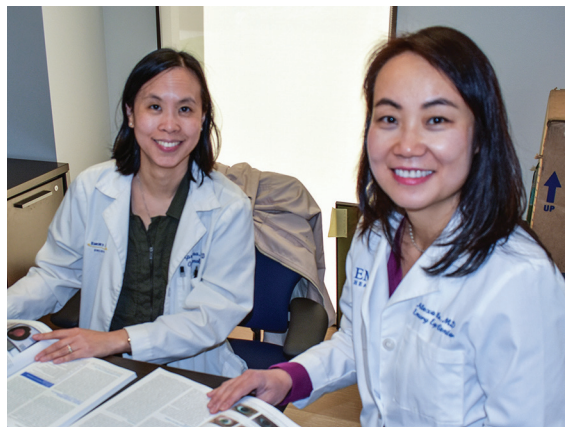




TEAMWORK MATTERS



EMORY
UNIVERSITY
SCHOOL OF
MEDICINE

**Department of
Ophthalmology**

At the heart of the Emory Eye Center's team are our patients, whose fundamental need for vision health demands our best efforts—in the clinic, in the research lab, and in the community. When those same patients partner with us, the full impact of our mission blossoms.

Nowhere is this more true than in the case of longtime glaucoma patient and friend **Debra Owens** whose \$100,000 gift this year helped us to sustain the Glaucoma Drug Assistance program. This fund helps low-income glaucoma patients afford much-needed eye drops that can sometimes run as high as \$1,000 per month (some of which are not covered by Medicare or insurance). In 2023, the Fund has supported 25-30 low-income monthly patients, delivering 77 prescription eye drops that would otherwise have cost \$15,000–\$22,000.

"Even if you are insured, it's very easy for someone with poor vision to run out of eye drops before the end of the month," says Owens. "If you can afford it, that's one thing, but if you can't, that means you go without."

Owens' perspective resonated with another community partner, the North Georgia United Methodist Annual Conference, which also donated \$67,000 to the Glaucoma Drug Assistance Fund.



DEBRA OWENS

By 2050, there will be a 220% increase in vision impairment in those aged 40 years and older in the state of Georgia—an increase that is 70% higher than what is projected for the U.S. in that period.

Statistics like this drive the collaborative work of the Department of Ophthalmology's Global Ophthalmology Program (GO-E), and its director **Jacquelyn O'Banion, MD, MSc.**

O'Banion and her team have found the best way to fight these statistics is through the coordinated efforts of Georgia Vision2020, a collaborative network established by GO-E that coordinates the work of eye care NGOs in Georgia. In addition to recruiting volunteers from among the Emory ophthalmology faculty, fellowship, and residency corps, this group has recruited and trained medical students from Emory University who now organize and conduct monthly screenings in counties where there are no ophthalmological or optometric services. Together with the network's other providers, these efforts reached 1200 patients at more than 128 outreach events in 2023.

The patients are a cross-section of uninsured and underinsured whose first obstacle is access to screening services.

Network partners like Prevent Blindness and Georgia Lions Lighthouse work with GO-E to provide numerous screenings. The network also identifies ophthalmology specialists and optometrists who are willing and able to go beyond screenings to follow-up eye care. One of our newer partners—Good News Clinic—stepped up to this challenge in 2023 by identifying more than 200 patients who need retina-specific services that the Emory Eye Center's Emory retina providers are working to treat.

These partnerships have meant progress—and hope—for GO-E's mission and for countless Georgia residents who would otherwise fall through the cracks when it comes to vision care. In 2023 the network partners were able to identify more than 350 patients whose needs were not met due to COVID-related backlogs. More than 180 of those patients were screened by network partners, and additional medical follow-up has been arranged through cooperating public and private providers, including the Medical College of Georgia.



Vision impairment can have a ripple effect on the aspirations of those who cannot access care. And it's something we can impact if we pull together all of the resources available. Vision impairment results in an estimated 30.2% reduction in employment, contributing to a global productivity loss of \$410.7 billion annually.

—JACQUELYN O'BANION, MD, MSc



MACHELLE T. PARDUE, PhD
Vice Chair and Director
for Research

STRENGTHENING OUR RESEARCH TEAM

Emory Department of Ophthalmology has a strong foundation in basic and translational research—one that drew me to join the Research Division as the vice chair and director in 2023. Thanks to the tireless

advocacy and insight of my predecessor, **John Nickerson, PhD**, that foundation includes more than 30 years of funding from NIH P30 Core Grant and T32 Training Grant funding—two resources that actively promote our pursuit of patient-critical investigations and innovative research.

Add to these the prestigious Research to Prevent Blindness Challenge Grant that we received last year, and the Department of Ophthalmology is ready to fully engage in the questions that will define the future of the discipline.

And we are eager to expand our program. Over the next five years I will be leading the recruitment for new translational research faculty. Our goal is to grow Emory Eye Center’s capacity to access cutting-edge technologies and carry-out impactful research that can help patients see better. We will be actively recruiting candidates whose research dovetails with needs, questions, and investigations identified by our clinical faculty, who see more than 100,000 patients annually. This is translational research at its best.

As we grow, we will actively seek to diversify the perspectives and experience we bring to our work. We have launched a DEI SEED Summer Internship that is providing ophthalmology research training and mentorship for underrepresented minorities. Interns are exposed to both clinical ophthalmology through shadowing opportunities and vision research through hands-on laboratory experiments.

A unique strength of the Emory Eye Center’s Research Division is that it extends beyond our physical walls to the Atlanta Vision Research Community (AVRC) – a partnership of nearly 100 vision researchers from Georgia Tech, Morehouse School of Medicine, Georgia State, the CDC, and VA Medical Center that meets every week at the Eye Center to share new research and progress on ongoing investigations.

As we head into 2024, I invite you to visit our website, where news stories about the Research Division’s collaborations and initiatives contribute to what is always our big picture: the power of basic and translational research, working together.

I am reminded of this by my colleague, physician and researcher **Hans Grossniklaus**, whose ongoing uveal melanoma research this past year was supported by collaborations with four sources: a University Research Award to study how uveal melanoma becomes vascularized and spreads to other organs; two Small Business Innovation Research grants to develop better imaging options for uveal melanoma tumors in the liver and to identify medical treatments for primary and metastatic uveal melanoma; and an Emory-based clinical trial for AUO11, a promising new uveal melanoma treatment. Our research is not defined by the parameters of one foundation or proposal; it is always focused on the difference we can make across the spectrum of scientific knowledge, medical treatment, and patient health.

I am proud to work with a team of researchers that are manifesting this goal on a regular basis.

Lilla Mae Stanton Walthour and Lena Stanton DeLaPerriere
Chair in Ophthalmology

NICKERSON, DATTA TEAM UP ON AMD RESEARCH

A \$786K gift from the R. Howard Dobbs, Jr. Foundation continues to propel the groundbreaking age-related macular degeneration (AMD) research of **John Nickerson, PhD**, and **Sayantana Datta, PhD**. Now in their second year of a projected 3-year project, the researchers ultimately seek to develop a process by which induced pluripotent cells (iPSC) may be used to regenerate the retinal pigment epithelium (RPE), a portion of eye that is affected by age-related macular degeneration (AMD).



JOHN NICKERSON, PhD



SAYANTAN DATTA, PhD

researchers have been evaluating the efficacy of generating, harvesting, and optimizing these new cells so that they can replace damaged RPE without triggering an immunosuppressive response from the eye. Initial work focused on establishing a protocol for differentiating stem cells into RPE.

Currently, there is no effective treatment for AMD, the leading cause of blindness among people over the age of 55. The

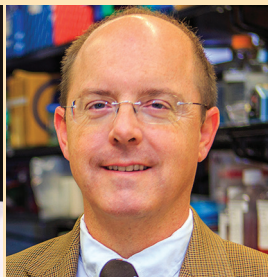
“Overall, this work can offer us a better understanding of the engineered cells, allowing the EEC to enter a preliminary clinical trial phase where patients can receive a therapeutic model of injectable iPSC-derived RPE cells as a treatment for severe AMD,” said Datta. “Ultimately, we envision this procedure will be able to be performed in an outpatient setting and restore vision.”

IUVONE AND BOATRIGHT TO INVESTIGATE NON-INVASIVE ROP TREATMENT

A two-year \$430,000 grant from the National Eye Institute will enable Department of Ophthalmology researchers **Mike Iuvone**, PhD, and **Jeff Boatright**, PhD, to conduct proof-of-concept studies for a novel treatment for retinopathy of prematurity (ROP). The non-invasive approach is outlined in their proposal Atypical opsins and the OIR model of retinopathy of prematurity, which was approved for funding earlier this summer.



MIKE IUVONE, PhD



JEFF BOATRIGHT, PhD

pathological neovascularization when these infants are returned to room air.

Iuvone and Boatright's research seeks to evaluate the efficacy of protecting retinal vascular development in mice undergoing oxygen-induced retinopathy (OIR) by varying their exposure to different types of environmental light.

Their previous research, funded by the **Abraham J. and Phyllis Katz Foundation**, suggests that stimulation of OPN4-VEGFA blue light response pathways protect retinal vascular development. Similarly, stimulation of the OPN5_dopamine-VEGFR2 violet light response pathways is thought to worsen retinopathy. Outcomes of this research that indicate simple wavelength-specific retinal protection would have broad implications for prenatal and neonatal eye care, including the development of an innovative, non-invasive preventative treatment for ROP.

While advances in neonatal care have increasingly enabled physicians to save premature infants, other health issues, including ROP, can persist. Retinopathy of prematurity is a retinal disease characterized by aberrant vascular and neural development. Premature infants are at higher risk for ROP because the oxygen-rich environment of neonatal incubators, where they spend their first hours of life, alter retinal vascular development in ways that lead to

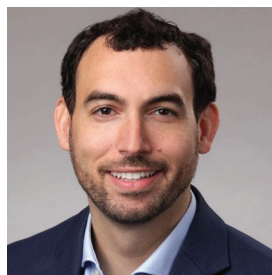
NIH AND VA SUPPORT FEOLA'S GLAUCOMA RESEARCH

Grants from both the National Institutes of Health (NIH) and the Veteran's Administration (VA) are allowing **Andrew J. Feola, PhD**, to further explore the role that menopause and hormones play in the onset and treatment of glaucoma.

Currently glaucoma is the leading cause of irreversible blindness. Aging is a major risk factor, but gender cannot be overlooked: 59 percent of glaucoma cases are among women. Some data suggests that hormonal changes brought on by menopause can impact ocular tissues and play a role in the development of glaucoma. Feola's research will follow up on this.

"While the exact cause of glaucoma is unknown, recent evidence has shown that early menopause and altered estrogen signaling are linked to developing glaucoma. These data highlight that menopause, and particularly estrogen, may play a role in the development of this disease," said Feola of his current research.

The 2-year, \$430,000 NIH/NEI (National Eye Institute) grant will support Feola's project, "*Assessing the Impact of Age, Sex, and Menopause on Scleral Biomechanics and Gene Expression*" which will investigate scleral mechanics and gene expression changes due to age, sex, and menopause.



ANDREW J. FEOLA, PhD

Feola will also set up future applications to investigate pathways affected by age and menopause as potential targets for future treatments.

The 2-year, \$230,000 VA RR&D grant will support "*The Relationship of Menopause to the Onset of Glaucoma in Veterans*," a retrospective study that will use the VA's longitudinal care

records to better understand the association between menopause and glaucoma. This query is particularly relevant to veterans who are, statistically, twice as likely to develop glaucoma than the general US population. It will also provide some very practical knowledge for the military, where the number of female enlistees has doubled in the last 10 years and where 43 percent of those women will be reaching menopause in the next few years.

"Several studies have shown that menopause and hormone replacement therapy containing estrogen affect eye pressure," noted Feola. "Although glaucoma can occur at any level of IOP, elevated eye pressure remains a major causal risk factor for developing this glaucoma: studying how menopause and hormone replacement therapy are associated to glaucoma will improve our understanding of this disease"

HIGHLIGHTS FROM 2023



If you didn't get a chance to skim our headlines in 2023, here are a few of the highlights:

In March, the Department of Ophthalmology once again hosted the Southeast Vitreoretinal Seminar (SEVR), an annual gathering of top retinal specialists from across the U.S. Highlighting the 2023 event was the Paul Sternberg, Jr. lecture, *Big Data and AI Application in Ophthalmology* delivered jointly by Emory Eye Center alumna **Cecilia Lee**, MD, MS, and **Aaron Lee**, MD, MSc

■ In April, Emory researcher **Hans Grossniklaus**, MD, MBA, presided over the annual meeting of the Association for Research in Vision and Ophthalmology (ARVO) as that group's 2023 president. During the five-day event presentations were made by 35 Emory Eye Center faculty and researchers

■ In September, more than 300 researchers, public health advocates, medical students, residents, fellows, and ophthalmologists flocked to Atlanta for the 2023 Global Ophthalmology Summit, organized by the American Academy of Ophthalmology and Emory Eye Center's GO-E director, **Jacquelyn O'Banion**, MD, MSc. The event received generous sponsorships from Alcon, Zeiss, Aurolab, Georgia Eye Bank, Prevent Blindness, and Vision Care USA, among others. A packed agenda included networking receptions, engaging group work, interactive wet labs, and lectures all focused on fostering community in global ophthalmology ■ The American Public Health Association recognized Emory Eye Center's **Susan Primo**, OD, MPH, FAAO, with a 2023 Distinguished Service Award "for her work advancing access to vision care for the underserved and for her continued high-quality service in public health" ■ **Amy Hutchinson**, MD, was recognized by the American Association of Pediatric Ophthalmologists and Strabismus (AAPOS) with a Lifetime Achievement Award during the organization's annual meeting ■ **Ghazala O'Keefe**, MD, **Phoebe Lenhart**, MD, and **Andrew Hendrick**, MD, were honored by the American Academy of Ophthalmology with a 2023 AAO Achievement Award ■ **Nancy Newman**, MD, was named to the 2023 Castle Connolly Exceptional Women in Medicine list. Newman was also chosen as the Dr. Aditya Mishra Memorial Lecturer by the Atlanta Eye Symposium and as the Truhlsen Eye Institute Distinguished Lecturer by the University of Nebraska Medical Center ■ Researcher **Andrew J. Feola**, PhD, was invited to participate in the Women's Health Research Initiative meeting—a working group that is seeking to augment women's health within the Department of Veterans Affairs. Feola's research focuses on glaucoma and the potential role that sex-specific risk factors play in developing this disease for women ■ Faculty researcher **Sayantana Datta**, PhD, was one of only 50 researchers from across the world invited by the Ryan Institute for Macular Research (RIMR) to join the Regenerative Medicine Task Force for a three-day exploration of strategies for fighting age-related macular degeneration (AMD) ■ **Rebecca Neustein**, MD, was a co-author on "The Long-Term Clinical Outcomes of Latanoprostene Bunod 0.024% in Glaucoma Treatment at a Tertiary Glaucoma Center," published in Expert Review of Ophthalmology ■ Seven Department of Ophthalmology's physicians were singled out in the annual TopDocs survey, published by Atlanta Magazine: Dr. **Allen Beck**, Dr. **Maria Aaron**, Dr. **Soroosh Behshad**, Dr. **Valerie Biousse**, Dr. **G. Baker Hubbard, III**, Dr. **Jason Peragallo**, and Dr. **Ted Wojno** ■ The National Academy of Science, Engineering and Medicine (NASEM) named **Machelle T. Pardue**, PhD, to *Focus on Myopia-Pathogenesis and Rising Incidence*, a cohort of academics who've been tasked with conducting a consensus study on myopia, assessing the current mechanistic understanding of the disease, identifying knowledge gaps that further research may explore, and issuing a white paper that will help researchers map out a productive strategy for investigating the causes and possible new treatments for myopia. Pardue was also appointed to the Functional Endpoints committee within the Mary Tyler Moore Vision Initiative for Diabetic Retinopathy (MTM-VIDR), where she worked with a wide cross-section of researchers to identify new diagnostic markers for the disease. ■



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The Emory Department of Ophthalmology residency and fellowship programs have been educating and mentoring comprehensive and specialty ophthalmologists for the better part of a century. Hundreds of Emory Eye Center alumni have gone on to pursue careers that have shaped the direction of the discipline at teaching institutions, clinics, hospitals, and private practices all over the world.



THE 2023 RESIDENTS

On the eve of their formal graduation from the program, the 2023 residents gathered to celebrate their accomplishments and share their career plans. Flanking Dr. Allen Beck, the F. Phinizy Calhoun Senior Chair of the Department of Ophthalmology, are, *from left*, **Dr. Maitri Pancholy Mehta** who joined the Berkeley Eye Center, Houston, TX; **Dr. Abigail Gordon** who accepted a neuro-ophthalmological/oculoplastic fellowship at the University of Texas; **Dr. Colton C. McCoy** who accepted a cornea/refractive fellowship at the University of Colorado; **Dr. Arthur C. Guyton, III**, who joined the Rayner Eye Clinic in Oxford, MS; **Dr. Shaivi A. Patel** who joined the Select Eye Care Center in Columbia, MD; and **Dr. Samantha Nastasi Schreimann** who went into private practice in Florida.



THE 2023 FELLOWS

Each year, the Emory Eye Center accepts between 12 and 16 ophthalmologists who train alongside our specialists for one- to two-years. The 2023 Fellowship cohort included the following physicians, who shared their post-training career plans with us.

1. **Julio Albarracin, MD** (Cornea) Dr. Albarracin joined the Key Whitman Eye Center practice in Dallas, TX.
2. **Mark Morel, Jr., MD** (Cornea) Dr. Morel joined the Marietta Eye Clinic practice in Marietta, Georgia.
3. **Stephen L. Ambrose, MD** (Glaucoma) Dr. Ambrose joined the clinical faculty at the University of Kansas Department of Ophthalmology in Kansas City, Kansas.
4. **Georgina Medina Agramonte, MD** (Glaucoma) Dr. Medina joined the Visionary Eye Doctors practice in Washington, DC.
5. **Hetal Ray, MD** (Neuro-Ophthalmology) Dr. Ray joined the clinical faculty at the University of Virginia Department of Ophthalmology in Charlottesville, Virginia.
6. **Avital Lily Tali Okrent, MD** (Neuro-Ophthalmology) Dr. Okrent has accepted a fellowship in surgical neuro-ophthalmology at the Duke Eye Center in Durham, North Carolina.
7. **Karina Bostwick, DO** (Ocular Pathology/Oncology) Dr. Bostwick has accepted a cornea fellowship at the Emory Eye Center.
8. **Andrew Fischer, MD** (Pediatrics) Dr. Fischer has accepted a neuro-ophthalmology fellowship at the Emory Eye Center.
9. **Ethan Sobol, MD** (Retina) Dr. Sobol joined the Retina Group of Washington practice in Washington, DC.
10. **Adaeze Sonuga, MD** (Retina) Dr. Sonuga is pursuing clinical research in Atlanta.
11. **Andrew Zheng, MD** (Retina) Dr. Zheng joined the Colorado Retina Associates in Denver, Colorado.
12. **Julibeth Alvarez, MD** (Global Ophthalmology) joined the Miami Eye Center, Miami, Florida