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Wilmer Eye  
Institute



# Wilmer

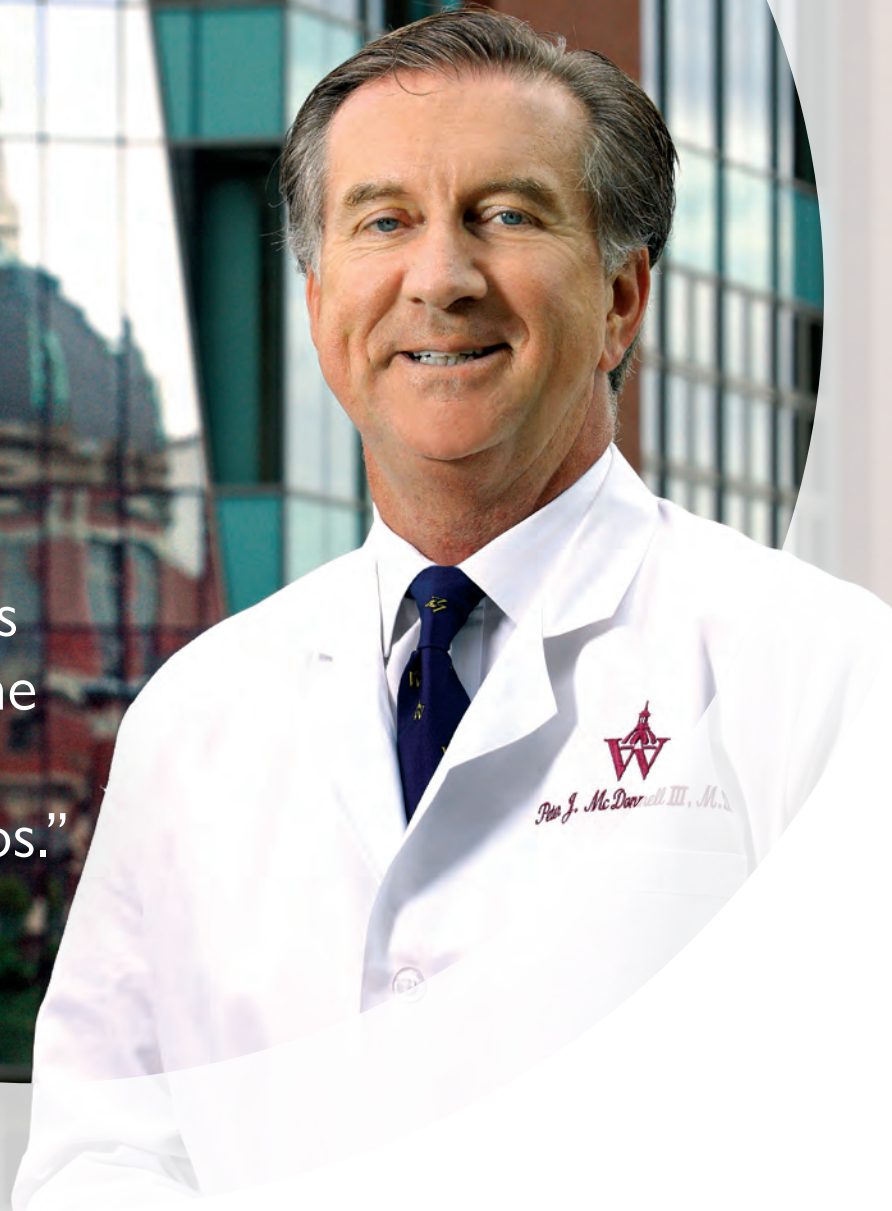
Building on a  
**STRONG  
FOUNDATION**



**ANNUAL REPORT  
2019**



“Our very existence is proof of the power of partnerships.”



## As I See It...

### Dear Wilmer Friends and Family,

This has been a year of reflection at Wilmer. While the institute began operations in 1925, October marked the 90th anniversary of our formal dedication. In addition to providing our expert patient care, devoting more resources to research than any of our peer institutions, and training the next generation of leaders in ophthalmology and in vision research, we have spent time considering Wilmer's place in the wider field of ophthalmology.

In this process, we distilled our essence into five pillars that we have built onto the strong foundation laid down by our founder, Dr. William Holland Wilmer:

#### LEGACY OF INNOVATION

Our legacy has always distinguished Wilmer from our peer institutions — specifically as the nation's first university eye clinic to combine patient care, research and education under one roof. In 1925, this step was innovative, and now it is the norm in the field of ophthalmology. Our legacy, however, is not simply being the first to integrate these disciplines; it is the vision to do so. In that way, our truest legacy is innovation.

#### COMPASSIONATE CARE WITHOUT BOUNDARIES

When Aida de Acosta Root Breckinridge spearheaded the effort to create the Wilmer Eye Institute in the early 1920s, she noted, “The purpose of the Institute is to carry on the philosophy of Dr. Wilmer by treating human beings as human beings and regarding the eye as the window of the soul.” Patient-centered care is a bedrock value here, rooted in the practice of looking into the eyes of patients and seeing their full humanity. Every patient — regardless of age, race, gender, socioeconomic status, nationality or religion — receives care that's compassionate and comprehensive.

#### PROTOCOL-DEFINING EXPERTISE

Not only do Wilmer faculty and staff members provide compassionate care, they have the expertise to lead the way in the diagnosis and management of complex eye diseases. Ophthalmologists and patients around the world rely on Wilmer for state-of-the-art treatment.

#### DEDICATION TO RESEARCH

As the largest research and academic ophthalmic enterprise in the United States, Wilmer invests more in research than any of our peer institutions. Our research focuses on the eye, of course, but also on areas of study with implications beyond ophthalmology, such as drug delivery, regeneration and tissue remodeling. Discoveries made here transcend the constraints of anatomy and the research silos of the past.

#### EDUCATING EXPERTS IN THE FIELD

At the formal dedication of the institute, Dr. Wilmer said: “I am happy to have planted the seed of ophthalmology in good ground. I look forward hopefully to the gathering of the harvest of young people now with me, and by those who may come after me. I hope that the influence on their usefulness will be salutary and permanent.” Indeed it has. More leaders have received their training at Wilmer than at any other institute, including more than 100 department chairs and 10 presidents of the American Academy of Ophthalmology. Drawn to a unique environment that fosters opportunities to ask and explore bigger questions, hundreds of Wilmer physicians, scientists, residents and fellows go on to become thought leaders at organizations, companies, institutions and programs around the world.

When Aida Breckinridge had the vision for an eye institute dedicated to preserving and perpetuating the knowledge, skill and humanity of Dr. Wilmer, she made it a reality through partnerships. Patients and staff members of Dr. Wilmer came together to raise the necessary funds. Dr. Wilmer agreed to the institute's creation only after securing a partnership with The Johns Hopkins University. The hands of unnamed people came together to construct a (for its time) state-of-the-art clinic, formally opened to the public and named the Wilmer Eye Institute in October 1929. Our very existence is proof of the **power of partnerships**. We hope you enjoy reading about the different forms partnership takes at today's Wilmer Eye Institute.

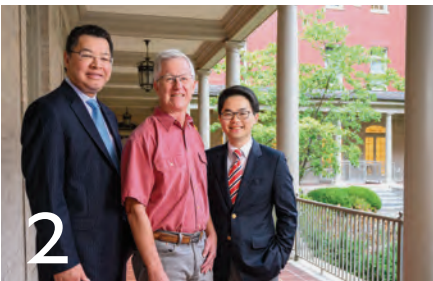
  
**PETER J. McDONNELL, Director**



The mission of the Wilmer Eye Institute, Johns Hopkins Medicine is to transform medical outcomes in the field of ophthalmology through collaboration and innovation, resulting in compassionate, leading-edge, patient-informed care. With unwavering dedication to our founding vision, a human approach to patient care, breadth of leading solutions, deep research investment and ability to produce leaders in the field of ophthalmology, Wilmer is a collaborative, purpose-driven environment that understands the critical importance of sight, an essential part of the human condition.

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# A Rare Masquerader

**'AMAZING' TEAMWORK AND A QUICK AND ACCURATE DIAGNOSIS SAVED GEOFFREY GRUBBS' SIGHT AND HELPED PUT HIS CANCER IN REMISSION.**

**F**irst diagnosed with chronic lymphocytic leukemia (CLL) in 2009, Geoffrey Grubbs dealt with his disease for the better part of eight years. By 2017, Grubbs was in remission, but his cancer was returning, albeit slowly. Grubbs felt healthy, so his oncologist counseled a wait-and-see approach before beginning chemotherapy again. Then, one evening, things changed.

On the previous spread: Geoffrey Grubbs, middle, is flanked by his doctors, Fernando Arevalo, left, and T.Y. Alvin Liu, right.

“I came down and said to my wife, ‘You want to hear a weird symptom? I can’t see,’” Grubbs remembers. That quickly prompted a visit to his ophthalmologist in Washington, D.C., where Grubbs lives. “The local eye doctor took one look and hit the panic button,” Grubbs says.

A retinal specialist was hailed from nearby. Hours of tests ensued. Grubbs had lesions behind his retina. Fearing an infection that might spread along the optic nerve into his brain, the ophthalmologist scheduled Grubbs at the Wilmer Eye Institute the very next day. There, Grubbs was placed in the care of **J. Fernando Arevalo, M.D., Ph.D.**, Wilmer’s Edmund F. and Virginia Ball Professor of Ophthalmology, and **T.Y. Alvin Liu, M.D.**, assistant professor of ophthalmology. Liu saw the patient first.

“Dr. Liu thought I was really interesting, which is never good when you’re a patient,” the good-humored Grubbs jokes now. “He was all over this one.”

In the ensuing days, many more hours of tests followed at Wilmer and with his oncologist — including various types of imaging, an MRI scan and a spinal tap. The lesions, in addition to involving the retina, were on the optic nerve and “all over my brain lining,” he recalls. Worse yet, Grubbs began having as many as seven seizures a day. At that point, even the irrepressible Grubbs was scared.

Arevalo and Liu quickly ruled out the worst possible diagnosis, an infection,

but that bit of good news presented a new dilemma. The doctors strongly suspected an infiltrative process as the culprit for the lesions, but that meant one of two possibilities. Either Grubbs had a separate, rare, aggressive lymphoma called primary vitreoretinal lymphoma, or his CLL had returned with metastasis to his eyes, which would be an extremely rare occurrence.

“Beyond rare,” Liu says.

“If it were CLL, Mr. Grubbs’ condition would be only the third or fourth such case recorded in the medical literature,” Arevalo says. “We needed a very high suspicion to say that it had returned.”

Through test results and combing through the medical literature, Arevalo and Liu were able to rule out the more serious lymphoma, fingering for certain CLL as the cause of the lesions. Then, in consultation with Arevalo and Liu, Grubbs’ oncologist at Georgetown Lombardi Comprehensive Cancer Center in Washington, D.C. — who had made the original CLL diagnosis years before — quickly began a dual course of cancer treatment: First, chemotherapy was injected into Grubbs’ spinal column to attack the CLL in the central nervous system. Second, the patient was prescribed a new, targeted oral medication designed to penetrate the formidable blood-brain barrier that often prevents medications from reaching their intended targets in the brain, optic nerves and eyes.

The novel treatment worked. Quite possibly better than anyone, including the patient himself, could have hoped. Within two months, Grubbs’ seizures stopped, and sight in his less-affected left eye returned to 20/20, with virtually no lesions present. Eight months later, the lesions in his more seriously affected right eye had regressed. His vision in his right eye finally recovered to 20/40.

“We saved his sight and were able to help prevent his cancer from metastasizing to other parts of his body,” Arevalo says.

Because CLL manifestation in the eye is a “rare masquerader,” Arevalo says, it is little understood and, therefore, too often misdiagnosed.

For his part, Grubbs is ecstatic with his care. Arevalo and Liu working together were an “amazing team,” he says.

Grubbs, whose CLL is back in remission, is so grateful for the quick and accurate diagnosis of his rare presentation and with the doctors’ expertise in prescribing the right drugs to treat his condition that he has made a gift to Wilmer in

support of Arevalo’s research. That gift has become the basis for an ongoing fund that others can support as well.

“I think it is crucially important for ophthalmologists to understand this connection to blood cancer and to advance science in a way that other CLL patients like me can benefit,” Grubbs says. ●

For his part, Grubbs is ecstatic with his care. Arevalo and Liu working together were an “amazing team,” he says.



# Sheila West and the Art of Mentoring

When Wilmer's **Meraf Wolle, M.D., M.P.H.**, was a first-year medical student at Johns Hopkins, she knew she wanted to explore research while combining her clinical interests in ophthalmology and infectious diseases, so she began to seek out a mentor.

That search brought her to **Sheila West, Ph.D., Pharm.D.**, Wilmer's Akef El-Maghraby Professor of Preventive Ophthalmology and one of the world's foremost authorities on trachoma, a devastating infectious disease that affects the world's most vulnerable populations and leads to irreversible blindness.

"I asked around, and people said Sheila was the best mentor they had worked with as medical students," Wolle recalls of her mentor, who would eventually become vice chair for research at Wilmer.

An in-person meeting with West followed, and Wolle soon found herself working on not one but two of West's trachoma studies. West warned it would be a lot of work but told Wolle

that if she could complete both in one summer, she would support her in writing her results for publication.

It was a gesture not every academic mentor would extend to a young colleague, and it would prove career-altering for Wolle. As promised, the collaboration resulted in two peer-reviewed papers — one published in *Ophthalmology*, the other in *Investigative Ophthalmology & Vision Science* — both had Wolle as first author.

"I was just starting my medical career as a first-year medical student," says Wolle, today an assistant professor at Wilmer. "I don't know any other mentor who would spend so much time with young mentees. She really fights for you."

On the previous spread: Meraf Wolle and her mentor, Sheila West, in Wilmer's Meyerhoff Garden Court at the Maumenee Building

Wolle's story is only one of many examples of West's notable reputation for guiding young researchers. Insightful, wise, rigorous but patient and, above all, quick to dispense credit, West — now vice chair emeritus for research at Wilmer — has helped set the course of dozens of researchers who have gone on to distinguished clinical and research careers.

While West has stepped down as vice chair, she is by no means retiring. She will continue mentoring at Wilmer, she says, because it is a vital part of who she is. "It's rewarding. I learn as much from them as they do from me. I think of it as sharing my experience with the future," West says.

Wilmer's **Bonnielin Swenor, Ph.D., M.P.H.**, has felt the West influence. Back in 2007, when she was an M.P.H. student in one of West's epidemiology courses, Swenor was taken by West's first lecture and reached out. In their initial meeting, Swenor did something she didn't often do: She revealed her own vision impairment to West.

West convinced Swenor to change her research focus from nutrition and cancer to low vision and aging, and helped her choose a research topic. That study yielded an all-important manuscript that got Swenor's career off the ground.

"Some mentors advocate for you, some help you network, some do both. But only a very few become your career champion," Swenor says.

Biostatistician **Xiangrong Kong, Ph.D.**, credits West with teaching her the nuances of data collection and rigorous analysis to understand disease. "She has great insight and is always encouraging you to pursue the science," Kong says. "That kind of role model is very important to a young researcher."

**Pradeep Ramulu, M.D., Ph.D.**, the chief of Wilmer's Glaucoma Division, is not only a mentee of West: In April 2019, Ramulu became the Sheila K. West Professor of Ophthalmology, an endowed professorship established at Wilmer as an acknowledgement of West's profound and lasting influence.

West has been feted with numerous awards and accolades in her life — most recently, the Mildred Weisenfeld Award from the Association for Research in Vision and Ophthalmology and the 2018 Al-Sumait Prize for Health — but none of it, she says, prepared her for the joy of the endowed professorship.

Learning of it caught West off guard. When Wilmer Director **Peter J. McDonnell, M.D.**, set a meeting to share the news, West assumed the subject was going to be administrative in nature. "I thought we were going to talk office space," she says. "When he told me about the endowed chair, it was a complete and wonderful surprise." She says it was all she could do to hold back tears.



Pradeep Ramulu and Sheila West at the dedication of the Sheila K. West Professorship of Ophthalmology in front of the Professorship Wall where plaques honor the recipients. Ramulu is the inaugural Sheila K. West Professor.

For Ramulu, the professorship holds great meaning and no small degree of challenge in living up to the legacy set for him by his mentor.

"It's a humbling connection, especially special because of the instrumental role Dr. West played in my career," Ramulu says. "Sheila's a great researcher but an even greater person. You can't ask for anything more than that in a mentor." ●

"Some mentors advocate for you, some help you network, some do both. But only a very few become your career champion."

— BONNIELIN SWENOR

NEIL MILLER IS PASSING THE TORCH TO ENSURE IMPORTANT WORK CONTINUES.

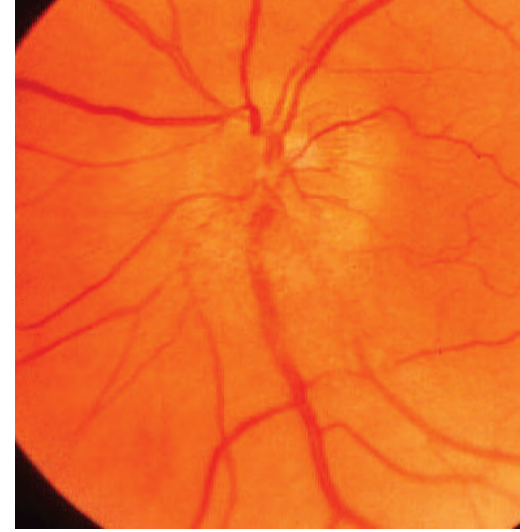
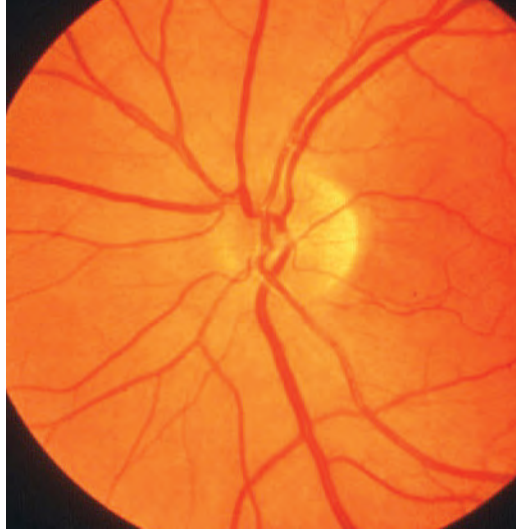
# Maintaining Momentum in NAION Research



From the earliest days of his medical career, **Neil Miller, M.D.**, the Frank B. Walsh Professor of Neuro-Ophthalmology, was interested in the connection between the nervous system and vision.



Two fundus images of the same optic disc. On the left, before NAION and on the right, immediately after the onset of visual loss from NAION. The optic nerve is the circular structure. The red curvilinear structures are blood vessels.



On the previous spread: Amanda Henderson, left, is pictured with her mentor in neuro-ophthalmology, Neil Miller.

What was then a little-known subspecialization has now become a specialization in and of itself, thanks largely to Miller's research and leadership. It's known as neuro-ophthalmology, and today, Miller is among the most senior authorities in the field he helped to define.

Miller's research is focused on optic nerve damage that can occur from stroke, trauma, infection or tumor. In particular, he has been performing research on optic nerve stroke, also called non-arteritic anterior ischemic optic neuropathy, or NAION. This disorder can lead to vision loss or even blindness and is the most common cause of sudden optic nerve-related visual loss in older people. Currently, there is no treatment for it, but Miller and his colleagues are working to change that.

Through his years of research, Miller has now isolated three drugs that in the laboratory either reduce damage to the optic nerve after an attack of NAION or heal the nerve once damage has occurred. Recently, his research crossed an important threshold in the drug development cycle when he

began trials in primate models, whose optic nerve is nearly identical to that of humans. It is the penultimate stage before human clinical trials. If all goes well, Miller may soon be able to test his NAION drugs in people who have been blinded by optic nerve stroke and perhaps other conditions as well.

"We have now identified three compounds that protect the optic nerves from various forms of damage, such as loss of blood supply from stroke," Miller says. "The focus now is the dosage and frequency."

Miller has also discovered other — what he calls "add-on" — drugs that could constitute a cocktail of drugs that might protect the optic nerve more than any one drug by itself. Importantly, he has shown that if doctors can get these drugs into a damaged optic nerve within five hours of a stroke, they can prevent permanent damage.

"If it's a day later, then it might be too late," Miller says.

It has taken decades of painstaking work for Miller to reach this important milestone, and a key aspect of his

leadership in the field is to ensure that important research continues. Miller has mentored several of the next generation of leaders in neuro-ophthalmology. One of his newest proteges is **Amanda Henderson, M.D.**, an assistant professor of ophthalmology who recently joined the NAION team at Wilmer.

"We're working to pass the torch to others like Dr. Henderson to both help expand our base of knowledge and ensure there is a next wave of researchers looking into NAION," Miller says.

Miller, Henderson and their colleagues have begun to test a new type of drug delivery system that is aimed at carrying their drugs to the damaged nerve cells in the eye and optic nerve.

They are using a nanoparticle drug delivery mechanism — called a dendrimer — in which drug molecules are attached to the nanoparticle. The dendrimer helps the drug get to places in the body it typically cannot reach without help, such as deep inside the eye and in the brain.

"Dendrimers can be given intravenously, rather than as an injection in the eye. They travel through the bloodstream and localize to the specific inflammation site," Henderson says. "They go right to the problem area." ●



Allan Holt, who supports the research into NAION, a disorder two of his family members have experienced, with his wife, Shelley Holt

### REASON FOR OPTIMISM

One person closely monitoring the progress in NAION research at Wilmer is Allan Holt, who has a lot riding on the results. Two of his family members have experienced NAION. Holt has been a longtime donor to NAION research ever since he brought one of those family members in to see Miller many years ago.

"I thought it was something I would be happy to support," Holt says. "And, when you meet Dr. Miller, it's hard not to be optimistic."

Miller notes that his benefactor is deeply interested in the outcomes, knowledgeable about the research and incredibly gracious with his support. Holt's backing has helped Miller secure several National Institutes of Health and foundation grants.

It's the perfect outcome of philanthropy, Miller says. He and colleagues can continue their important research while drawing new support from other sources. "It all dovetails on itself," Miller says. "Allan Holt has been phenomenal."

"For future generations, for our family and all the other families impacted by this, I think my philanthropic dollars are very well spent," says Holt.

# Ready... Set... Launch!

TEAMS OF WILMER FACULTY ENTREPRENEURS, INTENT ON TURNING THEIR SCIENTIFIC DISCOVERIES INTO NEW TREATMENTS FOR PATIENTS, HAVE CREATED 13 NEW COMPANIES — AND MORE ARE IN DEVELOPMENT.

By Jessica Wilson

The process of moving research discoveries from bench to bedside is far from straightforward, and researchers who undertake the challenge of bringing better treatments to market face two distinct “valleys of death” that all too frequently derail their efforts.

The first valley occurs when discoveries made in basic science research — in cells or animal models, for example — fall off a metaphorical cliff before reaching human subjects in clinical trials. Even if a discovery makes it into clinical trials as a potential treatment, another cliff looms during the commercialization process: Untold numbers of promising treatments fail to become available to a wider public because they can't be successfully scaled up.

In the decade since the Robert H. and Clarice Smith Building opened in 2009, the Wilmer Eye Institute has actively worked to overcome the first valley of death by encouraging collaborations between clinical and basic science researchers. Today, the Smith Building brings together more than 278 researchers and clinicians — from materials engineers to stem cell biologists to chemists — who work in open or glass-enclosed lab spaces, ensuring they are aware of their neighbors' work. In addition, shared equipment maximizes resources, and proximity throughout

the day breeds team building and creative group problem-solving.

“For us, problem identification is a lot of where this interface is really important with the clinicians,” says **Laura Ensign, Ph.D.**, the Marcella E. Woll Professor of Ophthalmology and a chemical engineer in Wilmer's Center for Nanomedicine, which occupies the sixth floor of the building. “Engineers can come up with tons of problems to solve, but they may not be important problems. The clinicians are the only ones who can identify clinical need.”

Addressing the second valley, though, where discoveries that yield excellent results in clinical trials fall off the cliff before they can be commercialized, has required a Johns Hopkins-wide approach, which Wilmer Director **Peter J. McDonnell, M.D.**, enthusiastically supports. Today, the primary engine for this activity is Johns Hopkins Technology Ventures (JHTV). JHTV helps faculty members license their discoveries to larger companies and has created an



infrastructure in the form of incubators to encourage faculty members to create their own companies. The two incubator spaces — one on the East Baltimore campus and one near the Homewood campus — provide a combined 32,000 square feet of coworking, office, conference and lab space.

“One of the challenges, if you wish to start a company and you’ve never done it before, and you don’t have tens or hundreds of millions of dollars, is how do you get started with the company and get it to the point where people wish to invest in it?” says McDonnell. “Now there’s this incubator space that faculty members can use to launch their startup companies away from their scientific research — in a different laboratory, where the company is doing the work needed to try to turn the discovery into a product that addresses an important, unmet medical need.”

Johns Hopkins faculty members who pursue such work are today known as faculty entrepreneurs. While employed full time at Johns Hopkins as researchers and/or clinicians, they work with the university and the appropriate oversight committees to get approval to create

a company dedicated to achieving their dream of addressing a medical problem for which current therapies are inadequate and to bringing their treatments to market. Teams of Wilmer faculty entrepreneurs have created 13 such companies, with more companies in the early stages of formation — by far more than in other ophthalmology departments, according to McDonnell.

“Our founder, Dr. Wilmer, felt that the reason we exist and the reason why we do our research and our teaching and take care of patients is so that we can do the best possible job preventing patients from losing their vision or helping them to restore their vision. And so to me, the fundamental value of this activity is allowing us to help patients. It all comes down to the patients: serving patients and serving mankind by translating scientific discoveries into better treatments,” says McDonnell.

The following faculty entrepreneurs at Wilmer are putting their time and energy into smoothing the course of scientific progress so that discoveries can travel across the continuum — from idea, to invention, to innovation, to patient treatment — without ever meeting a cliff.



**Justin Hanes, Ph.D.**  
*Lewis J. Ort Professor  
of Ophthalmology  
Co-Director, Center for  
Nanomedicine  
Chemical Engineer and  
Pharmaceutical Scientist*

## What is an insight you have gleaned from starting companies?

“As faculty members, when we create something we think has value and could potentially be helpful to people and transformative to medicine, we want to make sure that it doesn’t get wasted. If there’s no patent protection or if a patent is abandoned, then you can be sure that its impact would be greatly diminished or lost.

“A patent is a way of sharing new knowledge. You’re supposed to share the best way you know at the time to create your product in order for the patent to be valid. You could just publish a discovery in a scientific journal. This was most common at Johns Hopkins for a long time. The problem was there were many tremendous innovations that were not sufficiently patented, and then nobody created either the device or the drug that could have helped people because there was no way for a company to recoup their costs.”

### COMPANIES FOUNDED INCLUDE:

**Kala Pharmaceuticals:** The products use nanoparticles with proprietary coatings to help drug molecules penetrate mucus more effectively to deliver more of the drug to the targeted area in the body. Disease targets include ocular pain, ocular inflammation and dry eye disease. The current formulation is in eye drops.

**Graybug Vision** (with Wilmer Director Peter J. McDonnell, M.D.; Peter Campochiaro, M.D., George S. and Dolores D. Eccles Professor of Ophthalmology and Neuroscience; Jie Fu, Ph.D., research associate in ophthalmology; and Christy Wyskiel, executive director of JHTV): The lead product is a sustained-release intravitreal drug for the treatment of age-related macular degeneration, diabetic macular edema and macular edema resulting from retinal vein occlusion. The drug is paired with microparticles that provide effective drug levels for six months or longer, thereby greatly reducing the need for frequent ocular injections.

**Spiral Therapeutics** (with Hugo Peris and Eugene de Juan, M.D.): The company is developing products to prevent hearing loss.

Five additional companies (discussed in the following pages) with Wilmer and Johns Hopkins colleagues: **Blue Jay Biomedical, Theraly Fibrosis, Neuraly, Ashvattha Therapeutics** and **Orpheris**.



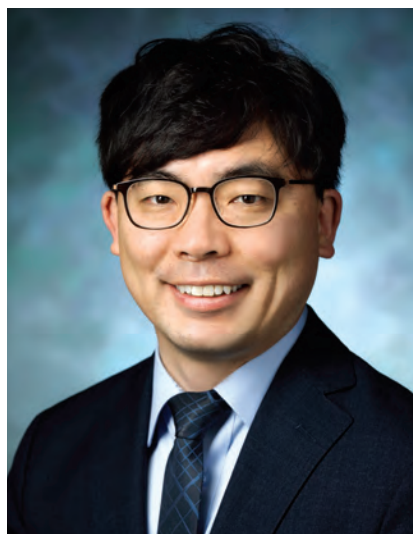
**Laura Ensign, Ph.D.**  
*Marcella E. Woll Professor  
 of Ophthalmology  
 Center for Nanomedicine  
 Chemical and Biomolecular Engineer*

### Why did you start Blue Jay Biomedical?

“If you license the technology to an existing company, there’s no guarantee that it will be developed into a product that reaches patients. Big companies, they could license something and then in a couple of months decide, ‘This isn’t a priority anymore.’ Our ultimate goal is wanting these treatments that we’re working on in the lab to get to the clinic in the fastest way possible. A lot of times, that’s done if the people who believe in it and are the most passionate about it are the ones who are driving it.”

#### COMPANY FOUNDED:

**Blue Jay Biomedical** (with Justin Hanes, Ph.D.): The technology in development creates drug-loaded polymer films that greatly improve drug efficacy and duration at mucosal tissues in the body. Depending on the drug used, the treatment could become eye drops for retinal degenerative diseases or vaginal gels for prevention of preterm birth.



**Seulki Lee, Ph.D.**  
*Center for Nanomedicine  
 Materials Science Engineer*

### As a basic scientist, what do you see as the primary difference between what happens in the lab and what happens in the company?

“In basic science, we need to figure out the [biological] mechanism of action, how these drugs actually work. Our role is to demonstrate a proof of concept in animal models. And then we can provide our findings and molecules to industry teams. They do product development, which is a very different story. They focus on the scale-up and the very extensive safety study in animals, which will take one to two years. And then they need to design and prepare for the human clinical trials, which is out of our expertise.”

#### COMPANIES FOUNDED:

**Theraly Fibrosis** (with Justin Hanes, Ph.D.): The lead drug is a bioengineered human protein molecule used in tissue remodeling that can selectively target myofibroblasts, one of the significant originators of fibrosis, to treat various fibrosis—a debilitating condition that can affect any tissue type.

**Neuraly** (with Justin Hanes, Ph.D.): The lead product is a peptide drug engineered for sustained delivery that targets neuroinflammation in the brain, which could treat different neurodegenerative diseases, including Parkinson’s, Alzheimer’s, amyotrophic lateral sclerosis (ALS) and multiple sclerosis.



**Kannan Rangaramanujam, Ph.D.**  
*Arnall Patz Distinguished Professor  
 Co-Director, Center for Nanomedicine  
 Chemical Engineer*

### When did you know you wanted to start a company?

“Before coming to Wilmer, I was on the faculty in an engineering department where if you develop a drug delivery product and you are evaluating it in animals, people thought you were doing significant work. In contrast, the first day I walked into Wilmer — the Smith Building — I ran into a Wilmer faculty member who is extremely well-known across the world. He saw what I was doing and the first thing he asked was, ‘Have you cured or have you given this to humans yet? That’s the only thing that counts.’ This was actually a stunning thing because basically what he’s saying is that the impact of your work is measured by whether you have cured the human disease. That is a very big bar! But I also realized that is the ultimate goal, and that should be what I strive for.”

#### COMPANIES FOUNDED:

**Ashvattha Therapeutics** (with Sujatha Kannan, M.B.B.S.; Justin Hanes, Ph.D.; and Jeff Cleland, Ph.D.): The technology under clinical development relies on treelike polymers known as dendrimers that can precisely deliver drugs to specific affected cells in the brain, eye and other organs, increasing effectiveness of treatment and reducing side effects.

**Orpheris** (with Sujatha Kannan, M.B.B.S.; Justin Hanes, Ph.D.; and Jeff Cleland, Ph.D.): The product pairs the dendrimer technology with a drug to treat neuroinflammation associated with brain disorders, including cerebral palsy, Alzheimer’s and ALS.

**RiniSight** (with Elia Duh, M.D., and Jeff Cleland, Ph.D.): The company is developing therapies in the field of ophthalmology for systemic treatment of age-related macular degeneration (AMD), diabetic retinopathy, dry eye, and corneal and battlefield injuries.



**Akrit Sodhi, M.D., Ph.D.**  
Branna and Irving Sisenwein  
Professor of Ophthalmology  
Retina Specialist

### What part does the small startup company play in the development of treatments?

“To develop a drug that a company would be interested in taking past a phase I/II trial and into a phase III trial, you need investors. The cost for drug development is daunting. There are some estimates that taking a drug through a phase III to phase IV clinical trial may cost hundreds of millions of dollars. Unfortunately, that is not something the federal government is able to fund. To make that transition, from identifying a therapeutic target to developing and marketing a drug, there needs to be a mechanism. One mechanism has been the development of ‘NewCos’ — new companies that scientists can start in order to generate data to demonstrate the feasibility of a candidate drug and attract a larger pharmaceutical company to say, ‘OK, this looks like something we would be interested in pursuing.’”

#### COMPANY FOUNDED:

**HIF Therapeutics** (with Gregg Semenza, M.D., Ph.D., Nobel Laureate and the C. Michael Armstrong Professor of Medicine): The research of both founders focuses on a transcription factor called hypoxia-inducible factor (HIF-1a) — discovered by Semenza, who won the 2019 Nobel Prize for his efforts — to determine HIF’s role in ocular diseases and cancer. The company is looking to improve upon the current standard of treatment for diseases related to abnormal blood vessel growth (angiogenesis) by developing HIF inhibitors to complement or even replace anti-vascular endothelial growth factor (VEGF) therapy.

### What have you learned about the process of starting a company that surprised you?

“As an engineer who’s developing technology, [I’ve found] the technology that sounds the most ‘out there’ and novel is often the one that gets published in the top journals. But in terms of what gets made into a product, what partners and investors want to know are things like, ‘How can this be manufactured? Is it scalable? Is it stable? What does the regulatory process look like? Have there been other products that have gone down this path so that we know that this is very safe?’ A large company would much rather pay 10 times or 100 times more money for something that they feel has been de-risked and is a sure thing.”

#### COMPANIES FOUNDED:

**AsclepiX Therapeutics** (with Aleksander Popel, Ph.D.): The lead product is a sustained-release peptide drug injected intravitreally to treat diseases such as neovascular AMD and diabetic macular edema.



**Jordan Green, Ph.D.**  
Translational Tissue Engineering Center  
Biomedical Engineer



**Allen Eghrari, M.D., M.P.H.**  
Cornea Specialist

### How has collaboration helped you?

“Working together with engineers, we’ve been able to develop processes by drawing on everyone’s talents in the team. There are clinical insights, which guide the process of innovation, but at the same time, it’s been really helpful to have engineers who can guide the process from a technical perspective. And by collaborating with colleagues who have experience bringing other technologies to market, it helps us develop a vision for the path forward.”

#### COMPANY FOUNDED:

**Treyetech:** The products include medical devices to help with corneal transplantation. The initial device helps in storing and transferring tissue from the eye bank to the surgeon.



**Jeffrey Mumm, Ph.D.**  
Helen Larson and Charles Glenn  
Grover Professor of Ophthalmology  
Neuroscientist

### How would you describe the evolution of the relationship between academia and entrepreneurship?

“Right after the millennial clock ticked over, the Internet-fueled tech bubble burst, and then we had the housing market collapse. After a decades long trend of steady increases, funding for the National Institutes of Health essentially flatlined after 2003. Universities needed to explore other models to support their large investments in research infrastructure. You walked over to the patent offices, and you talked to upper administration people, and they were looking at Florida and Gatorade, saying, ‘We want some of this action, where we can pay for our research, independent of the federal government, simply by our own entrepreneurship skills.’

“And universities are such a natural fit for that. Young people who are thinking about the world’s problems deeply for the first time in their lives are a hotbed of innovative concepts. Entrepreneurship fits us as a culture, as long as we find a way to thread that needle between [being] an institute of sharing knowledge and protecting intellectual property. How do you get those two things married? You educate people that just because we’re protecting [a technology] with respect to commercialization doesn’t mean we’re not allowing use of it for basic science research.”

#### COMPANY FOUNDED:

**Luminomics:** The product is a robotics-automated screening platform for large-scale drug discovery in whole-tissue and whole-organism disease models.

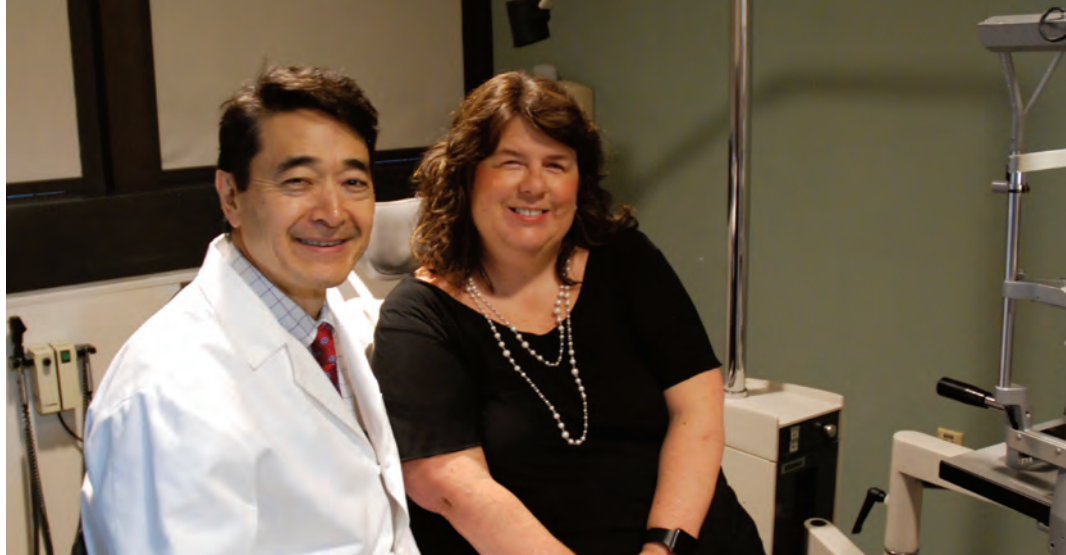
# Teaming Up for Surgically Complex Cases

WEEKS OF CAREFUL PLANNING AND  
PAINSTAKING COORDINATION PAY OFF  
WITH UNMATCHED PATIENT OUTCOMES.

**W**ilmer is known for the quality of its specialists, but what many don't know is that these specialists often team up in the operating room to supercharge the treatment of patients with complex eye diseases.

On the previous spread: Pradeep Ramulu, Esen Akpek and Jim Handa in an operating room in Wilmer's Bendann Surgical Pavilion

On the right: Jim Handa with Lyn Marchwinski, a patient of all three doctors, at a follow-up appointment



One such team is **Esen Akpek, M.D.**, the Bendann Family Professor of Ophthalmology; **Pradeep Ramulu, M.D., Ph.D.**, the Sheila K. West Professor of Ophthalmology; and **Jim Handa, M.D.**, the Robert Bond Welch, M.D., Professor of Ophthalmology. Together they partner on complex patients requiring surgery on more than one part of the eye.

Working together in close quarters breeds a familiarity with each other's habits — and music preferences in the operating room. While Handa prefers classical and Ramulu favors Simon and Garfunkel, both acknowledge Akpek's tastes run in a different direction: rap and hip-hop. "I have a 13-year-old," she shrugs, as Handa and Ramulu laugh. Their camaraderie benefits patients because it facilitates their communication.

"I've been working with them for over 15 years, so we can very seamlessly integrate and do what we need to do. And it's very satisfying personally to see the patient benefit," says Handa, who is the chief of Wilmer's Retina Division.

One recent patient is Lyn Marchwinski, who was born with cataracts in both eyes. She had to undergo multiple

surgeries during her childhood and youth, including removal of cataracts and surgery for glaucoma and cornea disease. By early 2019, when she finally came to Wilmer, Marchwinski was legally blind in her left eye and had very poor vision in the right eye.

"It was like when you get in your car in the morning and the windshield fogs over before the defrosters kick in," Marchwinski says, describing the combined impact of her troubling eye conditions.

The resolute Marchwinski had reached her breaking point. Her ophthalmologist informed her that her case was beyond his expertise and suggested she look for a specialist. But the ophthalmologists that Marchwinski initially sought out could only offer suggestions, not the certainty she wanted. She recalls thinking, "I'm just going to go someplace where they can deal with this and stop messing around."

Opening her search nationwide, she learned of Akpek, a leader in corneal transplantation. She scheduled an appointment with her.

"Dr. Akpek took one look and said, 'I can fix that,'" Marchwinski remembers.

Akpek's recommended solution was as complex as Marchwinski's medical condition: a triple procedure she performs with Handa and Ramulu, who is the chief of Wilmer's Glaucoma Division.

"We decided it's probably better to be proactive and do three surgeries — artificial corneal transplantation, glaucoma and retina — all at the same time to get the best clinical outcome," Akpek says.

The four-hour surgery unfolded over a single day last May. Akpek removed Marchwinski's donated cornea and sutured in a plastic implant known as a keratoprosthesis, or KPro. To head off the glaucoma, Ramulu inserted a small plastic tube in Marchwinski's eye — a shunt, as it is known — that would relieve pressure inside her eye. Sandwiched between those two surgeries, Handa was on hand to repair any retinal damage and perform a vitrectomy, removing the vitreous gel from the eye to make room for both the prosthesis and the shunt, and to prevent the vitreous from plugging the tube.

"It takes a lot of coordination. Especially in the planning phase, when we need to figure out who is going to do what and how is it going to happen," says Ramulu. The team begins its planning weeks before the surgery.

After the triple procedure, all three doctors monitor and follow up with the patient. "Dr. Akpek needs to follow the KPro and any kind of scar tissue

that develops or infection. Whenever you put a plastic device anywhere in the body, you run the risk of infection," says Handa. "So she needs to follow that and try to optimize the vision with glasses. And then I always make sure there are no surgical complications. The design of the KPro blocks where fluid drains out of the eye. That's why Dr. Ramulu puts in his tube. It's important for him to keep the glaucoma manageable by monitoring the pressure."

Despite a minor setback in June that required Handa to repair a small tear in Marchwinski's retina, she has been doing well ever since. She was able to see better immediately, and the haziness has disappeared. Meanwhile, her vision continues to improve. She's been told it could take a year to reach full potential.

"All the doctors I've seen since are really impressed with how far I've come," she says.

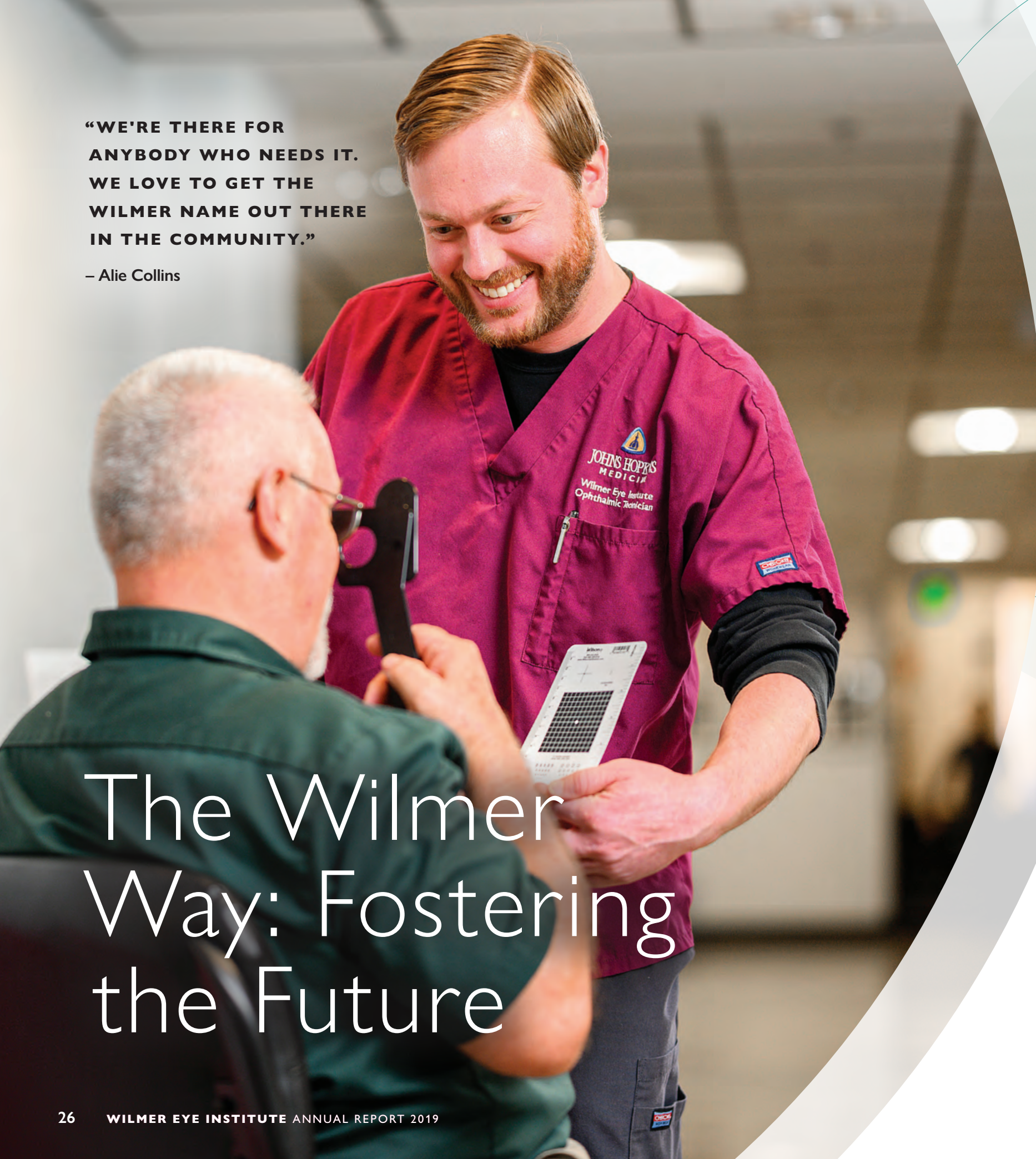
Wilmer is among just a handful of ophthalmology centers in the nation with the expertise to do all three or four surgeries simultaneously.

"When you see a lot of patients who need complex solutions, like we do at Wilmer, a multistage procedure like this just happens organically," Ramulu says. The skills of his colleagues make these procedures possible — and also make his life "easy," he says, adding, "You can have a lot more confidence when you come in, and you have great people in other disciplines who will be backing you up." ●

**“WE’RE THERE FOR ANYBODY WHO NEEDS IT. WE LOVE TO GET THE WILMER NAME OUT THERE IN THE COMMUNITY.”**

– Alie Collins

# The Wilmer Way: Fostering the Future



With age comes wisdom, and through the Foster Grandparents program sponsored by the nonprofit Family and Children’s Services in Baltimore, senior citizens volunteer to share their hard-earned knowledge with children who lack such perspectives in their lives.

Some foster grandparents are dispatched to schools and churches in the community to read aloud to children to inspire a love of reading and learning. As the program’s volunteers are typically retired and living on fixed incomes, some need basic services, like vision care. And, without good vision, many cannot serve as readers. That’s where the Wilmer Eye Institute comes in.

In early 2019, members of Wilmer’s tech float pool — a group of technicians who “float” among Wilmer’s satellite locations from Johns Hopkins Bayview Medical Center to Bethesda — got wind of the need for basic eye screening in the foster grandparent community. So, on a sunny day last January, they packed up their screening gear and headed out to Union Baptist Head Start in Baltimore for a day of free eye screenings.



**Alie Collins** is the lead tech in the float pool and was one of the volunteers. She says volunteer opportunities like this one are

not uncommon for members of the float pool, who visit homeless shelters and school health fairs. For her, it’s just part of the “Wilmer Way.”

Techs Adam Busey, left, and Alie Collins, above, are among those who provided free eye screening.

During their day of preventive care, the Wilmer volunteers screened the foster grandparents’ vision and asked if they had glaucoma, a family history of glaucoma or diabetes. In more serious cases, the screeners referred people to the appropriate Wilmer specialist.

“For many of these folks, it had been a long time since their last exam. Some had never had an eye exam at all,” says **Adam Busey**, another of the Wilmer techs who volunteered. “We really stress the importance of eye care and regular exams.”

“I was at the screening. It was really easy. They set up everything pretty quickly,” says Bianca Joseph, a case manager at the nonprofit who reached out to Wilmer to set up the event. “The staff gave the seniors information on how to get prescriptions for glasses and things like that. Everyone seemed to enjoy it.”

For Collins, who usually works with children, the opportunity to serve people of a different age range was a valuable experience.

“Every day, I learn something new volunteering,” Collins says. “I find it very rewarding.” ●



# An Alliance Aimed at Accelerating New Treatments

**W**ilmer's **Elia Duh, M.D.**, is one of the world's leading experts on medical conditions in the back of the eye, such as diabetic retinopathy and wet macular degeneration. One major contributor to both diseases stems from abnormalities in the blood vessels of the eye, such as overproduction of new capillaries or excessive leakage of fluid.

On the previous spread: Elia Duh in his lab in Wilmer's Robert H. and Clarice Smith Building

While treatments exist for advanced stages of the diseases, most are invasive, including frequent and ongoing drug injections in the eye. There are no treatments for earlier stages of disease. Therefore, potential new treatments, like oral medications that might arrest disease at an earlier stage, are highly sought after and would dramatically advance available therapeutic options.

That specific research angle brought Duh and other Wilmer researchers together with German pharmaceutical maker Bayer. In 2015, Bayer and Johns Hopkins entered into a five-year collaboration agreement to jointly develop new ophthalmic therapies targeting retinal diseases. The goal: to accelerate translation from the laboratory to the clinic and offer patients new treatment options. Interested faculty members submitted proposals, and Bayer funded joint research projects with several Wilmer faculty members, including Duh; **Don Zack, M.D., Ph.D.**, the Guerrieri Professor of Genetic Engineering and Molecular Ophthalmology; **Jim Handa, M.D.**, the Robert Bond Welch, M.D., Professor of Ophthalmology; **Jerry Lutty, Ph.D.**, the G. Edward and G. Britton Durell Professor of Ophthalmology; **Jeff Mumm, Ph.D.**, the Helen Larson and Charles Glenn Grover Professor of Ophthalmology; **Noriko Esumi, M.D., Ph.D.**; and former faculty members **Derek Welsbie, M.D., Ph.D.**, and **Debasish Sinha, Ph.D.**

"Bayer looks to us for ophthalmic expertise," Duh says. "With our perspective, our animal models for studying eye diseases and our understanding of the mechanisms that drive these ophthalmic diseases, we hope to find new therapeutic options with innovative molecules that come from Bayer's internal research."

For Bayer, the process of identifying promising researchers to support financially with a strategic alliance began long before the collaboration relationship was formalized. It started with what Bayer calls a "landscape analysis" of published studies and National Institutes of Health funding grants, and close examination of university research programs. That analysis yielded a handful of promising research avenues, including Wilmer faculty's work, and Bayer reached out to see if a match could be made.

"Bayer naturally wants to partner with academics who are doing cutting-edge research, and we look to pick partner institutes for strategic alliances who have well-established and high expertise in the disease biology field. The Wilmer Eye Institute and Dr. Duh fit that description," says Marion Hitchcock, strategic alliance manager at Bayer, who oversees the relationship with Wilmer and Duh. "Our aim is to join forces and complement the strong disease expertise by contributing Bayer's experience in drug discovery and development to the partnership."

Duh's first collaborative project with Bayer centered on a protein called Nrf2. Nrf2 is an important protein that protects against inflammation and oxidative stress. Duh's research with Bayer identified a new treatment strategy to enhance activity of Nrf2. It showed very promising benefits in an animal model, and Duh and his research partners at Bayer are currently preparing to submit their study for publication.

Duh says that his partnership with Bayer was something new to him, as it was to many of his Wilmer colleagues. Academicians have not traditionally partnered closely with their counterparts in pharmaceutical companies, but that paradigm is changing as the cost and complexity of drug research and testing have grown in recent years. Each party brings unique expertise to these important clinical problems, he notes.

"The attractiveness of a relationship with Bayer is their strong tradition of pharmaceutical innovation and drug development, and we can bring our ophthalmic expertise," Duh says. "Working together we hope to introduce new treatment strategies to patients."

Hitchcock says that Bayer benefits not just from the possibility that new therapeutic options for patients will arise but also because the experience of working with academia is so different from that of industry. The two look at problems in such different ways, she says, that it opens minds to new ideas that otherwise might not come to fruition.

"At Bayer, we're proud of the relationship with Wilmer and Dr. Duh and very happy with it," Hitchcock says. "Dr. Duh has very high enthusiasm for his research and, like Bayer, a great desire to bring innovation to patients." ●



# The Fellowship of Comfort and Healing

Despite its name, the Independent Order of Odd Fellows is hardly an odd bunch. In fact, it is one of the most civic-minded fraternal orders in operation today. And there is nothing odd whatsoever about the Odd Fellows' mission to "visit the sick, relieve the distressed, bury the dead and educate the orphan."

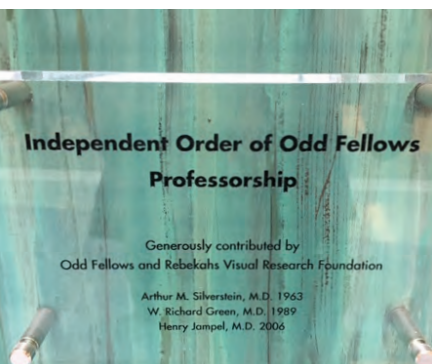
Ties between the Odd Fellows and The Johns Hopkins Hospital run deep. The first American lodge of the Odd Fellows was established in Baltimore in 1819, and many speculate that the Odd Fellows' American founder, Thomas Wildey, and philanthropist Johns Hopkins — both Baltimoreans — may have been business associates in the mid-1800s.

Regardless of the history, the connection between the two organizations — one committed to comfort, the other to healing — has proved a fruitful partnership. Wilmer has been a direct beneficiary of the Odd Fellows' commitment to Baltimore and to those in need of care.

The relationship was first formalized on Dec. 20, 1963, when leaders of the

Independent Order of Odd Fellows and the Wilmer Eye Institute officially agreed to establish the Independent Order of Odd Fellows Professorship in Ophthalmology, using an endowment — funded entirely by the contributions of individual Odd Fellows members — that is still going strong today.

The professorship is currently held by **Henry Jampel, M.D.**, an expert in glaucoma research and surgery and the director of Wilmer's Green Spring Station clinic. He is the third Wilmer specialist to hold the professorship. Previously, it has been held by **Arthur Silverstein, Ph.D.**, from 1964 to 1989 and **W. Richard Green, M.D.**, from 1989 to 2006,



▲ Plaque on Wilmer's Professorship Wall that commemorates the three faculty members who have held the Independent Order of Odd Fellows Professorship

On the previous spread: Henry Jampel outside Wilmer's Green Spring Station clinic, where he serves as director

when Jampel assumed the chair. To date, the three Odd Fellows Professors, collectively, have authored more than 1,000 peer-reviewed research papers, advancing scientific understanding and treatment, and training the next generation of ophthalmologists. "This is a trio of giants in ophthalmology," opines Wilmer Director **Peter J. McDonnell, M.D.**

In the last year, the relationship blossomed further when the Odd Fellows announced it had raised an additional \$1 million for the professorship endowment.

"The Odd Fellows has made a strong case that glaucoma is an important area of research and that Dr. Jampel is on the doorstep of some important advances that could help a lot of people," says Mark Ulrich, chairman of the Odd Fellows Visual Research Foundation.

For Jampel, the Odd Fellows Professorship provides the necessary time and resources to explore research interests that he might otherwise not be able to pursue. In his case, these interests have the common theme of using medical and surgical therapies to improve patient outcomes from glaucoma treatment.

Jampel says the Odd Fellows funding has allowed him to pursue collaborations with other investigators who have helped patients improve adherence to their glaucoma medications and with those who are working to find ways to better

detect glaucoma through improved imaging technologies. The professorship also provides the time he needs to recruit and train junior investigators who will carry glaucoma research forward.

"Wilmer's leadership in glaucoma care and my research, in particular, would not be possible without the support of the Odd Fellows research endowment," Jampel says. "They are very committed to this cause and do a wonderful job of bringing better eye care to a great many people." ●



The birthplace of Odd Fellowship in America: the Seven Stars Tavern on 2nd Street in Baltimore, 1819

To date, the three Odd Fellows Professors, collectively, have authored more than 1,000 peer-reviewed research papers, advancing scientific understanding and treatment, and training the next generation of ophthalmologists.



# Not a Dry Eye in the House

**D**ry eye is a condition that is often overlooked, but it is much more common and more debilitating than many people might think. Dry eye affects 25 million Americans, primarily those over 50, and about 90 percent are middle-aged women, says **Esen Akpek, M.D.**, the Bendann Family Professor of Ophthalmology and a foremost authority on the condition, in which natural tears fail to adequately lubricate and nourish the eyes.

On the previous spread: Esen Akpek with Leslie Pfenninger at a follow-up appointment

While there is currently no cure for dry eye, Akpek is one of the leading researchers working to understand and treat it. In a recent study published in *Optometry and Vision Science*, for example, she showed that dry eye is not just a nuisance but actually affects vision adversely. She and her team found that the condition can slow a person's reading speed by as much as 10 percent and make it difficult to read for more than an average of 30 minutes.

"Many of my patients have perfect vision on standard eye tests, but they complain they cannot drive at nighttime or in unfamiliar areas, read small print, or do computer work," she says.

From a researcher's perspective, the condition can be elusive. Akpek says she often sees patients complaining of blurred vision, but in the clinic, the blurriness subsides. "We quickly realized that it was due to a poor tear film that is common with dry eye. Every time you blink, the vision blurs," she explains.

Akpek's reputation for dry eye research and treatment are what first led Leslie Pfenninger to Wilmer.

Pfenninger had worn contact lenses for years, and her ophthalmologist believed her dry eye was probably caused by the lenses. She underwent LASIK surgery, which successfully corrected her vision but did not improve her dry eye.

"I finally decided I need to see a dry eye specialist," Pfenninger says.

From the first moment she met Akpek,

Pfenninger knew she had found the right doctor. At their initial appointment, from across the exam room, Akpek asked, "Has anyone ever told you that you have rosacea?" Rosacea is an inflammatory skin disease that can affect eyelids where the glands that secrete the top layer of tear film reside. It was a new diagnosis to Pfenninger and a source of surprise when she learned that rosacea, not contact lenses, was the root cause of her dry eye.

"I've been seeing Dr. Akpek ever since. It's been fabulous care," Pfenninger says of the doctor-patient relationship that now stretches more than a decade.

Pfenninger has been so impressed with Akpek's care that she recently made the decision to support future dry eye research with a bequest in her estate plan.

Pfenninger's bequest began not with an appeal from a gift officer, but with a simple question from patient to doctor. "I asked Dr. Akpek about her research," Pfenninger says. "Just to get her to open up."

What became clear to Pfenninger from the answer that ensued was that Akpek was extremely passionate about the work but taxed by the competing demands of teaching, seeing patients in the clinic and doing research. So Pfenninger has designated her bequest to fund a research fellowship. It will allow a bright young researcher to learn more about — and potentially solve — a condition that is so vexing for so many people.

Bequests are an increasingly popular way for donors to create a personal legacy and support Wilmer research at the same time. They are surprisingly easy to set up and are welcome in any amount a donor feels comfortable giving. "I am very grateful to the staff on the Wilmer giving team for the work that they put in to make my bequest so simple," Pfenninger says. "It was a 15-minute process for me."

For the grateful Pfenninger, the bequest seemed an easy way to say "thank you" to her doctor for such good care over the years, as well as a way to help those who, like herself, suffer from a condition that is too often not taken seriously.

"I hope that there are a lot of folks who can benefit from my small contribution to Dr. Akpek's major contributions to the world," says Pfenninger. ●



## VISION FOR THE FUTURE

In 1925, the nation's first university eye clinic to combine eye patient care, research and teaching was established, thanks to the generosity of friends and former patients of William Holland Wilmer. Your gift will ensure Dr. Wilmer's legacy continues through education, treatment and pioneering research. Consider these opportunities to leave a meaningful legacy while taking into account your personal goals.

### From Your Will Or Trust

Gifts that cost nothing in your lifetime.

### Retirement Plan Designation

A tax-efficient way to leave a legacy.

### Charitable Gift Annuity

Support the future of the Wilmer Eye Institute and receive guaranteed income for you or a loved one, along with potential tax benefits.

To learn more about these and other ways to support the future of the Wilmer Eye Institute, contact:

### Office of Gift Planning

410-516-7954 or 800-548-1268

[giftplanning@jhu.edu](mailto:giftplanning@jhu.edu)

[giving.jhu.edu/giftplanning](http://giving.jhu.edu/giftplanning)

*Seek advice from a tax professional before entering into a gift annuity agreement.*



## Remembering Benefactor T. Boone Pickens

Growing up in a small town in Oklahoma, **T. Boone Pickens**, who died on Sept. 11, 2019, at the age of 91, learned his work ethic and generosity from his parents and grandparents. “It was a family where you helped people. My grandmother — she always gave. Didn’t have a lot, but she always gave,” Pickens said in an interview at the Wilmer Eye Institute several years ago.

Starting with a paper route as a child, Pickens showed a penchant for entrepreneurship. He would eventually make a billion-dollar fortune after founding the oil and gas company Mesa Petroleum and later starting the hedge fund BP Capital Management. His business successes led to wealth, fame and philanthropy.

The Wilmer Eye Institute was one recipient of his philanthropy. Pickens’ generosity funded the Boone Pickens Professorship, the T. Boone Pickens Atrium in the heart of Wilmer’s Robert H. and Clarice Smith Building, and the T. Boone Pickens Scholars Fund. The latter enables **Dr. Peter J. McDonnell**, Wilmer’s director, to recruit the best and brightest young faculty members from around the world and also illustrates how Pickens always had his eye to the future.

Pickens first came to Wilmer to get treatment for his father, who was legally blind by 85. Pickens himself was treated for cataracts and then macular degeneration. “When I got the macular diagnosis, I thought, well, I’m going to go the same track as my father, probably,” he said. This didn’t happen, though, because the game-changing anti-vascular endothelial growth factor injections became available just prior to Pickens’ diagnosis — and allowed **Dr. Neil Bressler** the privilege of getting to know Pickens when he became Bressler’s patient.

“Boone not only was a great businessman and philanthropist, he also was a great storyteller,” says Dr. Bressler. “I had to

see him monthly initially to treat his macular degeneration, and he always had a new story. It might relate to something going on in politics or in business. But it always had humor and a lesson in life and human nature to be considered. He learned a lot about retinal disease from me, but I learned a lot more about the oil business and life from him.”

Dr. McDonnell also came to know Pickens during the philanthropist’s long relationship with the institute. “Boone Pickens was remarkably intelligent, thoughtful, well-read and a gifted raconteur, and these qualities made so many of us look forward to the opportunity to spend time with him,” says Dr. McDonnell. “One thing that impressed me greatly about Boone — but may not be widely known — was how he learned and remembered the names of Wilmer staff members who assisted our doctors in his care or performed some small service for him. Many is the time I observed him thanking by name these individuals, and it was not uncommon for him to send personal notes of thanks to members of our Wilmer family. He never took for granted the caring attitude he observed in Wilmer doctors, nurses and staff,” says Dr. McDonnell. “Mr. Pickens could have chosen to receive his care anywhere. That he selected Wilmer and became an extremely generous supporter of our work is something that was very meaningful to all of us in Baltimore. He left a major mark on our institute.” ●

**Opposite Page:**  
T. Boone Pickens  
in the Robert H.  
and Clarice Smith  
Building’s T. Boone  
Pickens Atrium

# 2019 EVENTS



▲ Top: Zelia Correa presenting to Wilmer's Board of Governors; bottom: Kevin Sowers, president of the Johns Hopkins Health System and executive vice president of Johns Hopkins Medicine, discussing the future of Johns Hopkins Medicine

## BOARD OF GOVERNORS MEETING APRIL 23

Presided over by Wilmer Board of Governors' Chair Sanford D. Greenberg, Ph.D., the spring board meeting featured two Wilmer faculty members and a special guest. **Zelia Correa, M.D., Ph.D.** (now the Tom Clancy Professor of Ophthalmology), shared information about her advances in the field of ocular oncology, including treatments for intraocular and ocular surface tumors. Then, **Thomas Johnson III, M.D., Ph.D.**, Wilmer's current assistant chief of service (chief resident), discussed an initiative that could potentially help restore vision to patients with optic neuropathy — the Optic Nerve Regeneration Initiative. The special guest was the president of the Johns Hopkins Health System and executive vice president of Johns Hopkins Medicine, Kevin Sowers, M.S.N., R.N. He discussed how Wilmer has demonstrated the success of expansion through its clinical network, thus laying the groundwork for other departments and the hospital system as a whole as they seek to expand over the next 10 years.

## DEDICATION OF THE SHEILA K. WEST PROFESSORSHIP APRIL 23

**Pradeep Ramulu, M.D., Ph.D.**, was installed as the inaugural Sheila K. West Professor of Ophthalmology. Former chief of Wilmer's Glaucoma Division **Harry Quigley, M.D.**, the A. Edward Maumenee Professor of Ophthalmology, introduced Ramulu, the current chief of the Glaucoma Division. He spoke of Ramulu's research accomplishments, particularly in the area of functional consequences of visual impairment. Ramulu discussed the importance of the support of his parents, Yammanuru and Aruna Ramulu; his wife, Vandana; and his children, Shreyas and Priyanka, to his success.

The professorship was created to honor Wilmer's **Sheila West, Ph.D., Pharm. D.**, the Akef El-Maghraby Professor of Preventive Ophthalmology and Wilmer's former vice chair for research. West was the third woman to become a full professor at Wilmer and has laid the path for the next generation of great female scientists. **Alfred Sommer, M.D.**, dean emeritus of the Johns Hopkins Bloomberg School of Public Health, discussed West's many accomplishments during his introduction of her. When West spoke, she thanked Wilmer Director **Peter J. McDonnell, M.D.**, and her many colleagues for the honor.



▲ Sheila West, center, with, from left, her sister, KC West; husband, Matt Lynch; daughter, Alison Rebman; and son-in-law, Paul Rebman



▲ Pradeep Ramulu, second from left, with his wife, Vandana Ramulu; son, Shreyas; and daughter, Priyanka



## 2019 EVENTS



◀ Left: Zelia Correa discussing her research into ocular oncology; right: Zelia Correa, center, with her son, Andre Correa and sister, Barbara Buttorff

### REINSTALLATION OF THE TOM CLANCY PROFESSORSHIP MAY 22

After an introduction by James Augsburger, M.D., of the University of Cincinnati College of Medicine, **Zelia Correa, M.D., Ph.D.**, was installed as the Tom Clancy Professor of Ophthalmology. Clancy was famous for writing suspense novels featuring the character Jack Ryan, which inspired Correa to give a lecture titled, “Fine Needle Aspiration Biopsy and WWJRD (What Would Jack Ryan Do?)” During the lecture, she discussed her specialty, ocular oncology, focusing on clinical and translational research in uveal melanoma and retinoblastoma.



▲ Left: The awarding of the Stuart and Ellie Fine Award for Clinical Research in Ophthalmology. Left to right: Pradeep Ramulu, awardee Moon Lee, Stuart Fine and Henry Jampel; right: Suber Huang receives the Distinguished Alumni Award from Wilmer retinal specialist Adrienne Scott.



### THE 78TH WILMER RESIDENTS ASSOCIATION MEETING MAY 31

The day consisted of poster presentations by Wilmer researchers and talks by Wilmer faculty members, residents and distinguished guests. Suber Huang, M.D. '89, gave the distinguished alumnus lecture: “Converging Concepts – A Vision of the Future.” Huang is the chair of the National Eye Health Education Program of the National Eye Institute and the president and CEO of Future Vision Foundation. V.K. Raju, M.D., a clinical professor of ophthalmology at West Virginia University, gave the Susruta Lecture in History and Ethics: “Are Susruta’s Teachings Relevant Today?”

This year, Moon Lee, a Johns Hopkins University School of Medicine student, received the inaugural Stuart and Ellie Fine Award for Clinical Research in Ophthalmology, to be awarded annually to a Johns Hopkins medical student who has performed clinical research at Wilmer under the guidance of a Wilmer faculty member.



▲ Best friends united to cure Coats' disease: Jack Pavlovcak and Sean Smole displaying the funds they raised for Wilmer physician-scientist Akrit Sodhi and his research into Coats' disease

### COATS' DISEASE FUNDRAISER SEPT. 28

Fall brings with it the annual tradition of the Curing Coats Fundraiser held at the home of stalwart Wilmer supporters Barbi and Kevin Smole. After their son Sean's diagnosis of the rare eye condition Coats' disease, the Smoles launched the fundraiser, which involves food trucks, music and raffles. Through generous donations of items, all money raised goes directly to Wilmer and the research of clinician-scientist **Akrit Sodhi, M.D., Ph.D.**, the Branna and Irving Sisenwein Professor of Ophthalmology at Wilmer, whose work applies to Coats' disease.

**Jim Handa, M.D.**, the Robert Bond Welch, M.D., Professor of Ophthalmology at Wilmer, initially cared for Sean and attends the event every year. “We are so grateful for the Smole family's and the Pavlovcak

family's support in raising funds for Coats'. This disease is rare, causes blindness and is mostly discovered in children. Dr. Akrit Sodhi's innovative approach may unlock the key to new treatments for Coats' in the future,” says Handa.

Sean's best friend, Jack Pavlovcak, invented Shots for Coats, which involves both Sean and Jack getting sponsors to donate money for each basketball shot that the boys successfully make during a specified period of time. “Shots for Coats was a great success,” says Sodhi. “The fundraiser is so uplifting and inspiring. It is a lovely way to bring the community together for an important cause.”



▲ Left: Faculty and staff members at the grand opening of Wilmer's new Bethesda clinic; right: Wilmer Board of Governors' member Liz Dubin receives an award from Wilmer Director Peter J. McDonnell, right, with Randy Craven, director of Wilmer's Bethesda clinic, applauding in the background.



### WILMER, BETHESDA GRAND OPENING OCT. 2

Wilmer Board of Governors' member Liz Dubin hosted the grand opening celebration for Wilmer's new Bethesda clinic. Faculty members, staff members, patients and friends enjoyed food and drink, and toured the clinic, which is three times the size of Wilmer's previous Bethesda location. Although the celebration was this fall, the clinic opened in the spring. Since that time, Wilmer has seen almost double the number of patients in Bethesda compared to last year. During the event, Catherine Provost, director of constituent services for Sen. Chris Van Hollen, presented Wilmer with a Congressional Citation.

2019 EVENTS



▲ Vision To Learn President Ann Hollister, Wilmer ophthalmologist Megan Collins and Johns Hopkins University President Ron Daniels



▲ Oded Lagstein, a pediatric ophthalmology fellow at Wilmer, shows a model of the eye to children at the vision fair at Henderson-Hopkins.

**CELEBRATING WORLD SIGHT DAY WITH VISION FOR BALTIMORE**  
OCT. 10

**Megan Collins, M.D., M.P.H.**, assistant professor of ophthalmology and part of the Dana Center for Preventive Ophthalmology at Wilmer, helps to lead Vision for Baltimore, a citywide program that aims to provide all elementary and middle school students in Baltimore City Public Schools (BCPS) with vision screenings, eye exams and eyeglasses, at no cost to their families.

To celebrate World Sight Day, Vision for Baltimore held a vision health fair at Henderson-Hopkins in East Baltimore, where Vision for Baltimore employees and volunteers staffed interactive booths about eye anatomy, 3D vision, animal sight and optical illusions.

Speakers at the event included Johns Hopkins University President Ronald Daniels, J.D.; Baltimore City Mayor Bernard “Jack” Young; Sonja Santelises, Ed.D., CEO of BCPS; Mary Beth Haller, deputy commissioner of the Baltimore City Health Department; Ann Hollister, president of Vision To Learn; Jesse Schultz Sneath, director of social innovation at Warby Parker; and Peter Kannam, principal of Henderson-Hopkins.

Now in its fourth year, Vision for Baltimore has provided more than 50,000 vision screenings, nearly 9,000 eye exams and more than 6,500 pairs of glasses to students in schools across the city.



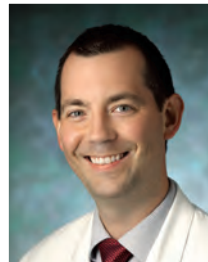
▲ Top left: Wilmer friend Edward Wood, Wilmer alum Angeline Nguyen and Wilmer resident Narine Viruni; top right: Wilmer Director Peter J. McDonnell surrounded by Wilmer alumni, faculty members and friends; bottom left: Wilmer faculty members, alums and friends: Jennifer Thorne, Afshan Nanji, Roomasa Channa, Jan McDonnell, Connie Chen, Lee Snyder and Diana Do; bottom right: Wilmer faculty members Fasika Woreta and Meraf Wolle, and Wilmer alum Sumayya Ahmad

**WILMER RECEPTION AT THE AMERICAN ACADEMY OF OPHTHALMOLOGY ANNUAL MEETING**  
OCT. 12

With views of San Francisco Bay and Treasure Island as a background, Wilmer hosted its American Academy of Ophthalmology (AAO) reception at La Mar Cebicheria Peruana, a Peruvian restaurant on the Embarcadero of San Francisco. Wilmer faculty members, Wilmer alumni, and friends and family took a break from the many scientific presentations given throughout the multiday conference to relax and reconnect. As a global community of 32,000 medical doctors, AAO sets standards for ophthalmic education and advocates for patients. More than 25 Wilmer faculty members presented during the conference, sharing their knowledge and expertise with colleagues, and proving once more that Wilmer is a leader in the field of ophthalmology.

# Residents

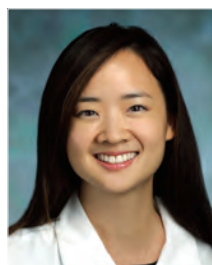
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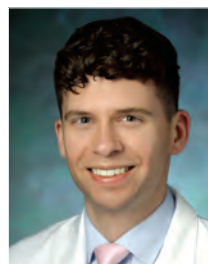
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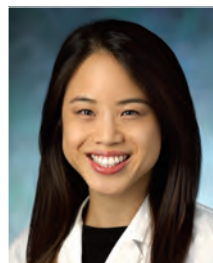
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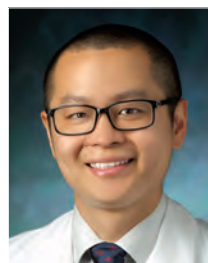
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