Making Strides in Retinal Detachment Recovery
Discovering Eye Disease Biomarkers
Identifying Risk of Uveal Melanoma
Exploring the Retina 5x Closer
Developing New Drug Delivery Systems
Viewing the Cornea in a Different Way
"At The Ohio State University Department of Ophthalmology & Visual Science, we provide exceptional clinical and surgical care, as well as top educational training and research initiatives. We are eager to share our efforts with you."

Matthew P. Ohr, MD
Interim Chairman
Director, Retina Division

For corrections, contact eye.osu.edu
MIF’s Role in Retinal Detachment Recovery

$1.9M Department of Defense study aims to identify MIF inhibitors to treat traumatic eye injuries in military personnel

As she prepares to release the findings from a recent study of macrophage migration inhibitory factor (MIF), Colleen M. Cebulla, MD, PhD and her team are setting up a new study of the retina that builds on her previous work, thanks to a $1.9 million grant from the Department of Defense.

“We have been looking for the proteins that might be important for loss of neurons after retinal detachment, or scar tissue formation in the eye,” Cebulla says. “We’re interested in the inflammatory proteins that are involved in those processes. MIF looks interesting and has been implicated in a lot of diseases, but no one has looked at it as a therapeutic target for retinal detachment.”

Proliferative vitreoretinopathy (PVR) is the most common cause of failure of retinal detachment surgery, occurs frequently after retinal trauma, and there are no effective pharmaceuticals to prevent it. The study is investigating the effects of drugs that target MIF, which is produced at high levels in PVR, as well as testing the ability of different clinically relevant MIF inhibitors to block photoreceptor death and abnormal healing.

“We’re the first to show that MIF goes up in experimental retinal detachment. When we block it with a drug, we can prevent loss of the photoreceptors from the detachment and prevent the retinal gliosis that is an important part of scar formation,” Cebulla says.

Cebulla and her team, as well as Andy Fischer, PhD, Professor of Neuroscience, Abhay Satoskar, PhD, Professor of Pathology, and Julie Racine, PhD, Director of Visual Electrophysiology at Nationwide Children’s Hospital, will look for other clinically-relevant MIF inhibitors to determine if they would potentially be helpful for traumatic retinal detachments that military personnel might experience.

“We’re going to look at whether it can prevent cell death and scar tissue in several different ways,” Cebulla says. After retinal detachment, some patients develop complications due to inflammatory responses. The hope is that the study will provide the groundwork for a clinical trial in patients, which could lead to therapeutics that could prevent vision loss from ocular trauma and damage from retinal diseases.

“I love the combination of surgery and medicine. It’s artistic and technological,” Dr. Cebulla says. “There are a lot of great opportunities for research, and the people are so nice.”

Cebulla decided to go into research when she graduated from the MD, PhD program.

“I’m really glad I did, because all the time, as a doctor, I see patients who have terrible eye problems and can’t see because of them,” Cebulla says. “Being able to think about the problems that people are facing and trying to do something about them, or learning about why something happens or what can we discover from it, lets us help people in the future.

“That’s what motivates me. The discovery part of it is exciting. It feels valuable to work on something that can hopefully, one day, help people see better.”

Dr. Colleen Cebulla and her team of graduate research students. Pictured left to right: Hussain Shah, Tyler Heisler-Taylor, Hailey Wilson, Nadine Abadi-Rahman, Dr. Cebulla, Bayan Shalash, Sumaya Hamadmad, Alana Reese.
Better Understanding Corneal Properties May be Key to Finding Eye Disease Biomarkers

Corvis ST Tonometer helps identify biomarkers for different disease processes in keratoconus, diabetic retinopathy, glaucoma, and ocular hypertension

Cynthia Roberts, PhD, and her research team will use the Corvis ST Tonometer to tease out the properties of the cornea that impact measurement error in disease detection. One of the goals of the five-year, $1.9 million National Institute of Health/National Eye Institute study is to find biomechanical biomarkers for different disease processes in keratoconus, diabetic retinopathy, glaucoma, and ocular hypertension.

Using the Corvis ST will allow the team to compare the biomechanics of eyes independent of Intra-ocular Pressure (IOP), which can vary widely between patients. “We can compare the biomechanics, because the magnitude of every puff is the same,” Roberts says. “The shape of the deformation lets us learn something about the properties of the cornea. It applanates (flattens), then becomes concave, then it gets to a point where it can’t displace any further. The whole eye starts moving backward because the air puff magnitude is still increasing. Then, as the air puff starts to come down, the cornea starts to recover but the whole eye is still moving backwards. The maximum motion of the whole eye is at the point where the cornea is completely recovered. Then the whole eye begins to move forward.”

Sclera is involved, but other factors influence what happens in the eye as well. Corneal response is a function of the IOP, but IOP varies between patients. “Properties of the cornea are important in the relationship of central corneal thickness (CCT) and IOP measurement error—in a stiff eye CCT is a large source of error, but in a soft eye CCT creates very little error,” Roberts explains.

She has demonstrated that the shape of the deformation is a function of corneal stiffness. The magnitude of displacement is more related to IOP. The rounder the cornea at highest concavity, the softer it is. The flatter it is at highest concavity, the stiffer it is.

Part of Roberts’ goal is to pin down a good way to separate the effect of IOP from the effect of stiffness in the cornea of living patients. Currently, corneal properties are not being factored in accurately estimating IOP for living patients. Physicians are able to compensate for the effect of CCT with linear correction formulas, “but the error is not actually linear,” Roberts says, “it’s a function of the eye’s properties. I’m hoping to understand this relationship better.”

In the grant study, Roberts will first change the IOP in tests of tissue from paired donors, where one cornea is stiffened and the other is left unchanged. Then she will compare the shape of the deformation with two different stiffnesses.

“I love educating people, I love the work I’m doing, I love meeting colleagues and collaborators all over the world. I’m doing exactly what I’m supposed to do,” Dr. Roberts says. “It’s a big bang to do something that no one else in the world has done.”

Before laser refractive surgery was FDA-approved, Roberts saw that doctors were using refractive error to program the laser. “You can’t magically change refractive error. The way you get from vision that needs improvement to vision that is good is by removing tissue to generate a particular corneal shape. But no one was looking at that. It became a giant area of research.”

In 2000, Roberts wrote an editorial titled The Cornea is Not a Piece of Plastic. “I was trying to get people’s attention,” she explains. “It’s 2019 and people still say ‘the cornea is not a piece of plastic’ at meetings. They don’t know where it comes from—that’s what’s funny. I smile every time I hear it. But if you want to know why I want to do, the answer is because it’s fun.”

"We can compare the biomechanics, because the magnitude of every puff is the same. The shape of the deformation lets us learn something about the properties of the cornea."
Who is at Risk for Uveal Melanoma?

New research looks at role of OCA2 in cancer in families with BAP1 gene changes

More than 10 percent of uveal melanoma patients have an increased predisposition to cancer—not just eye cancer but a wide variety of cancers, says Mohamed Abdel-Rahman, MD, PhD. He and his team recently identified BAP1 as one of the genes predisposing patients to eye melanoma. The next question they will address, in a two-year $375,000 National Institute of Health study, is how other genes could modify the effect of BAP1 in patients.

"When we talk about hereditary predisposition, there are high-risk genes (or "high-penetrant" genes) and low-risk genes," Abdel-Rahman says. BAP1 is a high-risk gene. OCA2 is a low-risk gene.

"The grant will help us understand the mechanisms that OCA2 plays in modification of cancer risk of BAP1," he says.

Abdel-Rahman and his team hypothesize that OCA2 plays a role in why some family members with BAP1 mutations develop one form of cancer while others develop a different form.

"Beyond the grant, an international consortium of 70 researchers from 15 countries recently formed to study BAP1 tumor predisposition. The group has collected one of the largest patient cohorts for BAP1 in the world: 182 families. "This is a newly discovered syndrome, and our consortium laid the foundation for identifying which cancers would be associated with it, what is the likely age of onset, what do we think about how to manage these patients, and what research we need to carry out in the future," Abdel-Rahman says.

"Many changes in BAP1 have been reported in different patient some of these changes are what we call variant of uncertain significance or VUS," he explains. "So if we find such VUS in a family, is this something we need to worry about?"

Abdel-Rahman hopes his team’s work will help improve the current management guidelines with additional evidence-based advice. The ultimate goals of his research are early identification and how to characterize who is at greatest risk of uveal melanoma.

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He is also interested in learning more about the tumor’s biology, which can lead to develop new therapies and better individualized patient care.

Dr. Abdel-Rahman’s work and association with Ohio State ophthalmologist Frederick Davidorf, MD has been supported by the Patti and Warner Blow Research Fund in Ophthalmology for many years.

The first family found with the BAP1 gene mutation was self-referred. A patient reached out to Dr. Abdel-Rahman: “I know something is going on in my family, but so far nobody can help me. Would you be interested in studying us?”

She had lung cancer and uveal melanoma, and many of her family members were suffering from different types of cancers including mesothelioma.

“I said of course, yes, and this is the family that we first identified BAP1 in. “Abdel-Rahman says. “If you can identify a family early, you can really help them. This is why I’m doing what I’m doing: to help families.”

“We estimate that BAP1 will contribute one to two percent to unselected eye melanoma patients, and in a patient with a family history of cancer it will be up to 20 percent” he says. “This means that there are significant other genes out there that also can increase risk for these patients to have uveal melanoma, as well as other cancers.”

Dr. Abdel-Rahman in his lab on the Ohio State University Columbus campus.

Mohamed Abdel-Rahman, MD, PhD at work in his lab. He and his research team are working to understand the mechanisms that OCA2 plays in modification of cancer risk of BAP1.
When Stacey Choi, PhD and Nathan Doble, PhD came to The Ohio State University in 2013, they brought with them a remarkable imaging system based on technology used by astronomers and the military. It took nearly two and a half years to design, build and set up. Their system, called an Adaptive Optic Optical Coherence Tomography Scanning Laser Ophthalmoscope (AO-OCT-SLO), allows them to look deep into the eyes of living subjects.

“We've essentially used the same technology to look closer rather than farther away, and made it less expensive and smaller as well,” Doble explains. “It is very similar to commercial OCT systems you'd see in a clinic, just with some turbo charging on the imaging side of things. It has roughly a five times better imaging capability than commercial systems.”

The system allows them to see minute details, on the order of a couple of microns in size, and count single neurons at the back of the retina.

“This is a combined system,” Choi explains. “It gives us a three-dimensional aspect of the retina—it’s not just a two-dimensional cross-sectional image. It’s a very detailed, cellular level quantification.”

Their goals in using the system are to identify the earliest biomarkers for disease in living patients, as well as to perform longitudinal studies of drug therapies and treatments.

“We’re trying to develop biomarkers for different types of diseases: glaucoma, AMD, diabetic retinopathy and retinitis pigmentosa,” Doble says. “But instead of doing histology on the eye, where the eye has to be removed and analyzed, we can follow the same patient over time and go back and image the same area and catch single cells.

“In vivo histology is what we’re trying to get at, and we’re trying to get images as good as what you’ll see looking at excised tissue under a microscope.”

Recently, Choi and Doble have been working with Ohio State ophthalmologists Mark Slabaugh, MD and Paul Weber, MD to image retinal ganglion cells, which slowly die off in patients with glaucoma.

“We were some of the first to image them in living human eyes—healthy eyes—and the first to image in glaucoma patients,” Doble says. “We would like to track these cells as the disease progresses.”

Imaging individual rods and cones is another area of their work.

“By using adaptive optics, one can couple in a light stimulus, which can be as small as a single cone,” Choi says. “So the idea would be stimulating a single cone at a time. If you want to be really sensitive about targeting a particular region, we can do this.

The pair’s research focuses on correlating structure to function, and detecting structural changes as early as possible.

“If we detect minute changes in the retina, we can intervene with treatments at an earlier point in the disease progression,” Choi explains. “This way, we can either completely halt the progression of disease, or at least slow down the progression over time.”

“If we can count the number of cells, we can follow the density of these cells before, during and after the treatment. If a patient is on a gene or drug therapy for a particular eye disease, we can go back and image the same part of the retina over time to test the efficacy of the treatment. If the treatment is supposed to halt the loss of a particular cell type, we can quantify that over time.”

HOW DOES THE AO-OCT-SLO WORK?

The combined AO-OCT-SLO is a two-tier system that allows 3D imaging of the retina. It allows measurement and correction of all the ocular aberrations prior to imaging, hence we can resolve individual cones and rods as well as retinal ganglion cells in living human eyes.

The entire procedure is non-invasive; only pupil dilation is required. Dr. Choi and Dr. Doble shine near infrared light into the patient’s eye to capture images of the retina. This is a completely objective way of assessing integrity of the retina, making the imaging technique a powerful tool for determining endpoints for clinical trials.

”[The AO-OCT-SLO] gives us a three-dimensional aspect of the retina—it’s not just a two-dimensional cross-section image. It’s a very detailed, cellular level quantification we can do.”
New Uses for Polymers Aim to Improve Patients’ Lives

Drug delivery systems and more permanent vitreous substitutes are this team’s goal.

“We’re interested in designing a synthetic polymer, that way it would be permanent,” Swindle-Reilly says. “With the silicone oil you can’t leave it in the eye forever and you don’t want to.”

They are also working on locally-delivered treatments for traumatic optic neuropathy, an injury often seen by military personnel and car crash victims.

“We’ll have a gel loaded with some neuro-protective agent and we’ll deliver it behind the eye,” Swindle-Reilly says. That project is a collaboration with Ohio State Drs. Matthew Reilly, Colleen Cebulla, and Mohamed Abdel-Rahman.

Dispersed in the vitreous humor after injection, drugs encapsulated in multi-layered polymer capsules could soon deliver an entire year’s worth of medication in a single injection. These devices could lower costs, cause less pain, and reduce the risk of intra-ocular side effects without interfering with vision.

As a PhD candidate, Dr. Katelyn Swindle-Reilly worked on injectable vitreous substitutes made from polymers. She moved on to research polymers for nerve regeneration and wound healing, but when she came to Ohio State and realized there were strong collaborations available in Ophthalmology, Optometry and Biomedical Engineering, she decided to return to her early research on polymers for use in the eye.

“We generally do polymeric materials for implants or devices, but then I had the opportunity to use some of the knowledge I’d picked up from working in drug delivery through wound care products,” Swindle-Reilly says.

Matthew Ohr, MD approached Swindle-Reilly about working together to develop a drug delivery device to extend the durability of monthly anti-VEGF injections patients receive for wet AMD. After collaborating with this idea, they received two years of funding from the Ohio Lions Eye Research Foundation, which has catapulted their project.

“We hope to move into further pre-clinical studies in the near future. So, we’ll be looking for funding from other sources in order to keep the project moving forward,” Swindle-Reilly says.

Other projects in the works are connected by their use of polymers to treat diseases in the eye. They’re looking at improving corneal wound healing outcomes to prevent scarring, topical drug delivery systems, and improving outcomes for post-cataract surgery patients by redesigning intraocular lenses to prevent cells from migrating onto the surface and causing secondary cataract.

The team is also working to develop next-generation vitreous substitutes that better match the optical and mechanical properties of the natural vitreous. The silicone oil typically used has none of the properties of the native tissue, which can cause complications.

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Dr. Katelyn Swindle-Reilly (center) discusses injectable capsule designs with graduate students Archie Tram and Pengfei Jiang.

"We're encapsulating it in small, multi-layered particles; that way it slows release so a patient can have an injection once or twice a year, in theory."

Dispersed in the vitreous humor after injection, drugs encapsulated in multi-layered polymer capsules could soon deliver an entire year’s worth of medication in a single injection. These devices could lower costs, cause less pain, and reduce the risk of intra-ocular side effects without interfering with vision.

"I always knew that I wanted a career that contributed to society," Dr. Swindle-Reilly says. "I thought I could make a difference if I was doing biomedical research that could help people live better quality lives."

"I've found that research really energizes me. I enjoy working on it. It's something that I'm passionate about and I love coming to work and doing."

"I also love teaching and mentoring students. I feel like that has a great impact on society as well. I'm creating this new generation of people that can go out and solve the world's big problems."
High frequency ultrasound provides new, unique look at corneal biomechanics

Jun Liu, PhD demonstrates the Vivo2100 ultrasound with graduate student Keyton Clayson.

“This is a very high frequency ultrasound. It can capture very minute changes of the cornea—changes in the shape just ever so slightly—as small as half a micron.”

Jun Liu, PhD and her research team are looking at corneal biomechanics in a new way. Funded by a National Institute of Health grant and with software they developed over the past 10 years, the team is using an ultrasonic device, the Ocular Pulse Elastography, to view not only the structure of the cornea, but the function as well.

“We are mapping out the biomechanical responses of the cornea,” Liu explains. “We use a high-resolution ultrasound and our algorithms to detect very small corneal deformations in response to the ocular pulse.”

After receiving numbing eye drops, the patient places their chin on the rest and their head is Velcro’d to the top of the device for stability.

The ultrasonic probe, covered first with a cellulose membrane and then standard eye lubricating gel, is lightly touched against the patient’s eye. The team is developing new ultrasound gels for easier imaging and obtaining a better ultrasound reading.

“Topography is currently the method for diagnosing keratoconus, but it can only see the shape of the cornea. It doesn’t show the mechanical properties, the functional aspects of the cornea,” Liu explains.

“Our goal is to provide a functional evaluation. Hopefully this will better capture the early developments in eye problems, for example some people who go through refractive surgery have complications. We hope we can screen people and prevent these complications.”

Along with the team’s advanced signal processing algorithms, the ultrasound can capture very minute changes of the cornea—as small as a half-micron change in thickness. The ultrasound aims to measure the pulsation within the eye, but the researchers found that there is a larger pulsation of the whole eye. These extra motions, including building vibrations, can interfere with the measurements.

“If we can analyze the pulsation of the eye, we can get information about the functional aspects of the eye,” Liu explains. “The ultrasound is one type of imaging system, and we’re doing more than just seeing the structure.”

The system is not in-clinic yet, although the team is working hard to reach that goal.

“We’re hoping that this software can be a tag-along to a clinical system, so people who already have an ultrasound can use this software with it for their measurements,” Liu says.

Liu has been working with Ohio State ophthalmologist Andrew Hendershot, MD to begin measuring patients and obtaining clinical data to better understand diseases like keratoconus and glaucoma.

“There are always new things in the field, in technologies, in questions we ask. There are always new ideas and new possibilities.”

For Liu, learning and developing new ideas and techniques are another part of why she loves her job.
A Vision of Success

As a nurse, Leah Snow had patients involved in clinical trials, but she had never participated in one until Ohio State Ophthalmology approached her two years ago. Diagnosed with diabetes 26 years ago, Leah Snow’s only complication has been diabetic retinopathy in her right eye.

“I’ve always wanted to take part in a clinical trial. I think it’s important to help,” Leah Snow says. Snow joined a clinical trial looking at an anti-VEGF medication already approved by the FDA. The goal of the research was to determine whether early administration of the drug can prevent progression of diabetic retinopathy.

“My main concern was will it hurt me at all. I was worried about whether it would harm my vision,” Snow explains. But Barbara Mahalik, OD and Matthew Ohr, MD were able to alleviate her fears.

“Previously the drug hadn’t been approved for this specific indication,” explains Demarcus Williams, Clinical Research Coordinator at Ohio State. “We know that it works for macular edema, but not necessarily for this indication. So we have a good idea of the safety profile, however, we wanted to be able to prove it can help stop progression of this disease.”

This study was a two-year commitment to visit the clinic every month or every other month.

“To get good quality data, the patients have to be compliant,” Williams says. “A missed visit is bad for the study, but more importantly it could be bad for the patient because it’s a missed opportunity for them to receive a treatment. I’m glad and thankful that Leah has been a star participant for us, and hopefully an advocate for new medical research and innovation.”

Life Back in Focus

Schnyder corneal dystrophy effects about 320 people in the United States. Two of them are patients at the Ohio State Department of Ophthalmology.

26 years ago, Laura Booth came to The Ohio State University Department of Ophthalmology with vision worsening more than normal for her age. She was diagnosed with a rare genetic disease called Schnyder corneal dystrophy—where crystals cloud the corneal stroma and progressively decrease visual acuity. Her sister Cathy was diagnosed soon after.

“I was scared of the cornea transplant,” Laura, a cosmetologist, says. “But after a while I could no longer cut hair. Then I worked at a daycare, but it got to where I was falling constantly.”

Cathy had to leave her job with Ohio parks and campgrounds after she became unable to read her computer screen.

“I was shocked when I looked at their eyes,” Hendershot says. “I don’t know how they saw.”

In the past year, Cathy has had both corneal transplants and one cataract surgery. Laura has had one corneal transplant and one cataract surgery, and her second transplant was in March 2019. Both sisters will need their second cataract surgeries in the near future.

“My vision has improved tremendously,” Cathy says. “Everybody here has been great. They make it a lot more comfortable when you have to come back and do it again.”

Laura and Cathy are enjoying getting their lives back little by little as their vision improves post-surgery.

“I was able to drive three miles to take my granddaughter to the movies a couple weeks ago,” Laura says. “It’s wonderful. It’s progress. I was grinning the whole time.”

Diagnosed with diabetes 26 years ago, Leah Snow’s only complication has been diabetic retinopathy in her right eye.

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Sisters Cathy and Laura with their physicians (left and right), Mark Slabaugh, MD and Andrew Hendershot, MD.

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Leah Snow attends her final appointment as a clinical trial patient at the Ohio State Department of Ophthalmology.

Leah Snow with Dr. Matthew Ohr.
Robinson Imaging Center
Opened May 16, 2019

Thomas and Patricia Robinson made the Advanced Imaging Center possible through a generous $1 million donation. It will offer patients access to the most advanced ophthalmic imaging technologies available, including an electroretinogram (ERG) for use in treating glaucoma.
In March 2018, donors and department staff gathered to celebrate the creation of the John & Annie Glenn Fund. The event featured guest speaker Col. Terry Virts, retired US Air Force Colonel and former NASA astronaut.

The fund supports curing and treating glaucoma, diabetic eye disease, and age-related macular degeneration. It also supports collaborations between researchers and physicians to foster unprecedented treatments and advancements by providing resources for advanced technology and groundbreaking research in ophthalmology.

In September 2018, Dr. Paul Weber’s friends and colleagues gathered to celebrate his career and the creation of the Paul A. Weber Endowed Chair Fund. Known not only for his legacy in ophthalmology but for his sunny disposition, Paul Weber, MD has served Ohio State in many leadership roles.

Dr. Weber has contributed extensively to the education of students and residents, while providing excellent care to his patients. He has received a number of awards through the College of Medicine.

The Paul A. Weber Endowed Chair Fund will support a chair position for a physician faculty member in the Ohio State Department of Ophthalmology & Visual Science.
A Lasting Impact

Jerry Colp’s relationship with the Ohio State University Department of Ophthalmology & Visual Science began in 1998. His contributions continue to help countless patients.

When Jerry Colp came to the Ohio State Department of Ophthalmology in 1998, his severe glaucoma was progressing rapidly, and standard treatment hadn’t been working. He met with Paul Weber, MD, and through laser surgery his vision was saved.

Colp passed away in 2016, but his legacy lives on within the Department of Ophthalmology. Following his initial surgery, Colp contributed funds for the Department to acquire new research and clinical imaging equipment to advance the study of glaucoma and other vision-threatening conditions.

Colp helped the Department acquire the Stratus Optical Coherence Tomograph (OCT), the Heidelberg Retina Tomograph (HRT), and the Optovue OCT. Each of these machines enhances the probability of detecting subtle changes in the eye suggestive of glaucomatous progression—stopping glaucoma earlier than ever before.

“Just saying ‘thank you’ is not good enough for me,” Colp said. “With this equipment, my hope is that the doctors will be able to save the eyesight of many, many people. That is what it’s all about.”

Colp was also instrumental in acquiring a Corneal Confocal Microscope, which produces in vivo corneal imaging used for the detection and monitoring of infectious and hereditary corneal diseases.

“If over a period of 10–15 years—through the [donated] equipment—they’ve saved maybe a thousand eyes, then what is the money worth?”

A countless number of patients have benefited and will continue to benefit from Jerry’s generosity for years to come.

Endowed Professorship Established for Drs. Thomas Mauger & Carol Laxson

Dr. Andrew Hendershot was awarded the recently-funded Thomas F. Mauger and L. Carol Laxson Endowed Professorship. The Professorship supports the Residency Program Director in the Department of Ophthalmology.

“Dr. Mauger and Dr. Laxson have been teachers, colleagues, and role models for me throughout my career. It is a humbling honor to receive this professorship.”

Lectureship Created for Alumnus Charles Leone, MD

Dr. Charles Leone’s generous gift of $100,000 has been used to create a lectureship in oculoplastics. The first speaker is slated for June 2019. Dr. Leone was an Ohio State ophthalmology resident from 1963–1966 who was mentored by former chairman Dr. William Havener.

“I give back because of the fondness and the gratitude I have for the wonderful few years that set me on the path that helped me succeed. I acquired knowledge, as well as the motivation. I’ll always be thankful.”
Updated Donor Wall Display Unveiled

In April 2019, the Department of Ophthalmology & Visual Science installed a display to thank our donors—both from 2018 and years past, as well as lifetime legacy donors who have given throughout the years. Our donors help us work toward our goals: to prevent and cure blinding eye disease and improve the quality of vision through research, education and patient care.

Because of our supporters, we are able to pioneer new techniques in eye examinations, diagnostic techniques and treatments for a wide array of eye diseases. We are able to increase our research endeavors, drive advancements in clinical care and innovate new ways of educating our students, who will be the leaders in eye health care in the future.

**$1 MILLION AND ABOVE**

- Warner & Patti* Blow
- Carl & Grace Baldwin*
- Ann La Fontaine*
- Irene Hirsch*
- William & Phyllis Havener*
- Gerald Cop* Thomas & Patricia Robinson

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- W. Thomas Martin
- Randy McLaughlin
- Timothy McNeary
- Richard Murphy
- Marlene O’Dair
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- Paul Richards*
- Gilbert & Peggy Roberts*
- Lawrence Ronning
- Harry Sage
- Mary Ellen Sharshal*
- Carl Shin
- Richard Simmons
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- Amit & Sarah Tandon
- Pattis Towell
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- Albert Van Fossen*
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* Deceased
Educational Events in 2018

Names listed are faculty and resident speakers from the Department of Ophthalmology & Visual Science unless otherwise denoted.

January

20/20 Seminar
Matthew Ohr, MD
Fatoumata Yanoga, MD

American Glaucoma Society
Washington, DC
Glona Fleming, MD
Eddie Washington, MD

American Association of Pediatric Ophthalmology
Austin, TX
Andrew Hendershot, MD

American Association of University Professors in Ophthalmology
Washington, DC
Hillery Inger, MD
Hersh Varma, MD

March

Postgraduate Symposium in Ophthalmology
Courtney Kauh, MD
Fatoumata Yanoga, MD

American Association of Pediatric Ophthalmology & Strabismus
Washington, DC
Hillery Inger, MD
Hersh Varma, MD

April

Association for Research in Vision and Ophthalmology
Honolulu, HI
Hillery Inger, MD

May

20/20 Seminar
Comprehensive
Amit Tandon, MD

Ohio State University Global Health Symposium
Amenze Osa, MD

June

American Society of Cataract & Refractive Surgery
Washington, DC
Mona Adeli, MD
Justin Kuiper, MD
Christine Martinez, MD
Kristen Ann Mendola, MD
Jay Ramsey, MD
Hersh Varma, MD

July

Welcoming New Residents and Fellows

August

20/20 Seminar
Anterior Segment
Mona Adeli, MD
Tyler Oostra, MD

Women in Ophthalmology Summer Symposium
Jacksonville, FL
Jessica Scott, MD

September

Southeastern Ocular Oncology Pathology Seminar
Atlanta, GA
Caroline Craven, MD

October

American Academy of Ophthalmology
Chicago, IL
Colleen Cebulla, MD, PhD
Raymond Cho, MD
Andrew Hendershot, MD
Courtney Kauh, MD
Cynthia Roberts, MD

November

20/20 Seminar
Neuro-Ophthalmology
Abbe Craven, MD
David Hirsh, MD

December

WexMed Live
Colleen Cebulla, MD, PhD

Marc Criden, MD Memorial Lectureship
Guest Lecturer Esriel Killer, MD
Kantonsspital Aarau, Aarau, Switzerland

Frederick H. Davidorf, MD
Endowed Lectureship
Guest Lecturers
Jay Neitz, PhD & Maureen Neitz, PhD
University of Washington
ARVO 2019 • Vancouver

Ohio State Ophthalmology Presenters

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<td>Promoter Methylation of RASSF1 is Common in Non-Tumor Choroid Tissue</td>
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<td>Age-Related Increase in Anterior Optic Nerve Head Compression in Response to IOP Elevation</td>
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<td>Regional Rate-Dependent Mechanical Response of the Optic Nerve Head</td>
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<td>Moea Oskin</td>
<td>Convection of Optical Distortion in Scheimpflug Imaging of a Deformed Cornea at Maximum Conaxity When Loaded by an Air Puff</td>
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2018 Resident and Fellow Graduates: Where Are They Now?

### Residents

- **Mona Adel**, MD
  - The Ohio State University Havener Eye Institute
- **Rebecca Chait**, MD
  - Greater Ohio Eye Surgeons
- **Aileen Early**, MD
  - Cincinnati Eye Institute
- **Hillery Inger**, MD
  - Nationwide Children’s Hospital
- **Amenze Osa**, MD
  - University of Texas Southwestern
- **Jay Ramsey**, MD
  - Maynor & Mitchell Eye Center

### Fellows

- **Erica Alvarez**, MD
  - Retina & Ocular Oncology
  - Texas Tech of El Paso
- **Derek Horkey**, MD
  - Glaucoma
  - LASIK Surgery Kansas City
- **Irina Livshitz**, MD
  - Comprehensive The Ohio State University Havener Eye Institute
- **Tyler Ostraa**, MD
  - The Ohio State University Havener Eye Institute

#### Dr. Michael Wells and Dr. Mona Adel
- Dr. Andrew Hendronstot and Dr. Rebecca Chait
- Dr. Mary Lou McGregor and Dr. Alison Early
- Dr. Mark Slabough and Dr. Hillary Inger
- Dr. Paul Weber and Dr. Amenze Osa
- Dr. Raymond Cho and Dr. Jay Ramsey

- **Dr. Colleen Cebulla and Dr. Erica Alvarez**
- **Dr. Shelly Jain and Dr. Derek Horkey**
- **Dr. Michael Wells and Dr. Irina Livshitz**
- **Dr. Raymond Cho and Dr. Tyler Ostraa**
We have seen more than 1,300 patients since the free clinic began eight years ago.

"You can never really pay back. You can only pay forward."
— Woody Hayes

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Welcome New Physicians

Mona Adeli, MD

Tyler Oostra, MD
STAY CONNECTED

Columbus
915 Olentangy River Rd Ste 5000
Columbus, OH 43212

Westerville
484 County Line Road West Ste 240
Westerville, OH 43082

Dublin
6435 Post Rd
Dublin, OH 43016

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@OSU.Ophthalmology
614-293-8116