interests include visual development, amblyopia and the treatment of strabismus.

Dr. Lindhorst was recruited from the South Texas Veteran’s Healthcare Administration in San Antonio, where she was chief of the ophthalmology department. She received her medical degree from The University of Texas Health Science Center at San Antonio School of Medicine, followed by a residency in the department of Ophthalmology at the same institution, where she served as chief resident. She was inducted into the Alpha Omega Alpha Honor Medical Society in 2002 and has been recognized with numerous other awards. An assistant professor of ophthalmology, Dr. Lindhorst directs a satellite clinic in Katy, Texas.

Among the 2013 recruits is Margaret E. Phillips, M.D., an ophthalmic plastic and reconstructive surgeon and clinical assistant professor of ophthalmology, who received her medical degree at the University of Alabama School of Medicine in Birmingham, followed by a residency in ophthalmology at the University of Maryland Department of Ophthalmology and Visual Sciences in Baltimore. A diplomate of the American Board of Ophthalmology, she completed a two-year fellowship in ophthalmic plastic and reconstructive surgery at the University of Tennessee in Memphis and at Vanderbilt University in Nashville. She was inducted into Alpha Omega Alpha Honor Medical Society in 2006.

After receiving her medical degree summa cum laude at the Universidad del Zulia in Maracaibo, Venezuela, Dr. Karina Richani Reverol completed transitional residency training at Sinai Grace Hospital-Detroit Medical Center. She then completed a residency in ophthalmology at Kresge Eye Institute in Detroit, where she served as chief resident. She completed her fellowship training in oculoplastic surgery at Consultants in Ophthalmic and Facial Plastic Surgery in Southfield, Michigan. An ophthalmic plastic and reconstructive surgeon and a clinical assistant professor of ophthalmology, Dr. Richani is coauthor of two chapters, “Lower Eyelid Blepharoplasty” and “Transcanalicular Laser Dacryocystorhinostomy,” in the third edition of Smith and Nesi’s Ophthalmic Plastic and Reconstructive Surgery, published in 2012.

Ore-ofe Adesina, M.D., joined the department from the University of Utah Moran Eye Center, where he completed a fellowship in neuro-ophthalmology with an additional preceptorship in oculoplastics. He received his medical degree at the University of Oklahoma College of Medicine in Oklahoma City, followed by a residency at the University of Oklahoma/Dean McGee Eye Institute in the same city. He is certified by the National Board of Medical Examiners and is board eligible by the American Board of Ophthalmology. Dr. Adesina is a clinical assistant professor in the Ruiz Department of Ophthalmology and Visual Science.

Dr. Amy Schefler received her medical degree at Weill Medical College of Cornell University in New York City, with honors in research. After finishing her residency at Bascom Palmer Eye Institute and the University of Miami, she completed a clinical and research fellowship in ocular oncology and a clinical fellowship in vitreoretinal diseases and surgery at the same institution. She was chief resident and co-director of ocular trauma at Bascom Palmer Eye Institute from 2009 to 2010. From 2010 to 2012, she served on the Institute’s faculty as an assistant professor of clinical ophthalmology with a secondary appointment in radiation oncology.
Dr. Schefler has received numerous honors and awards, and has authored numerous articles in peer-reviewed journals. She provides state-of-the-art care for intraocular tumors in both adults and children. Dr. Schefler, along with the Memorial Hermann Mischer Neuroscience Institute at the Texas Medical Center, has initiated a retinoblastoma program that offers intra-arterial chemotherapy, the first treatment of its kind in Texas and the only center providing the treatment in the south-central United States.

With the addition of new faculty members, the Ruiz Department of Ophthalmology and Visual Science has also expanded into new space. Nearly two years ago, the department began offering general and pediatric ophthalmology at the UT Physicians’ health center serving the Cinco Ranch and Katy areas, a practice that provides care for patients of all ages in a convenient west Houston location. Clinic director Dr. Grace Lindhorst is joined on a part-time basis by Drs. Kumar and Phillips.

The new Moran Pediatric Eye Clinic held its grand opening in May 2014 in 3,000 square feet of newly built-out space on the 19th floor of the Memorial Hermann Medical Plaza, one floor above the Robert Cizik Eye Clinic at Memorial Hermann-Texas Medical Center. The clinic was made possible by a generous gift from the W.H. and Louise Moran Foundation in Houston. In addition to the clinic, the new space houses the offices of pediatric ophthalmologists Helen A. Mintz-Hittner, M.D., the Alfred W. Lasher III Professor of Ophthalmology at UTHealth Medical School, and Dr. Kumar.

New equipment has also expanded the Cizik Eye Clinic’s capabilities. Ophthalmologists now have the use of a confocal microscope for anterior segment corneal imaging, a femtosecond laser for cataract surgery, a state of the art Centurion® phaco machine, an ocular endoscope for use in trauma cases and a second retinal camera.

“We’re proud of our team of affiliated subspecialists and the expertise they bring to Houston and the surrounding region,” says Robert M. Feldman, M.D., chief of ophthalmology at Memorial Hermann-TMC and clinical professor and chair of the Ruiz Department of Ophthalmology and Visual Science. “In addition to clinical accomplishments, they have increased our research productivity. All this has been made possible through the continued support of Memorial Hermann-TMC, Children’s Memorial Hermann Hospital, the Hermann Eye Fund, the Memorial Hermann Foundation, Research to Prevent Blindness and the National Eye Institute. We’re grateful to have the opportunity to continue to do challenging work that benefits our community and the patients who travel great distances for expert care.”

**Robert Cizik Eye Clinic Services**

**Adult**
- Cornea, External Disease, Anterior Segment and Refractive Surgery
- Comprehensive Ophthalmology
- Glaucoma
- Low Vision and Visual Rehabilitation Services
- Neuro-ophthalmology
- Oculoplastic, Facial Reconstruction and Rejuvenation Surgery
- Medical and Surgical Retina
- Ocular Oncology
- Adult Strabismus
- Uveitis
- Vitreoretinal Surgery

**Pediatric**
- Comprehensive Pediatric Ophthalmology and Strabismus
- Cornea Anterior Segment and Refractive Surgery
- Glaucoma
- Neuro-ophthalmology
- Ocular Oncology
- Oculoplastic and Facial Reconstruction
- Retinopathy of Prematurity (ROP)
- Uveitis
- Vitreoretinal Surgery
Clinical research is the basis of modern medicine: the day-to-day decisions physicians make are based on the evidence published as a result of quality long-term research.

“The National institutes of Health and the National Eye Institute (NEI) have always been the primary financial power advancing major biomedical research,” says Lauren Blieden, M.D., a clinical assistant professor of ophthalmology and medical director of the Ruiz Department of Ophthalmology and Visual Science Clinical Trials Unit. “With current national funding levels for biomedical research at an all-time low, clinical research in ophthalmology has been significantly impacted. The NEI’s funding for the 2014 fiscal year was cut $36 million from the previous year, which equates to about 90 new research studies. We’re grateful that private foundations, such as the Hermann Eye Fund and Research to Prevent Blindness, have softened the blow during these tough financial times.”

The following trials are among many under way at the Robert Cizik Eye Clinic and the Ruiz Department of Ophthalmology and Visual Science:

• African Descent and Glaucoma Evaluation Study (ADAGES) III: Contribution of Genotype to Glaucoma Phenotype in African-Americans
• Pediatric Cataract Surgery Outcomes Study
• Clinical Study of the ARTISAN® Aphakia Lens in Children
• Glasses versus Observation for Moderate Hyperopia in Young Children
• Primary Enucleation/Evisceration Study
• A Comparison of Gonioscopic Examination using the Spaeth System versus Swept Source Spectral Domain Anterior Segment Optical Coherence Tomography Imaging of the Anterior Chamber Angle
• Examiner Handedness and the Effects on Intraocular Pressure Readings Using the Tono-Pen XL
• Ahmed versus Baerveldt Comparison Study
• Characterizing Pathologic Changes in the Iridocorneal Angle and Trabecular Meshwork Using Anterior Segment Optical Coherence Tomography
• A Pilot Study to Assess the Safety and Efficacy of Intraoperative Topical Mitomycin C and Bevacizumab (Avastin®) to Bare Sclera in Pterygium Surgery
• Robison D. Harley, M.D., CGRN International Pediatric Glaucoma Registry
• International Pilot Survey of Childhood Glaucoma
• Evaluating the Efficacy of Fenestrations in Tube Shunt Implants During the Early Postoperative Period
• Characterizing the Trabecular Meshwork Shadow with Anterior Segment Optical Coherence Tomography
• CT Imaging in the Detection of Open Globe Injuries
• Multifocal Intraocular Lens Simulation Study
• Trabecular-Iris Circumference Volume in Normal Open Angle Eyes Using Swept Source Fourier Domain Optical Coherence Tomography
• Recurrence Following Intravitreal Bevacizumab Monotherapy for Zone I, Stage 3+ Retinopathy of Prematurity
Diagnosis and Management of Ocular Malignancies

Cancer of the eye is a devastating diagnosis, putting individuals at risk of losing one of the five traditionally recognized senses – vision, an essential part of how we interact with the world – and also of losing their lives. With the addition of ocular oncologist and cornea and external disease specialist Stella Kim, M.D., and ocular oncologist and retina specialist Amy Schefler, M.D., both of whom are affiliated with Memorial Hermann-Texas Medical Center and on the faculty of UTHealth Medical School, the Ruiz Department of Ophthalmology and Visual Science now provides patients with oncology expertise from the front to the back of the eye.

“Patients are referred to us from across the country when their local doctors find an unusual mass and are unable to reach a diagnosis. In diagnostically challenging cases, such as those in which the view of the tumor is blocked by blood, we use sophisticated retinal instrumentation for biopsy and generally are able to make a definitive diagnosis with a minimally invasive procedure.”

“Primary malignancies of the ocular surface, such as conjunctival melanoma and squamous cell carcinomas, are infrequent diagnoses, even among eye cancers, which are rare in general,” says Dr. Kim, who is internationally recognized for her work in ocular graft versus host disease and has focused her practice on ocular surface diseases and cancers of the eye for more than 13 years. “Conjunctival melanoma, for example, accounts for only about 2 percent of all ocular malignances. Because the Robert Cizik Eye Clinic is a referral center, we treat more cases of conjunctival malignancy than the average practice. Ocular cancers can be difficult to manage, and early diagnosis and meticulous care are critical to an optimal outcome – from pre-surgical evaluation and precise surgical approach, to adjuvant topical chemotherapy and long-term follow-up.”

An aggressive tumor, conjunctival melanoma originates de novo in approximately 5 percent of cases, from pre-existing conjunctival primary acquired melanosis in 75 percent, and from nevi in 20 percent of cases, according to the American Association of Ophthalmology (AAO). The AAO reports the overall tumor-related mortality rate for conjunctival melanoma at approximately 25 percent. Treatment usually involves surgical removal of the tumor, radiation therapy when appropriate and topical chemotherapy as an adjunct treatment.

“Management of conjunctival melanoma is complex,” says Dr. Kim, who considers working with patients with ocular cancers a unique privilege. “Vision is intricately linked with quality of life, and ocular cancers underscore the need for a multidisciplinary approach that considers the whole patient, not just the disease of the eye. That is our philosophy of care.”

Melanoma of the uveal tract, although rare, is the most common primary intraocular malignancy in adults. Approximately 2,000 new cases of uveal melanoma are diagnosed per year in the United States. They can arise in the anterior or the posterior uveal tract, with most originating in the choroid. The iris is the least common site of origin, with the best prognosis.
The uveal melanoma service at Robert Cizik Eye Clinic provides top-notch ophthalmic care including all types of advanced treatment, as well as sophisticated fine-needle aspiration biopsies with pathology confirmation,” says Dr. Schefler, a renowned specialist in tumors of the eye in children and adults. “Patients are referred to us from across the country when their local doctors find an unusual mass and are unable to reach a diagnosis. In diagnostically challenging cases, such as those in which the view of the tumor is blocked by blood, we use sophisticated retinal instrumentation for biopsy and generally are able to make a definitive diagnosis with a minimally invasive procedure.”

In many cases, however, uveal melanoma is diagnosed without a biopsy. “We have the capability to characterize the tumor using sophisticated testing techniques including ultrasound, ophthalmic photos, ophthalmic fluorescein angiography and optical coherence tomography, which offers a magnified view of the retina,” Dr. Schefler says.

By the time choroidal and ciliary body melanomas are diagnosed, they typically range in size from 2 to 12 millimeters high and from 5 to 18 millimeters wide. “Although the overall size of the tumor is small – often smaller than a jelly bean – the impact on the eye is significant because its structures are so delicate,” she says.

Most patients with uveal melanoma are asymptomatic; the tumor usually is discovered during a routine examination. Melanomas are thought to arise...
from pre-existing nevi that are benign in appearance initially and then transform into true cancers. The transformation can occur slowly or rapidly, which means it can occur in a patient who has had an eye exam with a benign-appearing nevus a few years before the cancer diagnosis. Some of these cancers are in the ciliary body or anterior choroid, and are difficult to detect during a routine exam without the use of specialized equipment.

Commonly used treatments for uveal melanoma include plaque therapy, in which tiny beads composed of radioactive isotopes are custom chosen and designed for the patient based on the size, shape and configuration of the tumor. The seeds are placed in a bottle cap-shaped implant backed in gold to protect healthy surrounding tissue. The radiation patch is surgically inserted onto the outside surface of the eye, where it remains for several days. Dr. Schefler’s team has seen nearly 100 percent local tumor control with no tumor recurrences in the eye using this treatment.

Dr. Schefler performed the first intra-arterial chemotherapy treatment for retinoblastoma in Texas, and Children’s Memorial Hermann Hospital is the only hospital in the south-central United States routinely offering intra-arterial chemotherapy and intravitreal chemotherapy for the treatment of retinoblastoma. The treatment requires a large multispecialty team that involves close collaboration between oculary oncology, endovascular neurosurgery and medical neuro-oncology.

“Having the capability to inject chemotherapy directly into the arteries that feed the eye eliminates the side effects of systemic chemotherapy and maximizes the therapeutic dose to the eye,” says Dr. Schefler, who also specializes in the treatment of Coats’ disease, persistent fetal vasculature, medulloepithelioma, iris and ciliary body tumors, leukemia and lymphoma, and vascular tumors. “The technique is very new and a paradigm shift in the treatment of retinoblastoma. There are very few centers in the United States with the expertise that we have.”

She is also known for her innovative approach to the treatment of retinoblastoma, the most common primary intraocular cancer in children. With only 250 to 350 new cases of retinoblastoma per year in the United States and about 8,000 new cases annually in the world, few specialists are trained to treat the condition.

“Retinoblastoma generally develops in children from birth to 5 years of age, can be hereditary or occur spontaneously, and may involve one or both eyes,” she says. “Treatments are complex and include chemotherapy - intra-arterial, intravitreal, systemic/intravenous or periocular - laser, cryotherapy, radiation and enucleation.”

To deliver the treatment, Dr. Schefler collaborates with endovascular neurosurgeon Mark Dannenbaum, M.D., an expert in cerebrovascular surgery and neurointerventional techniques and an assistant professor of neurosurgery at UTHHealth Medical School. Dr. Dannenbaum places a microcatheter into the ophthalmic artery using a neuroendovascular technique, then infuses a high concentration of chemotherapy directly into the tumor bed, eliminating the side effects of systemic chemotherapy and maximizing the dose to the eye.

“This is exciting and groundbreaking clinical work,” she says. “We’re providing a cure for this treatable type of cancer and saving eyes and lives.”
By the time Randy Whitesides made it to the office of internationally recognized glaucoma expert Robert M. Feldman, M.D., the Floridian had lost the vision in his right eye. After contracting a bacterial infection in Mexico 30 years ago, he developed reactive arthritis, an autoimmune condition in which the joints become painful and swollen. One manifestation of the condition is uveitis, which Whitesides has had since 1984.

“Like all autoimmune diseases, reactive arthritis is triggered by environmental factors, including stress,” says Whitesides, founder and CEO of Neptune Boat Lifts in Fort Lauderdale, Florida. “My uveitis comes and goes and eventually became this thing in my life that I just dealt with. At first I had it once or twice a year for four to six weeks. Eventually, I was getting it five to 10 times a year. You follow the treatment protocol – steroid eye drops – but a few days after I started the steroids, my intraocular pressure (IOP) would spike in response. I used other eye drops to reduce the pressure, but over time I became extremely sensitive to the steroids. I’d be fine one day, then the next day my IOP would shoot up to 50 or 60, which can cause blindness in a few hours.”

From his home in Key Largo, Whitesides called his local ophthalmologist when he developed another case of uveitis in the winter of 2013. “He was out of town so I self-medicated until he got back,” he says. “My IOP spiked and I lost vision in my right eye in a matter of a day. After this, my ophthalmologist told me my condition was out of his league and recommended I go to one of the big eye clinics. I’d been treated at Bascom Palmer in Miami, so I scheduled an appointment at the Cleveland Clinic in Weston. In the interim I had a second, much more severe episode of uveitis and woke up almost totally blind. A friend drove me up to Weston, where they admitted me through the ER. I was treated by their team and released. Over the next month my uveitis started to improve.”

During the recovery period, Whitesides could only see shapes. An associate of his who had undergone corneal transplants at the Robert Cizik Eye Clinic in Houston suggested he call Dr. Feldman, who directs the clinic and is chief of ophthalmology at Memorial Hermann-Texas Medical Center and clinical professor and chair of the department of Ophthalmology at UTHealth Medical School.

“I said, ‘Yeah, yeah, yeah, I’ll call’ but I put it off,” Whitesides says. “So my associate called Dr. Feldman and gave him my number. When he heard about my case, he called me at home. I was really impressed that he took the time to call me. We spent almost an hour on the phone that night going through my treatment history. He told me he had a really good team and suggested I come to Houston when I felt well enough to travel. ‘We’ll put you through a battery of tests,’ he said. ‘You’re getting really good treatment, but they may have overlooked something.’”

At the end of 2013, Whitesides saw uveitis specialist Alla Kukuyev, M.D., and Dr. Feldman. “The autoimmune suppressant Randy was taking was no guarantee that he wouldn’t have another episode of uveitis,” Dr. Feldman says. “Every time he had uveitis and a reaction to steroids with a sudden increase in intraocular pressure, he was at risk of losing more eyesight. We recommended tube-shunt surgery to preserve the vision he had.”

Whitesides flew home to Florida to think it over. The next day he called to schedule his surgery. On a Tuesday in December 2013 Dr. Feldman placed a tube-shunt in his left eye, followed by one in his right eye on Thursday. On Friday, he flew home.

Dr. Feldman consulted with his local ophthalmologist in follow-up. “Randy’s story describes how we work with patients and their physicians. Patients come here for expert care, and when they return home, we become a resource to their local ophthalmologists.”

After 30 years of experience with ophthalmologists, Whitesides is discerning about the care he receives. “Everyone at the Cizik Eye Clinic was great,” he says. “I give them a 10-plus for an amazingly positive experience.”

Uveitis can be caused by autoimmune disorders, as in the case of Randy Whitesides, or by infection or exposure to toxins. In many cases, the cause is unknown.
Amy Truong: Successful Treatment Inspires a Young Woman to Study Nursing

Three days after she had LASIK surgery at another institution, 19-year-old Amy Truong noticed a white spot in her right eye. When a three-week course of antibiotics failed to resolve the issue, her eye surgeon referred her to cornea and external disease specialist Gene Kim, M.D., at the Robert Cizik Eye Clinic.

Using the clinic’s confocal microscope, Dr. Kim took high-resolution images without sacrificing any tissue from Truong’s cornea. Twenty minutes later, he knew she had a fungal infection.

“Using the clinic’s confocal microscope, Dr. Kim took high-resolution images without sacrificing any tissue from Truong’s cornea. Twenty minutes later, he knew she had a fungal infection.”

Following the transplant, Truong had issues with transplant rejection. To counter the rejection, Dr. Kim prescribed a medium dose of steroids. “We were light on the steroids because the medication can cause the fungus and infection to worsen. We want to remove all the fungus - if there’s even a small amount left, it will spread. So we have to find a good balance, which makes post-infection transplants difficult to manage. If you prescribe steroids to prevent rejection, the medication can cause the original problem to worsen. We watched her very closely and saw her often to find the right balance.”

Truong says getting rid of the infection was “such a relief. The surgery and recovery were nothing compared to dealing with the infection, which left me feeling emotionally unstable for a very long time.”

In September 2014, a year after Truong’s surgery, Dr. Kim removed the 16 sutures of her cornea transplant. Today, she’s 20 and fungus free. She’s also working through core courses at Lone Star College, with plans to complete her associate degree in nursing and go on to UTHealth School of Nursing for her B.S.N. Her eye looks normal and is doing well.

“Dr. Kim is literally my hero,” she says. “He knows how to care for people physically and emotionally. I felt I had had such bad luck, but then was so blessed to meet him. He was always honest and straightforward with me. I never once felt lost when I was with him.”

Using the clinic’s confocal microscope, Dr. Kim took high-resolution images without sacrificing any tissue from Truong’s cornea. Twenty minutes later, he knew she had a fungal infection.

“USING THE CLINIC’S CONFOCAL MICROSCOPE, DR. KIM TOOK HIGH-RESOLUTION IMAGES WITHOUT SACRIFICING ANY TISSUE FROM TRUONG’S CORNEA. TWENTY MINUTES LATER, HE KNEW SHE HAD A FUNGAL INFECTION.”

Fungus that spreads beyond the cornea puts the patient at risk of losing the eye.

which are difficult to treat. “If one of the three medications we have available doesn’t work and the fungus spreads to other parts of the eye, the patient is at risk of losing the eye. Rather than waiting until no options are available, we remove the infection while it is still contained within the cornea.”

Therapeutic corneal transplants are frequently done in cases of fungi or parasites, Fungus that spreads beyond the cornea puts the patient at risk of losing the eye.
Brendan Diffley:
Meticulous Surgery Saves a Young Trauma Patient’s Vision

On New Year’s Eve 2012, Brendan Diffley’s father, Shane Diffley, and his stepmother, Jennifer Diffley, drove the 12-year-old to nearby Memorial Hermann Katy Hospital after he shot himself in the eye with a pencil while fashioning a makeshift paper crossbow using online directions. He was transferred to Memorial Hermann-Texas Medical Center, where cornea and external disease specialist Gene Kim, M.D., was on call for ophthalmic trauma.

“The front of Brendan’s eye was splayed open and bleeding, with an L-shaped cut in the cornea,” says Dr. Kim, a clinical assistant professor in the Ruiz Department of Ophthalmology and Visual Science at UTHealth Medical School. “We rushed him to the OR.”

In the hospital’s first surgery of 2013, Dr. Kim closed the open globe injury with eight sutures and re-inflated the eye using balanced salt solution. Brendan went home with his mother, Kathy Perry, on the day of surgery, wearing a patch over his eye.

While he recovered well, the aftermath of the injury left Brendan with scars on his cornea, an irregular astigmatism that could not be corrected with glasses or soft contacts, and a traumatic cataract.

“Repairing a lacerated cornea is like putting the pieces of a puzzle together: it’s never going to be as smooth as it was originally,” Dr. Kim says. “We were able to put it back together neatly, but where there were sutures, he had astigmatism. Because his astigmatism was perfectly aligned, when we removed the cataract six months after the initial surgery, we were able to implant an intraocular toric lens to correct the astigmatism.”

Dr. Kim says he recognizes that implanting a toric lens in trauma cases is considered risky. “I debated it for a long time, but given Brendan’s active lifestyle and low likelihood of tolerating a contact lens, I decided to place the special toric lens inside the eye. We performed meticulous surgery to get around some of the internal scarring and also had some luck. I’ve had a lot of experience doing trauma and complicated cases. The more experience you have, the better feel you have of what will work. I was fortunate to be right in Brendan’s case.”

Over a year and a half, Brendan went from having a badly cut cornea and collapsed eyeball to 20/30 vision without correction. “He has a bit of scar tissue on the capsule holding his intraocular lens, which causes slight distortion in his vision, but we can correct that in a five-minute laser procedure to remove the opacified tissue. He was very lucky that most of his injuries were to the front half of his eyeball. When injuries affect the back half, there’s very little we can do to save the eye.”

A talented athlete, Brendan rides dirt bikes and is an avid water skier and year-round swimmer who competes in triathlons. “When he first had the surgery, he couldn’t even see the big E on the eye chart,” his mother says. “But that was just the beginning, and his eye healed well. Dr. Kim is an incredible surgeon. We were blessed to have him. They do amazing things to save eyes these days.”

Brendan Diffley, an active 14 year old, after swim practice.
On the Clinical and Research Utility of Confocal Microscopy

In 2013, Gene Kim, M.D., was the runner-up in the New Producer category of the American Society of Cataract and Refractory Surgery Film Festival. His entry, a 7:43-minute video entitled the Clinical Utility of In Vivo Confocal Microscopy for Diagnosing Corneal Pathology, showed how extraordinary high-resolution images of corneal anatomy can be useful in clinical diagnosis.

“Although the equipment itself is bulky and ergonomically difficult to use in the clinical setting, corneal confocal microscopy (CCM) can be used to distinguish fungal and acanthamoebal infections, both of which are difficult to culture,” says Dr. Kim, a cornea and external disease subspecialist at the Robert Cizik Eye Clinic and clinical assistant professor in the Ruiz Department of Ophthalmology and Visual Science at UTHealth Medical School. “Using CCM we can gain vital information and make a diagnosis during the office visit without having to remove any tissue from the eye and without the time lag involved in sending specimens to the lab.”

Dr. Kim, the author of a number of peer-reviewed publications on corneal confocal microscopy, has been engaged in research focused on increasing its everyday use in clinic. He is co-author of an article published in the Journal of the Peripheral Nerve System in 2013 concluding that corneal confocal microscopy is “a rapid, well-tolerated and reproducible method for assessing corneal innervation.” The clinical trial involved 11 healthy participants who underwent CCM sampling of five standardized locations in the left eye and one centrally located in the right eye.

A second study was designed to evaluate the reproducibility of in vivo confocal microscopy for quantitative corneal nerve analysis in different corneal locations. CCM was performed on 10 healthy participants with a mean age of 31.3 ± 2.8 years, who were imaged in five locations in the right eye at two time points about a month apart. In results published in the August 2013 issue of Cornea, Dr. Kim and his colleagues determined that while single confocal images have poor reliability for any of four corneal nerve measurements—corneal nerve fiber length, corneal nerve fiber density, corneal nerve branch density and tortuosity—averaging five images from different locations improved reproducibility, making it essential for obtaining clinically meaningful data.

Dr. Kim is currently applying data gathered using the microscope to attempt to develop new treatments for ocular surface diseases, such as chronic dry eyes, neurotrophic keratopathy and limbal stem cell deficiency. “We hope to utilize the technology to better analyze the corneal nerves and ocular surface with the hope that we can eventually treat many of these diseases that do not have a definitive cure,” he says. “We’re engaged in early collaboration with the basic science section of the Ophthalmology department to see if it is possible to regenerate new ocular surface tissue. Being able to analyze the differences between the normal and synthetic ocular surface tissue on the microscopic level using CCM will be essential to eventually finding a cure.”

To view Dr. Kim’s short film, visit ascrs2013.conferencefilms.com and search “Gene Kim.”

1 Refer to the article “Amy Truong: Successful Treatment Inspires a Young Woman to Study Nursing” on page 11 in this issue of the Memorial Hermann Ophthalmology Journal.


CCM can quickly and accurately distinguish fungal infections from those caused by bacteria.
Low vision specialist Bhavani Iyer, O.D., FAAO, was awarded a three-year $164,645 grant to help Harris County residents with vision problems that cannot be corrected with glasses, medication or surgery.

Dr. Iyer received the grant from the Lions Club International Foundation, which promotes SightFirst grants to build comprehensive eye care systems to fight the major causes of blindness and care for blind or visually impaired people. In addition to this award, the first of its kind in Texas and the third largest in the country, Dr. Iyer’s project received $20,000 in funding from local sources.

With the grant, Dr. Iyer will develop the Harris County Low Vision Project, which will promote outreach programs, education and training for the visually impaired population around the county, a problem that affects approximately 3 million people nationwide according to 2010 statistics from the National Eye Institute. By 2050, that number is expected to increase to about 9 million.

The project will provide training for patients with low vision through support groups, education programs and loaner devices, such as miniature telescopes attached to eyeglasses or held by hand, filters that screen out blue light and glare, magnifiers and strong electronic readers, among other things.

The Center for Visual Rehabilitation at the Robert Cizik Eye Clinic at UTHealth Medical School and Memorial Hermann-Texas Medical Center, and Harris County Health System’s Lyndon B. Johnson Hospital will be the two low vision centers in Houston where education programs and support services will be offered.

Dr. Iyer plans to establish low vision device loaner libraries at both locations, benefiting people who need to be trained on the devices or who may want to try them out before buying them.

Six UTHealth Medical School Ophthalmologists Named Among Houstonia Magazine’s Top Doctors

Robert M. Feldman, M.D., Judianne Kellaway, M.D., FACS, Nicholas P. Bell, M.D., Garvin H. Davis, M.D., David A. Lee, M.D., and Nan Wang, M.D., Ph.D., were named to Houstonia magazine’s 2014 listing of Top Doctors in Houston.

Dr. Feldman, clinical professor and chair of the Ruiz Department of Ophthalmology and Visual Science at UTHealth Medical School, specializes in the medical and surgical treatment of glaucoma, including congenital and pediatric glaucoma. After receiving his medical degree at Chicago Medical School, he completed his residency at the University of California, San Diego, and a fellowship at Baylor College of Medicine in Houston. A reviewer for several journals, Dr. Feldman has authored or co-authored more than 250 journal articles and made presentations worldwide. He holds the Richard S. Ruiz Distinguished University Chair in Ophthalmology.

Dr. Nicholas P. Bell focuses his practice on the medical and surgical management of glaucoma; his research findings have been published in numerous ophthalmic journals. He graduated from the University of Miami School of Medicine and completed his residency and fellowship at Baylor College of Medicine. A clinical associate professor in the Ruiz Department of Ophthalmology and Visual Science and director of glaucoma services at Cizik Eye Clinic, he currently serves as chief of ophthalmology at Lyndon B. Johnson General Hospital in Houston and as the glaucoma fellowship program director within the department. Dr. Bell is active in the training of UTHealth medical students, ophthalmology residents and glaucoma fellows. He is the A.G. McNeese, Jr. Professor in Ophthalmology at UTHealth Medical School.

After receiving her medical degree at UTHealth Medical School, Dr. Judianne Kellaway completed her residency in ophthalmology and a fellowship at the same institution. A clinical professor, she holds the Stephen A. Lasher Professorship in the Ruiz Department of Ophthalmology and Visual Science. Dr. Kellaway focuses her clinical practice on treatment of the retina, specifically in patients with diabetes and trauma, and general ophthalmology. In addition to her clinical practice, she is director of the residency program and an advocate for medical and premedical students.

A clinical assistant professor of vitreoretinal diseases and surgery, Dr. Garvin Davis graduated from Johns Hopkins School of Medicine and completed his residency at Wills Eye Hospital at Jefferson University in Philadelphia,
followed by fellowships in public health in ophthalmology at the Dana Center for Preventive Ophthalmology, Wilmer Eye Institute in Baltimore, and in vitreoretinal surgery and diseases at Baylor College of Medicine. Dr. Davis also holds a master’s in public health from Johns Hopkins School of Public Health.

Dr. David Lee is internationally recognized for his expertise in the diagnosis and treatment of glaucoma. He received his medical degree from Boston University School of Medicine, followed by residency at Mayo Graduate School of Medicine in Rochester, Minnesota, and a fellowship at Massachusetts Eye and Ear Infirmary at Harvard Medical School. A clinical professor in the Ophthalmology department, Dr. Lee serves as an examiner for the American Board of Ophthalmology. His recognitions include the American Academy of Ophthalmology’s Honor and Senior Honor Awards and listing among The Best Doctors in America since 1986. He holds four patents and has published seven books and more than 200 scientific articles in peer-reviewed journals.

Dr. Nan Wang specializes in the medical and surgical treatment of corneal and anterior segment eye diseases. Her expertise includes all types of corneal transplantation, cataract surgery and vision correction surgery. A clinical associate professor of ophthalmology, Dr. Wang has extensive research experience and a strong research interest in biochemical and biophysical properties of the eye. She received her medical degree and doctorate in biochemistry at Baylor College of Medicine, and completed her residency and a fellowship at the same institution. She is director of the cornea and anterior segment section at the Cizik Eye Clinic. Fluent in Mandarin, she is active in Houston’s Chinese community where she participates in public education activities about eye disease and proper eye care. She is the Walker and Ruth Sterling Professor in Ophthalmology at UTHealth Medical School.

Moran Pediatric Eye Clinic Celebrates Grand Opening

The new Moran Pediatric Eye Clinic held its grand opening in May 2014 in 3,000 square feet of newly built-out space on the 19th floor of the Memorial Hermann Medical Plaza, one floor above the Robert Cizik Eye Clinic at Memorial Hermann-Texas Medical Center. The clinic was made possible by a generous gift from the W. H. and Louise Moran Foundation in Houston.

In addition to the clinic, the space houses the offices of pediatric ophthalmologists Helen A. Mintz-Hittner, M.D., the Alfred W. Lasher III Professor of Ophthalmology in the Ruiz Department of Ophthalmology and Visual Science at UTHealth Medical School, and Kartik Kumar, M.D., a clinical assistant professor in the department.

Physicians see cases ranging from blocked tear ducts, styes and chalazions to retinopathy of prematurity. Amblyopia and pediatric cataracts are also treated, along with vision screenings and treatment of common pediatric eye conditions.

To schedule an appointment, call 713.559.5200.

The colorful waiting area and an exam room in the Moran Pediatric Eye Clinic.
Because ophthalmology is treated as a subspecialty of surgery in medical school, ophthalmology residents begin their training program with only a basic knowledge of their chosen specialty. At UTHealth Medical School, they spend part of their first year of residency in the Basic Science Course in Ophthalmology, created in 1969 by the Ruiz Department of Ophthalmology and Visual Science.

Residents from across North America attend the course, which covers basic and surgical anatomy, embryology, electrophysiology and ultrasound, pediatric ophthalmology, biochemistry, low vision, optics, contact lenses, refraction, genetics, pathology, immunology, retina, glaucoma, visual fields, external disease, orbit and oculoplastics and neuro-ophthalmology. It prepares residents for the Ophthalmic Knowledge Assessment Program (OKAP®) exam, a 250-item multiple-choice test designed to measure the ophthalmic knowledge of residents, relative to their peers, to facilitate the ongoing assessment of resident progress and program effectiveness.

Lectures, which emphasize the application of basic scientific principles to clinical situations, are presented by ophthalmologists from UTHealth Medical School and from other ophthalmology programs around the country. Designed primarily for residents in training, the course is also available as a refresher for practitioners and as a general information course in ophthalmology for allied health professionals.

In the Media

Cosmetic Contacts Too Scary for Halloween. Gene Kim, M.D., clinical assistant professor, appeared on CW 39 to discuss the hazards of using cosmetic contacts lenses as part of Halloween costumes. The inexpensive lenses put people at risk of infection, ulceration, long-lasting vision loss and even blindness. October 7, 2014.

Winning the War Against Aging. Wrinkle fillers have dramatically changed the war against aging over the past 20 years. While a facelift is an effective solution to wrinkles, people are now pursuing less-invasive alternatives. Karina Richani, M.D., a clinical assistant professor who specializes in oculoplastics and facial surgery, was interviewed on Univision 45 discussing wrinkles and fillers. September 27, 2014.

UTHealth’s Dr. Bhavani Iyer Awarded SightFirst Grant to Help Patients with Low Vision. Low vision specialist Bhavani Iyer, O.D., FAAO, received a three-year $164,645 grant to help Harris County residents with vision problems that cannot be corrected with eyeglasses, medication or surgery. News coverage appeared on the BioNews Texas website. July 18, 2014.

Selected Publications


Correction

Margaret E. Phillips, M.D., is a fellow in training of the American Society of Ophthalmic Plastic and Reconstructive Surgeons. In the last issue of the Memorial Hermann Ophthalmology Journal we erroneously reported that Dr. Phillips is a member of the ASOPRS.


**Abstracts**


**Book Chapters**


**Lectureships**

Presentations


Hittner H. Retinopathy of Prematurity—Pathophysiology and Epidemiology; Retinopathy of Prematurity—Peripheral Retinal Ablation versus Vascular Endothelial Growth Factor Inhibition. Invited speaker at the Annual Symposium: 34 Years of Advances and Controversies in Neonatal Medicine. Vanderbilt University School of Medicine Division of Neonatology, Nov. 13-14, 2014, Nashville, Tenn.

Hittner H. Use of Intravitreal Bevacizumab for Stage 3+ ROP or Aggressive ROP. Grand Rounds at Idaho Falls Hospital, June 19, 2014, Idaho Falls, Idaho.


Jin N, Ribelayga CP. Rod photoreceptor coupling is controlled by a circadian clock and dopamine in mouse retina. Invited presentation at the Neuroscience Research Center 20th Annual Neuroscience Poster Session, Baylor College of Medicine/William M. Rice University/UTHealth Medical School Neuroscience Research Center, Dec. 8, 2013, Houston.


Ribelayga CP. A circadian clock and dopamine control rod electrical coupling in mouse retina.

Zhang Z, Ribelayga C. Circadian clocks are essential for normal retinal development and visual function. Neuroscience Research Center 20th Annual Neuroscience Poster Session, Baylor College of Medicine/William M. Rice University/UTHealth Medical School Neuroscience Research Center, December 8, 2013, Houston.


Christophe Ribelayga, Ph.D., has been awarded the Certificate of Appreciation for Outstanding Performance and Lasting Contribution to Problem-based Learning from the UTHealth Medical School in Houston. He also received a travel award from the Federation of the American Societies for Experimental Biology (FASEB) Summer Research Conference “Retinal Neurobiology and Visual Processing” held in Saxtons River, Vermont, in June 2014. Dr. Ribelayga is a member of the Communications Working Group of the Association for Research in Ophthalmology and Vision.

**Grants**

**Robert M. Feldman, M.D.**
Site principal investigator for African Descent and Glaucoma Evaluation Study (ADAGES) III: Contribution of Genotype to Glaucoma Phenotype in African-Americans; NEI-5R01EY023704; August 2014 to present. Sub-investigators: Nicholas Bell, M.D., and Lauren Blieden, M.D.

**David A. Lee, M.D.**
Principal investigator for EYEGUARD C: A Randomized, Double-masked, Placebo-controlled Study of the Safety and Efficacy of Gevokizumab in the Treatment of Subjects with Non-infectious Intermediate, Posterior or Pan-uveitis Currently Controlled with Systemic Treatment; XOMA; February 2014 to present. Sub-investigators: Nicholas Bell, M.D., Lauren Blieden, M.D., Robert Feldman, M.D., Garvin Davis, M.D., and Alla Kukuyev, M.D.

Principal investigator for EYEGUARD A: A Randomized, Double-masked, Placebo-controlled Study of the Safety and Efficacy of Gevokizumab in the Treatment of Active Non-infectious Intermediate, Posterior or Pan-uveitis; XOMA; February 2014 to present. Sub-investigators: Nicholas Bell, M.D., Lauren Blieden, M.D., Robert Feldman, M.D., Garvin Davis, M.D., and Alla Kukuyev, M.D.

**Bhavani Iyer, O.D., FAAO**
Lions Club International Foundation SightFirst Grant, Harris County Low Vision Project

**Steve Mills, Ph.D.**
Principal investigator of Blue-green Pathways in the Mammalian Retina; NEI-2R01EY10121; 2014-2019.

**Steve Massey, Ph.D.**
Principal investigator of Neurotransmitter Mechanisms in the Mammalian Retina; NEI-2R01EY006515, 2014-2018.
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