



PERSPECTIVE

2014 ANNUAL REPORT

UAB MEDICINE

CALLAHAN EYE HOSPITAL
DEPARTMENT OF OPHTHALMOLOGY



Our Vision for the Future

Eyesight is a precious and priceless gift. A recent study by Research!America reveals that Americans rank the loss of sight among the leading threats to independence and quality of life, in many cases listing it ahead of cancer, Alzheimer's disease, HIV/AIDS, and even the loss of limb.

UAB Callahan Eye Hospital and the UAB Department of Ophthalmology are closely aligned and firmly committed to making a difference in the eye health of our community, the state, and the country. We've received national and international recognition for our ability to treat eye trauma, deliver outstanding and innovative patient care, conduct advanced research, and train the next generation of ophthalmologists.

Our mission is clear, and we have the science and expertise to fulfill it. However, the next few decades will present unique challenges. The prevalence of vision loss is expected to double in the United States by 2050, from 4.4 million people to 10 million-plus, according to Prevent Blindness America, a leading eye health and safety research group. It also projects that the total prevalence of cataract, diabetic retinopathy, glaucoma, and advanced age-related macular degeneration will increase 77% to impact 70 million adults by 2050.

We will respond by continuing to develop breakthrough techniques and cultivate knowledge and talent in an effort to suppress this troubling projection. Funding is crucial, though, and we would not be able to carry out our mission without the generous support of our dedicated funding partners. These include individual donors, alumni, and organizations such as The EyeSight Foundation of Alabama, the International Retinal Research Foundation, and Research to Prevent Blindness. Throughout this report, you will find examples of how philanthropy has empowered us to deliver more advanced patient care and develop solutions to mitigate the growth of eye disease. So, a sincere thanks to each of you for the contributions that help us help others.

Thank you for reading *Perspective* to learn more about our accomplishments and our vision for the future of UAB Ophthalmology. Please let us know if we can be of service.

Sincerely,

Handwritten signature of C. Brian Spraberry in blue ink.

C. Brian Spraberry, M.S.H.A.

*President & Chief Executive Officer
UAB Callahan Eye Hospital*

Handwritten signature of Christopher A. Girkin in blue ink.

Christopher A. Girkin, M.D., M.S.P.H., F.A.C.S.

*EyeSight Foundation of Alabama Chair,
UAB Department of Ophthalmology
Chief Medical Officer, UAB Callahan Eye Hospital*

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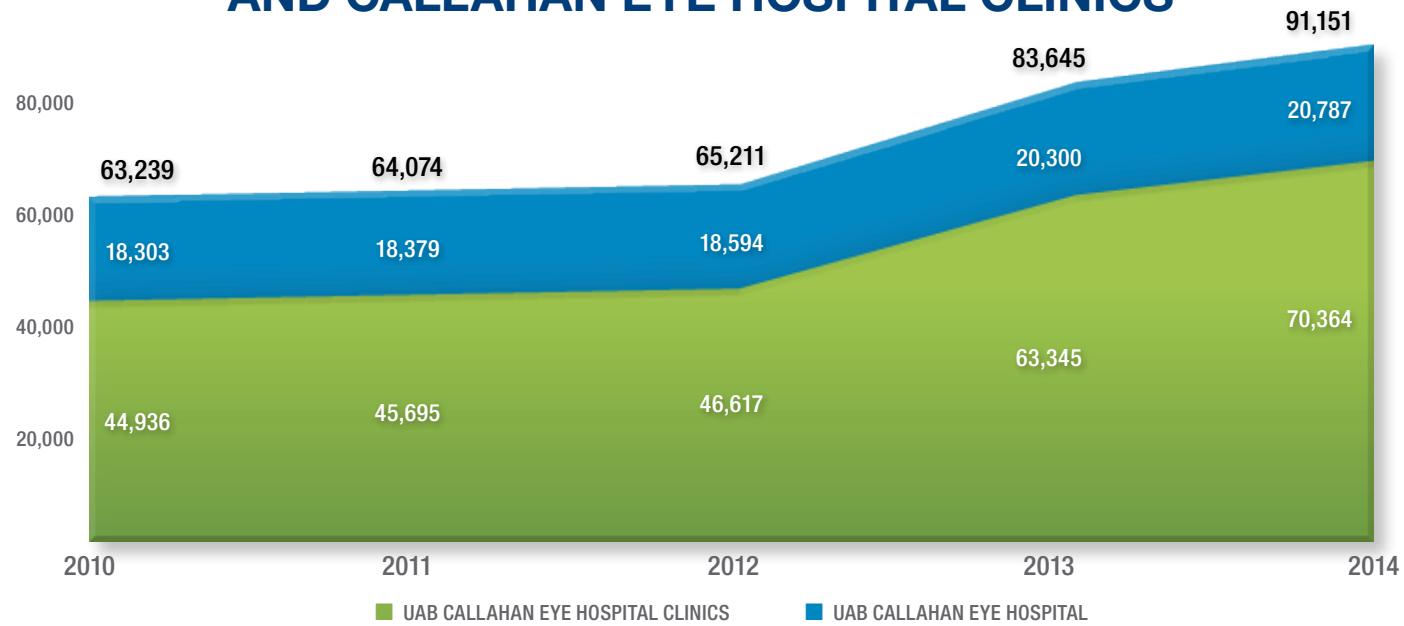
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PERSPECTIVE

GROWTH:

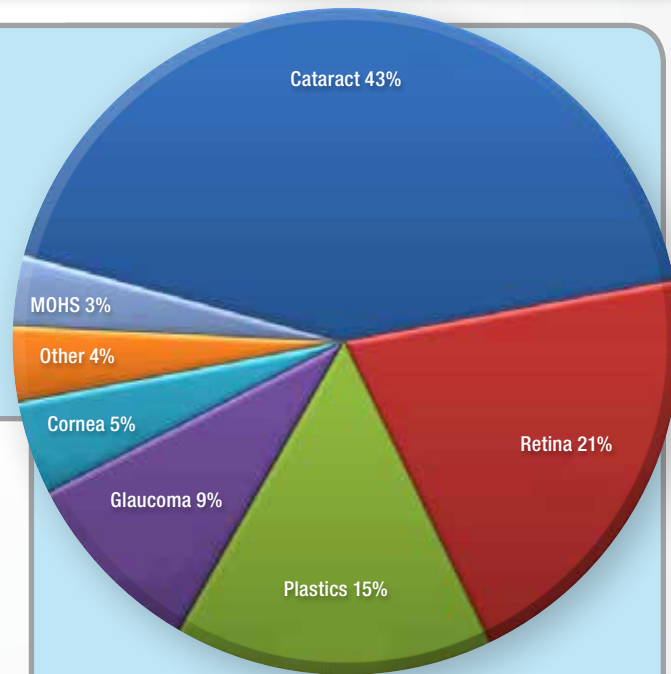
In order to meet the growing demand for eye care, UAB Ophthalmology has undergone a period of growth focused on expanding access to care for patients and investing in promising lines of research.

PATIENT VOLUME GROWTH FOR CALLAHAN EYE HOSPITAL AND CALLAHAN EYE HOSPITAL CLINICS



SURGERY BREAKDOWN BY TYPE

Surgery procedures at UAB Callahan Eye Hospital range from general ophthalmic cases such as cataract surgery to more complex retina and cornea procedures such as temporary keratoprosthesis vitrectomy (TKP) and radioactive implants for the treatment of ocular melanoma. In the past five years, glaucoma cases have increased **77%**, cornea cases are up **62%**, and retina cases have risen **46%**.



OVER 11K
OR SURGERY CASES
IN 2014

PEDIATRICS

Nearly tripled pediatric* patient case volume in the past five years because our anesthesiologists are specialty trained to treat patients under the age of 2.

3X
INCREASE

*Pediatric is defined as ages 1-8.

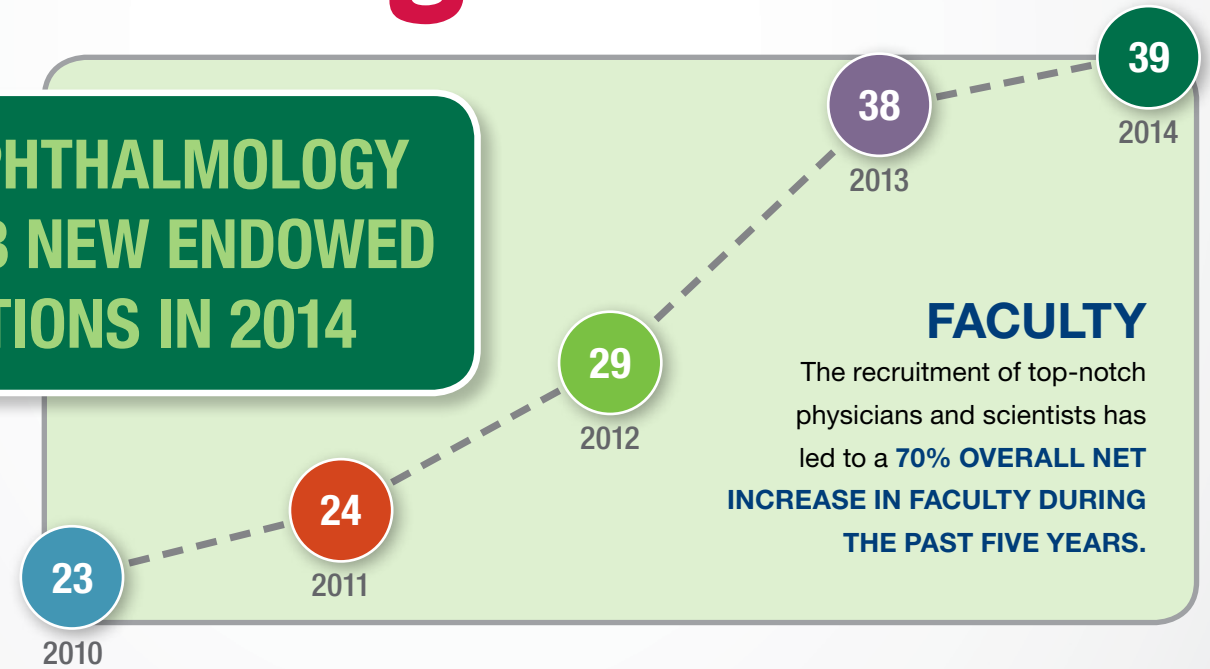
55% GROWTH

RESEARCH

55% GROWTH in number of publications by faculty members during the past five years. In 2014, faculty published in the following areas:

Eye Movements
Health Disparities
Imaging
Ocular Trauma
Vitreous
Uveitis
Neuro-Ophthalmology
Macular Degeneration
TBI
Low Vision
Glaucoma
Health Services
Retina
Vision Impairment

UAB OPHTHALMOLOGY ADDED 3 NEW ENDOWED POSITIONS IN 2014



FACULTY

The recruitment of top-notch physicians and scientists has led to a **70% OVERALL NET INCREASE IN FACULTY DURING THE PAST FIVE YEARS.**

31% INCREASE
Renewed focus and investment in research has translated to a **31% INCREASE** in NIH funding in five years.
IN NIH FUNDING

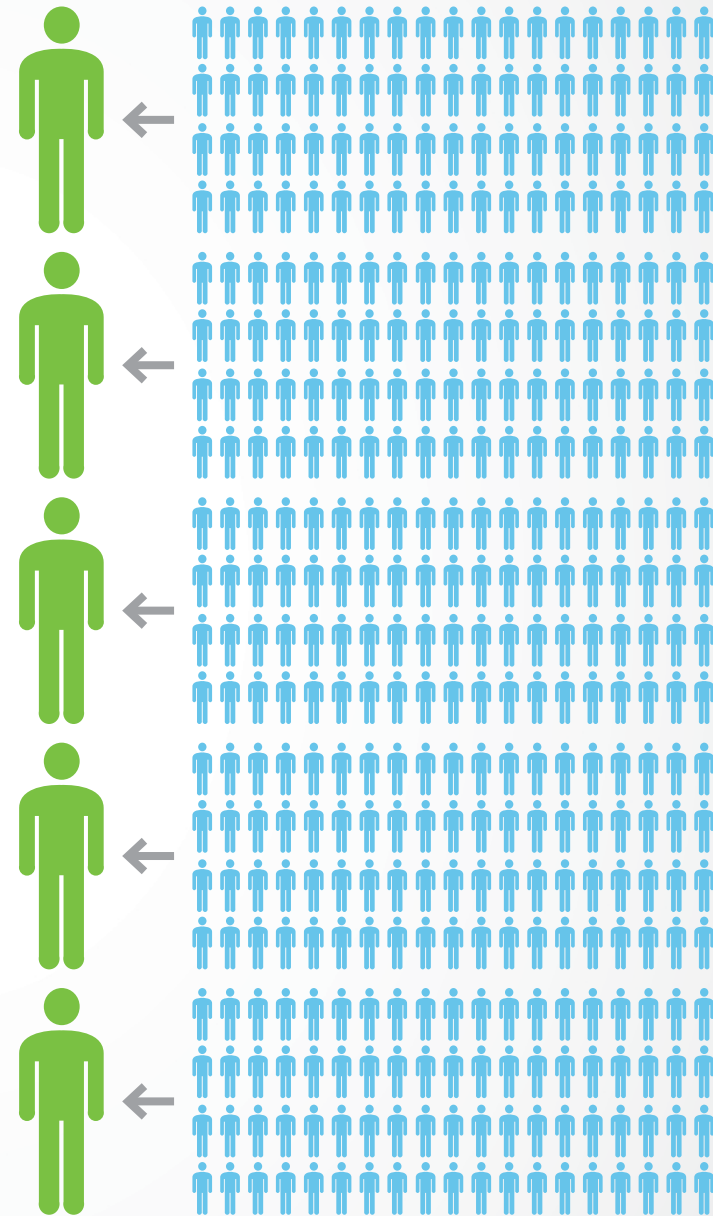
WHO WE ARE:

Together, the experts at UAB Callahan Eye Hospital and UAB Department of Ophthalmology are translating knowledge from bench to bedside to treat eye disease and improve eye health.

DEDICATED EYE CARE FACILITY

OVER 11K	11,095 OR surgery cases in 2014
1 IN 4	1 in 4 cases at UAB Medicine is performed at UAB Callahan Eye Hospital
9	9 operating rooms dedicated to eyes
96	96% of surgeries completed by 5 pm
1 OF 2	Home to 1 of only 2 Level 1 Ocular Trauma Centers in the nation

In 2014 we received **MORE THAN 380 APPLICATIONS** for **5 RESIDENCY SPOTS**



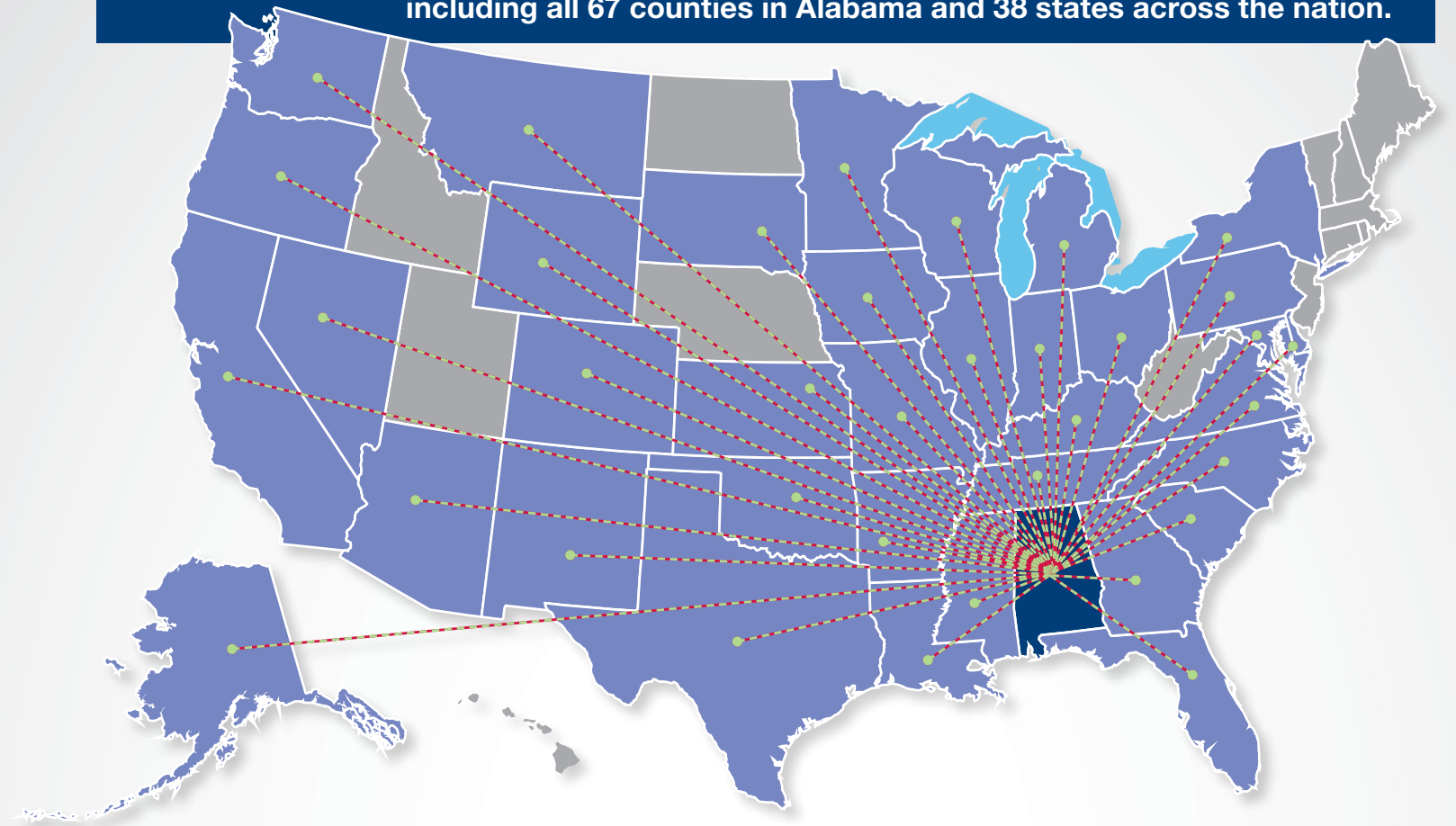
A VISION FOR OUR COMMUNITY

Over the past five years, UAB Callahan Eye Hospital and Clinics has contributed nearly \$14.9 million* in assistance for eye care and treatment of the underserved, underinsured, and indigent populations. We partner with The EyeSight Foundation of Alabama, which provides some offsetting support for charitable work.

*Excludes pro bono work performed by our faculty and medical staff. Calculated from audited financial statements.

\$14.9M

Patients come to UAB Callahan Eye Hospital and Clinics from near and far, including all 67 counties in Alabama and 38 states across the nation.



PATIENT SATISFACTION

TOP 5% NATIONALLY

UAB Callahan Eye Hospital consistently ranks among the top 5% nationally in patient satisfaction for our Emergency Department. In fact, we have the highest patient satisfaction scores in the state of Alabama.

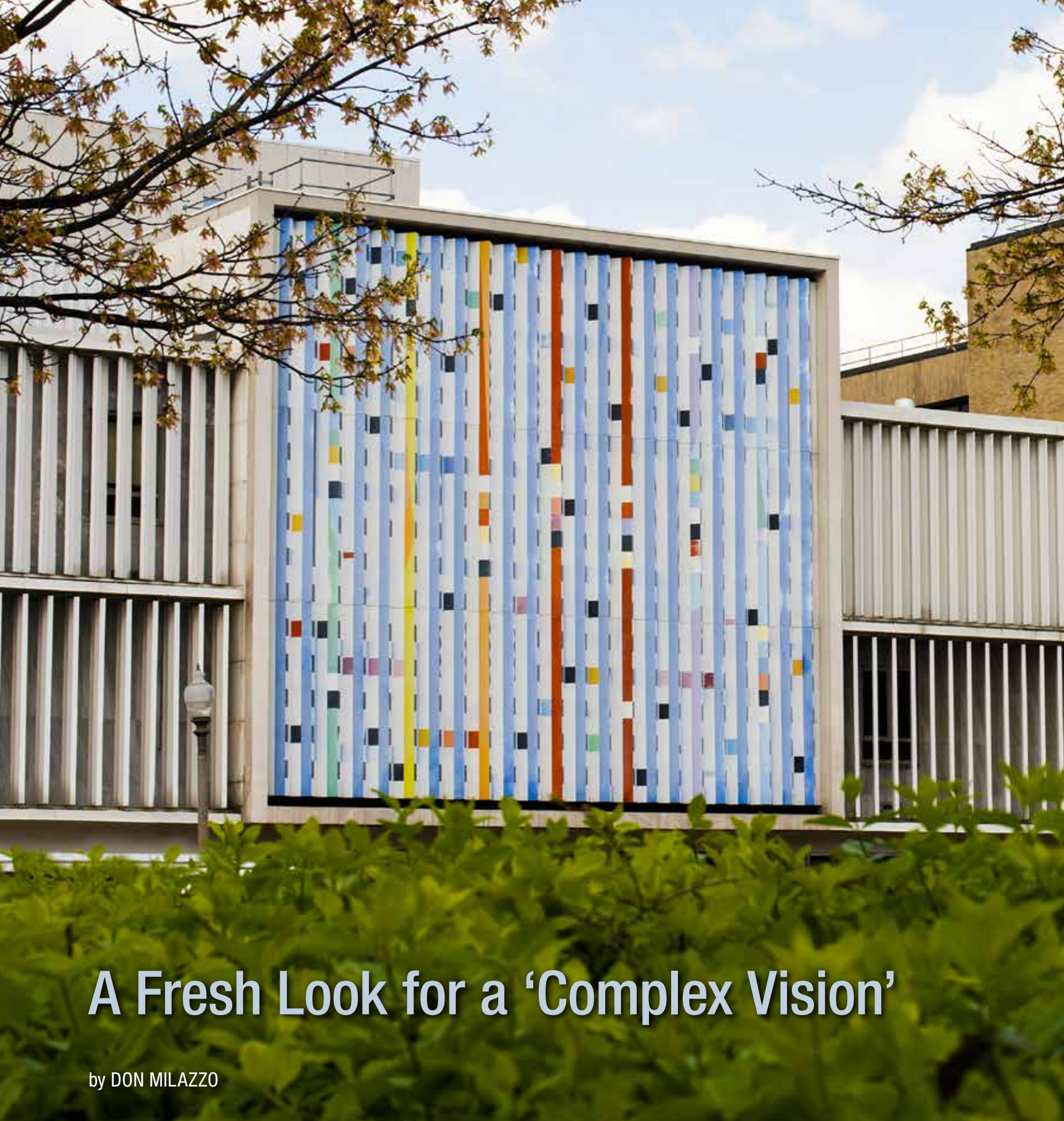
UAB AT A GLANCE

80% OF ALABAMA DOCTORS ARE TRAINED AT UAB

NUMBER OF EMPLOYEES: **23,000+**

AMC LARGEST ACADEMIC MEDICAL CENTER IN ALABAMA & ONE OF THE LARGEST IN THE UNITED STATES

ECONOMIC IMPACT: **\$5 BILLION ANNUALLY**



A Fresh Look for a ‘Complex Vision’

by DON MILAZZO

The colorful but weathered panels that have adorned UAB Callahan Eye Hospital since 1976 spent most of 2014 in Florida, where they are undergoing extensive restoration.

Those panels make up “Complex Vision,” one of the earlier examples of kinetic art as envisioned by Israeli artist Yaacov Agam, who in the mid-1950s began establishing himself as an early pioneer of optical and kinetic sculpture. Most of these works, including

“Complex Vision”, present different images depending on the viewer’s position.

Nearly 40 years of sun exposure have taken a toll on the sculpture, leaving it badly faded. In April 2014, an Agam-approved art restorer traveled to Birmingham to supervise the removal and transport of the sculpture to undergo restoration.

“Many patients come to our facility with cloudy vision and cannot see shapes and colors because of their eye disease. Dr. Callahan wanted patients to have the experience of seeing very colorful fine art after surgery. This sculpture was commissioned as his gift to them.”

– Brian Spraberry
President & CEO, UAB Callahan Eye Hospital



Michael A. Callahan, M.D., and Brian Spraberry consult with artist Yaacov Agam on the restoration of “Complex Vision”.

A DETAILED RESTORATION

“Complex Vision” is composed of 69 aluminum panels, each measuring 13 inches wide by nearly 10 feet high and weighing upward of 50 pounds. Local benefactors Marvin and Ruth Engel helped fund the original piece as a memorial to their parents, former patients of Callahan Eye Hospital. The Engel family is now involved in the restoration as well, providing support from The Engel Family Advised Fund. Other restoration supporters include our foundation partners, the International Retinal Research Foundation, and The EyeSight Foundation of Alabama, along with individual and employee donors.

Rehabilitating such a massive installation is a detailed process, and the restoration involved many steps before the first panel came down. Color samples were taken from the faded panels and used as a starting point in mixing the paint colors. A maquette, or small model, of “Complex Vision” – which belonged to the Engel family and was prepared by Agam himself prior to starting the genuine article in the mid-1970 – was used for reference to preserve the original integrity of the artwork. Agam will re-sign the work when restoration is complete.

UAB Callahan Eye Hospital President and CEO Brian Spraberry said he is excited to see “Complex Vision” being restored. Spraberry likens the process to the renewed vision that occurs frequently at Callahan,



POWERFUL PARTNERSHIPS

International Retinal Research Foundation

Since its inception in 1997, the International Retinal Research Foundation (IRRF) has been committed to accelerating and sustaining targeted research into the many diseases that affect structures within the human eye.



Sandra Blackwood,
Executive Director

The IRRF was co-founded by Callahan Eye Hospital founder and namesake Alston Callahan, M.D., and the inherent bond between the two organizations fueled a rich history of collaboration in both science and mission support. In fact, the IRRF awarded Callahan Eye Hospital an unrestricted gift to perpetuate Dr. Callahan’s legacy; that generous support was leveraged with other donations to fund the restoration of “Complex Vision” by Yaacov Agam, the large kinetic art installation that has adorned the façade of Callahan Eye Hospital since 1976.

IRRF Executive Director Sandra Blackwood and Board President Michael A. Callahan, M.D., have been heavily involved in the restoration effort in honor of Dr. Callahan, who wanted patients to have the pleasant experience of seeing colorful fine art following surgery. The sculpture was commissioned as his gift to them. It was removed and restored in 2014 and is scheduled for rededication in spring 2015.

Visit irrfonline.org to learn more.

which incidentally mirrors the original motivation of the hospital’s namesake Alston Callahan, M.D., a patron of the arts who commissioned the piece in the 1970s. “Many patients come to our facility with cloudy vision and cannot see shapes and colors because of their eye disease,” Spraberry said. “Dr. Callahan wanted patients to have the experience of seeing very colorful fine art after surgery. This sculpture was commissioned as his gift to them.”

The restored artwork will be reinstalled at Callahan and rededicated in spring 2015. Patients and passersby will again have the opportunity to visually interact with the treasured landmark the way it was originally intended.

Agam, 86, lives in Paris and continues to practice his art. During his 60-plus-year career he has produced a wide variety of works in many mediums, including tile, stained glass, stainless steel, yarn, bubbles, fire and water fountains, and even jewelry. He’s painted entire buildings. Examples of his kinetic art, similar to “Complex Vision” at Callahan, can be seen in the world’s finest museums.

PATIENT CARE



Teamwork Saves a Child's Vision for Life

by BOB SHEPARD



Christopher Girkin, M.D., with patient Jalen Powell.

One evening, five years ago, Brittni Powell did what a lot of young mothers do and gazed into her 2-month-old son's eyes. What she saw had Brittni and her husband Byron heading immediately to a Montgomery-area hospital emergency department.

"We looked into his eyes and they had this gray, glazy tone to them," Powell recalled. "We knew that wasn't right."

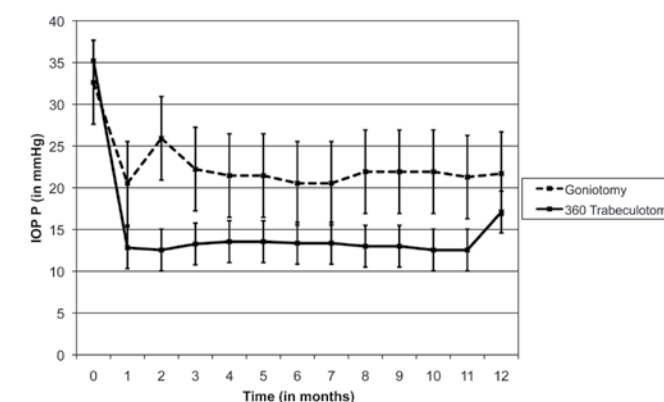
Staff at the hospital emergency room weren't sure what they were seeing. They sent the Powells to the Callahan Eye Hospital at the University of Alabama at Birmingham. The pressure in young Jalen Powell's eyes was well beyond appropriate levels, and UAB glaucoma specialist Christopher Girkin, M.D., was called.

"Jalen was dealing with pediatric glaucoma," said Girkin, who is chair of the UAB Department of Ophthalmology.



“We see a lot of complex eye disorders where there will be two or three surgeons working on one child’s eye... Fix the eye of a child and they see for the rest of their life.”

– Christopher Girkin, M.D.



Mean change in interocular pressure for up to 12 months following surgery. The interocular pressure after the new 360-degree trabeculotomy procedure is significantly lower than with traditional goniotomy.

Cogen tightened the muscles of the left eye to help in its alignment.

“Jalen is doing better than average, and I expect him to continue being a star player for the future,” Cogen said. “In his last exam, he was seeing perfectly normally in both eyes. Both eyes were straight, and they were working together. I think he’s back on track.”

“Now that he’s older, we come up to the Callahan Eye Hospital once a year just to keep track of his vision and to check the pressure to make sure the glaucoma hasn’t come back,” Brittini Powell said.

That’s not likely, according to Girkin. Jalen may need glasses or contacts, but the quick reaction by his parents saved him from serious vision problems.

Signs of pediatric glaucoma include the haziness the Powells noticed, along with pain, excessive tears, light sensitivity, whitening of the cornea, and enlargement of the eye. It’s a medical emergency that needs to be treated by appropriate medical professionals at once.

The Callahan Eye Hospital, the only specialty eye hospital in Alabama, is uniquely equipped to handle complex cases such as Jalen’s.

ADVANCED EXPERTISE



MD Learning Channel

UAB’s MD Learning Channel offers valuable educational opportunities that share the knowledge generated by UAB Ophthalmology. Watch Christopher Girkin, M.D., M.S.P.H., F.A.C.S., Professor and Chairman of the UAB Department of Ophthalmology and Chief Medical Officer of UAB Callahan Eye Hospital, discuss pediatric glaucoma treatment outcomes with the innovative 360-degree trabeculotomy procedure.

Watch the video at uabmedicine.org/perspective

Girkin notes Jalen was the first patient at UAB to undergo a 360-degree trabeculotomy with an illuminated micro catheter, which UAB research has recently shown to be superior to traditional goniotomy.

“Our faculty are specialists in every aspect of the eye. We have retina specialists, cornea specialists and glaucoma specialists, who focus on different parts and different diseases of the eye,” Girkin said. “We see a lot of complex eye disorders where there will be two or three surgeons working on one child’s eye — one on the retina, another on the lens or the cornea or the drain — trying to get a severely damaged eye to function again in the youngest of our patients. Fix the eye of a child and they see for the rest of their life. That’s a great impact.”

Brittini and Byron Powell agree.

“This is the place to come,” Brittini Powell said. “I back this hospital 1,000 percent. I love this place.”



Top: Martin Cogen, M.D., evaluates Jalen’s vision. Bottom: Jalen with his parents, Byron and Brittini Powell.

“It’s uncommon, but in some children the drain of the eye does not form properly. It clogs, causing the pressure to go up very high, which can lead to massive damage to the optic nerve.”

Left untreated, pediatric glaucoma can lead to blindness within weeks or months of onset. Fortunately, it is relatively rare, about one in 10,000 births. The best news is that it can be treated.

“We have surgical procedures that can open the drain of the eye and stabilize the pressure,” Girkin said. “If done

early, within the first few weeks or months of life when the disease has just started and hasn’t done a lot of permanent damage, you can cure pediatric glaucoma and enable a child to develop normal vision.”

Girkin successfully operated on both of Jalen’s eyes the day after his arrival at the Callahan Eye Hospital, but that was just the start of Jalen’s involvement with UAB ophthalmologists. While Jalen had glaucoma in both eyes, the left was worse than the right. That led to amblyopia, or lazy eye.

“One of the problems with many eye diseases in children is that, if the eyes get off to a slightly different start, then the developing brain in a young child tends to favor the dominate eye very quickly,” said Martin Cogen, M.D., a pediatric ophthalmologist at UAB. “The brain thinks this is the new normal. The good eye develops as it is supposed to, but the other eye gets ignored and left behind.”

So it was with Jalen. The Powells made regular trips to Callahan to see Girkin and Cogen, while the physicians worked to balance vision in both eyes. Cogen had to patch the good eye to let the weaker left eye catch up. Ultimately, Jalen underwent another operation, where



Eye Trauma Care Available 24/7

by BOB SHEPARD

Fourth of July 2013: Family members were shooting fireworks in the backyard of Dianne Peterson's home in Vincent, Alabama, as she walked out of the house.

"As I stepped out the back door, they were saying a firework went off; but they didn't know which way it went," Peterson said. "Then it hit my eye."

The damage to her left eye was severe. Peterson suffered a full laceration of the cornea along with bleeding and debris in the back of the eye and damage to the iris. She had a cataract caused by the trauma of the bottle rocket's impact.

"Fireworks injuries are an emergency," said Jay McCollum, M.D., an ophthalmologist and director of emergency services at the UAB Callahan Eye Hospital. "They can run the spectrum from a minor injury right up to loss of vision or the loss of the eye."

Peterson's local hospital sent her to Callahan that night, where eye surgeons Priscilla Fowler, M.D., and Doug Witherspoon, M.D., were still on duty. Instead of enjoying a Fourth of July celebration, she was undergoing surgery at midnight.



Priscilla Fowler, M.D., examines Dianne Peterson in a follow-up appointment.

"We're fortunate to have a 24-hour emergency room and the ability to do surgery relatively quickly," said Fowler, an assistant professor in the UAB Department of Ophthalmology and director of the cornea service. "We were able to do surgery that night; many places don't have those capabilities. I think that had a lot to do with our success with Mrs. Peterson. Now she is able to wear a contact lens and achieve vision of 20/40, which, given the severity of her injuries, is an excellent result."

Peterson is one of the lucky ones. Some 8,700 people were injured by fireworks in 2012, according to the Consumer Product Safety Commission, with most of those occurring in the 30-day period before and after the Fourth of July. More than 1,000 of those suffered injuries to the eye.

"We're the only eye emergency room in the state of Alabama and one of only a handful in the country. We're available 24/7, and if there is a question about an eye injury of any kind, we encourage people to come in and let us take a look."

— Jay McCollum, M.D.

"Being a cornea specialist, I've seen too many injuries related to fireworks," Fowler said. "And many of these occur in children and innocent bystanders and result in permanent vision loss."

The UAB Callahan Eye Hospital is the safety sponsor for Birmingham's Thunder on the Mountain fireworks show, and hospital officials strongly recommend that professional shows are the best way to enjoy fireworks.

"It's better to just leave the fireworks alone and go to a show like Thunder on the Mountain and let the professionals do it," McCollum said. "That's the safest thing."

But a doctor's recommendation won't be enough to stop everyone from using fireworks. The American Pyrotechnics Association says Americans spend \$940 million each year on fireworks. Doctors at Callahan Eye Hospital know they'll be busy on Independence Day, and they are ready.

"We have the equipment, the staff, and the surgical backup to deal with any type of eye injury," McCollum said. "We're the only eye emergency room in the state of Alabama and one of only a handful in the country. We're available 24/7, and if there is a question about an eye injury of any kind, we encourage people to come in and let us take a look."

Peterson said there won't be any fireworks at her house this year. She's always known they were dangerous, but as so often happens, she didn't expect an injury to happen to her.

"I never dreamed that when I stepped out the back door that day, something like that would happen," she said. "They were doing the fireworks, and I said, 'Guys, we really have to be careful.' I have two small grandkids. I hate that it happened to me, but I'd rather it be me than the children."



ADVANCED EXPERTISE

Pioneers in Eye Trauma

The standard for ocular trauma care used around the world originated in one of the busiest eye care centers in the nation, UAB Callahan Eye Hospital. It is one of just two Level 1 ocular trauma centers in the nation with a 24/7 eye emergency department, so trauma care providers across the state and region rely on UAB expertise to give patients the best possible outcomes in restoring their sight.

More than 5,200 patients were treated for eye emergencies at UAB Callahan Eye Hospital in 2014, with injuries ranging from minor trauma such as corneal foreign bodies to more extensive injuries such as open globe trauma that required immediate, complex surgical care in our operating room. In fact, temporary keratoprosthesis vitrectomy (TKP), the most advanced form of eye trauma reconstructive surgery, was pioneered and perfected at UAB Callahan Eye Hospital. Few centers in the nation perform this procedure.

Numerous eye trauma associations and resources have been organized by UAB ophthalmologists or are headquartered at Callahan Eye Hospital including:

- The American Society of Ocular Trauma
- The United States Eye Injury Registry
- The International Society of Ocular Trauma
- World Eye Injury Registry

UAB CALLAHAN EYE HOSPITAL
LEVEL 1 OCULAR TRAUMA
24-7/365

Located on the first floor of the UAB Callahan Eye Hospital, the UAB Eye Emergency Department provides the only 24/7 emergency department totally dedicated to eye emergencies and eye trauma in Alabama and one of only two in the nation.



“New knowledge, new techniques, and specialized tools have been created to better manage eye trauma. Surgeons here have demonstrated that cases deemed hopeless by others may be at least partially repairable.”

– Doug Witherspoon, M.D.

Kendrick’s case wasn’t hopeless, but it was severe. “It’s a potentially blinding injury, and he was legally blind for a number of weeks afterward,” Witherspoon said. “We had to treat him pretty intensively with powerful anti-inflammatory medications. He didn’t require surgical treatment, although that was a possibility early on.”

And Witherspoon prescribed rest. Lots of rest. Kendrick spent a week in bed, avoiding any stress on his eye. He wasn’t allowed to read or to move about. He couldn’t even sneeze without risk to the slowly healing tissue in his left eye.

Kendrick couldn’t see anything with that eye for the first couple of days. As vision returned, the eye first was rated 20/200, the threshold to be declared legally blind. As the medications and rest worked, his vision improved to 20/80 and then plateaued. After three weeks at 20/80, Kendrick began to doubt whether he would experience any further improvement.

I had improved to 20/30,” he said. “Without a frame of reference, I hadn’t even realized. I’m now at 20/20, but it took four months from the date of the injury to get back to 20/20.”

And Kendrick is back on the baseball diamond, slowly returning to the game he loves. He wears shatter-resistant lenses now to protect his eyes. His first couple of times in the batter’s box were tough.

“It took me about a week or two of seeing a ball coming at me again to get comfortable,” Kendrick said. “I remember flinching at a couple of balls that were nowhere close to me, but now I’m feeling a lot better.”

Kendrick is at risk for vision issues as he gets older due to the injury. He’ll need to be closely monitored for glaucoma and retinal tear detachment. He’s got that covered — his father is an optometrist, and Kendrick is planning a career in optometry as well. His experience as an eye patient at UAB has given him a unique perspective.

“It made me realize how amazing the eye is — to go from where I was to where I am now,” he said. “From not being able to see my finger in front of my face to seeing everything the way I could before, that’s pretty amazing.”

Kendrick will wear protective lenses for the rest of his baseball career, and he recommends them for all athletes in any sport. Witherspoon echoes that recommendation.

“Wear eye protection at every chance you can,” he said. “Seek professional help immediately if there is a suspicion of significant eye injury, and then follow your doctor’s advice after that.”

👁️ A Baseball Player’s Story

by BOB SHEPARD

“It was just another regular day of practice, and we were doing some bunting drills,” Meade Kendrick said.

He’s a red-shirt freshman baseball player at Samford University. Those drills took place during fall practice last year, when Kendrick’s baseball career almost came to an end.

“It was my last bunt of the day, and the pitching machine kind of threw me a pitch that was up and in a little,” he recalled. “It hit the top of my bat and went straight to my eye.”

The ball hit directly on Kendrick’s left eye. It smashed the orbital bone and did severe damage to the retina and surrounding tissue. Kendrick fell back against the batting cage and put his hand to his eye.

“Coach told me to take my hand off my face, and it was just covered in blood,” Kendrick said. “He asked me to open my eye, and when I did, I didn’t see anything, just pure white. I remember asking if my eye was open, and he said ‘Yes.’ That’s when I knew something was wrong.”

“He had what is called a severe closed-globe injury to the eye,” said Doug Witherspoon, M.D., a professor in the University of Alabama at Birmingham Department



Meade Kendrick’s vision is regularly evaluated by Doug Witherspoon, M.D.

of Ophthalmology. “It’s basically a blunt-force injury, a severe contusion injury to the eye from the impact of the baseball that he was bunting.”

Kendrick was referred to Witherspoon after first going to the UAB Callahan Eye Hospital emergency room, the only 24-hour, seven-day-a-week ocular emergency facility in Alabama.

Witherspoon, an international expert in eye trauma, directs the hospital’s Ocular Trauma Center, one of only two such centers in the nation, as designated by the American Society of Ocular Trauma.

“We have developed unprecedented expertise through the volume of patients treated,” Witherspoon said. “New knowledge, new techniques, and specialized tools have been created to better manage eye trauma. Surgeons here have demonstrated that cases deemed hopeless by others may be at least partially repairable.”

UAB CALLAHAN EYE HOSPITAL CLINICS

Delivering the same outstanding vision care associated with UAB Callahan Eye Hospital to convenient locations throughout Birmingham.

- 1 **UAB CALLAHAN EYE HOSPITAL**
1720 University Boulevard • Suites 406, 409, and 601
Birmingham, AL 35233 • Phone: (205) 325-8620
- 2 **ST. VINCENT’S BIRMINGHAM CAMPUS**
2660 10th Ave. South • POB I, Suite 222
Birmingham, AL 35205 • Phone: (205) 383-1003
- 3 **CHILDREN’S SOUTH OUTPATIENT CLINIC**
1940 Elmer J. Bissell Road • Suite B
Birmingham, AL 35243 • Phone: (205) 325-8620
- 4 **MEDICAL WEST**
985 9th Avenue SW • Suite 310
Bessemer, AL 35022 • Phone: (205) 481-7870
- 5 **VESTAVIA**
1009 Montgomery Highway • Suite 201
Vestavia Hills, AL 35216 • Phone: (205) 325-8620



Watch this story at uabmedicine.org/perspective



“She had told me she was going to change my life, and I thought, ‘Right, I’ve heard this before,’” Henson said. “I wasn’t expecting a whole lot, to be honest with you. But she really did change my life.”

– Jeff Henson



Carol Rosenstiel, O.D., uses a refractor to check Jeff Henson's vision.

particularly in cases such as Henson's, where surgery or eyeglasses are not an option.

“We went through multiple trials of different contact lenses before I was able to determine that he actually had very, very good visual potential,” Rosenstiel said. “I remember asking him if he was ready for his life to change. And he said, ‘Absolutely.’”

Henson's cornea was badly scarred from inflammation. Light entering the eye scattered and did not focus on the retina properly. Rosenstiel prescribed a hard, gas-permeable lens that created a new spherical refractive surface on the front of the eye and allowed light rays to focus accurately on the retina. It worked. Henson could see, but the hard contact on his damaged cornea hurt. “She put the hard lens in and I could actually see the lines on my hand,” Henson said. “But it hurt so bad I couldn't wear it. She told me ‘Don't worry about it,’ she would fix that, too.”

Rosenstiel added a second contact lens, a soft lens that Henson would wear underneath the hard lens. “We put a soft lens on the cornea first, and then placed the rigid lens on top of that,” she said. “We use that piggyback approach when the patient needs the hard lens for the optical correction but we are unable to achieve an

adequate fit or comfort with just the rigid lens. We use the soft lens as a bandage to help with fit and comfort.”

The two-lens combination did the trick. Henson could see, and the lenses were comfortable.

“She had told me she was going to change my life, and I thought, ‘Right, I’ve heard this before,’” Henson said. “I wasn't expecting a whole lot, to be honest with you. But she really did change my life.”

With his contacts, Henson's vision in his left eye is nearly normal. And now, he has a solo bike. Accompanied by 12 other veterans with disabilities, he rode his solo bike from Ottawa, Canada, to Washington, D.C., in the CanAm Veterans Challenge ride from World T.E.A.M. Sports this past summer.

“The other rides were great, but I couldn't see anything as we rode,” Henson said. “I rode across the country but didn't know what it looked like. On the CanAm ride, I was able to see everything.”

Henson dedicated the CanAm to the person who made it possible: Dr. Rosenstiel. “I call her my hero,” he said.

Henson still has a tandem bike, and he's still going to use it. But now, he'll be the guy in the front seat, helping a less fortunate rider.

“I think of where I came from to where I am today,” Henson said. “I'm just going to enjoy the vision I have and use it. And try to encourage other people. You could be down, but sometimes you are not out.”

Complex Contact Lenses Keep Disabled Vet Rolling

by BOB SHEPARD

Jeff Henson has been riding bikes for years. In 2012, he rode a bike coast to coast across the United States. Before that, the Army veteran completed a long bike ride in France and several in the American Northwest, always on a tandem bike and always from the back seat. He was not allowed to ride on the front seat, the steering seat. Jeff Henson was legally blind during those rides.

Henson, a native of Heflin, Alabama, who served nine years as a demolition specialist in the Army, developed vision issues caused by arthritis and inflammation that first struck his right eye in 2000.

“I woke up one morning and I had this really bad headache,” Henson recalled. “My eye was watering so much that I couldn't control the tears running down my face, and my head was hurting so bad I couldn't stand for my wife to walk on the floor. Every time she took a step, I felt like my head was going to explode.”

His vision rapidly deteriorated. About a month later, the same thing happened to his left eye. In short order,

Henson lost all vision in the right eye, while his left eye fell to 20/200. “I didn't have any vision at all,” he said. “I was at the point where I was running into doors; I couldn't see steps and would just run into walls. It was pretty life-changing.”

Henson went through rehabilitation for the blind and received mobility training. He got a white cane and Chauncey, a service dog. And he started riding bikes. He rode with veterans groups that held rides for disabled military personnel. But he had to ride tandem, on the back seat. “I always wanted to ride by myself, but of course I couldn't,” he said.

Then in 2013, during a routine visit at the Veterans Administration Hospital in Birmingham, things changed. Henson's physicians told him they were sending him to a special eye doctor at the University of Alabama at Birmingham. Carol Rosenstiel, O.D., is an optometrist who is the chief of the contact lens service in the UAB Department of Ophthalmology. Rosenstiel specializes in using contact lenses to correct severe vision issues,

ADVANCED EXPERTISE

Contact Lens Care

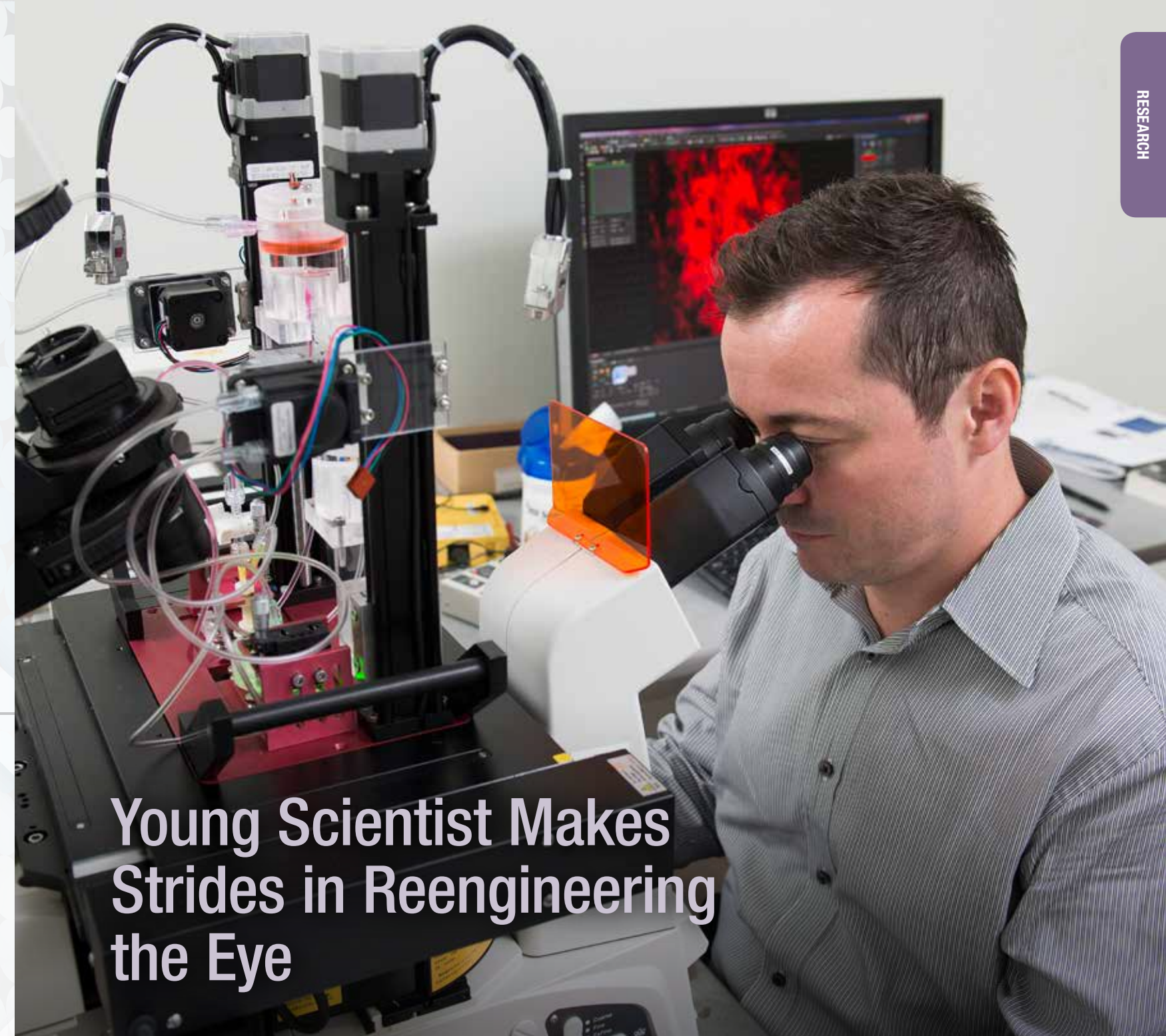


Carol Rosenstiel, O.D.

UAB physicians have extensive knowledge of contact lens options for patients of all ages. Our contact lens service, directed by Dr. Carol Rosenstiel, is experienced in fitting specialty contacts for patients with complex eye problems, as well as those who prefer contact lenses as an alternative to eyeglasses. Our physicians continue to advance the contact lens subspecialty through ongoing research and education, enabling them to offer advanced treatments for a variety of medical conditions and visual needs.

Watch this story at uabmedicine.org/perspective

RESEARCH



Young Scientist Makes Strides in Reengineering the Eye

Rafael Grytz, Ph.D., using the portable organ culture system mounted on a confocal laser scanning microscope.

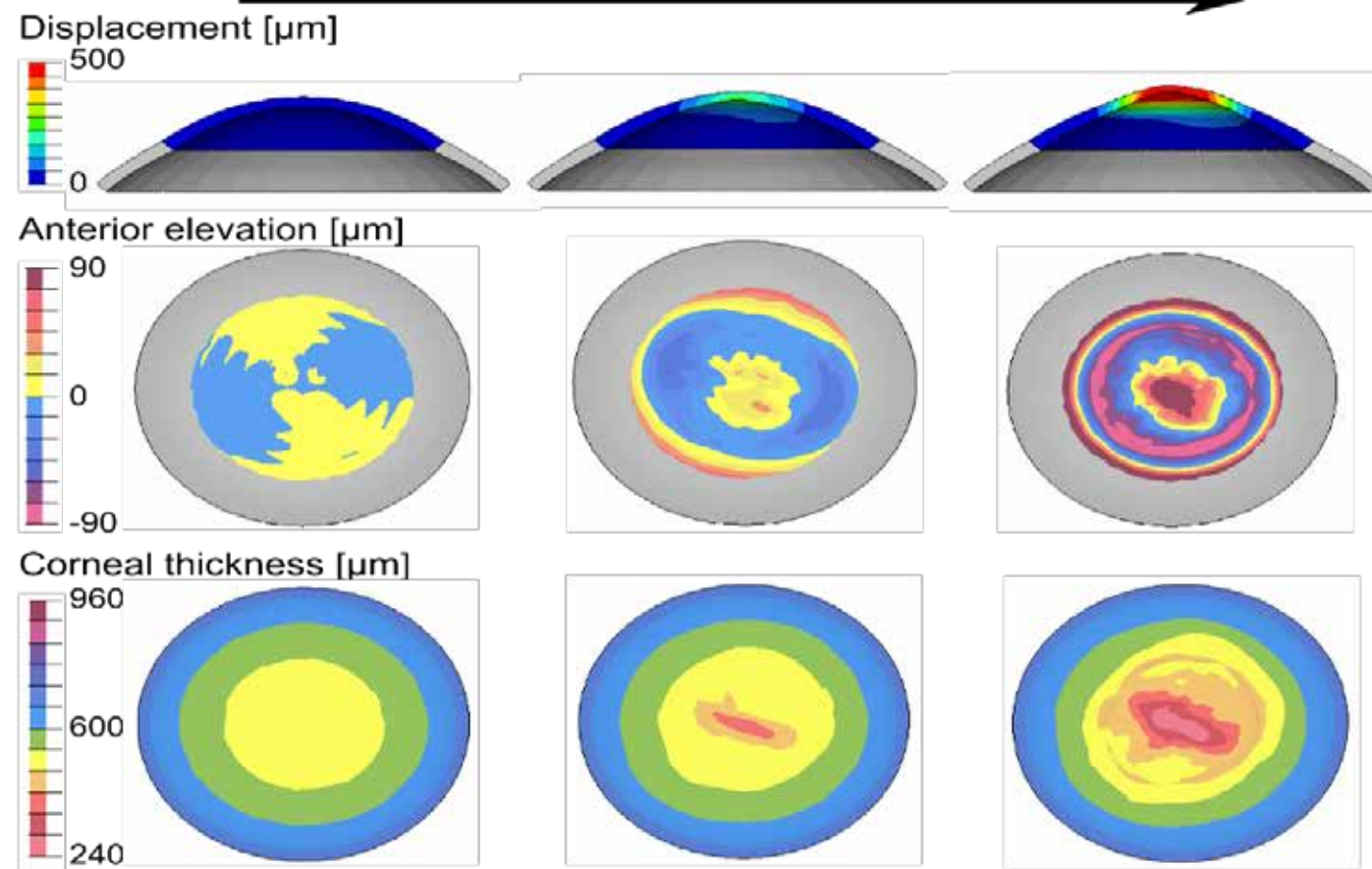
For research pursuits, Rafael Grytz, Ph.D., has always blazed his own trail. That may explain how a civil engineer from Germany became as an assistant professor in the UAB Department of Ophthalmology.

Grytz applies to the eye principles he first learned as a civil engineer studying shell structures, such as church domes or cooling towers of nuclear power plants. Early in his career Grytz realized he wanted to pursue biomedical research. Having graduated at the top of his class, he earned the chance to choose any area of study for his doctoral research. He made the unobvious choice and selected the eye, specifically diseases that impact the structure of the eye, such as glaucoma myopia and keratoconus.

“The thought that my research may benefit human health was, and still is, extremely motivating,” Grytz said. I chose the eye because my understanding of shell structures could be beneficial. Some engineers were working on biomechanical problems of the heart or the arteries, but little work was done on the eye.”

Grytz quickly realized that being a pioneer had its challenges, especially for a young researcher. Since he had no collaborators and no experimental data during his doctoral work, Grytz had to adjust his thinking and approach his research from a different direction than other biomedical scientists.

Keratoconus Progression



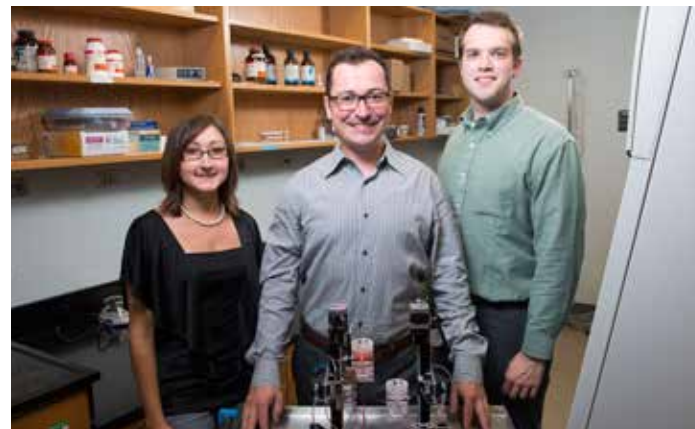
Drawing on his experience as a civil engineer, Grytz decided to take a bottom-up approach. He used his knowledge of structures to predict how living tissue in the eye changes when exposed to different mechanical forces. In his simulations, he exposed the eye to the type of stress and strain associated with glaucoma, after which the model predicted how the actual structural properties of the eye would change in response.

Serendipitously, while Grytz was working on his computational models, biomedical engineer J. Crawford Downs, Ph.D., was collecting experimental data using novel techniques and instruments. As it turned out, Grytz's computational predictions precisely matched the experimental measurements collected by Downs, thus strengthening both findings.

Grytz and Downs both have joined the UAB Department of Ophthalmology to form the core of a team for the department's Ocular Biomechanics and Biotransport Program. Using traditional engineering principles, this multidisciplinary group of scientists is studying some of the most common eye diseases, such as glaucoma, myopia, and keratoconus.

"These are difficult problems and complicated eye diseases that cannot be solved by scientists from just one or two disciplines; it just isn't enough," Grytz said. "So we collaborate across disciplines and bring diverse knowledge together. Our department in particular is very supportive of interdisciplinary work, and that is a great asset for our research."

Once on the periphery, the field of ocular biomechanics, and Grytz's work specifically, is gaining recognition. In 2014 Grytz was invited to co-organize the ocular



Top: Rafael Grytz, Ph.D., latest computational model, which predicts that keratoconus progression is due to abnormal degradation and micro-deformations of collagen fibrils.

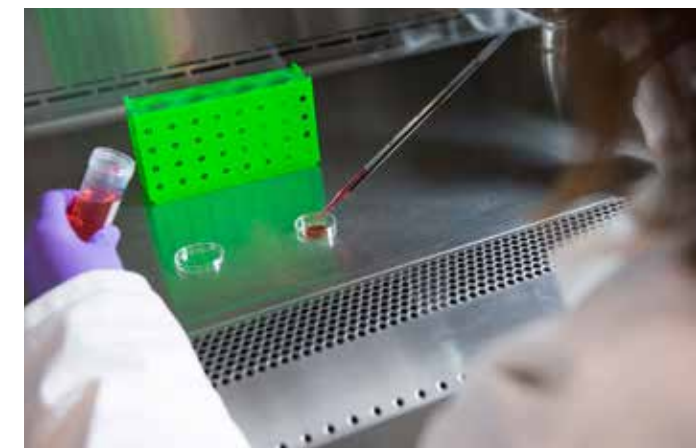
Bottom: Two graduate students, Alexander Levy and Sarah Baldivia, work with Grytz in his laboratory. A portable organ culture system developed by his lab to image and quantify sclera remodeling during myopia is in the foreground.

biomechanics symposium of the World Congress of Biomechanics. This was the most attention ever given to ocular biomechanics research by the general field of biomechanics. Grytz's research is not only leading in ophthalmology; researchers are now using similar computational models to investigate other tissues and diseases.

"We are confident the novel approach our ocular biomechanics team is taking will lead to major advances in the treatment of blinding eye diseases. The strength of their research has already been seen through unprecedented attention at major research conferences," said Christopher Girkin, M.D., The EyeSight Foundation of Alabama Chair of the UAB Department of Ophthalmology.

"We collaborate across disciplines and bring diverse knowledge together. Our department in particular is very supportive of interdisciplinary work, and that is a great asset for our research."

– Rafael Grytz, Ph.D.



Top: Baldivia and Levy study the microstructure of the remodeling sclera with the portable organ culture system mounted on a confocal laser scanning microscope.

Bottom: The Grytz lab is currently working to quantify the changes in the eye related to myopia, with the ultimate goal of finding treatments that can help control eye elongation from this common eye disorder.

"I am very thankful for the vision of Dr. Girkin and UAB Ophthalmology. It is unique to find a department willing to invest in new ideas before the rest of the field," Grytz said. "But I believe it will pay off and result in significant research breakthroughs."

Currently Grytz and his team are focused on quantifying the microstructural changes in the eye related to myopia. Commonly known as nearsightedness, this condition occurs when the eye becomes too long for its own optical system.

Again, fueled by his background in engineering, Grytz is taking a direction radically different from other research teams. By thinking outside the box, Grytz hopes to take not just small steps but instead move the field forward in leaps and bounds.

POWERFUL PARTNERSHIPS

Thompson Foundation



Michael Thompson, President

The Thompson Foundation was established about 15 years ago to continue the tradition of charitable giving started by Hall and Lucy Thompson. Hall Thompson was a notable Alabama business leader and served as the chairman of Thompson Realty Company as well as chairman and chief executive officer of Thompson Tractor Company, Inc.

Mr. Thompson believed that every Alabama child should have an equal opportunity for good vision and was a dedicated supporter of the vision community in Alabama. He served on the Board of Trustees for both The EyeSight Foundation of Alabama and Sight Savers America and helped those organizations expand eye care to underserved children in the state.

Currently Hall and Lucy Thompson's son, Michael D. Thompson, serves as president of the Thompson Family Foundation. Like his father, Michael Thompson has been active in Alabama's vision community, serving on the Boards of Trustees for the Callahan Eye Hospital and the EyeSight Foundation of Alabama.

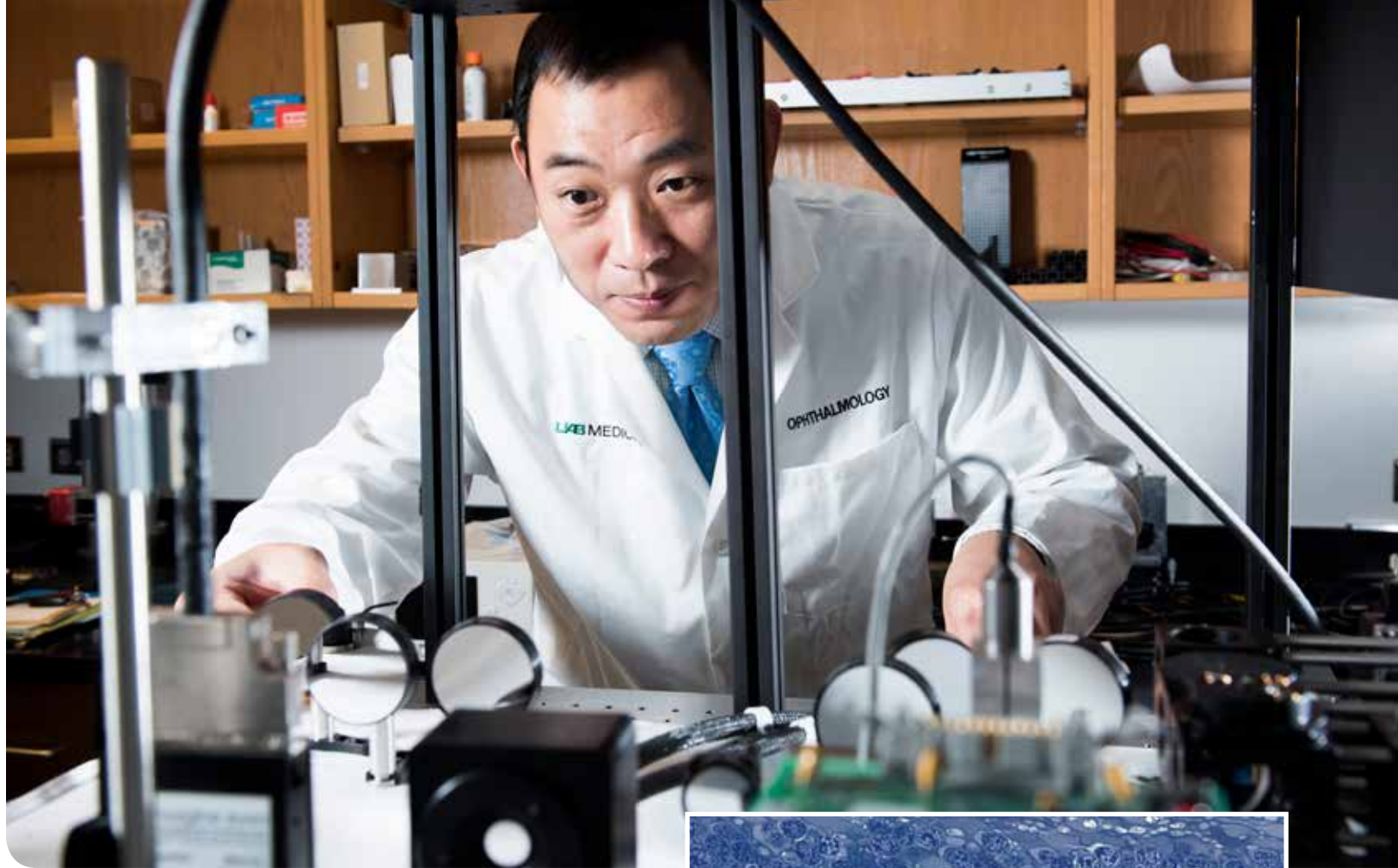
The Thompson Foundation has continued to promote vision health through generous funding of UAB ophthalmology junior faculty members, such as Rafael Grytz, Ph.D. This support jumpstarts the promising research of young scientists and helps fund their innovative ideas.

Read more about vision health organizations supported by the Thompson family such as Sight Savers America on page 33.

"Many groups are studying different aspects of myopia such as the genetic factors that are involved or are trying to understand how optical signals drive eye elongation," Grytz said. "But we want to measure the actual changes in the microstructure of the sclera that cause the eye to elongate, because without that measurement how can we tell if a potential treatment is effective?"

"We believe quantifying the microstructural changes in myopia will help more accurately identify effective treatments and push those treatments to patients faster," he said.

Grytz's team plans to apply the techniques they develop for myopia treatment to other eye diseases such as keratoconus.



👁 Seeking Cures for Age-Related Macular Degeneration

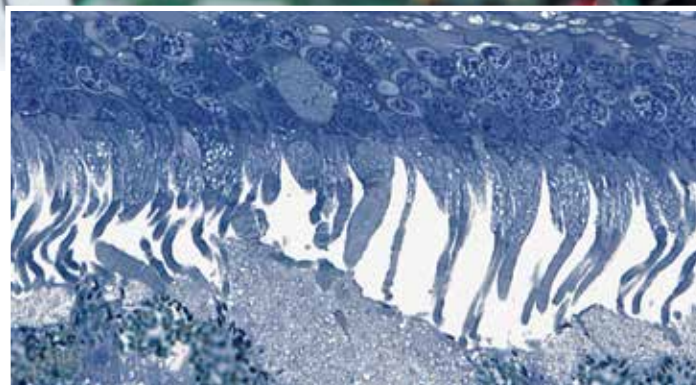
by DON MILAZZO

Age-related macular degeneration (AMD) causes central vision loss in millions of Americans, interfering with everyday tasks such as driving, reading, and recognizing faces.

The disease is most common among those ages 50 and older. Scientists are still studying what causes a healthy eye to develop AMD and how the disease progresses to cause vision loss.

Although treatment is available, it cannot begin until the later stages of the disease, after vision problems have already started. UAB Medicine is focusing on understanding the earliest stages of AMD, hopeful that it will lead to the next generation of treatments and, ideally, a way to prevent it.

Through the Alabama Study on Early Age-Related Macular Degeneration (ALSTAR), UAB researchers seek to identify the specific characteristics that make some people more prone to AMD. More than 600 older Alabamians have been enrolled in the three-year clinical study, which tracks eye health and potential AMD risk factors such as diet, smoking, and levels of blood proteins and lipids. The research team hopes that an analysis of the data collected during ALSTAR will point to certain risk factors that can be targeted with preventive medicine.

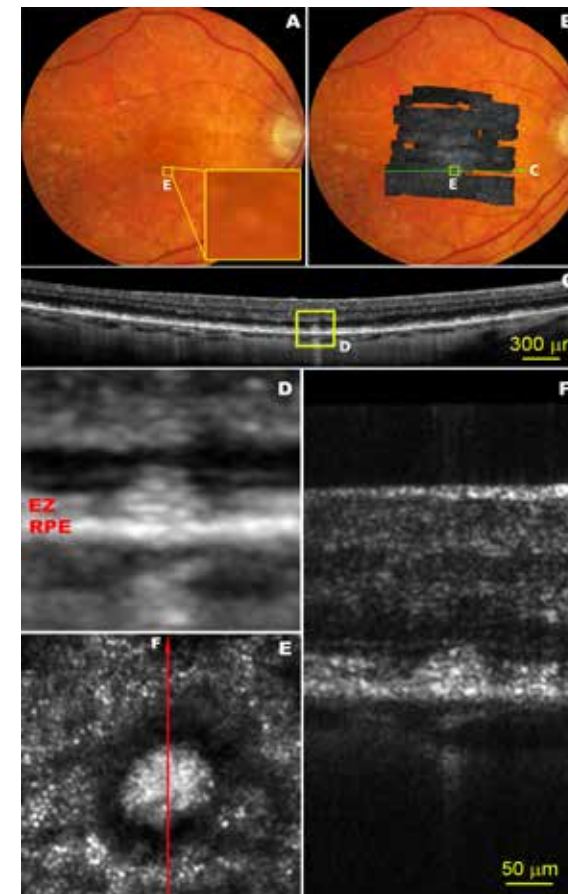


Top: Yuhua Zhang, Ph.D., assistant professor of ophthalmology, works with an instrument that can image the retina at the cellular level in three dimensions and may help clinicians better understand diseases that cause age-related macular degeneration.

Bottom: Subretinal drusenoid deposits are extracellular lesions between the photoreceptors and their support cells, the retinal pigment epithelium. Recently revealed in patients by high-resolution clinical imaging and recognized as important risk factors for AMD progression, Christine A. Curcio, Ph.D., provided the first extensive laboratory description of these lesions.

“By identifying risk factors for early-stage AMD we can start treating this disease as we would other chronic health disorders,” said Cynthia Owsley, Ph.D., M.S.P.H., the Nathan E. Miles Endowed Chair in Clinical Research and lead investigator in the ALSTAR study. “We all know that smoking is a risk factor for lung cancer, and therefore smoking cessation and smoking prevention programs can be very helpful in reducing cancer rates. Similarly, we want to identify the major risk factors for early AMD so that we can help patients at the earliest stages, before vision loss begins.”

The difficulty in measuring the initial progression of the disease is a major obstacle to developing AMD treatments. Traditional vision tests such as eye charts are of little use, since the loss of eyesight normally doesn't begin until the later stages of AMD. This poses problems for new treatments because there isn't a way to gauge a new drug's effectiveness during clinical trials.



Multimodal imaging of subretinal drusenoid deposits (SDD), also called pseudodrusen clinically, from a patient diagnosed with AMD. The subject is an 83-year-old man (white non-Hispanic) with non-neovascular AMD (The Age-Related Eye Disease Study (AREDS) grade 7, best-corrected visual acuity (BCVA) 20/30). (a), Digital color fundus photograph of 30° field of view. The yellow box (e) is 300 μm on a side ($\sim 1^\circ$), which is digitally magnified by 10 times to reveal a solitary large SDD. (b), High-resolution image montage (grey) taken with AOSLO is overlaid on the fundus photograph. (c), A SD-OCT B-Scan taken along the green arrow-line in panel b shows that this SDD has broken the photoreceptor EZ band and expanded into the ELM band, magnified in panel d. (d), magnification of boxed area in panel c. (e), An AOSLO high resolution image of the box in panel a and b. The bright spots outside the hyporeflective annulus are photoreceptors, mostly cones. (f), AO-OCT image scanned vertically across the SDD, as indicated by the green arrow line in panel e. The green arrow points to the left side of panel f. The scale bar in F also applies to panel d and e. SD-OCT (panel c and d) is shown with logarithmic grey scale. AO-OCT scan (f) has a linear grey scale. AO-OCT scan (panel f) is orthogonal to SD-OCT scan (panel c and d).

Collaborative work between Owsley and renowned AMD scientist Christine A. Curcio, professor and Eminent Scholar in Retina, indicated that testing night vision was effective in evaluating the progression of early AMD. Through microscopic studies of donor eye tissues, Curcio discovered that photoreceptors used for night vision are the first to be impacted by AMD. This led to an evaluation called the dark adaptation test, which isolates night vision, as well as a new FDA-approved diagnostic instrument, which is commercially available and used to administer the test.

Through the ALSTAR study, Owsley and Curcio also are formulating measurable and defined goals associated with AMD treatment, known as endpoints, which could help expedite future clinical trials.

“Many groups are developing new treatments for AMD,” Owsley said. “But before a new drug can come to market, it has to be proven effective in clinical trials. Right now it would be difficult to prove AMD drugs were working during the early stages of the disease because there is a lack of endpoint measures.”

FACULTY EXCELLENCE

Curcio Wins International Prize



Christine A. Curcio, Ph.D.

Christine A. Curcio, Ph.D., professor of ophthalmology at the University of Alabama at Birmingham, is the recipient of the 2014 Ludwig von Sallmann Prize, awarded to an individual for significant contributions to vision research and ophthalmology. The prize is conferred by the Ludwig von Sallmann Foundation, which is named in honor of the internationally respected ophthalmologist and researcher, at the biennial meeting of the International Society for Eye Research.

This is Curcio's third international award in 13 years for her research on the biology of aging and age-related macular degeneration using the Alabama Eye Bank as a resource. At the biennial meeting she also gave a lecture titled “What the Photoreceptors Taught Us About Their Support System In Aging and Age-Related Macular Degeneration.”

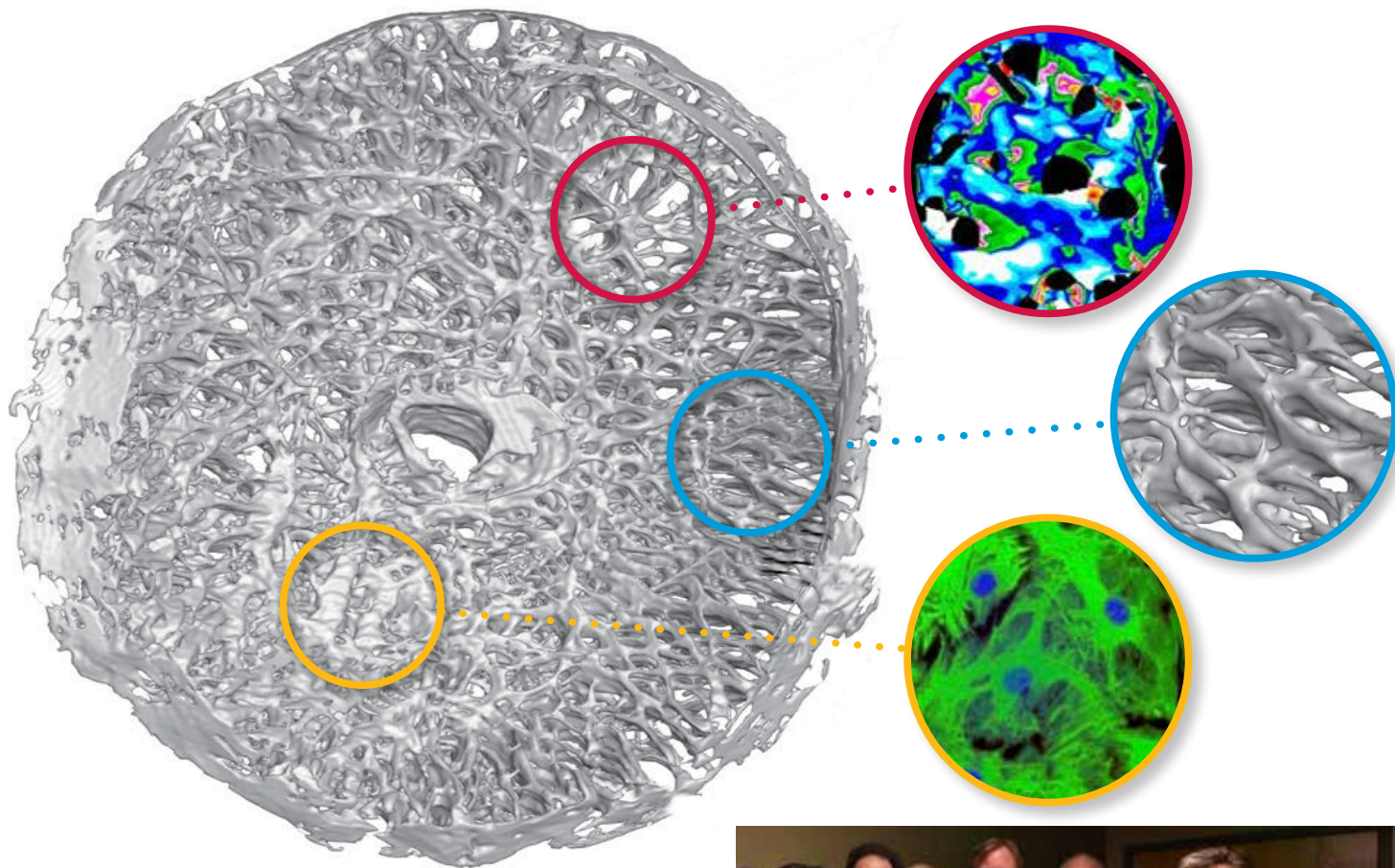
Curcio is the director of the UAB Age-Related Macular Degeneration Histopathology Lab. Her research focuses on aging, age-related macular degeneration with emphasis on pathobiology, image validation through histology, and collaborative genomics studies.

The author or co-author of more than 90 journal articles, Curcio has presented abstracts at vision meetings every year since 1985. She has delivered about 150 invited lectures at major meetings, congresses, and universities in North America and Europe. She serves on the editorial boards of *Investigative Ophthalmology & Visual Science*, *Current Eye Research*, and *Progress in Retinal and Eye Research*, and is a charter member of Disease and Pathophysiology of the Visual System study section.

Learn more about her research at projectmacula.cis.uab.edu

In addition, a new generation of noninvasive clinical imaging technology promises to allow scientists to identify even earlier stages of AMD at the cellular level. Known as adaptive optics assisted imaging, this technology enables Yuhua Zhang, Ph.D., assistant professor of ophthalmology, to create extremely high-resolution images of photoreceptors in a living retina. By using this imaging on dozens of patients with all stages of AMD and on healthy eyes, Zhang is generating data that are crucial to detecting and monitoring AMD.

“With this information we can show early damage caused by the disease as well as assess the rescue of the cells created by new treatments in clinical trials,” Zhang said. “One day physicians may be able to use adaptive optics imaging to detect the earliest stages of AMD and help stop the disease before it severely impacts vision.”



Understanding Glaucoma Through Team Science

by MEGAN YEATTS

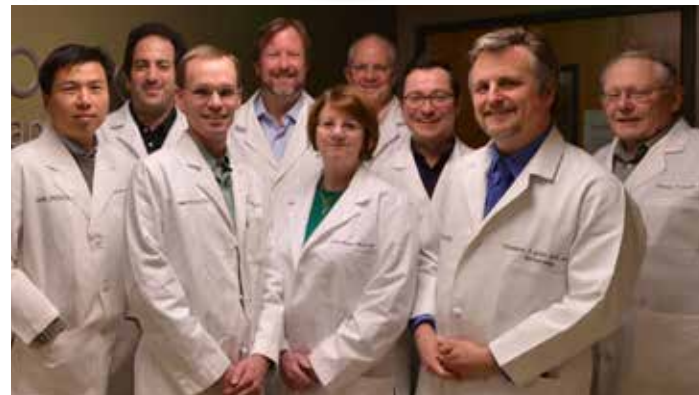
Currently the UAB Department of Ophthalmology is spearheading a collaborative, multidisciplinary effort to accelerate glaucoma research.

Glaucoma impacts more than two million Americans, making it the second leading cause of blindness in the world. Despite this, the underlying mechanisms of development and progression of glaucoma are still poorly understood. At UAB, our researchers believe the search for a cure to glaucoma will be found only via a well-coordinated team science approach.

“UAB’s collaborative culture fosters large, multidisciplinary research teams that are necessary to produce high-impact research on complex diseases such as glaucoma,” said J. Crawford Downs, Ph.D., vice chair of research in UAB Department of Ophthalmology, who is leading the joint research effort in conjunction with Joanne E. Murphy-Ullrich, Ph.D., professor in the UAB Department of Pathology.

The EyeSight Foundation of Alabama, a generous philanthropic partner, saw how this group approach could magnify impact and established a research acceleration grant that brings together scientists across three schools and five departments at UAB.

“The EyeSight Foundation Board of Trustees has embraced Chairman Chris Girkin’s ambitious plan for expanding the breadth and depth of the ophthalmology



Top: 3-D reconstruction of the lamina cribrosa from a normal human eye, showing the regional variation in laminar density and beam orientation, the tensile strain in the beams themselves for an IOP increase of 30 mmHg, and the LC cells that respond to mechanical strain by remodeling the laminar load-bearing structure.

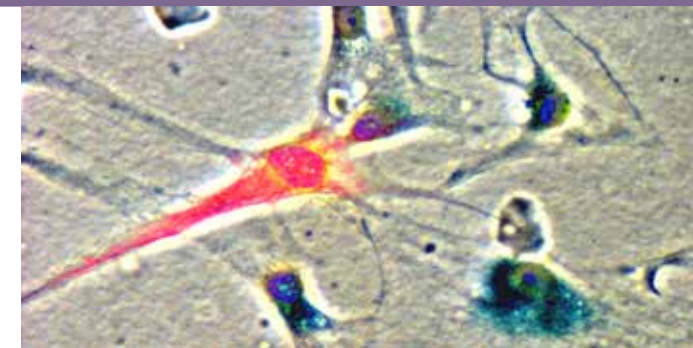
Bottom: A team of researchers from five departments and three schools across UAB’s campus is working together to further understand glaucoma.

research program, and we are proud to be funding partners with UAB in support of his goal to reach new heights in extramural funding,” said Torrey DeKeyser, executive director of the foundation. “The research acceleration initiative enhances that opportunity through matching grant support for research in ophthalmology as well as in other departments such as vision sciences, biomedical engineering and pathology, where interdisciplinary studies are underway. This collaborative approach helps all scientists involved, and we see that as optimizing our investment.”

The multidisciplinary team includes:

- **J. Crawford Downs, Ph.D.; Massimo Fazio, Ph.D.; Christopher A. Girkin, M.D.; Rafael Grytz, Ph.D.; and Brian C. Samuels, M.D., Ph.D.** — Department of Ophthalmology, UAB School of Medicine
- **Tom Norton, Ph.D.** — Department of Vision Sciences, UAB School of Optometry
- **Joanne Murphy-Ullrich, Ph.D.** — Department of Pathology and Cell Biology, UAB School of Medicine

This team of biomedical engineers, molecular and cellular biologists, and clinician-scientists are building upon the UAB Department of Ophthalmology’s expertise in optic nerve head (ONH) structure and biomechanics to further understand the mechanisms linking ocular connective tissue behavior and central nervous system axon damage in glaucoma.



The overlaid images show that cyclic strain induced peripapillary scleral fibroblast senescence (blue and flattened cell) and myofibroblast differentiation (red cell) on a flexible silicone elastomer membrane.

- **Yong Zhou, Ph.D.** — Department of Medicine, UAB School of Medicine
- **Joel Berry, Ph.D.** — Department of Biomedical Engineering, UAB School of Engineering

This team of biomedical engineers, molecular and cellular biologists, and clinician-scientists are building upon the UAB Department of Ophthalmology’s expertise in optic nerve head (ONH) structure and biomechanics to further understand the mechanisms linking ocular connective tissue behavior and central nervous system axon damage in glaucoma.

This unique group is investigating cellular pathways in human donor eyes, animal models, and in vitro cell cultures from the tissue level all the way down to the collagen fibril, cell, and molecular levels. This will allow the team to build a comprehensive framework for understanding the mechanisms at play in glaucoma development and progression.

Extensive resources at UAB, including unparalleled access to donor tissue samples with clinical records, advanced imaging capabilities, and custom instrumentation designed and built specifically for this research project, create an environment that allows unprecedented control of long-term experiments to understand tissue damage.



POWERFUL PARTNERSHIPS

The EyeSight Foundation of Alabama



Torrey DeKeyser,
Executive Director

The EyeSight Foundation of Alabama (ESFA) awards grants to nonprofit organizations throughout Alabama in keeping with its mission to improve eyesight through education, research, and access to care.

Since its establishment in 1997, ESFA has provided generous and steadfast support to UAB and the department of ophthalmology. During that time, ESFA has awarded grants totaling more than \$50 million to UAB—making it the university’s largest donor.

Led by Executive Director Torrey DeKeyser and a volunteer board of trustees, ESFA provides much-needed funding to a variety of vision initiatives at UAB, including indigent care, core research support, mental health services for persons with vision impairments, improving access to care for those at risk for glaucoma, adult eye care in the Alabama Black Belt, and WBHM’s Alabama Radio Reading Service for the blind and print-impaired.

Christopher Girkin, M.D., holds The EyeSight Foundation of Alabama Chair of Ophthalmology.

Learn more at www.eyesightfoundation.org

“Our combined expertise allows us to use very sophisticated approaches to mimic the biomechanical forces that damage the optic nerve head in glaucoma, and then test the effects of these forces on the cellular pathways,” Murphy-Ullrich said. “We believe that our improved models, combined with our multiple perspectives on the disease, will significantly advance our understanding of how vision loss occurs in glaucoma and identify new targets for therapy.”

The team aims for this collaboration to yield groundbreaking preliminary data that will be the foundation to apply for a large, multi-investigator Bioengineering Research Partnership grant from the NIH.

“This novel research will help us understand the root causes of glaucoma and open the door for preventative and potentially targeted treatment. That means instead of the reactionary approach physicians must take to treatment today, we could employ proactive, offensive techniques that would prevent vision loss from glaucoma before it begins,” said Christopher Girkin, M.D.



👁️ Diabetic Eye Screenings Via Telemedicine Show Value for Underserved Communities

by BOB SHEPARD

Eye screenings of people with diabetes in underserved communities revealed that one in five had early stage diabetic retinopathy, according to a new study by a research consortium including investigators at the University of Alabama at Birmingham.

The findings, published today in JAMA Ophthalmology, also indicated that nearly half of the mostly minority populations screened had additional vision conditions such as glaucoma or cataract. The study, which used a telemedicine screening approach, also provided early validation of the efficacy of telemedicine in reaching underserved populations.

Diabetic retinopathy is the most common diabetic eye disease and a leading cause of blindness in American adults. People with both type 1 and type 2 diabetes are at risk, and the National Eye Institute estimates that between 40 and 45 percent of Americans with diabetes have some stage of diabetic retinopathy.

The study, funded by the Centers for Disease Control and Prevention, screened 1,894 people at four urban clinic or pharmacy settings in the United States that served predominantly ethnic/racial minorities and uninsured people with diabetes. Twenty-one percent had diabetic retinopathy in at least one eye. The vast majority of those cases, 94 percent, had early stage diabetic retinopathy, which does not cause vision impairment itself but is a warning sign that serious retinal problems may be starting. Forty-four percent had other vision issues; 30 percent of those were cataract.

- ▶ **A total of 1,894 people participated in the screening program at multiple sites, with 21.7% having diabetic retinopathy (DR) in at least one eye.**
- ▶ **The three sites that were clinics (Birmingham, Ala.; Miami, Fla.; Winston-Salem, N.C.) had similar rates of DR (23.5%-24.3%), whereas the site that was a pharmacy (Philadelphia, Penn.) had a lower rate (15.8%).**
- ▶ **The most common type of DR was background DR, which was present in 94.1% of all participants with DR.**
- ▶ **Participants with DR had a longer duration of diabetes than did those without DR (mean, 13.7 vs 8.8 years; P < .001).**
- ▶ **Almost half of the participants (44.2%) had ocular findings other than DR; 30.7% of other ocular findings were cataract.**

“Among ethnic/racial minorities with diabetes, the rate of annual eye care is low, somewhere between one-third and one-half,” said Cynthia Owsley, Ph.D., professor in the UAB Department of Ophthalmology and lead author of

“This study suggests that telemedicine lends itself to screening and diagnosis of diabetic retinopathy. It is cost-effective and expands the reach of screenings by accessing regions that may be experiencing a shortage of ophthalmologists and optometrists.”

– Cynthia Owsley, Ph.D.



A patient undergoes this simple eye screening in which a nonmydriatic camera is used to take three images of the eye. The images are then sent to a central facility for evaluation.

the study. “This study indicates that, if we can reach this population at local clinical facilities with an inexpensive screening process, we can diagnose diabetic retinopathy early, when there is time to prevent or slow vision loss.”

Owsley said early diagnosis of diabetic retinopathy allows for disease progression to be monitored more effectively. Glycemic control — controlling blood sugar at appropriate levels — is a key element in slowing the onset and progression of the disease. Previous research has shown that screening is effective at lowering the rate of people with sight-threatening diabetic retinopathy at subsequent screenings.

The screening method was relatively simple, using a nonmydriatic camera to take three images of the eye. A nonmydriatic camera does not require dilation of the eye. The images were sent to a single facility for reading, with results then delivered back to the study locations. For the patient, the non-invasive process is not time consuming. The camera’s simple operation requires no advanced training for operators.

“This study suggests that telemedicine lends itself to screening and diagnosis of diabetic retinopathy,” Owsley said. “It is cost-effective and expands the reach of screenings by accessing regions that may



FACULTY EXCELLENCE

Two faculty members named to leadership posts in ARVO



J. Crawford Downs, Ph.D., and Cynthia Owsley, Ph.D.

Two faculty members were named to leadership posts within the Association for Research in Vision and Ophthalmology (ARVO). J. Crawford Downs, Ph.D., was named chair-elect of the ARVO Animals in Research Committee, and Cynthia Owsley, Ph.D., M.S.P.H.,

was named chair-elect of the Ethics and Regulations in Human Research Committee. Both took on duties of chair-elect following the close of the 2014 annual meeting. Both will assume the role of chair immediately following the 2015 annual meeting for two-year terms.

“I can’t think of two more appropriate or deserving scientists to serve in these roles,” said Christopher Girkin, M.D., MSPH, chair of the UAB Department of Ophthalmology. “ARVO is our preeminent vision research organization, and these appointments reflect an appreciation of their high-quality work and vast experience. Both Dr. Downs and Dr. Owsley are great assets to our department and to ARVO.”

be experiencing a shortage of ophthalmologists and optometrists.”

The clinical screening locations were in Miami, run by co-investigators from the University of Miami; Winston-Salem, N.C., with co-investigators from Wake Forest University and Johns Hopkins University; and UAB. The pharmacy location was in Philadelphia, with co-investigators from Wills Eye Hospital, who also read images from the other sites.

Owsley suggests the study should be deployed on a larger scale, focusing on clinical settings in underserved areas across the nation.

“We know that there are barriers to regular vision care for minorities, and we also know that eye diseases such as diabetic retinopathy, glaucoma, and cataract are prevalent in minority populations,” Owsley said. “This study indicates that screenings can detect a significant number of eye conditions at an early stage. A telemedicine approach can be a cost-effective method of reaching people who might otherwise go on to develop severe, potentially blinding disease.”



Paul Gamlin, Ph.D., calibrates an infrared optometer to dynamically measure where the eye is focused.

👁 Understanding How the Brain Controls Eye Alignment

by MEGAN YEATTS

Amblyopia is the most common cause of visual impairment in children, affecting approximately 2 to 3 out of every 100 children. For those with amblyopia, vision is reduced in one eye because it fails to interact properly with the brain, in turn causing the brain to favor the other eye. Often referred to as “lazy eye,” untreated amblyopia is a major cause of monocular blindness in children and young adults.

UAB vision scientist Paul D. Gamlin, Ph.D., studies the relationship between the eyes and the brain. As a recipient of the prestigious RPB/Walt and Lilly Disney Award for Amblyopia Research in 2014, Gamlin will

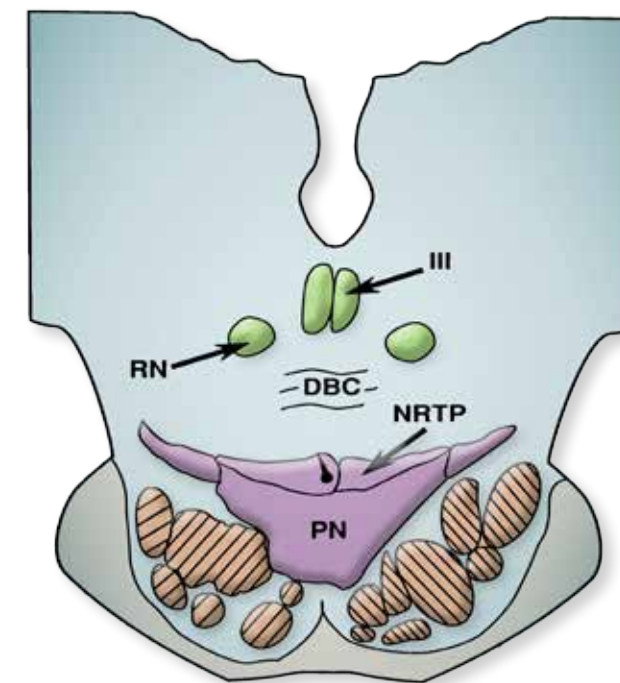
investigate how the cerebellum is involved in controlling eye alignment.

“We want to study the cerebellum, which is involved in motor learning, to determine how it controls eye alignment,” Gamlin said. “Our goal is to understand how the normal brain controls eye alignment and then use that knowledge to uncover what mechanisms are malfunctioning when eyes do not align normally.”

Gamlin said his team will study strabismus, which is a main cause of amblyopia. In strabismus, the eyes are not aligned properly and point in different directions.

“We want to study the cerebellum, which is involved in motor learning, to determine how it controls eye alignment. Our goal is to understand how the normal brain controls eye alignment and then use that knowledge to uncover what mechanisms are malfunctioning when eyes do not align normally.”

– Paul D. Gamlin, Ph.D.



A diagram of a coronal section at the level of the oculomotor nucleus (III). This diagram shows a recording site in the Nucleus Reticularis Tegmenti Pontis (NRTTP), a major precerebellar nucleus. DBC - Decussation of Brachium Conjunctivum; PN - Pontine nucleus; RN - Nucleus Ruber. Neurons in this pontine region are interconnected with the areas of the cerebellum that Gamlin hypothesizes are involved in not only normal eye alignment but also the abnormal misalignment that results in strabismus. Therefore there is a need to study both this region and the cerebellum in order to understand how these brain areas contribute to both normal and abnormal eye alignment.

Untreated pediatric strabismus often results in amblyopia because the brain learns to ignore the misaligned eye.

Current treatment for strabismus is aimed at surgically altering the eye muscles to align the eyes. In certain cases this may cosmetically improve the alignment of eyes, but it does not significantly improve vision. Or, if vision is improved, it may only be temporary.

“We hope that by understanding the normal brain mechanisms we will be able to develop new therapies for strabismus and amblyopia,” Gamlin said.



POWERFUL PARTNERSHIPS

Research to Prevent Blindness



RPB President
Brian F. Hofland, Ph.D.

Research to Prevent Blindness (RPB) is the leading voluntary health organization supporting eye research whose mission is to preserve and restore vision by developing treatments, preventives and cures for all conditions that damage and destroy sight.

In pursuit of this objective, RPB has committed hundreds of millions of dollars in grant support to provide scientific manpower, technological equipment, and eye research laboratory facilities. As a result, RPB researchers have been associated with nearly every major breakthrough in the understanding and treatment of vision loss in the past 50 years.

Today, RPB provides major eye research funding to more than 50 leading scientific institutions in the country, supporting the work of hundreds of talented vision scientists engaged in a diverse range of disease-oriented research. This includes pledges totaling \$2.18 million made to the UAB School of Medicine since 2008.

Learn more at rpbusa.org

The \$100,000 award from Research to Prevent Blindness makes it possible for Gamlin to explore this innovative research path. He eventually hopes to secure NIH funding for this project, but the RPB/Disney award will jumpstart his research.

“Without visionary private philanthropic partners we would not be to secure funding for new lines of research like this,” Gamlin said. “This award will help us get to a place where it will be possible to apply for NIH funding.”

Diane Disney Miller, daughter of Walt Disney, created the RPB Walt and Lilly Disney Award for Amblyopia Research in 2002. The award provides funds to respected ophthalmic scientists for research into improved detection, treatment, or cures for amblyopia.

GIVING BACK



Seeing the World More Clearly

Dawn DeCarlo, O.D., M.S., M.S.P.H., with patient Anaya Williams.

The UAB Center for Low Vision Rehabilitation partners with Sight Savers America to provide vision evaluations and free assistive devices for children whose families might otherwise not be able to afford that care.

In cases where vision can't be restored, the center strives to help patients maximize use of their remaining vision through rehabilitation. Children with vision impairment that cannot be remedied surgically or with medication need tools to assist them with everyday visual tasks.

"We look for tools that will allow these children to do all the things you and I do without any extra effort," said Dawn DeCarlo, O.D., M.S., M.S.P.H., director of the center and an associate professor in the UAB Department of Ophthalmology. "The broadest, easiest-to-remember definition of 'low vision' is vision that is not adequate for your needs. We identify and evaluate a child's needs based on their unique visual system, their hobbies, and their activities. It's highly individualized care. Some kids need bifocals even at a young age; another may need a magnifier or even a video magnifier."



Children receive training on their EVMs at the clinic.

A video magnifier (EVM) is an expensive device. Like many assistive devices used in low vision rehabilitation, EVMs are not covered by insurance. That's where UAB's collaboration with Sight Savers America, an Alabama-based organization that provides vision assistive technology and other eye care services to low-income children, pays off.

"Before Sight Savers was providing EVMs, the machine was out of reach for families," DeCarlo said. "It costs between two and three thousand dollars. Now Sight Savers is there to provide what they need, so no child is being left behind with vision impairment in Alabama. They just need to be identified, and they'll get what they need. Sight Savers believes in evaluation, so our collaboration ensures that the money is spent in the best possible way."

The importance of these tools is underscored by eye fatigue concerns that have recently been highlighted in research specific to children with low vision.

"Our National Institutes of Health-funded research has found that many children with vision impairment suffer from symptoms of visual fatigue," she said. "Their main coping mechanism is holding things very close to see them. Do that all day and you will have eyestrain. So instead of studying 30 minutes more to get an A, a

student stops studying due to tired eyes and settles for the B."

That's a key issue for many parents of children with low vision. Apart from inconvenience and quality of life issues, any obstacle to reading is an obstacle to success in school. A high-tech assistive device can help a child almost completely surmount that obstacle.

"The amazing thing about the electronic video magnifier is that it gets so much text up on the screen at one time, you can actually sit back and read comfortably," DeCarlo said. "If a kid can read 50 words per minute holding a book two inches away from her face, but she reads 150 words per minute with a video magnifier, homework time just got dramatically reduced. That's when we hear parents saying, 'I don't have to fight with them to do their homework anymore.'"

DeCarlo noted that parents find creative solutions to help their children with homework, but the EVM provides an independent solution.

"A child can do homework like the other kids without sitting next to a mom, dad, grandparent, or whoever has to be their eyes. Being completely independent is a skill they will need when they go off to college," she said.

"Our National Institutes of Health-funded research has found that many children with vision impairment suffer from symptoms of visual fatigue. Their main coping mechanism is holding things very close to see them. Do that all day and you will have eyestrain."

– Dawn DeCarlo, O.D., M.S.

Helping patients achieve independence, or at least move beyond total dependence, is the core purpose of the rehabilitative efforts at the center. That's why the phrase "life-changing" is an expression used by those who have enjoyed success there.

Sight Savers and UAB used their partnership to organize a day-long clinic that changed numerous lives by providing more than 10 children with assistive devices free of charge. The clinic functions as a one-stop shop, offering evaluation, training, and assistive devices.

"It is a great day for families," DeCarlo said. "They can go home with all the visual tools they need that day. So we see a lot of smiles around here."



POWERFUL PARTNERSHIPS

Songs for Sight



Alie B. Gorrie, founder, Songs for Sight

Songs for Sight was created in 2008 by Alie B. Gorrie, a patient of the UAB Center for Low Vision and Rehabilitation, to raise funds, awareness, and understanding of low vision. Through her love of music and performing, Gorrie conceived musical events to support the center and UAB Ophthalmology. Two concerts in 2009 and 2011 raised more than \$840,000.

The organization helps children and teens with low vision in a variety of ways. In addition to youth support-group activities, the funds raised by Songs for Sight help the Center for Low Vision Rehabilitation provide eligible patients with electronic video magnification devices, orientation and mobility services, and bioptic driving devices.

In 2014, Songs for Sight was awarded the inaugural Hall Thompson Hero for Sight Award by Sight Savers America. Read more about this award, which is displayed on a 25-foot-long dedication wall in the UAB Callahan Eye Hospital, on page 45.

Visit songsforsight.org to learn more.

ANAYA WILLIAMS: A Success Story

Anaya Williams, 13, who has glaucoma, once complained that reading books up close for long periods made her neck ache – especially while doing homework and studying for tests.

Anaya was referred to the UAB Center for Low Vision Rehabilitation by Wendy Marsh-Tootle, O.D., M.S., associate professor at the UAB School of Optometry, who has been taking care of Anaya's vision for many years, and glaucoma specialist Wade Joiner, M.D., associate professor in the UAB Department of Ophthalmology.

Dawn DeCarlo, O.D., M.S., the center's director, evaluated Anaya's vision and determined that she was a candidate for an electronic video magnifier (EVM), an expensive assistive device not covered by insurance. DeCarlo referred her to a Sight Savers clinic that was held at UAB Callahan Eye Hospital in August 2014. Anaya attended the clinic with her grandmother, Anaya McKinnon, where they received EVM training. They went home with an EVM provided by Sight Savers at no cost to the family.

Like most teenagers, Anaya may be a bit more excited about her new ability to read her favorite book than the ability to do homework without headaches. But McKinnon is certainly pleased that reading will no longer be a visual chore for her granddaughter. For both of them, the collaboration between Sight Savers and the UAB Center for Low Vision Rehabilitation resulted in a day of smiles.



Watch this story at uabmedicine.org/perspective



Front row from left: Durden Dean, Torrey Van Antwerp DeKeyser, Brian Spraberry, Sandra Blackwood; Back row from left: Lowell Bonds, Robert C. Field, J. Frank Moore, III

👁️ Renovation of Emergency Department and Lions Clinic Expands Access to Care

by DON MILAZZO

The UAB Callahan Eye Hospital completed an important project in summer 2014, renovating its emergency department (ED) and Lions Eye Clinic to better serve patients. The Lion's Eye Clinic serves lower-income patients by providing eye exams, individual and family training, and referrals for low-vision assistance, transportation, and other services.

Officially unveiled during a ceremony on July 31, the remodeled space on the hospital's ground floor features a diagnostic center with new exam chairs and a new optical coherence tomography, or OCT, system that

captures three-dimensional images of the eye. As part of the project, the Lions Eye Clinic was relocated from the second floor to be adjacent to the ED, so that diagnostic equipment can more easily be shared and treatment suites may be used during periods of ED overflow. Wheelchair accessibility also was improved.

In addition to the OCT system – which provides detailed images of the eye for ocular diagnostic purposes – the renovated space features technology such as the LENSTAR LS 900 A-scan and a Pentacam, both of which enhance diagnostic capabilities.

“This renovation marked an important step forward for Callahan Eye Hospital, as it allowed us to implement many changes that will benefit patients and allow our ophthalmologists to deliver even better care to the community and our emergency department visitors.”

– Brian Spraberry
President & CEO, UAB Callahan Eye Hospital



Durden Dean, Christopher Girkin, M.D., Brian Spraberry

UAB Callahan Eye Hospital President and CEO Brian Spraberry said he appreciates the donors who funded the project, including the Carl G. and Pauline B. Buck Trust, The Eyesight Foundation of Alabama, Lions International and Lions Clubs of Alabama, the International Retinal Research Foundation, and a Cy Pres Grant.

“This renovation marked an important step forward for Callahan Eye Hospital, as it allowed us to implement many changes that will benefit patients and allow our ophthalmologists to deliver even better care to the community and our emergency department visitors,” Spraberry said. “We are very fortunate to have supporters who believe in our mission and share our vision.”

Callahan Eye Hospital is among the leading facilities of its kind, and it is home to one of only two Level 1 Ocular Trauma Centers in the United States with a 24/7 eye emergency department.



POWERFUL PARTNERSHIPS

Alabama Lions Sight

Alabama Lions Sight is a program of the Lions Clubs of Alabama that promotes sight conservation through research, education, detection, and treatment. It funds much-needed eye care services and provides vision screenings for thousands of children and adults each year.

Since the founding of UAB Callahan Eye Hospital, the Lions Clubs of Alabama has helped provide quality eye care to low-income citizens in our community. Together, we have helped change the lives of Alabamians and opened their eyes to the future.

Visit alsca.org to learn more.

ED Lions Club Donors

CARL G. AND PAULINE B. BUCK TRUST

CY PRES GRANT

THE EYESIGHT FOUNDATION OF ALABAMA

INTERNATIONAL RETINAL RESEARCH FOUNDATION

LIONS INTERNATIONAL AND LIONS CLUBS OF ALABAMA

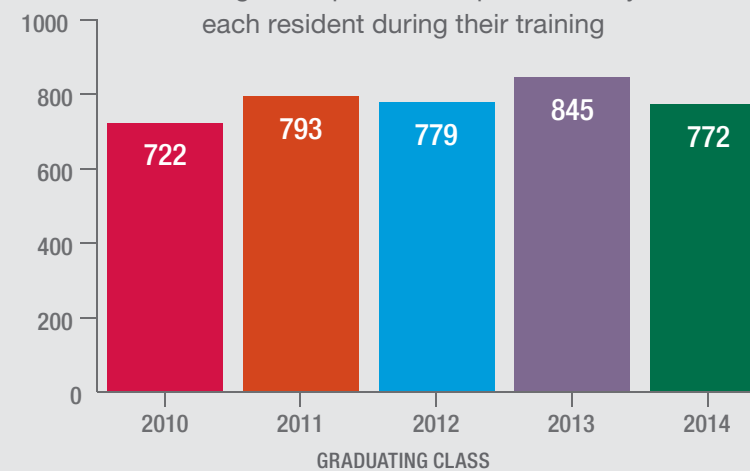
ANONYMOUS DONOR

EDUCATION



RESIDENT PROCEDURE VOLUME

Average total procedures performed by each resident during their training



CAREER PATH FOR RESIDENTS

During the past 10 years our residents have chosen the following specialties:

Comprehensive	13
Retina	10
Cornea	9
Oculoplastics	6
Glaucoma	5
Pediatrics	5
Neuro-Ophthalmology	2



RESIDENTS PROVIDED COMPREHENSIVE EYE CARE FOR NEARLY 9,000 LOW-INCOME ALABAMIANS IN 2014.

Training Programs

UAB Ophthalmology provides comprehensive training programs for medical students, residents, and fellows. It is the only ophthalmology training program in the state and offers an exceptional foundation of knowledge for the next generation of ophthalmologists. The well-rounded program provides trainees the experience needed to excel in any area of ophthalmology.

The region's only dedicated 24-hour eye emergency room, located at the UAB Callahan Eye Hospital, gives trainees exposure to a high volume of varied cases. The program also offers diverse experience at various facilities including the Birmingham Veteran's Affairs Medical Center, Cooper Green Mercy Health System, UAB Hospital, and Children's of Alabama.

Residents train with faculty from every clinical subspecialty and also complete a research project with the department's renowned researchers. Additionally, those interested can participate in a more in-depth research track if they choose.

FELLOWSHIP PROGRAM

A fellowship with UAB Ophthalmology can propel one to a rewarding career. As a high-volume clinical practice, UAB offers fellows extensive experience. Fellows have a supervisory role with residents in the operating room and at outpatient clinics at UAB Callahan Eye Hospital, Veteran's Affairs Hospital, and Cooper Green Mercy Health System. Throughout the year-long program, fellows are given increasing responsibility in surgery. Fellowship opportunities are available in glaucoma, neuro-ophthalmology, oculoplastics, and retina.

MEDICAL STUDENT OPPORTUNITIES

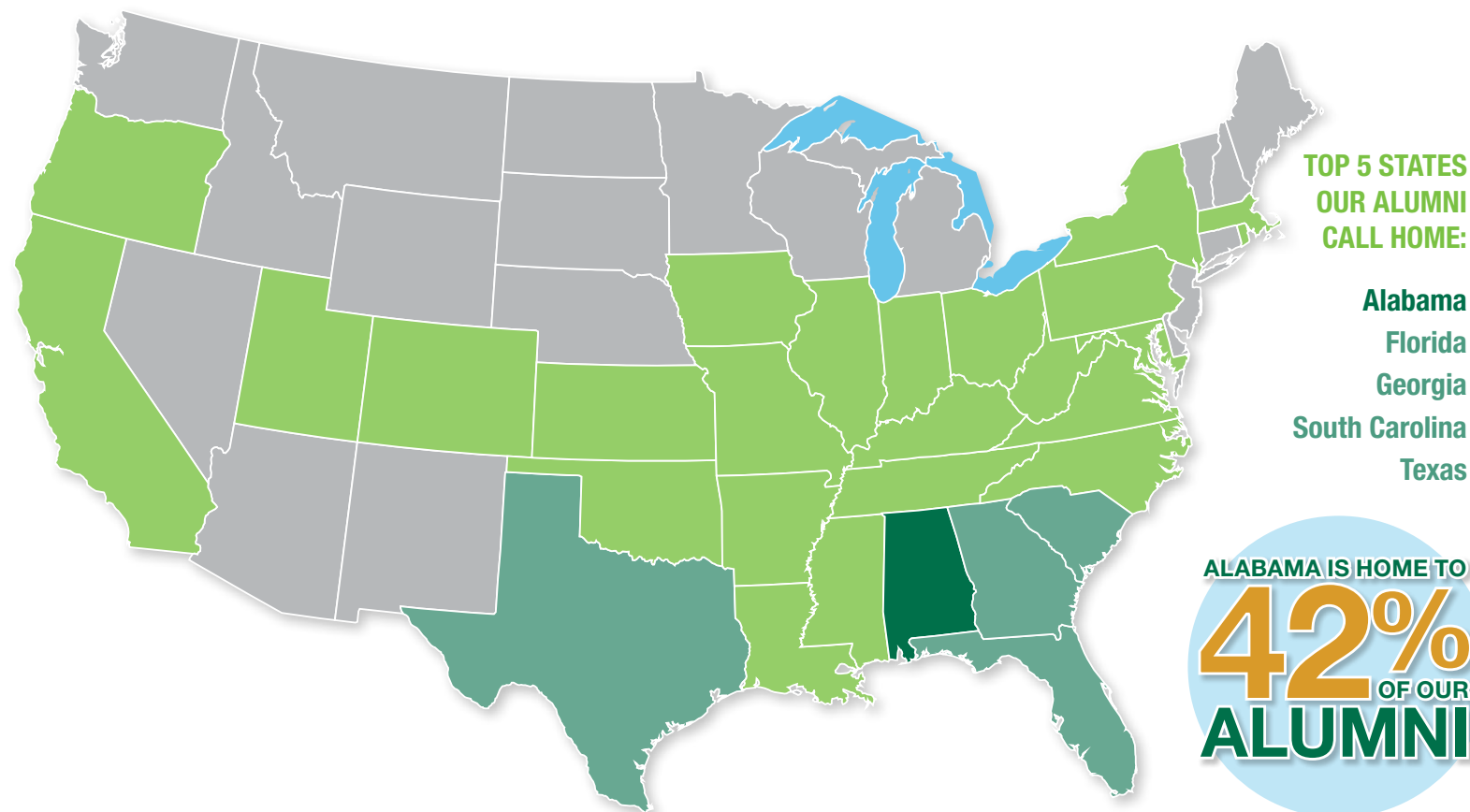
The department of ophthalmology offers research opportunities in all areas of ophthalmology for medical students interested in either laboratory or clinical research. This competitive program provides medical students the experience necessary to determine if they want to pursue ophthalmology in the future. These research opportunities are available as either a scholarly activity, which is an intensive two-month experience during the second or third year of medical school, or as a summer research fellowship for students following their first year of medical school.

Residents and Fellows



Where Are Our Alumni?

OUR GRADUATES PRACTICE OPHTHALMOLOGY ACROSS THE NATION.



THIRD-YEAR RESIDENTS

- Ryan Burton, M.D.
- Katherine Donnithorne, M.D.
- Jay Glover, M.D.
- Rushil Rao, M.D.
- Jewel Sandy, M.D.

SECOND-YEAR RESIDENTS

- Kevin Bray, M.D.
- Pooja Godara, M.D.
- Carter Kirk, M.D.
- David Neely, M.D.
- John Parker, Jr., M.D.

FIRST-YEAR RESIDENTS

- William Gannon, M.D.
- Austin Gerber, M.D.
- Elizabeth Keeble, M.D.
- Adam Quinn, M.D.
- Michael Rolfson, M.D.

FELLOWS



Shawn Agee, M.D.
Retina



Daniel Kasuga, M.D.
Retina



Deepthi Reddy, M.D.
Retina



Vikram Saini, M.D.
Retina



Jennifer Doyle, M.D.
Neuro-ophthalmology



Mark Kosko, M.D.
Glaucoma



Jordan Spindle, M.D.
Oculoplastics



Nick Tosi, M.D.
Retina



FACULTY EXCELLENCE

Read named to endowed professorship



Russell W. Read, M.D., Ph.D., was named the inaugural holder of the Max and Lorayne Cooper Endowed Professorship in Ophthalmology Residency Training.

“Dr. Read has been instrumental in positioning our residency program as a leading program for educating the ophthalmologists of tomorrow. This professorship is well-deserved and will provide Dr. Read with the resources to continue to strengthen our outstanding program,” said Christopher A. Girkin, M.D., M.S.P.H., professor and EyeSight Foundation of Alabama Chair.

The UAB program is the only ophthalmology residency program in the state. Each year the program selects five residents from more than 350 applicants. The residents receive training from knowledgeable ophthalmologists and benefit from clinical experience in an innovative facility. The robust program also offers interested residents the opportunity to receive training in basic science research.

Dr. Read, who joined the faculty in 2000, has served as the residency program director since 2008. His clinical practice and research are focused on ocular immunology and inflammatory diseases of the eye. He is a well-known ophthalmologist and has received the Research to Prevent Blindness Physician Scientists Award. The executive secretary for the American Uveitis Society, Dr. Read serves on the board of directors of the Alabama Academy of Ophthalmology and on the editorial board of the *Journal of Ophthalmic Inflammation and Infection*.

Dr. Read received his medical degree from UAB in 1994 and completed his residency at the University of Washington in Seattle. He completed dual fellowships in uveitis/ocular inflammatory diseases and ophthalmic pathology at the Doheny Eye Institute/Keck School of Medicine of USC and received a doctorate in microbiology from UAB in 2007.

“UAB has always been known as an outstanding clinical and surgical program, and it is exciting to be on the forefront as it incorporates research, which will help the program continue to gain national recognition.”

– David Neely, M.D.



Pooja Godara, M.D., is researching ocular perfusion pressure (OPP) with J. Crawford Downs, Ph.D., and the UAB Ocular Biomechanics and Biotransport Program. Her work focuses on characterizing OPP fluctuations on a second-by-second basis using novel

methods Dr. Downs developed to constantly track intraocular pressure (IOP) fluctuations. IOP is a known risk factor for glaucoma, and recently Dr. Downs' work has shown that IOP is much more dynamic than previously thought. Increasingly, OPP is receiving attention as a possible risk factor for glaucoma. This clinically relevant research has allowed Dr. Godara to broaden her understanding of a disease she routinely treats in her clinical training.



David Neely, M.D., is working with Christine A. Curcio, Ph.D., to determine the prevalence of subretinal drusenoid deposits (SDD) in normal eyes and those with early or intermediate age-related macular degeneration (AMD). A genome-wide association study to identify single-nucleotide polymorphisms associated with SDD is planned. Dr. Neely developed an interest in AMD research during medical school at UAB. He plans to pursue a career as a clinician-scientist and said the relationships he developed as part of this project are invaluable to his future success.

Dr. Neely developed an interest in AMD research during medical school at UAB. He plans to pursue a career as a clinician-scientist and said the relationships he developed as part of this project are invaluable to his future success.



Jack Parker, M.D., has used his research time to directly pursue improved clinical and surgical treatments for corneal disease. Parker is working with renowned Dutch ophthalmologist, Gerrit Melles, M.D., Ph.D., on an innovative new surgical procedure for advanced keratoconus. Dr.

Melles began mentoring Dr. Parker when he emailed the well-known ophthalmologist about his medical school final project. Since then the two have kept in touch, and, as a part of this resident research opportunity, Dr. Parker was able to spend five weeks in Rotterdam training and researching the new procedure. Through this experience Dr. Parker learned how to perform the surgery and published four scientific journal articles about the research. He hopes to start performing the surgery in the United States working with his father, cornea specialist John Parker, M.D.



Above: An eye with advanced keratoconus after Bowman Layer implantation, which appears almost indistinguishable from a healthy, unoperated eye.

Right: Only on high magnification, slit-lamp biomicroscopy is the transplanted Bowman layer visible as a thin white line, running through and supporting the patient's cornea.



Expanding Training Opportunities in Research

The class of 2016 is the first group of ophthalmology residents to participate in a new academic training pathway, which is intended for residents who have decided to pursue a career in academics upon completion of training. Three of the five residents in this inaugural class are participating. Although all trainees participate in research during residency, this new opportunity allows interested residents a more intensive research experience to prepare them for careers as clinician-scientists.

“In recent years the emphasis on research has been increased across the department, and we wanted the training program to also reflected that new depth,” said Russell W. Read, M.D., Ph.D., the Max and Lorayne Cooper Endowed Professor for Ophthalmology Residency Training.

Those who participate work with a faculty mentor on a research project of their choice. The academic path provides protected research time during the second year of residency, which allows the trainees to complete an 18-month project.

David Neely, M.D., said this opportunity was one of the main reasons he chose UAB for residency. “UAB has always been known as an outstanding clinical and surgical program and it is exciting to be on the forefront

as it incorporates research, which will help the program continue to gain national recognition,” he said.

Participating residents stressed that, rather than distracting from training, the academic focus actually enhances their experience.

“I plan to continue on to fellowship after my residency, because I do love being a physician. But participating in clinically relevant glaucoma research has expanded my understanding significantly,” said Pooja Godara, M.D. “Now when I see a patient in clinic I have a more robust understanding of elevated eye pressure, one of the key risk factors in glaucoma.”

The three residents are in the midst of research that will culminate in a podium presentation at the 2016 UAB Department of Ophthalmology Annual Clinical and Research Symposium. In the meantime they are collecting data, building relationships with other researchers, and submitting for publication and inclusion in scientific meetings such as the Association for Research in Vision and Ophthalmology (ARVO) annual meeting.

Drs. Godara, Neely, and Parker comprise the first class of participants. Their research topics are as follows:

THUNDER ON THE MOUNTAIN FIREWORKS SAFETY SPONSORSHIP

July 4, 2014



As an advocate of fireworks safety, the UAB Callahan Eye Hospital was the official Safety Sponsor of Birmingham's Fourth of July fireworks celebration, Thunder on the Mountain. The sponsorship provided an opportunity to educate the public on the dangers of fireworks, encourage consumers to leave fireworks to professionals, and raise awareness about the UAB Callahan Eye Hospital Level 1 Ocular Trauma Center. UAB ophthalmologists Priscilla Fowler, M.D., and Jay McCollum, M.D., were featured in the local and national press addressing the dangers of fireworks and offering tips on how to prevent eye injuries.

VISIONWALK

October 25, 2014



The UAB Callahan Eye Hospital and UAB Department of Ophthalmology cosponsored the 6th annual VisionWalk in Birmingham. VisionWalk is a signature fundraising event of the Foundation Fighting Blindness. UAB has been an active supporter and fundraiser of VisionWalk since its inception in Birmingham in 2009. UAB ophthalmologist Sara Mullins, M.D., served as this year's medical chair for the event.

GRAND ROUNDS

Monthly

Typically, residents present challenging cases that represent diagnostic and management dilemmas and often highlight new and emerging treatment modalities. Both UAB faculty and community physicians have an opportunity to share knowledge and offer their expertise in managing these difficult cases, making it an excellent learning opportunity for residents and attending physicians alike.

LUNCH AND LEARN

Monthly

This monthly seminar aims to provide employees, even those not directly involved in patient care, with a better understanding of ophthalmology and the eye. Ophthalmology residents give presentations such as "The Basics of Cataract Surgery" or "Headache, Ocular, and Facial Pain." As employees gain additional knowledge about eye health and disease, they will be better equipped to help patients.

2014-2015 RICH LECTURE SERIES

Now in its 22nd year, the Rich Lecture Series seeks to energize scientific discovery by hosting top-notch vision scientists at UAB. Speakers from a range of study areas are chosen to provide an overview of cutting-edge topics from across the field of vision science and ophthalmology. Lectures routinely spark intellectual discussion and collaboration.

August 27, 2014

Challenges of the Aging Eye

Jonathan G. Crowston, M.D., Ph.D.

Ringland Anderson Professor of Ophthalmology
University of Melbourne
Managing Director, Centre for Eye Research Australia

March 4, 2015

Linking Structure and Function in Glaucoma

Ronald S. Harwerth, Ph.D.

John and Rebecca Moores Professor
Chair, Department of Basic Sciences
University of Houston

October 8, 2014

Regenerative Ophthalmology, Bench to Bedside

Jeffrey L. Goldberg, Ph.D.

Professor
University of California, San Diego
Shiley Eye Center

April 8, 2015

Insights into the Activation and Function of the Pro-apoptotic BAX Protein through the Study of Retinal Ganglion Cell Death

Robert W. Nickells, Ph.D.

Professor
Department Ophthalmology & Visual Sciences
University of Wisconsin

December 10, 2014

Is Systemic Immunosuppression a Safe Therapeutic Approach for Patients With Eye Diseases?

John H. Kempen, M.D., Ph.D.

Professor of Ophthalmology and Epidemiology
Director, Ocular Inflammation Service
Director, Ophthalmic Epidemiology and International Ophthalmology
University of Pennsylvania Perelman School of Medicine
The Scheie Eye Institute

April 22, 2015

Adaptive Optics Imaging of the Inner Retina in Diabetes and Hypertension

Stephen A. Burns, Ph.D.

Professor, School of Optometry
Associate Dean for Graduate Programs
Indiana University

February 4, 2015

Defining Disease Mechanisms and Developing Treatment Strategies for Age-Related Macular Degeneration: The Mitochondria at Ground Zero

Deborah A. Ferrington, Ph.D.

Associate Professor
Elaine and Robert Larson Endowed Vision Research Chair
Department of Ophthalmology and Visual Neurosciences
University of Minnesota

May 20, 2015

What have We Learned from Genetic Studies of Complex Eye Disease?

Dwight Stambolian, M.D., Ph.D.

Associate Professor of Ophthalmology
University of Pennsylvania



MIYOUNG KWON, PH.D., joins the UAB Department of Ophthalmology as an assistant professor. Dr. Kwon's research focuses on understanding how eye disorders impact the way visual information is processed in the brain and how the brain learns to see the world in degraded viewing conditions. Her ultimate goal is to identify factors that limit visual performance and use this understanding to improve the functional vision of those with visual impairment.

"We are delighted that Dr. Kwon has joined our faculty. Her research on how the brain processes visual information in persons with various eye disorders is cutting-edge and is critical for developing effective treatments and rehabilitation strategies for persons with vision impairment," said Cynthia Owsley, Ph.D., M.S.P.H., professor and Nathan E. Miles Chair of Ophthalmology.

Dr. Kwon obtained her Ph.D. in cognitive and biological psychology from the University of Minnesota. After graduation, she was a postdoctoral researcher associated with the computational and functional vision lab at the University of Southern California. Most recently, Dr. Kwon completed a two-year postdoctoral fellowship at the Schepens Eye Research Institute, Harvard Medical School.

She currently is a member of the Vision Sciences Society (VSS), the Association for Research in Vision and Ophthalmology (ARVO), and the Society for Neuroscience (SfN).



SARAH C. GORDON, O.D., joined the UAB Department of Ophthalmology faculty in fall 2014. Dr. Gordon is a Mississippi native and graduate of the UAB School of Optometry. She founded her practice, Inverness Eye Care, in 1986. She is past president of the Alabama Optometric

Association and served on the board of trustees for the Southern Council of Optometry. As a UAB faculty member, Dr. Gordon will participate in initiatives aimed at expanding access to tertiary care for her patients.

"Dr. Gordon is a talented optometrist, with whom we've shared patients for many years, and we are glad to welcome her into our faculty. This is an exciting partnership that directly benefits patients by improving their access to care," said Christopher A. Girkin, M.D., EyeSight Foundation of Alabama Chairman, UAB Department of Ophthalmology. "As eye care needs continue to increase, it is important that we develop integrated models for care delivery like this one to better serve our community."



FACULTY EXCELLENCE

Rhodes named to prestigious Leadership Development class

by Bob Shepard



Lindsay A. Rhodes, M.D.

Lindsay A. Rhodes, M.D., assistant professor in the Department of Ophthalmology at the University of Alabama at Birmingham, was named to the American Academy of Ophthalmology's Leadership Development Program Class of 2015. This prestigious program represents a commitment by the AAO to develop future leaders.

The group comprises 20 ophthalmologists from across the United States and one international appointee. Rhodes, who joined the faculty in 2013 upon completion of her glaucoma fellowship and residency at UAB, has taken an active role in the ophthalmic community.

"Dr. Rhodes' selection for this program comes as no surprise to those of us who have known her since her residency," said Russell W. Read, M.D., Ph.D., professor and ophthalmology residency program director. "She functioned from the beginning as a leader and has been active in advocacy efforts from the earliest stage of her career in ophthalmology. The Academy's LDP made an excellent choice, and we look forward to her progression into ever greater levels of leadership."

Rhodes also serves on the board of directors for the Alabama Academy of Ophthalmology and on the Young Ophthalmologist Advocacy Subcommittee of the American Academy of Ophthalmology.

"I am very excited about the opportunity to develop leadership skills that will help me make positive changes to the field of ophthalmology and improve the care we provide our patients," Rhodes said.

Rhodes is a comprehensive ophthalmologist and glaucoma specialist. She also is involved in clinical research focused on developing new strategies to provide quality, cost-effective glaucoma care to a rapidly growing aging population.



MICHAEL A. ALBERT, JR., M.D.

EDUCATION:
Residency in Ophthalmology: University of Alabama at Birmingham
Fellowship: Retina Consultants of Alabama

ACADEMIC APPOINTMENT:
Associate Professor



ANN MARIE ARCINIEGAS-BERNAL, M.D.

EDUCATION:
Medical School: University of Alabama at Birmingham
Internship: Henry Ford Hospital, Detroit
Residency in Ophthalmology: Henry Ford Hospital, Detroit
Fellowship: W.K. Kellogg Eye Center, University of Michigan

ACADEMIC APPOINTMENT:
Assistant Professor of Ophthalmology



RITA ARMITAGE, M.D.

EDUCATION:
Medical School: University of Kentucky
Residency in Ophthalmology: University of Alabama at Birmingham

ACADEMIC APPOINTMENT:
Associate Professor of Ophthalmology



MARTIN S. COGEN, M.D.

EDUCATION:
Medical School: University of Alabama at Birmingham
Internship: University of Alabama at Birmingham
Residency in Ophthalmology: University of Alabama at Birmingham
Fellowship: James Hall Eye Center/Scottish Rite Children's Hospital

ACADEMIC APPOINTMENT:
Chief of Division of Pediatric Ophthalmology and Strabismus, Professor of Ophthalmology



R. JEFFREY CRAIN, M.D.

EDUCATION:
Medical School: University of Alabama at Birmingham
Residency in Ophthalmology: University of Alabama at Birmingham

ACADEMIC APPOINTMENT:
Director, Birmingham Veterans Affairs Medical Center Ophthalmology Service; Associate Professor of Ophthalmology



CHRISTINE A. CURCIO, PH.D.

EDUCATION:
Undergraduate Degree: Brown University, Biology
Graduate Education: University of Wisconsin-Madison; University of Rochester, Ph.D., Anatomy
Postdoctoral Fellowship: Boston University, School of Medicine; University of Washington School of Medicine

ACADEMIC APPOINTMENT:
Professor of Ophthalmology



DAWN K. DECARLO, O.D., M.S., M.S.P.H.

EDUCATION:
Postgraduate Training: University of Alabama at Birmingham, Doctorate of Optometry, M.S., Physiological Optics M.S.P.H., Epidemiology
Residency Training: Hines Central Blind Rehabilitation and Chicago West Side Veterans Administration Medical Center

ACADEMIC APPOINTMENT:
Associate Professor of Ophthalmology; Director, UAB Center for Low Vision Rehabilitation



J. CRAWFORD DOWNS, PH.D.

EDUCATION:
Undergraduate Degree: Tulane University, Economics
Graduate Education: Economics (M.A.); Biomedical Engineering (M.S. and Ph.D.)
Postdoctoral Fellowship: LSU Eye Center; Louisiana State University Health Sciences Center

ACADEMIC APPOINTMENT:
Professor of Ophthalmology; Vice Chair of Research; Director, Ocular Biomechanics and Biotransport Program

Faculty Listing



LAURA DREER, PH.D.

EDUCATION:

Undergraduate Degree: Central Michigan University, Psychology
Graduate Education: University of Hartford, Clinical Psychology (M.A.); Central Michigan University, Clinical Psychology (Ph.D.)
Postdoctoral Fellowships: Duke University Medical Center (neuropsychology); University of Alabama at Birmingham (Medical Rehabilitation Psychology)

ACADEMIC APPOINTMENT:

Associate Professor of Ophthalmology;
Director, Psychological & Neuropsychology Clinical Research Services



ANDREW W. EVERETT, M.D.

EDUCATION:

Medical School: University of South Alabama
Internship: Birmingham Baptist Medical Center, Birmingham
Residency in Ophthalmology: University of Alabama at Birmingham
Fellowship in Glaucoma: University of Alabama at Birmingham

ACADEMIC APPOINTMENT:

Assistant Professor of Ophthalmology



RICHARD M. FEIST, M.D.

EDUCATION:

Medical School: University of Alabama at Birmingham
Residency in Ophthalmology: University of Illinois, Eye and Ear Infirmary
Vitreoretinal Diseases and Surgery Fellowship: University of Iowa

ACADEMIC APPOINTMENT:

Associate Professor of Ophthalmology



PRISCILLA FOWLER, M.D.

EDUCATION:

Medical School: University of South Alabama
Internship: Baptist Health System, Birmingham
Residency in Ophthalmology: University of Alabama at Birmingham
Fellowship, Cornea and External Disease/Refractive Surgery: Wills Eye Institute, Philadelphia

ACADEMIC APPOINTMENT:

Director, Cornea Service;
Assistant Professor of Ophthalmology



PAUL D. GAMLIN, PH.D.

EDUCATION:

Undergraduate Degree: University of Cambridge, England
Graduate Degree: State University of New York Stony Brook (Ph.D.)
Postdoctoral Training: University of Alabama at Birmingham

ACADEMIC APPOINTMENT:

Professor of Ophthalmology

SECONDARY APPOINTMENTS:

Professor, Department of Neurobiology;
Professor, Department of Psychology;
Professor, Department of Biomedical Engineering; Senior Scientist, Vision Science Research Center; Senior Scientist, School of Medicine Center for Aging; Senior Scientist, Civitan International Research Center



CHRISTOPHER A. GIRKIN, M.D., M.S.P.H., F.A.C.S.

EDUCATION:

Medical School: University of Arkansas
Internship: University of Arkansas
Residency in Ophthalmology: University of Alabama at Birmingham Department of Ophthalmology
Fellowship: Wilmer Eye Institute & Shiley Eye Center

ACADEMIC APPOINTMENT:

EyeSight Foundation of Alabama Chair, UAB Department of Ophthalmology; Chief Medical Officer, UAB Callahan Eye Hospital



RAFAEL GRYTZ, PH.D.

EDUCATION:

Graduate Education: Civil Engineering, Ruhr-University Bochum, Germany (M.S. and Ph.D.)
Fellowship: Devers Eye Institute, Portland, Ore.

ACADEMIC APPOINTMENT:

Assistant Professor of Ophthalmology

SECONDARY APPOINTMENTS:

Assistant Professor of Biomedical Engineering



D. WADE JOINER, M.D.

EDUCATION:

Medical School: University of South Alabama College of Medicine
Internship: Carraway Methodist Medical Center, Birmingham
Residency in Ophthalmology: University of Alabama at Birmingham
Glaucoma Fellowship: New York Eye and Ear Infirmary

ACADEMIC APPOINTMENT:

Associate Professor of Ophthalmology



LANNING B. KLINE, M.D.

EDUCATION:

Medical School: Duke University
Internship: Duke University
Residency in Ophthalmology: McGill University
Fellowship: Bascom Palmer Eye Institute & Montreal Neurological Institute

ACADEMIC APPOINTMENT:

Professor of Ophthalmology



VIRGINIA LOLLEY, M.D., F.A.C.S.

EDUCATION:

Medical School: Tulane University School of Medicine
Internship: Carraway Methodist Medical Center
Residency in Ophthalmology: University of Alabama at Birmingham

ACADEMIC APPOINTMENT:

Assistant Professor of Ophthalmology



JOHN O. MASON, M.D.

EDUCATION:

Medical School: University of Alabama at Birmingham
Residency in Ophthalmology: University of Alabama at Birmingham
Vitreoretinal Diseases and Surgery Fellowship: Wills Eye Hospital, Philadelphia

ACADEMIC APPOINTMENT:

Associate Professor of Ophthalmology



ANDREW MAYS, M.D.

EDUCATION:

Medical School: University of Alabama at Birmingham
Internship: Carraway Methodist Medical Center, Birmingham
Residency in Ophthalmology: University of Alabama at Birmingham
Glaucoma Fellowship: University of Florida

ACADEMIC APPOINTMENT:

Associate Professor of Ophthalmology



CECIL JAMES MCCOLLUM, M.D.

EDUCATION:

Medical School: University of Alabama at Birmingham
Residency in Ophthalmology: University of Alabama at Birmingham
Fellowship: Duke University

ACADEMIC APPOINTMENT:

Director of Emergency Services, Clinical Assistant Professor



GERALD MCGWIN, M.S., PH.D.

EDUCATION:

Undergraduate Education: University of Vermont
Graduate Education: Harvard University, M.S.; University of Alabama at Birmingham, Ph.D.

ACADEMIC APPOINTMENT:

Professor of Ophthalmology; Associate Director, Clinical Research Unit



SARA MULLINS, M.D.

EDUCATION:

Medical School: LSU Health Sciences Shreveport
Residency in Ophthalmology: University of Alabama at Birmingham

ACADEMIC APPOINTMENT:

Clinical Instructor

Faculty Listing



LINA NAGIA, D.O.

EDUCATION:

Residency in Ophthalmology: Valley Hospital Medical Center, Las Vegas
Fellowship, medical retina: Koch Eye Associates, Warwick, R.I.
Fellowship, neuro-ophthalmology: Michigan State University

ACADEMIC APPOINTMENT:

Assistant Professor of Ophthalmology



CYNTHIA OWSLEY, PH.D., M.S.P.H.

EDUCATION:

Undergraduate Education: Wheaton College, Norton, Mass.
Graduate Education: University of Alabama at Birmingham, M.S.P.H., Epidemiology; Cornell University, Ph.D., Psychology
Postdoctoral Training: Northwestern University, Psychology, Neuroscience, Ophthalmology

ACADEMIC APPOINTMENT:

Professor of Ophthalmology; Nathan E. Miles Chair of Ophthalmology; Director, Clinical Research Unit; Vice Chair of Research Administration



RUSSELL W. READ, M.D., PH.D.

EDUCATION:

Residency in Ophthalmology: University of Washington Seattle
Fellowship, uveitis/ocular inflammatory disease: Doheny Eye Institute, University of Southern California

ACADEMIC APPOINTMENT:

Max and Lorayne Cooper Professor for Ophthalmology Residency Training; Director, Uveitis/Ocular Inflammatory Disease Service; Professor of Ophthalmology and Pathology



LINDSAY RHODES, M.D.

EDUCATION:

Medical School: Northwestern University Feinberg School of Medicine, Chicago
Residency in Ophthalmology: University of Alabama at Birmingham
Fellowship, glaucoma: University of Alabama at Birmingham

ACADEMIC APPOINTMENT:

Assistant Professor of Ophthalmology



CAROL ROSENSTIEL, O.D., F.A.A.O.

EDUCATION:

Undergraduate Degree: University of Alabama at Birmingham
Postgraduate Training: University of Alabama at Birmingham School of Optometry

ACADEMIC APPOINTMENT:

Associate Professor of Ophthalmology; Director, Contact Lens Service



BRIAN C. SAMUELS M.D., PH.D.

EDUCATION:

Medical School: Indiana University
Internship: IU/Methodist Hospital Translational Year Residency Program
Residency in Ophthalmology: University of Alabama at Birmingham
Clinical and Research Fellowships in Glaucoma: Duke University

ACADEMIC APPOINTMENT:

Assistant Professor of Ophthalmology



JENNIFER T. SCRUGGS, M.D.

EDUCATION:

Undergraduate Degree: Wake Forest University
Medical School: University of Arkansas for Medical Sciences
Internship: Mayo Clinic Jacksonville
Residency in Ophthalmology: Emory University
Fellowship, Oculoplastic Surgery: New York University, Columbia University, New York Eye and Ear Infirmary, and Manhattan Eye, Ear and Throat Hospital

ACADEMIC APPOINTMENT:

Associate Professor of Ophthalmology; Director, Division of Oculoplastic Surgery



HAROLD SKALKA, M.D., F.A.C.S.

EDUCATION:

Medical School: New York University
Internship: Greenwich Hospital
Residency in Ophthalmology: New York University
Fellowship: New York University

ACADEMIC APPOINTMENT:

Professor of Ophthalmology



JASON C. SWANNER, M.D., F.A.C.S.

EDUCATION:

Medical School: University of South Alabama College of Medicine
Residency in Ophthalmology: University of Alabama at Birmingham
Fellowship: Massachusetts Eye and Ear Infirmary, Harvard School of Medicine

ACADEMIC APPOINTMENT:

Professor of Ophthalmology



MARTIN THOMLEY, M.D.

EDUCATION:

Medical School: University of Alabama at Birmingham
Residency in Ophthalmology: Bascom Palmer Eye Institute
Vitreoretinal Diseases and Surgery Fellowship: Bascom Palmer Eye Institute

ACADEMIC APPOINTMENT:

Associate Professor of Ophthalmology



MICHAEL S. VAPHIADES, D.O.

EDUCATION:

Medical Internship: Brown University
Residency in Neurology: Loyola University, Chicago
Fellowship in Neuro-Ophthalmology: Michigan State University

ACADEMIC APPOINTMENT:

Chief, Neuro-Ophthalmology and Electrophysiology Services; Professor of Ophthalmology, Neurology and Neurosurgery



SHU-ZHEN WANG, PH.D.

EDUCATION:

Graduate Education: Virginia Polytechnic Institute & State University
Previous Appointments: Wilmer Eye Institute, Johns Hopkins University School of Medicine

ACADEMIC APPOINTMENT:

Professor of Ophthalmology

Faculty Listing



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EDUCATION:

Residency in Ophthalmology: University of Alabama at Birmingham
Fellowship, Vitreoretinal: University of Tennessee

ACADEMIC APPOINTMENT:

Professor of Ophthalmology



JEFF YEE, M.D., M.S.

EDUCATION:

Undergraduate Degree: UCLA, chemistry
Graduate Degree: UCLA, physical chemistry
Medical School: University of California-Irvine
Internship: White Memorial Medical Center, Los Angeles, CA
Residency in Ophthalmology: University of South Florida

ACADEMIC APPOINTMENT:

Medical Director, Lions Eye Clinic; Associate Professor of Ophthalmology



YUHUA ZHANG, PH.D.

EDUCATION:

Undergraduate Education: Tianjin University, China
M.S., Optical Engineering: Chinese Sciences Academy, China
Ph.D., Precision Metrology & Instruments Engineering: Tianjin University, China
Post-doctoral Training: Beijing Institute of Technology; Auckland University, New Zealand

ACADEMIC APPOINTMENT:

Assistant Professor of Ophthalmology

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MYRA AULTMAN, C.R.N.A., M.N.A., M.S.H.A.
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The UAB Callahan Eye Hospital and Ophthalmology Services Foundation would like to recognize the members of their boards of directors for their dedicated service. Their leadership and guidance have positively impacted the growth and success of both organizations, and we greatly appreciate their invaluable contributions.

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C. BRIAN SPRABERRY, M.S.H.A.
UAB Callahan Eye Hospital
President & Chief Executive Officer

Publications

AGE-RELATED MACULAR DEGENERATION

Rodriguez, IR, Clark ME, Lee JW, **Curcio CA**. 7-ketocholesterol accumulates in ocular tissues as a consequence of aging and is present in high levels in drusen. *Exp. Eye Res.* 2014; 128: 151-155. PMID 25261634

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Ach T, Huisingsh C, **McGwin G Jr**, Messinger JD, Zhang T, Bentley MJ, Gutierrez DB, Ablonczy Z, Smith RT, Sloan KR, **Curcio CA**. Quantitative autofluorescence and cell density maps of the human retinal pigment epithelium. *Invest Ophthalmol Vis Sci.* 2014; 55: 4832-4841. PMID: 25034602

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Zhang Y, Wang X, Rivero EB, Clark ME, **Witherspoon CD**, Spaide RF, **Girkin CA**, **Owsley C**, **Curcio CA**. Photoreceptor perturbation around subretinal drusenoid deposits as revealed by adaptive optics scanning laser ophthalmoscopy. *American Journal of Ophthalmology.* 2014; 158: 584-596. PMID: 24907433

Oak AS, Messinger JD, **Curcio CA**. Subretinal drusenoid deposits: further characterization by lipid histochemistry. *Retina.* 2014; 34: 825-826. PMID: 24589874

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Owsley C, Huisingsh C, Jackson GR, **Curcio CA**, Szalai AJ, Dashti N, Clark M, Rookard K, McCrory MA, Wright TT, Callahan MA, **Kline LB**, **Witherspoon CD**, **McGwin G Jr**. Associations between abnormal rod-mediated dark adaptation and health and functioning in older adults with normal macular health. *Invest Ophthalmol Vis Sci.* 2014; 55: 4776-4789. PMID: 24854857

Owsley C, Huisingsh C, Jackson GR, **Curcio CA**, Szalai AJ, Dashti N, Clark M, Rookard K, McCrory MA, Wright TT, Callahan MA, **Kline LB**, **Witherspoon CD**, **McGwin G Jr**. Associations between abnormal rod-mediated dark adaptation and health and functioning in older adults with normal macular health. *Invest Ophthalmol Vis Sci.* 2014; 55: 4776-4789. PMID: 24854857

Ooto S, Vongkulsiri S, Sato T, Suzuki M, **Curcio CA**, Spaide RF. Outer retinal corrugations in age-related macular degeneration. *JAMA Ophthalmol.* 2014; 132: 806-813. PMID: 24801396

Mrejen S, Sato T, **Curcio CA**, Spaide RF. Assessing the cone photoreceptor mosaic in eyes with pseudodrusen and soft drusen in vivo using adaptive optics imaging. *Ophthalmology.* 2014; 121: 545-551. PMID: 24183341

Li M, Jia C, Kazmierkiewicz KL, Bowman AS, Tian L, Liu Y, Gupta NA, Gudiseva HV, Yee SS, Kim M, Dentchev T, Kimble JA, Parker JS, Messinger JD, Hakonarson H, **Curcio CA**, Stambolian D. Comprehensive analysis of gene expression in human retina and supporting tissues. *Hum Mol Genet.* 2014; 23: 4001-4014. PMID: 24634144

Fritsche LG, Fariss RN, Stambolian D, Abecasis GR, **Curcio CA**, Swaroop A. Age-related macular degeneration: genetics and biology coming together. *Annu Rev Genomics Hum Genet.* 2014; 15: 151-171. PMID: 24773320

Wang SZ, Yan RT. The Retinal Pigment Epithelium: a Convenient Source of New Photoreceptor cells? *J Ophthalmic Vis Res.* 2014; 9: 83-93. PMID: 24982737

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GLAUCOMA

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Yousefi S, Goldbaum MH, Balasubramanian M, Jung TP, Weinreb RN, Medeiros FA, Zangwill LM, Liebmann JM, **Girkin CA**, Bowd C. Glaucoma progression detection using structural retinal nerve fiber layer measurements and functional visual field points. *IEEE Trans Biomed Eng.* 2014; 61: 1143-1154. PMID: 24658239

Yang H, He L, Gardiner SK, Reynaud J, Williams G, Hardin C, Strouthidis NG, **Downs JC**, Fortune B, Burgoyne CF. Age-related differences in longitudinal structural change by spectral-domain optical coherence tomography in early experimental glaucoma. *Invest Ophthalmol Vis Sci.* 2014; 55: 6409-6420. PMID: 25190652

Grytz R, Fazio MA, Libertaux V, Bruno L, Gardiner S, **Girkin CA**, **Downs JC**. Age- and race-related differences in human scleral material properties. *Invest Ophthalmol Vis Sci.* 2014; 55: 8163-8172. PMID: 25389203

Wallace DM, Murphy-Ullrich JE, **Downs JC**, O'Brien CJ. The role of matricellular proteins in glaucoma. *Matrix Biol.* 2014; 37: 174-182. PMID: 24727033

Fazio MA, **Grytz R**, Morris JS, Bruno L, **Girkin CA**, **Downs JC**. Human Scleral Structural Stiffness Increases More Rapidly with Age in Donors of African Descent Compared to Donors of European Descent. *Invest Ophthalmol Vis Sci.* 2014; 55: 7189-7198. PMID: 25237162

Fazio MA, **Grytz R**, Morris JS, Bruno L, Gardiner SK, **Girkin CA**, **Downs JC**. Age-related changes in human peripapillary scleral strain. *Biomech Model Mechanobiol.* 2014; 13: 551-563. PMID: 23896936

Grytz R, Fazio MA, Girard MJ, Libertaux V, Bruno L, Gardiner S, **Girkin CA**, **Downs JC**. Material properties of the posterior human sclera. *J Mech Behav Biomed Mater.* 2014; 29: 602-617. PMID: 23684352

Rhodes LA, Huisingsh C, Johnstone J, Fazio M, Smith B, Clark M, **Downs JC**, **Owsley C**, Girard MJ, Mari JM, **Girkin CA**. Variation Of Laminar Depth In Normal Eyes With Age And Race. *Investigative Ophthalmology & Visual Science* 2014; 55: 8123-8133. PMID: 25414182

Johnstone J, Fazio M, Rojananuangnit K, Smith B, Clark M, **Downs JC**, **Owsley C**, Girard MJ, Mari JM, **Girkin CA**. Variation of the axial location of Bruch's membrane opening with age, choroidal thickness, and race. *Invest Ophthalmol Vis Sci.* 2014; 55: 2004-2009. PMID: 24595390

Miki A, Medeiros FA, Weinreb RN, Jain S, He F, Sharpsten L, Khachatryan N, Hammel N, Liebmann JM, **Girkin CA**, Sample PA, Zangwill LM. Rates of retinal nerve fiber layer thinning in glaucoma suspect eyes. *Ophthalmology.* 2014; 121: 1350-1358. PMID: 24629619

HEALTH DISPARITIES & SERVICES

Maclennan PA, **McGwin G Jr**, Heckemeyer C, **Lolley VR**, Hullett S, Saaddine J, Shrestha SS, **Owsley C**. Eye care use among a high-risk diabetic population seen in a public hospital's clinics. *JAMA Ophthalmol.* 2014; 132: 162-167. PMID: 24310149

Dreer LE, Weston J, **Owsley C**. Strategic Planning for Recruitment and Retention of Older African Americans in Health Promotion Research Programs. *J Health Dispar Res Pract.* 2014; 7: 14-33. PMID: 25346876

Owsley C, **McGwin G Jr**, Lee DJ, Lam BL, Friedman DS, Gower EW, Haller JA, Hark LA, Saaddine J; for the Innovative Network for Sight (INSIGHT) Research Group. Diabetes eye screening in urban settings serving minority populations: Detection of diabetic retinopathy and other ocular findings using telemedicine. *JAMA Ophthalmology* 2014. PMID 25393129.

Maclennan PA, **McGwin G Jr**, Searcey K, **Owsley C**. A survey of Alabama eye care providers in 2010-2011. *BMC Ophthalmol.* 2014; 14: 44. PMID: 24708636

IMAGING

Wilk, MA, Dubra A, **Curcio CA**, Brilliant MH, Summers CG, Carroll J. Author response: relationship between foveal cone specialization and pit morphology in albinism. *Invest Ophthalmol Vis Sci.* 2014; 55: 5923. PMID 25237180.

Wilk MA, McAllister JT, Cooper RF, Dubis AM, Patitucci TN, Summerfelt P, Anderson JL, Stepien KE, Costakos DM, Connor TB Jr, Wirostko WJ, Chiang PW, Dubra A, **Curcio CA**, Brilliant MH, Summers CG, Carroll J. Relationship between foveal cone specialization and pit morphology in albinism. *Invest Ophthalmol Vis Sci.* 2014; 55: 4186-4198. PMID: 24845642

Scoles D, Sulai YN, Langlo CS, Fishman GA, **Curcio CA**, Carroll J, Dubra A. In vivo imaging of human cone photoreceptor inner segments. *Invest Ophthalmol Vis Sci.* 2014; 55: 4244-42451. PMID: 24906859

Yongxin Yu, **Yuhua Zhang**, Dual-thread parallel control strategy for ophthalmic adaptive optics, *Chin. Opt. Lett.* 2014; 3: 121202-121202

NEURO-OPHTHALMOLOGY

Downs, JC. The promise of prediction: biomechanical analyses in neuro-ophthalmology. *J Neuroophthalmol.* 2014; 24: 321-323. PMID: 25405660

Nagia L, Eggenberger E. Differentiating retinal from optic nerve syndromes. *Curr Opin Ophthalmol.* 2013; 24: 528-533. PMID: 24100373

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Publications

Huisingsh C, **McGwin G Jr**. Quantitative measurement of interocular suppression in anisometropic amblyopia. *Ophthalmology.* 2014; 121. PMID: 24461585

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OCULAR INFLAMMATORY DISORDERS/VEITIS

Levy-Clarke G, Jabs DA, **Read RW**, Rosenbaum JT, Vitale A, Van Gelder RN. Expert panel recommendations for the use of anti-tumor necrosis factor biologic agents in patients with ocular inflammatory disorders. *Ophthalmology.* 2014; 121: 785-796. PMID: 24359625

OCULAR ONCOLOGY

Corson TW, **Samuels BC**, Wenzel AA, Geary AJ, Riley AA, McCarthy BP, Hanenberg H, Bailey BJ, Rogers PI, Pollok KE, Rajashekhar G, Territo PR. Multimodality imaging methods for assessing retinoblastoma orthotopic xenograft growth and development. *PLoS One.* 2014; 9: e99036. PMID: 24901248

OCULAR TRAUMA

Moore JX, **McGwin G Jr**, Griffin RL. Injury. The epidemiology of firework-related injuries in the United States: 2000-2010. 2014. PMID: 25047335

Mason JO 3rd, Patel SA. Traumatic lens subluxation presenting as pseudomelanoma. *Ophthalmic Surg Lasers Imaging Retina.* 2014; 45: 328-330. PMID: 25127532

RETINA AND VITREOUS

Mason JO 3rd, Neimkin MG, Mason JO 4th, Friedman DA, Feist RM, **Thomley ML**, **Albert MA**. Safety, efficacy, and quality of life following sutureless vitrectomy for symptomatic vitreous floaters. *Retina.* 2014; 34: 1055-10561. PMID: 24384616

Feist RM Jr, King JL, **Feist RM Sr**, **Mason JO 3rd**, Morris RE, Guidry C. Evaluation of proliferating cell abundance and phenotypes in proliferative diabetic retinopathy. *Graefes Arch Clin Exp Ophthalmol.* 2014. PMID: 25294353

Feist RM Jr, King JL, Morris R, **Witherspoon CD**, Guidry C. Myofibroblast and extracellular matrix origins in proliferative vitreoretinopathy. *Graefes Arch Clin Exp Ophthalmol.* 2014; 252: 347-357. PMID: 24276562

Feist RM Jr, Pomerleau DL, **Feist R**, **Albert MA**, Emond TL, **Mason JO 3rd**, **Thomley ML**, **McGwin G Jr**. Nonsupine positioning is preferred by patients over face-down positioning and provides an equivalent closure rate in 25- and 23-gauge macular hole surgery. *Retina Cases Brief Rep.* 2014; 8: 205-208. PMID: 25372439

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Huisingsh C, **McGwin G**. Increased risk of coronary heart disease in male patients with central serous chorioretinopathy: results of a population-based cohort study. *Br J Ophthalmol.* 2014; 98: 570-571. PMID: 24443393

Mason JO 3rd, Patel SA. Bull's eye maculopathy in a patient taking sertraline. *Retina Cases and Brief Reports* 2014, PMID: 25401995

TRAUMATIC BRAIN INJURY

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VISION AND EYE MOVEMENTS

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VISION IMPAIRMENT AND LOW VISION

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Grants & Awards

CHRISTINE A. CURCIO, PH.D.

Imaging histology correlations in age-related macular degeneration; Macular Foundation, New York City; 02/01/2014-01/31/2015

Hyperspectral Imaging of the Normal and Age-Related Macular Degeneration; New York University/NIH; 04/01/2012-03/31/2015

The Ludwig von Sallmann Prize; Ludwig von Sallmann Foundation, awarded by the International Society for Research; 08/01/2014-07/31/2015

Match to Ludwig von Sallmann Prize; International Retinal Research Foundation; 12/29/2014-12/28/2015

DAWN K. DECARLO, O.D., M.S., M.S.P.H.

Reading and Pediatric Vision Impairment; EyeSight Foundation of Alabama; 07/01/2015-06/30/2015

Reading and Pediatric Vision Impairment; NEI/NIH; 04/01/2009-03/31/2015

Operating Support for UAB Center for Low Vision Rehabilitation – Year 12; EyeSight Foundation of Alabama; 07/01/2013 – 06/30/2014

Operating Support for UAB Center for Low Vision Rehabilitation – Year 13; EyeSight Foundation of Alabama; 07/01/2014 – 06/30/2015

Devices for Indigent Patients; Henry G. and Henry U. Sims Foundation; 01/01/2014 – 12/31/2014

Equipment Update for UAB Center for Low Vision Rehabilitation; International Retinal Research Foundation; 12/31/2014 – 12/31/2015

J. CRAWFORD DOWNS, PH.D.

Age- and Race-related Differences in Optic Nerve Head Structure and Biomechanics; NEI/NIH; 04/01/2013 – 03/31/2016

IOP-Related Force and Failure in the Optic Nerve Head; Legacy Health Subcontract/NEI; 11/15/2012-06/30/2016

Mechanobiology of the Optic Nerve Head; a research acceleration grant from the EyeSight Foundation of Alabama; 12/31/2013 – 12/30/2014

LAURA DREER, PH.D.

Cognitive Behavioral Therapy (CBT) for Caregivers of Operation Iraqi Freedom/Operation Enduring Freedom (OIF/OEF) Service Members with Traumatic Brain Injury (TBI); Department of Education/NIDRR; 10/01/2012-09/30/2015

Evaluation of the Lakeshore Foundation Lima Foxtrot Programs for Injured Military; Lakeshore Foundation; 08/01/2011-09/30/2014

Continuation: Mental Health Services for Persons and Families with Vision Impairments; EyeSight Foundation of Alabama; 07/01/2013-10/31/2014

Continuation: Mental Health Services for Persons and Families with Vision Impairments; EyeSight Foundation of Alabama; 07/01/2014-06/30/2015

PAUL D. GAMLIN, PH.D.

Targeting Foveal Cones Using Novel Delivery Methods and Novel AAV Serotypes; Univ. of Florida/ Foundation for Fighting Blindness; 06/30/2013-06/29/2014

Research to Prevent Blindness Disney Award for Amblyopia Research; Research to Prevent Blindness; 06/13/2014-06/12/2019

Screening of a novel AAV library in non-human primates; Applied Genetic Technologies Corporation (AGTC); 07/01/2014-07/01/2016

Motor Unit Diversity in Horizontal Eye Movement Control; NIH/NEI; 08/01/2012-07/31/2017

CHRISTOPHER A. GIRKIN, M.D., M.S.P.H., F.A.C.S.

African Descent and Glaucoma Evaluation (ADAGES) II: Glaucoma Progression; NIH/University of California (San Diego); 02/01/2010-01/31/2015

African Descent and Glaucoma Evaluation (ADAGES) III: Contribution of genotype to glaucoma phenotype in African Americans; NIH/University of California (San Diego); 07/01/2013 – 06/30/2018

Clinical Evaluation of the SOLX Gold Shunt for the Reduction of Intraocular Pressure (IOP) in Refractory Glaucoma; SOLX, INC.; 07/15/2011-07/04/2011

Proficient glaucoma care delivery model based on automated structural and functional assessment of the optic nerve; CDC; 09/30/2012-09/29/2014

Unrestricted Grant; Research to Prevent Blindness; 01/01/2013-12/31/2014

Statistical Analyses Service for Dr. Paul Lee of the University of Michigan; University of Michigan; 08/01/2013-12/31/2014

Mechanobiology of the Optic Nerve Head; a research acceleration grant from the EyeSight Foundation of Alabama; 12/31/2013 – 12/30/2014

Age- and Race-related Differences in Optic Nerve Head Structure and Biomechanics; NEI/NIH; 04/01/2013 – 03/31/2016

RAFAEL GRYTZ, PH.D.

Mechanical Constitutive Modeling and ECM/Cell Imaging; EyeSight Foundation of Alabama; 12/31/2013 – 12/30/2014

Mechanobiology of the Optic Nerve Head; a research acceleration grant from the EyeSight Foundation of Alabama; 12/31/2013 – 12/30/2014

CYNTHIA OWSLEY, PH.D., M.S.P.H.

Aging and ARM: Dark Adaptation Impairment; NIH/NIA; 03/15/2008-02/28/2015

AMD, Genotyping and Blood Chemistry Analyses; NIH/NIA (ALSTAR - Supplement); 09/15/2010 – 02/28/2015

Inflammatory, Cholesterol and Genetic Characteristics in Older Adults in Normal Retinal Health as Potential Biomarkers for the Incident Development of Early Age-Related Maculopathy; EyeSight Foundation of Alabama; 07/01/2010 – 06/30/2015

Improving Access to and Quality of Eye Care in an At-Risk, Underserved Population; CDC; 09/30/2010 – 09/29/2015

Natural History of Dark Adaptation in Participants with Intermediate Age-Related Macular; Genentech; 10/19/2012 – 04/18/2016

Older Drivers and Vision Impairment: Naturalistic Driving Studies; NEI/NIH; 04/01/2008 – 03/31/2019

Support for Clinical Research Unit; a research acceleration grant from the EyeSight Foundation of Alabama; 12/31/2013 – 12/30/2014

Visual Brain Core: Research Resources on Visual Dysfunction and Plasticity; Health Services Foundation General Endowment Fund, University of Alabama Health Services Foundation; 11/01/2014-10/31/2016

BRIAN C. SAMUELS M.D., PH.D.

Hypothalamic Control of IOP, ICP, and the Translaminar Pressure Gradient; NEI/NIH; 09/30/2013 – 07/31/2017

OCT Imaging of the Optic Nerve Head; NASA/Georgia Tech; 10/01/2013-09/30/2016

Mechanobiology of the Optic Nerve Head; a research acceleration grant from the EyeSight Foundation of Alabama; 12/31/2013 – 12/30/2014

MICHAEL S. VAPHIADES, D.O.

A Multi-Center, Double-Blind, Randomized, Placebo-Controlled Study of Weight-Reduction Diet Plus Acetazolamide vs. Diet Plus Placebo in Subjects with Idiopathic Intracranial Hypertension with Mild Vision Loss; NIH St. Luke's/Roosevelt Hospital; 08/17/2010-01/31/2015

SHU-ZHEN WANG, PH.D.

Generating photoreceptors by reprogramming RPE cells; NEI/NIH; 01/01/1997-12/31/2015

YUHUA ZHANG, PH.D.

In-Vivo Study of Age-Related Macular Degeneration with High-Resolution, High-Fidelity and Wide-Spectra Adaptive Optics Scanning Laser Ophthalmoscopy; EyeSight Foundation of Alabama; 03/01/2011-06/30/2015

Adaptive Optics Parallel Confocal Scanning Ophthalmoscope (AO-PCSO); NIH; 09/01/2011 – 08/31/2014

Radiation Monitoring Devices, Inc (Near Infrared Detector for Advanced Ophthalmoscopy); Radiation Monitoring Devices, Inc/NIH; 09/01/2012-03/31/2015

Invited Lectures

CHRISTINE A. CURCIO, PH.D.

Rehabilitating lipofuscin as a marker of RPE health: Laboratory autofluorescence insights. Macula of Paris; January 2014; Paris, France.

Rehabilitating lipofuscin as a marker of RPE health: Laboratory autofluorescence insights. Angiogenesis, Exudation, and Degeneration; Bascom Palmer Eye Institute; February 2014; Miami, Florida.

Lipoproteins and age-related macular degeneration: The oil spill in Bruch's membrane and beyond. Grand Rounds; Department of Ophthalmology; SUNY Downstate Medical Center; February 2014; Brooklyn, New York.

Light-sensitive cells in the retina. Fourth Annual Spring Symposium; University of Minnesota; Minneapolis, Minnesota.

What photoreceptors tell us about their support system in age-related macular degeneration: Pathobiology and image validation. Fourth Annual Spring Symposium; University of Minnesota; Minneapolis, Minnesota.

Lipoproteins and age-related macular degeneration: The oil spill in Bruch's membrane and beyond. University of Oklahoma Vision Club Seminar; April 2014; Norman, Oklahoma.

Invited lecturer for Special Interest Group (SIG) on Macular Atrophy. Association for Research in Vision and Ophthalmology annual meeting; May 2014; Orlando, Florida.

Organizer for special interest group (SIG) on RPE autofluorescence in a new light. Association for Research in Vision and Ophthalmology annual meeting; May 2014; Orlando, Florida.

AMD histopathology in the era of multimodal imaging. Invited seminar speaker; May 2014; Wilmer Eye Institute at Johns Hopkins University; Baltimore, Maryland.

Subcellular basis of reflectivity in optical coherence tomography: experimental and pathology studies. Second International Retinal Imaging Symposium (IRIS); June 2014; New York City, New York.

Imaging the aging RPE: Lipofuscin and its role in the physiology of vision. Symposium on the Aging Eye (in honor of Janice Burke, PhD); September 2014; Medical College of Wisconsin; Milwaukee, Wisconsin.

Fundus autofluorescence: What are we looking at? Retina Sub-specialty Day; American Academy of Ophthalmology; October 2014; Chicago, Illinois.

Moderator for RPE cell biology. 3rd Biennial MEEI-Schepens Symposium on Age-related Macular Degeneration; October 2014; Boston, Massachusetts.

Biogenesis of AMD's specific lesions: The oil spill in Bruch's membrane and beyond. Symposium of the Low Vision Section; American Optometric Academy; November 2014; Denver, Colorado.

Subcellular basis of reflectivity in optical coherence tomography: human eye pathology and experimental studies. Second International Meeting on En face OCT; December 2014; Rome, Italy.

DAWN K. DECARLO, O.D., M.S., M.S.P.H.

Hereditary vision impairment. American Academy of Optometry Annual Meeting; November 2014; Denver, Colorado.

Vision rehabilitation for dry AMD. Low Vision Section Symposium; American Academy of Optometry Annual Meeting; November 2014; Denver, Colorado.

There's nothing dry about dry AMD: New perspectives on an old problem. with Curcio, CA, Smith, RT and Jackson, GR; American Academy of Optometry Annual Meeting; November 2014; Denver, Colorado.

J. CRAWFORD DOWNS, PH.D.

Remodeling of the optic nerve head in glaucoma. Korea University Hospital; July 2014; Seoul, South Korea.

Remodeling of the optic nerve head in glaucoma. Seoul National University Hospital; July 2014; Seoul, South Korea.

The role of ocular biomechanics in glaucoma. MSD Glaucoma Symposium; July 2014; Seoul, South Korea.

Implications of IOP and OPP dynamics in ocular physiology and glaucoma. MSD Glaucoma Symposium; July 2014; Seoul, South Korea.

Ocular biomechanics in the anterior and posterior segments. XXI Biennial Meeting of the International Society for Eye Research; July 2014; San Francisco, California.

IOP spikes represent a significant portion of total IOP energy during waking hours. Best of the Anterior Segment Specialty Meetings 2014 Symposium; October 20, 2014; American Academy of Ophthalmology; October 2014; Chicago, Illinois.

Optic nerve head remodeling following injury. Optic Nerve Conference; December 2014; Obergurgl, Austria.

LAURA DREER, PH.D.

Trajectories of life satisfaction during the first ten years following traumatic brain injury. Presented at the 16th annual Rehabilitation Psychology Conference; March 2014; San Antonio, Texas.

Development of a telehealth weight management program for persons with traumatic brain injuries and their families. Invited oral presentation at the UAB Department of Physical Medicine and Rehabilitation's 50th year anniversary event; April 2014; Birmingham, Alabama.

Invited Lectures

Cognition and suicidality as predictors of firearm injury: A National Institute on Disability and Rehabilitation Research TBI Model Systems Database Analysis. Presented at the 12th Annual Meeting of the American Academy of Clinical Neuropsychologists; June 2014; New York City, New York.

PAUL D. GAMLIN, PH.D.

Light sensitive ganglion cells in primate retina: Their anatomy, physiology and behavioral roles. Department of Neurobiology & Anatomical Sciences; University of Mississippi Medical Center; August 2014; Jackson, Mississippi.

Intrinsically-photosensitive ganglion cells in the primate retina: Anatomy, physiology, and behavioral roles. ARVO/AAO Joint Symposium: Why Do We Need Another Photoreceptor? Clinical Implications of Melanopsin-Containing Retinal Ganglion Cells; November 2014; Denver, Colorado.

CHRISTOPHER A. GIRKIN, M.D., M.S.P.H., F.A.C.S.

Novel targets and detecting progression. American Glaucoma Society 24th Annual Meeting; February 2014; Washington D.C.

Moderator, Progression and Disease Markers. American Glaucoma Society 24th Annual Meeting; February 2014; Washington D.C.

Advances in pediatric glaucoma surgery. Department of Ophthalmology; University of North Carolina; April 2014; Chapel Hill, North Carolina.

The Implications of Variation in Three-Dimensional Morphometry of the Human Lamina Cribosa on the Pathogenesis of glaucoma. Department of Ophthalmology; University of North Carolina; April 2014; Chapel Hill, North Carolina.

The implications of variation in three-dimensional morphometry of the human lamina cribrosa on the pathogenesis of glaucoma. 21st Biennial Meeting of the International Society of Eye Research; July 2014; San Francisco, California.

RAFAEL GRITZ, PH.D.

Computational mechanics and glaucoma. Department of Mathematical Sciences; Indiana University and Purdue University at Indianapolis; February 2014; Indianapolis, Indiana.

Computational assessment of collagen remodeling in myopia and keratoconus. Department of Vision Sciences; Cardiff University; July 2014; Cardiff, United Kingdom.

Collagen sliding: A potential remodeling mechanism in myopia and keratoconus. Department of Civil Engineering; Ruhr-University Bochum; July 2014; Bochum, Germany.

LANNING B. KLINE, M.D.

The Neuro-Ophthalmic Manifestations of Carotid Artery Dissection. Department of Ophthalmology; Duke University; May 2014; Durham, North Carolina.

Seven Deadly Sins in Neuro-Ophthalmology. Department of Ophthalmology; University of Washington; May 2014; Seattle, Washington.

Cavernous Sinus Syndromes. Department of Ophthalmology; University of Vermont; June 2014; Burlington, Vermont.

The Top 10 in Neuro-Ophthalmology. Department of Ophthalmology; St. Louis University; September 2014; St. Louis, Missouri.

The Neuro-Ophthalmology of Diabetes Mellitus. Department of Ophthalmology; University of Southern California; November 2014; Los Angeles, California.

MIYOUNG KWON, PH.D.

Rapid adaptability of human oculomotor control in response to simulated central vision loss; Massachusetts Eye and Ear Infirmary; April 2014; Boston, Massachusetts.

Assessment of binocular interactions in amblyopia. Schepens Eye Research Institute; March 2014; Boston, Massachusetts.

How does the human visual system adapt to visual deprivation? The New England College of Optometry; January 2014; Boston, Massachusetts.

LINA NAGIA, D.O.

Top ten list: Neuro-ophthalmic diagnoses you can't afford to miss. Southeast Eye Regional Meeting; July 2014; Destin, Florida.

CYNTHIA OWSLEY, PH.D., M.S.P.H.

Should my visually impaired patient be driving? American Academy of Ophthalmology; October 2014; Chicago, Illinois.

Session Co-Chair and Organizing Committee, Session II: Evaluating Anatomical and Functional Endpoints and Patient Reported Outcome Measures. Developing Treatments for Dry Age-Related Macular Degeneration: A Workshop. Institute of Medicine; The National Academies, November 2014; Washington, D.C.

JENNIFER T. SCRUGGS, M.D.

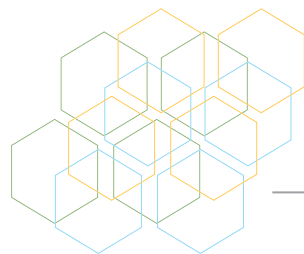
Eyelid and orbital trauma: The oculoplastics perspective. Presented to Department of Otolaryngology/Head and Neck Surgery Grand Rounds; University of Alabama at Birmingham; January 2014; Birmingham, Alabama.

Evaluation and management of ptosis. Presented to School of Optometry; University of Alabama at Birmingham; February 2014; Birmingham, Alabama.

SHU-ZHEN WANG, PH.D.

Tweaking the retinal pigment epithelium for photoreceptor regeneration in the mammalian eye. BME seminar speaker, Department of Biomedical Engineering, University of Alabama at Birmingham; October 2014; Birmingham, Alabama.

SEEING THE IMPACT



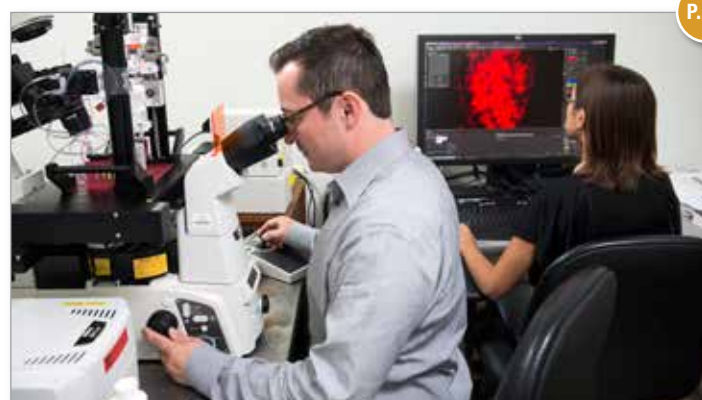
Thanks to support from donors large and small, we have made significant progress toward our ultimate goal of improving health by alleviating blinding disease. This generosity has served as a catalyst in the following key areas:

- INNOVATIVE RESEARCH**
 Support for innovative ideas allowed investigators to launch promising new research programs.
- YOUNG SCIENTISTS**
 Philanthropic commitment jumpstarted the early stages of promising careers for young scientists.
- TOP TALENT**
 Gifts attracted world-class research talent to UAB.
- EDUCATION AND TRAINING**
 Investments in education enhanced training for the next generation of ophthalmologists.
- ADVANCED PATIENT CARE**
 Facility and equipment improvements provided the latest in vision care to patients at all income levels.



P. 8

"Complex Vision" by artist Yaacov Agam has been a visual landmark on the main exterior face of the UAB Callahan Eye Hospital building since November 1976. Thanks to generous donors we were able to restore this work to its original glory.



P. 21

Support from the Thompson Foundation helped new faculty member Rafael Grytz, Ph.D., establish his research program.



P.30

Funding from Research to Prevent Blindness allowed Paul Gamiln, Ph.D., to begin investigating the underlying neurological processes related to amblyopia.



P. 26

A grant from The EyeSight Foundation of Alabama fosters collaborative research across UAB aimed at finding new treatments for glaucoma and other blinding diseases.

P. 33



Partnerships between the UAB Center for Low Vision and organizations such as Sight Savers America and Songs for Sight provide helpful equipment and training to visually impaired individuals who otherwise could not afford it.

P. 36



The newly renovated Lions Clinic and Emergency Department allow for better management of patients and increased emergency capability, thanks to philanthropic support.

the CAMPAIGN for UAB



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The \$1 billion Campaign for UAB is a visionary plan to align our resources with our aspirations, and includes significant support for the School of Medicine. While strengthening our position as one of the nation's most productive and dynamic academic medical centers, the Campaign's success will change the world through the knowledge we teach, discover, and translate into patient care.

1B

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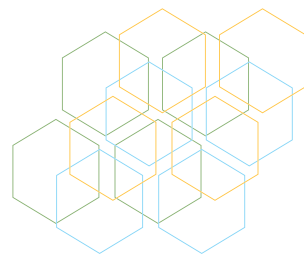
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← \$555,018,330

← \$366,100,178*

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VISION FOR THE FUTURE



UAB Ophthalmology has a bright outlook for the future. The support of visionary philanthropic partners provides the potential for major breakthroughs in the treatment and care of blinding disease. With your support, we can achieve a brighter, healthier future.

OUR PRIORITIES

• ADVANCING TREATMENTS

Find innovative treatments for the most common eye diseases – such as glaucoma and age-related macular degeneration – through multidisciplinary research and accelerate the translation of that research from bench to bedside.

• FACULTY EXCELLENCE

Foster an environment of collaboration and innovation by retaining and recruiting top physicians and scientists.

• EDUCATION AND TRAINING

Equip the next generation of ophthalmologists with the highest degree of clinical and research skill and a life-long thirst for knowledge by providing robust training that prepares our graduates for success.

• FACILITIES AND TECHNOLOGY

Expand access to the highest-quality patient care and advance research through focused improvements in facilities and technology.

HOW TO HELP



Contact us to learn more about where your help is needed most.

JACKIE WOOD, Senior Director of Development

Phone: 205.325.8526

Email: jfwood@uab.edu

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UAB MEDICINE

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