Innovation for the Future
University of Michigan Kellogg Eye Center Annual Report 2018

Table of Contents
2 The Chair’s Perspective

Advancing Patient Care
3 Gene Therapy
8 Restoration of Eye Sensation
9 Developing the Future of eHealth
10 Providing Complex Care Closer to Patients and Communities
11 Applying Precision Medicine to Glaucoma
12 Personalizing Complex Care
13 Clinical Research Update
17 Safer Cataract Surgery

Enhancing the Way We Educate and Learn
15 Aravind Leader Challenges Perspectives
16 Strengthening Our Residency Partnership in Ethiopia
16 Retinal Dystrophy in Puducherry
17 Kellogg Hosts First U.S. Meeting of World Association of Eye Hospitals
18 A Pipeline to Greater Diversity in Ophthalmology
19 Diversity, Equity and Inclusion Guest Lectureship: Eve Higgenbotham, SM, MD
19 The 2018 Farjo Lecturer: Roy W. Beck, MD, PhD
20 Paying It Forward
21 Alumni Spotlight
22 Recipients of the 2018 Champalimaud Vision Award Include Dr. Robin Ali, PhD

Research to Create Tomorrow’s Advances
23 Research Update

Philanthropy is Crucial to Our Success
28 Faculty Named to Two Endowed Professorships
29 Victors for Michigan, Victors for Vision

Our Kellogg Family: Faculty and Trainees
30 New Faculty
31 Graduating Residents and Fellows
32 First Year Post-Doctoral Fellows
33 Michigan Alumnus Honored for Humanitarian Efforts in Africa
33 First Year Residents
34 Faculty Honors and Recognition
38 Kellogg Eye Center Faculty
Dear Friends and Colleagues,

We are in an incredible time of scientific and educational progress in the world of eye care and research. Advances in understanding mechanisms of visual function and disease, the implementation of an FDA approved gene therapy, and the growth of eHealth are some of the ongoing exciting work in vision care and research. In this year’s Annual Report, we are pleased to share contributions of our faculty, trainees, staff, and partners from around the world.

Kellogg is one of ten eye centers selected to offer the first FDA-approved gene therapy treatment for correcting mutations in the RPE65 gene. Several gene therapy trials for other inherited eye diseases are currently underway at Kellogg and a number of centers. These gene therapy—and the many other—clinical trials at our Kellogg Clinical Research Center affirm that research is being translated into new treatments that may improve the lives of many.

Tomorrow’s new treatments come from today’s basic research—a focus of the National Eye Institute and many of our Kellogg scientists. Ongoing bench research into the fundamental biology of how the visual system works is an investment in future treatments and cures.

Research advances, once they have been thoroughly tested and approved, only help our patients if they have access to them. We are working to make complex care more readily available in communities closer to where our patients live, and we are cultivating our evidence-based eHealth and telemedicine programs to further transform and expand how we care for patients.

Today’s care increasingly combines the expertise of specialties within ophthalmology and with other fields of medicine. By also drawing upon the knowledge and skills of our colleagues in other disciplines outside of medicine, we can continue to create better systems that improve patient safety and effectiveness of care.

Kellogg strives to integrate research, teaching and clinical care to improve the lives of patients and their families. The progress detailed in this report was achieved with the support of our friends and colleagues combined with the dedication, imagination and commitment of our Kellogg faculty, staff and trainees. We look forward to the amazing progress to come in 2019!

Paul P. Lee, MD, JD
F. Bruce Fralick Professor and
Chair, Ophthalmology and Visual Sciences
Director, W.K. Kellogg Eye Center

The Chair’s Perspective

Dear Friends and Colleagues,

We are in an incredible time of scientific and educational progress in the world of eye care and research. Advances in understanding mechanisms of visual function and disease, the implementation of an FDA approved gene therapy, and the growth of eHealth are some of the ongoing exciting work in vision care and research. In this year’s Annual Report, we are pleased to share contributions of our faculty, trainees, staff, and partners from around the world.

Kellogg is one of ten eye centers selected to offer the first FDA-approved gene therapy treatment for correcting mutations in the RPE65 gene. Several gene therapy trials for other inherited eye diseases are currently underway at Kellogg and a number of centers. These gene therapy—and the many other—clinical trials at our Kellogg Clinical Research Center affirm that research is being translated into new treatments that may improve the lives of many.

Tomorrow’s new treatments come from today’s basic research—a focus of the National Eye Institute and many of our Kellogg scientists. Ongoing bench research into the fundamental biology of how the visual system works is an investment in future treatments and cures.

Research advances, once they have been thoroughly tested and approved, only help our patients if they have access to them. We are working to make complex care more readily available in communities closer to where our patients live, and we are cultivating our evidence-based eHealth and telemedicine programs to further transform and expand how we care for patients.

Today’s care increasingly combines the expertise of specialties within ophthalmology and with other fields of medicine. By also drawing upon the knowledge and skills of our colleagues in other disciplines outside of medicine, we can continue to create better systems that improve patient safety and effectiveness of care.

Kellogg strives to integrate research, teaching and clinical care to improve the lives of patients and their families. The progress detailed in this report was achieved with the support of our friends and colleagues combined with the dedication, imagination and commitment of our Kellogg faculty, staff and trainees. We look forward to the amazing progress to come in 2019!

Paul P. Lee, MD, JD
F. Bruce Fralick Professor and
Chair, Ophthalmology and Visual Sciences
Director, W.K. Kellogg Eye Center
Kellogg Offers New Gene Therapy Options For Treating Inherited Retinal Dystrophies

A long list of retinal dystrophies, including retinitis pigmentosa, Stargardt disease, Leber congenital amaurosis (LCA), achromatopsia, X-linked retinoschisis, Usher syndrome and choroideremia, can be traced to inherited changes in DNA. All of these conditions lead to progressive vision loss; some end in total blindness.

Until very recently, these wide-ranging disorders shared one thing in common: there were no available treatments for them.

Today, advances in gene therapy are finally yielding new options that may revolutionize the treatment of inherited retinal degenerations, giving retinal specialists new tools and patients and families new hope.
ULTIMATELY, WE WANT THESE THERAPIES TO BE AVAILABLE FOR OUR YOUNGEST PATIENTS. THE SOoner THEY RECEIVE TREATMENT, THE LESS VISION LOSS THEY MAY HAVE TO ENDURE.”

— Cagri Besirli, MD, PhD
Retinal cells in inherited retinal disorders do not function normally due to a gene defect. In gene replacement therapy, a working copy of a gene is embedded in a virus that is injected into the vitreous or under the retina. The virus delivers the correct DNA to the affected retinal cells.

While the majority of gene therapy options are still in experimental trials to confirm their safety, efficacy, and dosing, the FDA has approved one gene therapy, Luxturna™ (voretigene neparvovec-rzyl) to correct a defect in the gene RPE65 that leads to Leber Congenital Amaurosis.

In fact, Luxturna™ is the only FDA-approved gene replacement therapy for any human disease linked to a genetic change. Kellogg is one of ten treatment centers in the country approved to offer the treatment, and Dr. Cagri Besirli, MD, PhD, anticipates that patients at Kellogg will receive injections soon.

Gene therapy is anything but simple; it takes an extraordinary team effort to get these treatments to the patients who need them. Kellogg is one of the few centers in the U.S. with the multidisciplinary expertise to offer this new generation of gene therapy clinical trials for other conditions.
Kellogg’s team of retinal specialists devoted to the diagnosis and management of patients with inherited retinal disorders includes Cagri Besirli, MD, PhD, Abigail Fahim, MD, PhD, and K. Thiran Jayasundera, MD, FACS. Dr. Besirli, a pediatric retinal surgeon, serves as principal investigator of several ongoing therapeutic trials. “Ultimately, we want these therapies to be available for our youngest patients,” he explains. “The sooner they receive treatment, the less vision loss they may have to endure.”

Dr. Jayasundera is the principal investigator on research that precedes clinical testing, called natural history studies (NH). “NH studies collect and analyze patient information to draw a clearer picture of how these disorders develop and progress,” he explains. “NH is especially important for designing clinical trials of new treatments for these diseases.”

Other critical members of the team include Kellogg electrophysiologists, led by Naheed Khan, PhD, whose work guides both diagnosis and treatment; genetic counselors Kari Branham, MS, CGC, and Dana Schlegel, MS, MPH, CGC, who help families navigate the complexities of their disease; Adrienne Chen, PhD; and the staff of the Kellogg Clinical Research Center (KCRC). Branham and Schlegel are two of only about 50 genetic counselors in the world dedicated solely to ophthalmology. Kellogg is also fortunate to work with Professor Robin Ali, of the University College of London, and his team on these efforts.

Kellogg is currently conducting gene therapy clinical trials and natural history studies for a range of inherited retinal conditions. Dr. Besirli is excited to be part of the group bringing gene therapy to patients at Kellogg. “For so long, we’ve struggled to help patients facing these blinding illnesses,” he says. “Gene therapy is still in its infancy, but there is reason for optimism. We have an FDA-approved treatment for one condition and numerous promising options for others. We have an outstanding retinal dystrophy team, and we have amazing patients. It’s a very exciting time.”

"WE HAVE AN FDA-APPROVED TREATMENT FOR ONE CONDITION AND NUMEROUS PROMISING OPTIONS FOR OTHERS. WE HAVE AN OUTSTANDING RETINAL DYSTROPHY TEAM, AND WE HAVE AMAZING PATIENTS.”

— Cagri Besirli, MD, PhD
Michigan Medicine surgeons are helping patients who have lost sensation in their cornea regain feeling through a small-incision nerve transplant procedure called corneal neurotization.

Patients who have lost sensation in the eye due to a congenital condition, a viral infection, diabetes, trauma, cancer or surgery can develop a condition called neurotrophic keratopathy.

“With reduced ability to feel eye pain or irritation, these patients are unable to protect their eyes from everyday hazards like dust, debris and wind by blinking,” explains Kellogg cornea specialist Shahzad Mian, MD. “As a result, they are more likely to develop corneal scratches and severe dry eye that can progress to infections, ulcerations and scarring. Left untreated, these issues can lead to vision loss.”

Cornea specialist Christopher Hood, MD, oculoplastic surgeon Shannon Joseph, MD, and Dr. Mian lead a team of experts in ophthalmology and visual sciences, plastic surgery and otolaryngology, to perform a minimally invasive surgical procedure to address neurotrophic keratopathy called corneal neurotization. Michigan is one of the few hospitals in the country, and the only one in the state, offering this option.

The novel treatment places new nerves around the cornea to restore sensation. Dr. Joseph, the oculoplastic surgeon on the team, explains how it works: “A nerve graft is harvested from elsewhere in the patient’s body to act as a conducting cable for nerve signals. One end of this cable is connected to the nerve responsible for sensation in the forehead, and the other end is then wrapped around and tunneled into the cornea.”

The graft serves as a scaffold through which new nerves develop, millimeter by millimeter, until they grow into the cornea. “We’re able to perform the procedure through very small incisions that hide in the crease of the eyelid, making it virtually unnoticeable,” she adds. Over the course of the next several months, sensation in the eye gradually returns.

“By restoring corneal sensation, these patients will be much better candidates for transplantation to regain their sight.”

— Shahzad Mian, MD

Kellogg Offers Minimally-Invasive Procedure to Restore Eye Sensation

Shannon Joseph, MD, and Christopher Hood, MD, worked together to help Lou Ann Davis-Walter regain corneal sensation. In addition to Kellogg Drs. Joseph, Mian and Hood, the team includes David Lawrence Brown, MD, and Steve Kasten, MD, from the U-M Department of Surgery, and Jennifer Kim, MD, and Andrew Joseph, MD, from the U-M Department of Otolaryngology.
Developing the Future of eHealth

For underserved populations, proximity to specialty medicine can be a big problem. Kellogg’s eHealth program will provide a way for these underserved patients to receive essential care without having to travel to the specialist’s office. The eHealth program focuses on ways to screen and monitor diabetic eye disease, glaucoma, cataracts, corneal infection, retinopathy of prematurity, and macular degeneration.

“All telemedicine and eHealth programs first will be tested to make sure they are safe and effective for patients,” says Mia Woodward, MD, MS, Assistant Professor of Ophthalmology and Visual Sciences and Co-Director of the eHealth program. “Telemedicine offers convenient care and better access for Michigan patients, but we must maintain a high quality of care.”

Dr. Woodward works alongside a team of eHealth experts at Kellogg, including Rebecca Wu, MD, Clinical Director for the eHealth Diabetic Eye Program, eHealth program Co-Director Paula Anne Newman-Casey, MD, MS, and Beth Hansemann, BS, COT, continuous improvement specialist. Other Kellogg faculty include Dr. Cagri Besirli, who leads eHealth work on retinopathy of prematurity screening; Dr. Christine Nelson, who is kickstarting an eHealth program in oculoplastics; and Dr. Hakan Demirci, who has been exploring eHealth to provide ocular oncology care to resource-challenged settings. Blair Snyder, COA, provides electronic medical record support to the team. Kellogg residents and alumni have also made significant contributions to the field, including Drs. Crandall Peeler, Tyson Kim and Tapan Patel.
Kellogg eye surgeons can now offer a high level of specialty eye care outside of the main location in Ann Arbor, bringing care closer to the patients who need it at the newly opened Michigan Medicine’s Brighton Center for Specialty Care. Brighton joins West Ann Arbor, Northville, Canton, Briarwood, and Chelsea as community locations where Michigan Medicine has integrated multi-specialty clinics. Kellogg also has two ophthalmology-only offices offering specialty eye care in Milford and East Huron River Drive (Ypsilanti). Patients no longer need to travel so far to receive multispecialty eye care.

“Because of our expanded footprint, we are able to offer more patients easier and timelier access to specialty eye care,” says Shivani Kamat, MD, a clinical instructor of ophthalmology and visual sciences, the medical director at the Brighton facility. The Brighton clinic offers minimally invasive eye surgery, complex eye procedures, and laser technology. Kellogg ophthalmologists at the facility include those who specialize in cornea and refractive surgery, glaucoma, retina, pediatrics, and oculoplastics.

“We have added physicians and have a large, state-of-the-art clinic that houses all the diagnostic and therapeutic tools that patients may need,” says Dr. Kamat.

“We have many patients with transportation issues,” says Joshua P. Vrabec, MD, clinical assistant professor of ophthalmology and visual sciences, who practices at the Northville Health Center. “Our patients are much happier with local services.”
Detecting large intraocular pressure (IOP) fluctuations remains a critical challenge in treating patients with glaucoma. This IOP variation and the peak measurement of IOP predict who will have glaucoma damage and related vision loss. Sayoko Moroi, MD, PhD, along with team members at Kellogg, the Mayo Clinic, the University of Nebraska, and Case Western Reserve University have worked to integrate these tools toward personalizing IOP treatment for glaucoma. Funded by the National Eye Institute and other agencies, Dr. Moroi and her team have characterized the “inflow”, “outflow” and blood vessel factors that influence IOP changes over time.

In the next study phase, Dr. Moroi and her team will measure IOPs at home to gain real world data outside of clinic hours. Preliminary home IOP data have identified patients with high home IOPs that were measured as normal during clinic visits. By understanding the factors responsible for IOP variation, Dr. Moroi hopes to target those with the greatest fluctuation or highest IOPs for more intensive care.

A related translational project is to map the eye fluid drainage pathways, which is recently funded by the National Science Foundation with UM Engineer Dr. Alan Argento. Characterizing a patient’s eye fluid drainage map will help us understand the variable IOP outcomes patients experience with the new “microinvasive glaucoma surgeries” or MIGS. The results will advance our understanding of the complex biology of IOP and lead toward a personalized IOP-based treatment for patients.
After a 30-year battle with viral outbreaks that caused scarring in her cornea, Linda Bunker met a multidisciplinary team at the Kellogg Eye Center that successfully performed a corneal transplant.

An outbreak of a viral infection in the eye can be serious, progressing deep into the eye and possibly leading to the loss of the eye, says Shahzad Mian, MD, Ophthalmology Professor at UM and Associate Chair for Education. Infections in the cornea, or keratitis, may be caused by viruses, bacteria, or injuries. These infections can cause severe ulcers that result in scarring, abnormal blood vessels that invade the cornea, and nerve damage. These complications can increase the chances of rejection and failure of a corneal transplant, says Dr. Mian.

In the past, Ms. Bunker had responded to treatments of topical antiflammatory drugs and oral antiviral drugs. However, the outbreak that Dr. Mian saw was more serious, and included a bacterial infection on top of her viral one. Due to her past viral infections and current bacterial infection, she was at a higher risk for rejection if she underwent the corneal transplant she needed.

“She had inflammation and significant vision loss from corneal scarring. Also, the infection may have spread deeper into the eye by the time she came to us,” says Dr. Mian. “Most patients who come to us have less severe disease.”

Due to her complex situation another expert was enlisted—Rheumatologist April Marquardt, OD, MD, Adjunct Clinical Assistant Professor of Rheumatology at UM.

Dr. Marquardt’s background in optometry is very unusual for a rheumatologist, and that makes her a particularly valuable member of the team. Dr. Marquardt regularly sees patients at Kellogg. “As a rheumatologist and optometrist, I understand the role that immunosuppression medications can play in the prevention of transplant rejection,” says Dr. Marquardt.

She prescribed and monitored systemic medication to reduce the risk of rejection and improve the chances of transplant success. After Ms. Bunker’s eye was stabilized, a corneal transplant was performed and there were no issues with rejection.

“This week, the patient told me that she can see better than she could ever see in her life. Her vision is 20/30, 2 years after surgery,” says Dr. Marquardt.
The Kellogg Clinical Research Center (KCRC) continues to exceed expectations.

Associate Professor Grant Comer, MD, MS, medical director of the KCRC, was instrumental in developing the space and the team. “Our vision was to expand Kellogg’s clinical research enterprise by streamlining and simplifying the whole process for both researchers and participating patients.”

The KCRC has more than realized that vision. Since opening its doors, clinical trial volume in ophthalmology has increased by more than 80 percent, including a number of highly complex gene therapy and stem cell therapy trials. “At the same time,” adds Dr. Comer, “we are an important partner for Michigan Medicine researchers in other specialties—from pediatrics to cancer—providing support for about 40 studies that require vision screening or monitoring for their participants.”

The KCRC conducts a variety of studies ranging from natural history studies to novel treatment trials. Studies span all sections within the Kellogg Eye Center, in hopes of better understanding eye conditions and discovering new ways to help as many of our patients as possible.

— Grant Comer, MD, MS
Enhancing the Way we Educate and Learn
The University of Michigan and the Aravind Eye Care System, India’s largest private eye care hospital, have collaborated to cross-train providers, researchers and operational leaders through a partnership that dates back nearly 40 years. This year’s International Night attendees heard from Aravind’s Director of Operations, Thulasiraj “Thulsi” Ravilla. His remarks, titled “Eliminating Needless Blindness—It’s All About Perspectives,” challenged us to see the delivery of vision care services in a new way.

Thulsi is also Executive Director of Lions Aravind Institute of Community Ophthalmology, Founder and President of Vision 2020 India: The Right to Sight, a global initiative for the elimination of blindness, and a visiting scholar at Michigan in 1982. After nearly four decades in the field, he has concluded that how you view a health problem like cataract-related blindness drives the design of services to address that problem.

In developing nations, Thulsi estimates that for every patient that seeks care, four or five do not, and for every patient who receives treatment advice, as many as half may not follow through with the recommended surgery, medication or glasses. Changing these statistics requires a dramatic change in perspective, he argues. “If you don’t own the problem, you won’t make a difference.”

The success of Aravind in India is a story of owning the problem. Thulsi described how Aravind has transformed their approach to these issues by eliminating barriers to care, including rethinking the costs of care to better reflect opportunity costs—food, transportation and lost wages—and how the hospital views the delivery of care as a moral imperative.

As a result of countless evidence-based innovations touching every aspect of the organization, Aravind has revolutionized the delivery of eye care in India, with programs such as community-based eye centers run by technicians, linked by telemedicine to physicians. Remarkably, in the process, the organization has become financially viable, funding continuing growth through substantial savings. “By doing good,” says Thulsi, “we are doing well.”
The fledgling ophthalmology residency program at Ethiopia’s St. Paul Hospital Millennium Medical College (SPHMMC) is growing in size and scope.

In 2015, Kellogg ophthalmology joined a growing number of U-M Medical School departments committed to establishing long-term in-country training partnerships with SPHMMC in Addis Ababa, Ethiopia.

U-M Adjunct Professor of Obstetrics and Gynecology, Senait Fisseha, MD, JD, a native Ethiopian, has served as a catalyst for many of these initiatives. Her vision of applying a train-the-trainer approach to move toward self-sufficiency in education resonated with leadership at the Kellogg Eye Center for International Ophthalmology (KECIO).

“Brain drain is a huge challenge in Ethiopia,” says Christine Nelson, MD, Professor of Ophthalmology and KECIO co-director. “They’ve had training programs in the past, but people would come to the States for training and then never return.” The program hopes to change that.

Thanks to the commitment and persistence of numerous Kellogg colleagues, the ophthalmology residency program established at SPHMMC has grown to 23 residents and ten faculty members. The next phase in the program’s evolution: focus on training in sub-specialties. Kellogg faculty specializing in oculoplastic surgery, pediatric ophthalmology, retinal surgery and ocular ultrasound have all traveled to St. Paul’s to mentor the faculty and residents there, laying the groundwork for a comprehensive residency program.

A major step in that direction came this past year, when Scott Lawrence, MD, was recruited to be Kellogg’s man on the ground at St. Paul’s. Dr. Lawrence, a glaucoma specialist, has lived and practiced in Ethiopia for more than three years. A Clinical Associate Professor at Kellogg, Dr. Lawrence previously directed an Association of University Professors of Ophthalmology certified glaucoma fellowship, and coordinated advanced training in cataract and glaucoma surgery. “Scott has already made an enormous contribution to the program,” says Dr. Nelson. “We’re so fortunate to have him on the team.”

The pace of progress at St. Paul’s is not lost on Dr. Nelson. “The first time I visited, I operated by the flashlight on my phone during a power outage,” she recalls. “Now, we’re ready to graduate the first class of residents. In a short time, we’ve come a long way together.”

Retinal Dystrophy in Puducherry

In 2015, Kellogg’s Naheed Khan, PhD, partnered with Dr. Pankaja Dhoble, MD, to build a retinal dystrophy clinic and electrophysiology lab at the Puducherry branch of Aravind Eye Hospital (AEH). Since that time, Dr. Khan has organized and facilitated a training process for Dr. Dhoble with the retinal dystrophy team at the Kellogg Eye Center. A complementary process to provide genetic testing was also established between Dr. Dhoble and Dr. P. Sundaresan, a genetic specialist at AEH. The ultimate goal of this collaboration is the development of a comprehensive clinical care center at Aravind Eye Hospital for retinal dystrophy patients, which will both further the diagnosis and treatment of patients and provide rich opportunities for ongoing scientific collaborations.
Kellogg Hosts First U.S. Meeting of World Association of Eye Hospitals

The Kellogg Eye Center and Michigan Medicine recently welcomed eye hospital leaders from around the globe as the World Association of Eye Hospitals (WAEH) brought its annual meeting to the U.S. for the first time.

Almost 150 ophthalmologists and top-level administrators from six continents participated in the four-day annual meeting, organized by Kellogg Eye Center for International Ophthalmology Administrative Director Donna Donato and Professor Christine Nelson, MD.

Kellogg was the first U.S. hospital to join the WAEH in 2015. Since then, more than 12 other US centers have joined the WAEH. While there were meeting sessions devoted to clinical practice and research, the agenda included topics related to building, growing and managing a premier eye center, including administration, operations, patient safety, tele-ophthalmology, workplace culture, philanthropy and fundraising, staff development, finance and more. A significant discussion about enhancing patient safety, particularly during cataract surgery, was led by Professor James Bagian, MD, PE, of the Michigan College of Engineering, and colleagues from the Moorfields Eye Hospital in London and the Singapore National Eye Center.

Safer Cataract Surgery

Cataract surgery is the most common surgical procedure in ophthalmology. Although the vast majority of procedures are successful, the complexity inherent in cataract surgery increases the potential for a mistake to occur.

The Kellogg Eye Center recently embarked on a comprehensive review of all steps involved in cataract surgery, in order to make the procedure safer for patients and ensure the highest quality of care.

“This is a very deep dive into our process,” explains Jennifer Weizer, MD, associate professor and director of the Kellogg quality improvement team. “We’re looking at every step to identify and address vulnerabilities before errors or even close calls occur.” Based on an approach first developed to improve safety in military and manufacturing settings, Kellogg adopted a hybrid model developed for healthcare by the Department of Veterans Affairs National Center for Patient Safety.

Assisted by colleagues from Michigan Medicine and the College of Engineering, a working group was formed, including 23 faculty and staff involved in every aspect of cataract surgery. “Based on our analysis, we recommended 34 separate changes to make cataract surgery less vulnerable to human error” says Dr. Weizer.

The implementation phase, currently underway, focuses on translating the recommendations into a consistent approach to all cataract surgeries at Kellogg. Continuous observation will ensure that the changes positively impact outcomes.
A Pipeline to Greater Diversity in Ophthalmology

To better serve our communities, we should better reflect our communities.

Studies show that patients are more likely to trust healthcare physicians with whom they share similar ethnic backgrounds and cultural experiences.

Minority underrepresentation is especially pronounced in ophthalmology. Just six percent of practicing ophthalmologists and eight percent of ophthalmology residents identify as African American/black, Native American, or Hispanic, compared to roughly 30 percent of the U.S. population.

A novel effort at the Kellogg Eye Center is working to close the gap. The Mentorship-led Pipeline Program, part of Kellogg’s Diversity, Equity and Inclusion (DEI) initiative, combines peer relationships, clinical experience, skill building and social events to encourage underrepresented medical students to explore careers in ophthalmology. The program is unique because it pairs incoming medical students with first-year ophthalmology residents.

“The idea is to expose medical students to ophthalmology early in their studies,” explains clinical assistant professor Ariane Kaplan, MD, who, as part of a DEI committee that includes department faculty, medical students and staff, oversees the program. “If they decide to pursue ophthalmology, their mentors can continue supporting them all the way through the very competitive and stressful process of applying for residency.”

Why pair newcomers with newcomers? Dr. Kaplan cites two reasons. “First, both are negotiating new, albeit different environments with steep, intimidating learning curves, so it fosters a strong sense of being in it together. And residents can be more approachable and relatable than faculty, having just ‘survived’ medical school themselves.”

The program launched during the 2017-2018 academic year, pairing nine mentees with seven first-year ophthalmology residents. “The feedback we’ve received is very positive, and some mentees have expressed an interest in pursuing ophthalmology,” says Dr. Kaplan. The existing pairings will continue, and a class of seven new applicants will be matched with mentors.

An Innovation Grant through the U-M Office of Diversity, Equity and Inclusion provided funding for the 2017-2018 academic year. Current academic year funding from a Rackham Faculty Allies and Student Ally Diversity Grant and a Michigan Medicine DEI Mini-grant will allow the program to expand in the year ahead.

“If they decide to pursue ophthalmology, their mentors can continue supporting them all the way through the very competitive and stressful process of applying for residency.”

— Ariane Kaplan, M.D.
In April, Kellogg’s Diversity, Equity and Inclusion (DEI) committee sponsored a grand rounds presentation by guest lecturer and Kellogg faculty alumna Eve Higginbotham, SM, MD.

A glaucoma specialist, Dr. Higginbotham is the inaugural Vice Dean for Inclusion and Diversity of the Perelman School of Medicine at the University of Pennsylvania, Senior Fellow at the Leonard Davis Institute for Health Economics and Professor of Ophthalmology at the University of Pennsylvania. Recently adding to her impressive list of career milestones, she was elected President of the AΩA Medical Honor Society in 2017 and was elected to the Council of the National Academy of Medicine in 2018. She is also a Vice Chair of the Ocular Hypertension Treatment Study, which is completing 20 years of follow-up of enrolled patients. Dr. Higginbotham led the study at the Kellogg Eye Center when she was a faculty member at Michigan.

“We need to think broadly and use evidence mindfully. We need to see our patients as far more than the symptoms they present. We need to unpack the hidden factors driving not just our patients, but our colleagues, our communities and ourselves.”

—Eve Higginbotham, SM, MD

Diversity, Equity and Inclusion Guest Lectureship:
Eve Higginbotham, SM, MD

In April, Kellogg’s Diversity, Equity and Inclusion (DEI) committee sponsored a grand rounds presentation by guest lecturer and Kellogg faculty alumna Eve Higginbotham, SM, MD.

A glaucoma specialist, Dr. Higginbotham is the inaugural Vice Dean for Inclusion and Diversity of the Perelman School of Medicine at the University of Pennsylvania, Senior Fellow at the Leonard Davis Institute for Health Economics and Professor of Ophthalmology at the University of Pennsylvania. Recently adding to her impressive list of career milestones, she was elected President of the AΩA Medical Honor Society in 2017 and was elected to the Council of the National Academy of Medicine in 2018. She is also a Vice Chair of the Ocular Hypertension Treatment Study, which is completing 20 years of follow-up of enrolled patients. Dr. Higginbotham led the study at the Kellogg Eye Center when she was a faculty member at Michigan.

“We need to think broadly and use evidence mindfully. We need to see our patients as far more than the symptoms they present. We need to unpack the hidden factors driving not just our patients, but our colleagues, our communities and ourselves.”

—Eve Higginbotham, SM, MD

The 2018 Farjo Lecturer:
Roy W. Beck, MD, PhD

A highlight of Kellogg’s 24th alumni weekend was the fourth annual Qais A. Farjo, MD, Memorial Lecture, endowed to honor the memory of a talented and revered alumnus who lost his battle with cancer in 2014.

This year’s lecturer was Roy Beck, MD, PhD. Dr. Beck came to U-M in 1982 as the first director of Kellogg’s neuro ophthalmology service. Between 1982 and 1986, he also served as the resident education coordinator and directed the ophthalmology inpatient consultation service.

In 1993, Dr. Beck founded the JAEB Center for Health Research in Tampa, Florida, a freestanding nonprofit center for clinical and epidemiological research in eye diseases.

In his presentation, “My Journey through Clinical Trials in Ophthalmology,” Dr. Beck highlighted a few of the significant research projects coordinated by the JAEB Center under his leadership—a body of work that has resulted in transformational advances in neuro ophthalmology, pediatric eye diseases, and diseases of the cornea and retina.

Reflecting on Dr. Beck’s remarks, Professor Jonathan Trobe, MD, summarized the lecture as “an exercise in modesty” from a leader he described as “without exaggeration, the most celebrated ophthalmic epidemiologist on the face of the earth.”
Paying It Forward

From early-career investigators to seasoned faculty leaders, each of us owes a debt to the mentors who have inspired and challenged us along the way. They pave the way for future greatness. Here are five faculty whose achievements serve to inspire us.

Five Kellogg faculty members were honored with prestigious national and international named lectures and awards in 2018.

In October, Alan Sugar, MD, delivered the Castroviejo Lecture at the annual meeting of the American Academy of Ophthalmology (AAO) in Chicago. His presentation traced the development of an ethical framework for clinical research, from notorious scandals like the Tuskegee Syphilis Study to the establishment of principles like informed consent, confidentiality and independent oversight. Dr. Sugar also offered several suggestions to address the unique challenges of clinical research in surgical innovation.

October’s annual AAO meeting also featured Sayoko Moroi, MD, PhD, who gave the Robert N. Shaffer Lecture. Her remarks, titled, “At the Technological Confluence of Glaucoma Clinical Care and Research,” described both the potential and the challenges of transforming glaucoma management from event-based care—treating glaucoma patients that have already progressed with vision loss and optic nerve damage toward blindness—to precision-based, preventive care.

At the Alfred W. Bressler Vision Science Symposium, held in New York City in October, Dr. Joshua Stein, MD, MS, received the 2018 Pisart Award and led the annual Pisart Seminar, sponsored by Lighthouse Guild, a leading organization dedicated to addressing and preventing vision loss. The award recognizes the innovative contributions of early-career vision clinician/scientists. Dr. Stein, a pioneer in applying big data analyses to health research in ophthalmology, spoke on “Tapping into Big Data to Enhance the Care of Patients with Ocular Diseases.”
In June, Professor Emeritus Paul Lichter, MD, MS, received the Academia Ophthalmologica Internationalis (AOI) Bernardo Streiff Gold Medal at the World Ophthalmology Congress of the International Council of Ophthalmology in Barcelona, Spain. The medal is awarded every four years to an ophthalmologist who has made an exceptional contribution to the advancement of ophthalmology globally. His presentation, one of more than 40 named lectures he has given over the course of his remarkable career, was titled “Ethics and Physician-Industry Relationships.”

In October, Dr. Bruce Furr, CO, PhD, gave the Richard G. Scobee Memorial Lecture. This keynote talk at the 2018 American Association of Certified Orthoptists meeting, held in conjunction with the American Academy of Ophthalmology (AAO) meeting, highlighted Dr. Furr’s research on the prevalence of and diagnoses associated with aniseikonia—a significant difference in the perceived size of images between our two eyes.

Alumni Spotlight

Encouraged by the mentorship they received during their training, two recent Kellogg graduates have gone on to faculty positions at other top institutions. Their accomplishments remind us to never lose sight of the importance of having—and being—great mentors.

Kristen Harris Nwanyanwu, MD, MBA, (Residency, 2013), a retinal specialist, is an Assistant Professor of Ophthalmology and Visual Science at the Yale School of Medicine.

“I’m so grateful for the mentors I had at Kellogg,” she recounts, “especially Dr. Tom Gardner. We share a passion for stopping preventable diabetes-related blindness.” Dr. Gardner continues to mentor Dr. Nwanyanwu through the Yale Center for Clinical Investigation Junior Faculty Scholar Program. Dr. Nwanyanwu is equally committed to paying it forward, supporting the aspirations of the students and residents on her research team.

Andrew Stacey, MD, MS (Residency, 2015) is an Assistant Professor of Ophthalmology at the University of Washington and a faculty member at Seattle Children’s Hospital and the Seattle Cancer Care Alliance, where he has developed an ocular oncology program—the first ever in the WWAMI region (Washington, Wyoming, Alaska, Montana and Idaho).

“I am where I am because of my mentors at Kellogg,” he says. Specifically, he points to the support of residency director Shahzad Mian, MD, and Hakan Demirci, MD, director of the U-M Ocular Oncology Clinic. Following the lead of his Kellogg mentors, Dr. Stacey now actively mentors residents and fellows in the clinic, the operating room and the lab.
Robin Ali, PhD, F.Med.Sci., Visiting Professor at the Kellogg Eye Center, is one of seven scientists to share the 2018 Champalimaud Vision Award.

Two independent international teams, from the University of Pennsylvania and from the University College London, were recognized for developing a gene therapy treatment for patients with Leber Congenital Amaurosis, a genetic condition that leads to childhood blindness. The advancement is the first successful gene therapy for any inherited human disease.

At his primary appointment as Professor of Human Molecular Genetics, University College London Institute of Ophthalmology & Institute of Child Health, Dr. Ali has led groundbreaking trials demonstrating the safety and efficacy of gene therapies for patients with inherited eye diseases. His collaboration with researchers at Kellogg greatly strengthens our translational research program.

Launched in 2006, the Antonio Champalimaud Vision Award alternates yearly between honoring major scientific breakthroughs in the understanding or preservation of vision (the focus in 2018) and outstanding contributions to the alleviation of vision impairment and blindness, primarily in developing countries. With a prize of one million Euros, it is the largest vision award in the world.

“Working with some of the world’s best and brightest helps us achieve our mission,” says Kellogg Director Paul Lee, MD, JD. “We’re so fortunate to partner with Dr. Ali and his team. We congratulate the two teams on this recognition of their game-changing research.”

Recipients of the 2018 Champalimaud Vision Award Include Dr. Robin Ali, PhD

Robin Ali, PhD, F.Med.Sci., Visiting Professor at the Kellogg Eye Center, is one of seven scientists to share the 2018 Champalimaud Vision Award.

Two independent international teams, from the University of Pennsylvania and from the University College London, were recognized for developing a gene therapy treatment for patients with Leber Congenital Amaurosis, a genetic condition that leads to childhood blindness. The advancement is the first successful gene therapy for any inherited human disease.

At his primary appointment as Professor of Human Molecular Genetics, University College London Institute of Ophthalmology & Institute of Child Health, Dr. Ali has led groundbreaking trials demonstrating the safety and efficacy of gene therapies for patients with inherited eye diseases. His collaboration with researchers at Kellogg greatly strengthens our translational research program.

Launched in 2006, the Antonio Champalimaud Vision Award alternates yearly between honoring major scientific breakthroughs in the understanding or preservation of vision (the focus in 2018) and outstanding contributions to the alleviation of vision impairment and blindness, primarily in developing countries. With a prize of one million Euros, it is the largest vision award in the world.

“Working with some of the world’s best and brightest helps us achieve our mission,” says Kellogg Director Paul Lee, MD, JD. “We’re so fortunate to partner with Dr. Ali and his team. We congratulate the two teams on this recognition of their game-changing research.”
Several major grants were awarded to Kellogg faculty in 2018, including the renewal of two major institutional grants and five significant new individual investigator awards, continuing to place Kellogg among the leading centers in the nation in ophthalmic research funding.

Kellogg’s National Institutes of Health/National Eye Institute sponsored K12 grant, supporting the Michigan Vision Clinician-Scientist Development Program, was renewed for five more years. Overseen by Professors Thomas Gardner, MD, MS, and Paul Lee MD, JD, the program provides resources and mentorship to help launch the research of promising early-career investigators. “At any given time, up to two investigators are funded by the K12 grant,” explains Dr. Gardner, “giving them the time, resources and mentorship to reach a point where they can compete for individual K grant funding.” Abigail Fahim, MD, PhD, is the newest investigator supported by the K12.

Currently, nine Michigan Medicine researchers are funded by individual K grants, including Yannis Paulus, MD, who received a K08 grant, and Lindsay DeLott, MD, who received a K23 grant, both in 2018. Both Dr. Paulus and Dr. DeLott were previously funded by the K12 grant.

The unrestricted grant funding Kellogg receives from Research to Prevent Blindness (RPB) was also renewed for another five years. In addition, Dr. Jillian Pearring received a 2018 RPB Career Development Award. RPB is the leading non-governmental funder of research into conditions that threaten sight. Its researchers have been associated with nearly every major breakthrough in this arena in the past 50 years.

“These grants support the full spectrum of research from genetics to health policy, enabling us to push the frontiers of vision research to treat, cure and prevent vision loss.” explains Director Paul P. Lee, MD, JD.
Diabetic retinopathy and associated diabetic macular edema are leading causes of blindness in the United States. David Antonetti, PhD, and Steven Abcouwer, PhD, have proposed an unique platform for studying how these diseases progress and conducting preclinical testing of potential treatments.

Their research focuses on how diabetes impairs the retina’s ability to resolve inflammation and repair itself—specifically, to restore normal blood vessel function after injury. The inability to heal properly may be responsible for the buildup of damage in the diabetic retina. Drs. Antonetti and Abcouwer draw a parallel between this and another common consequence of diabetes: poor wound healing that leads to chronic foot ulcers.

This approach is novel in the field of diabetic retinopathy. To date, research has focused on how diabetes damages the retina. These U-M researchers are instead exploring how inadequate healing may contribute to the disease process.

Unlike impaired foot wound healing in diabetes, however, the retinal vasculature also requires a functioning blood-retinal barrier (BRB) that must be restored for proper vessel function. This BRB protects the retina by tightly controlling what can enter and leave. By comparing the healing mechanisms of normal and diabetic rodents following retinal injury, they hope to identify strategies for overcoming the destructive impact of diabetes on the retina’s ability to combat inflammation and restore the BRB.

This effort leverages the special expertise of the Abcouwer and Antonetti laboratories in retinal inflammation and the blood-retinal barrier, respectively. The close collaboration of these laboratories is expected to uncover new insights into the mechanisms of disease progression and identify new therapeutic options to reverse the devastating effects of diabetic retinopathy.

Rajesh C. Rao, MD

NIH Mentored Clinical Scientist Development Award (K08): Understanding the Epigenetic Mechanisms That Drive Retinal Development

Degenerative retinal diseases like age-related macular degeneration (AMD) are blinding disorders with few treatment options. In AMD, a disease that affects 10 million Americans, degeneration of photoreceptor cells leads to vision loss.

One current tissue regeneration strategy for AMD is the transplantation of photoreceptors (light-sensing cells) derived from pluripotent stem cells. Pluripotent stem cells can develop into many types of cells. In this multi-step strategy, pluripotent stem cells are coaxied to specifically become retinal precursors, which later give rise to photoreceptors. But this approach is inefficient, donor-dependent and still poorly understood.

Rajesh Rao, MD, Assistant Professor of Ophthalmology and Visual Sciences and Pathology and an Emerging Scholar at the A. Alfred Taubman Medical Research Institute, has developed a three-year mentored career development project focused on gaining a better understanding of how stem cell-derived retinal precursors arise. Specifically, the project uses a stem cell-based platform to study the role of the Mll1 complex, an important epigenetic protein that “switches on” genes necessary for retinal development. It is hoped that the knowledge gained from this endeavor will lead to new stem cell-based therapies to restore vision.
**RBP Career Development Award: Jillian Pearring, PhD**

*Understanding how molecules are delivered to the light-sensing organelle of photoreceptor cells.*

Human vision takes shape in the retina, a thin and transparent piece of neural tissue lining the back of the eye. Light entering the eye is captured by the rod- and cone-shaped outer segments of photoreceptor cells in the retina. The light-sensing outer segment compartment contains a specific set of proteins involved in capturing light and transforming it into electrical signals to be processed by the brain. Defects in the delivery of these select proteins are responsible for many forms of inherited retinal degenerative diseases, including retinitis pigmentosa, a blinding disease affecting nearly two million people worldwide.

The lab of Dr. Jillian Pearring, PhD, is working to understand the cellular mechanisms that guide protein transport and delivery to the outer segment in healthy photoreceptors and how defects in these processes result in retinal degeneration. What her team discovers may guide the development of future therapies to treat patients with retinal disease. Her work is funded by a generous Career Development Grant from Research to Prevent Blindness (RPB).

RPB is the leading voluntary health organization supporting research to prevent, treat or eradicate all diseases that threaten vision. Researchers supported by RPB have been associated with nearly every major breakthrough in vision research in the past 50 years.

**David Musch, PhD, MPH**

*NIDR Exploratory/Developmental Research Grant Award (R21): Glaucoma progression—modeling its trajectory and contributing factors: evidence from AGIS and CIGTS*

The extent and rate of visual field progression is an important measure of a glaucoma patient’s response to treatment. A panel convened by the National Eye Institute (NEI) to study glaucoma and optic neuropathies called for experts in the field to standardize instruments and data collection methods as well as improve statistical methods that determine the progression of disease.

David Musch, PhD, MPH, Professor of Ophthalmology and Visual Sciences in the Medical School and Professor of Epidemiology in the School of Public Health, is stepping up to that challenge using this grant. His team of experts includes Brenda Gillespie, PhD, Associate Professor of Biostatistics in the U-M School of Public Health and Associate Director of the U-M Center for Statistical Consultation and Research, Kellogg Senior Statistician Leslie Niziol, MS, and Paul Lichter, MD, Professor Emeritus. Joseph Caprioli, MD of UCLA and Paul Van Veldhuisen, PhD, of the Emmes Corporation are also involved.

The project, which will employ advanced statistical techniques, has two distinct aims: 1) to compare numerous methods of modeling the progression of visual field loss in order to identify the best ones; and 2) to investigate the importance of the type of visual field defects documented in two landmark NEI-supported clinical trials—the Advanced Glaucoma Intervention Study and the Collaborative Initial Glaucoma Treatment Study.
Kellogg Clinical Assistant Professor Abigail Fahim, MD, PhD, has been awarded a Clinical Scientist Institutional Career Development Program Award from the National Institutes of Health. With this award, which supports early-career investigators working within interdisciplinary research programs, Dr. Fahim will occupy one of two positions in the Michigan Vision Clinician Scientist Development Program K12 grant overseen by Professor Thomas Gardner, MD.

Dr. Fahim’s lab is investigating the connection between the retinal pigment epithelium (RPE) and the development of inherited diseases of the retina, notably choroideremia, an early onset blinding disease for which there is no treatment.

The RPE is a layer of cells situated between the light-sensing photoreceptor cells and the choroid, a collection of blood vessels that supplies oxygen and nutrients to the retina. While much is known about the many ways the RPE supports photoreceptor cells, far less is known about how the RPE interacts with the choroid.

Choroideremia is caused by defects in a single gene, CHM, which helps transport proteins to the correct locations in cells. “Our hypothesis is that a disruption in this transport process changes the characteristics of RPE cells in choroideremia,” explains Dr. Fahim. Using a technology for the genetic manipulation of stem cells called clustered regularly interspaced short palindromic repeats, her team has generated RPE cells with a choroideremia defect to compare their function with that of normal cells.

“I see patients who will be blinded by inherited retinal diseases like choroideremia for which I can do nothing,” Dr. Fahim says. “This research will help us understand the genetic changes that drive these diseases, and will provide a platform for testing new treatment strategies—it’s the next step in giving these patients hope.”

NIH Institutional Training Grant (T32): Supporting pre-and post-doctoral fellows training in vision research at the University of Michigan

This grant funding will continue to support the University of Michigan’s long-standing tradition of training graduate students and postdoctoral fellows for careers in vision research.

The centerpiece of this effort is the National Eye Institute supported Vision Research Training Program (VRTP). Recently renewed with continuous funding extended to 20 years, the VRTP serves to create a cohesive community of vision scientists at U-M, recruiting outstanding pre-and post-doctoral fellows and providing breadth in research training and professional development to keep pace with opportunities for careers in vision research. The VRTP is enhanced by the Michigan Vision Clinician Scientist Development (K12) Program, one of only six such programs in the United States.

Members of the training faculty are funded, productive scientists and experienced mentors whose research portfolios include both basic and translational projects. Most hold primary appointments in the Department of Ophthalmology and Visual Sciences, but the team also includes faculty in the departments of Cell and Developmental Biology, Biomedical Engineering, and Molecular, Cellular and Developmental Biology.

The program is directed by Peter Hitchcock, PhD, Professor of Ophthalmology and Visual Sciences and Professor of Cell and Developmental Biology in the School of Medicine and Associate Dean for Academic Programs and Initiatives in the Rackham Graduate School. In his role as graduate dean, Dr. Hitchcock provides administrative oversight for 26 bioscience PhD programs and the 1,400 postdoctoral research fellows training at U-M.
Philanthropy is Crucial for Our Success
Ceremonies recognize the generosity and foresight of Mary and Edwin Meader and of the Skillman Foundation.

K. Thiran Jayasundera, MD, was named the Paul R. Lichter Professor of Ophthalmic Genetics in November. At his installation ceremony, he expressed his appreciation for a gift made by Mary and Edwin Meader, who established the endowed professorship in 1991.

Dr. Jayasundera is a vitreoretinal surgeon whose far-reaching research program focuses on autoimmune and inherited retinal degenerations. He was the first surgeon in the United States to implant the Argus II device after FDA approval—a ground-breaking new technology, often called a bionic eye, that can transform the lives of some patients with retinal dystrophies.

The Meaders, who passed away in the late 2000s, made many gifts to U-M. In creating this professorship, they honored Paul R. Lichter, MD, who served as chair of the department for more than 33 years.

Dr. Jayasundera is the third person to hold the professorship. The first was Paul A. Sieving, MD, PhD, who today is the director of the National Eye Institute, and the second was John R. Heckenlively, MD, professor emeritus of Ophthalmology and Visual Sciences at U-M.

In April, Cagri G. Besirli, MD, PhD, shared his gratitude for a long-term investment in the Kellogg Eye Center. He was named the Skillman Career Development Professor of Pediatric Ophthalmology, a professorship that grew out of a gift made more than 30 years ago.

The Detroit-based Skillman Foundation made a multifaceted contribution to children’s eye care in the late 1980s. Dr. Besirli, a physician-scientist whose research reaches across broad areas of pediatric ophthalmology, is advancing scientific knowledge and care related to retinal diseases. He is a leader in studies implementing telemedicine for the care of premature infants for the detection of retinopathy of prematurity. His laboratory research seeks to restore diseased retinal cells.

“Professorships are a hallmark of academic medicine,” says Paul P. Lee, MD, JD, F. Bruce Fralick Professor and Chair of the Department of Ophthalmology and Visual Sciences and Director of the W.K. Kellogg Eye Center. “They exist in perpetuity, forever driving research progress and enabling faculty to devote time to educational and leadership activities. We are deeply thankful to those who provide this extraordinary and enduring support.”
Victors for Michigan, Victors for Vision

Historic campaign raises more than $63 million for eye disease care, research, and education.

As part of the Victors For Michigan Campaign, more than 6,000 donations to the W.K. Kellogg Eye Center resulted in $63.3 million to support Kellogg's work, making it the most successful fundraising effort in the eye center’s history.

The Victors for Michigan campaign began in 2013 and ended Dec. 31, 2018. Kellogg surpassed our $50 million goal by 26.6 percent, achieving campaign initiatives to:

- Accelerate breakthrough discovery
- Invest in visionary leaders
- Create revolutionary environments for patient care, research, and education
- Invent new models of patient care and education

Campaign highlights included:

- Annual fund donors made contributions to the W.K. Kellogg Eye Center that together helped develop a new drug to save cells essential to vision.
- In celebrating the life of its founder, a foundation supported glaucoma faculty and research, investments that today are funding research that will help physicians better tailor treatments to specific patients.
- A forward-looking couple made a targeted contribution to eye cancer, enabling the director of our growing program to pursue innovative research through national and international partnerships.
- Alumni made generous gifts and bequests to launch an Alumni Legacy Fund that will help Kellogg remain a leader in the field for generations to come.

“Contributions made during the campaign have propelled us forward, bringing new treatments to patients, new technology and tools to faculty, and new ways of learning to our trainees,” says Paul P. Lee, MD, JD, F. Bruce Fralick Professor and Chair of the Department of Ophthalmology and Visual Sciences and Director of the W.K. Kellogg Eye Center. “Individuals, families, and foundations are helping us realize the full potential of what is possible. Working together, there’s no end to what we can accomplish.”

“I’m thrilled at the outcome of the campaign and greatly impressed with the progress that is being made in discovery science, clinical research, and patient care,” says Richard A. Manoogian, honorary chair of the Kellogg Eye Center Campaign Leadership Council. “As someone who saw my father struggle with eye disease in the later years of his life, it gives me great hope for the future. It is an honor to partner with so many people who share a commitment to saving sight. We are all victors for vision.”

To learn more about supporting the Kellogg Eye Center, or to tell us about your personal mission to save sight, please contact our development team at 734-763-1723 or visit www.kellogg.umich.edu/giving.
KELLOGG’S NEW FACULTY

Brittany Boland, OD
Clinical Instructor
Optometry

Samantha Gagnon, OD
Clinical Instructor
Optometry

Sean Hansen, MD
Clinical Instructor
Comprehensive

Scott Lawrence, MD
Clinical Associate Professor
Ethiopia

Matthew McKee, MD
Clinical Instructor
Comprehensive

Colleen Podd, OD
Clinical Instructor
Optometry

Traci (Thielen) Seng, OD
Clinical Instructor
VA

Nakul Shekhawat, MD, PhD
Clinical Lecturer
Comprehensive

Amy Zhang, MD
Clinical Assistant Professor
Glaucoma

New faculty not photographed: Coye Carver, MD, FACS, Adjunct Clinical Faculty,
Michael Mandell, MD, Adjunct Clinical Faculty

Upcoming CME Programs

Each year, Kellogg offers an informative series of continuing medical education (CME) programs designed to share new approaches to the diagnosis and management of eye disease across subspecialties. These are our upcoming programs:

Saturday, June 1, 2019
91st Annual Spring Postgraduate Conference
Cornea
8 a.m. – 5 p.m.
Kellogg Eye Center
Ann Arbor, Michigan

Thursday, June 13, 2019
35th Annual Research Day

Friday, September 27, 2019
Fall Alumni Day

For more information or to register for these programs, visit: www.umkelloggeye.org

For questions, contact Jennifer Burkheiser, CME Coordinator, at (734) 763-2357 or kelloggCME@umich.edu.
2018 GRADUATING RESIDENTS

Tatiana Deveney, MD
Graduate Chief Resident and Lecturer
Kellogg Eye Center
Ann Arbor, MI

Joseph Grubbs, JR., MD, MPH
Comprehensive ophthalmology
Virginia Eye Institute
Richmond, VA

Sean Hansen, MD
Clinical Lecturer
Kellogg Eye Center
Ann Arbor, MI

Tyson Kim, MD, PHD
Cornea Fellowship
University of Miami
Bascom Palmer Eye Institute

Lev Prasov, MD, PHD
Ophthalmic Genetics Fellow
National Eye Institute
Bethesda, MD

David Sanders, MD, MPH
Glaucoma Fellowship
Oregon Health & Science University
Portland, OR

Nakul Shekhawat, MD, MPH
Clinical Lecturer
Kellogg Eye Center
Ann Arbor, MI

2018 GRADUATING CLINICAL FELLOWS

Nicholas Behunin, MD
Cornea
St. George Eye Center
St. George, UT

Erin Boese, MD
Glaucoma
University of Iowa
Iowa City, IA

Talal Derani, MD
Neuro-Ophthalmology
University of Toledo
Toledo, OH

Kara Dolezal, MD
Pediatric Ophthalmology
University of Cincinnati
Cincinnati, OH

Shawn Shafik Gappy, MD
Pediatric Ophthalmology
Central Eye Care, P.C.
Hazel Park and Rochester Hills, MI

Thao Phuong LE, MD
Pediatric Ophthalmology
Eye Associates Northwest, P.D.
Seattle, WA

Jason Hooton, MD
Cornea
Premier Eye Care of Eastern Idaho
Idaho Falls, ID

Therese Sassalos, MD
Uveitis Fellowship
Kellogg Eye Center
Ann Arbor, MI

Kira Segal, MD
Eye Plastic and Orbital Surgery
Weill Cornell Medical College
New York, NY

Merina Thomas, MD
Retina
Oregon Health and Sciences University
Portland, OR
2018 FIRST YEAR POST-DOCTORAL FELLOWS

Nath Madhu
Dr. Madhu is from India. She is working in the laboratory of Patrice Fort, PhD on therapeutic aspects of αA-crystallins on diabetic retinopathy.

Jorge Martinez-Marquez
Dr. Martinez-Marquez comes from the laboratory of Mara Duncan at the University of Michigan. He is working in the laboratory of Jillian Pearring, PhD on membrane trafficking in vertebrate photoreceptor cells.

Omar Moinuddin
Dr. Moinuddin is a recent medical school graduate of the Oakland University William Beaumont (OUWB) School of Medicine. He is working in the laboratory of Cagri Besirli MD, PhD on the metabolic reprogramming of glycolysis as a neuroprotective strategy to enhance photoreceptor survival under chronic retinal stress.

Ashutosh Phadte
Dr. Phadte is from Mumbai, India and the University of Missouri-Columbia. He is working in the laboratory of Patrice Fort, PhD on the role of post-translational modifications on αA-crystallins and their role in neuroinflammation.

Qitao Zhang
Dr. Zhang is from China. He is working in the laboratory of Jason Miller, MD PhD on the pathological effects of lipofuscin (autofluorescent granules accumulated in aged RPE cells).

Kellogg faculty, alumni, trainees and family members gathered for the Michigan Society of Eye Physicians and Surgeons (MiSEPS) 50th Annual Conference, held at the Grand Hotel on Mackinac Island. The meeting was organized by Chair Dr. Denise Kim and Co-Chair Dr. Manjool Shah. Dr. Theresa Cooney of Kellogg serves as President of MiSEPS. Kellogg’s Dr. Christopher Hoed is Regional Director, with Dr. Jerome Finkelstein serving as Delegate to the Michigan State Medical Society.
Michigan Alumnus Honored for Humanitarian Efforts in Africa

Michigan Medicine faculty and alumni continue to make a difference in how ophthalmology is practiced in every corner of the world. One inspiring example is the tireless work of John Cropsey (MD 2005), treating patients and training providers in some of the most remote areas on the African continent.

Dr. Cropsey’s work was recognized in October when he became the fifth recipient of the University of Michigan Medical School Alumni Association’s Michigan Medicine Alumni Society Distinguished Humanitarian Award.

Dr. Cropsey earned both his undergraduate and medical degrees at the U-M and completed his residency at the Wills Eye Hospital in Philadelphia. In 2009, after networking with others interested in working in Africa, he gathered a multi-specialty team to practice in Africa.

His team’s passion for educating African healthcare professionals has grown into a partnership with Hope Africa University in Bujumbura, Burundi, to develop that medical school’s teaching hospital, Kibuye Hope Hospital. Dr. Cropsey and his wife, Jessica, now lead a team of 50 expatriates at Kibuye.

For the 2017-18 academic year, Dr. Cropsey returned to Kellogg for a sabbatical year, providing comprehensive and cataract surgical services to patients and inspiration to students and colleagues.
Steven F. Abcouwer, PhD
Associate Editor in Chief, Metabolic Syndrome and Obesity: Targets and Therapy, Diabetes
Academic Editor, Journal of Ophthalmology
Consulting Editors Board, Diabetes
Editorial Board, American Journal of Physiology: Endocrinology and Metabolism
Editorial Board, Journal of Clinical & Experimental Ophthalmology
Editorial Board, Journal of Clinical & Cellular Immunology
Editorial Board, Journal of Diabetes Research
Grant Reviewer, Welcome Trust DBT India Alliance Fellowship Review
Grant Reviewer, Participant, Anonymization Project, Center for Scientific Review Research Review,
National Institutes of Health
Study Section, Diseases and Pathophysiology of the Visual System Study Section, Center for Scientific Review, National Institutes of Health
Study Section, Diseases and Pathophysiology of the Visual System (DPVS) Study Section, National Institutes of Health
Member, University of Missouri Chemical Engineering Academy of Distinguished Alumni
Commercial Relations Committee, Association for Research in Vision and Ophthalmology

David A. Antonetti, PhD
Editorial Board, Diabetes
Editorial Board, Tissue Barriers

Steven M. Archer, MD
Castle Connolly Top Doctors
American Orthoptic Council, American Ophthalmological Society
Bylaw Committee
Ethics Committee
Program Committee,
Ad Hoc International Committee

Brenda L. Bohnsack, MD, PhD
Castle Connolly Top Doctors
Editorial Board, Journal of Pediatric Ophthalmology and Strabismus
Pediatric Uveitis Task Force, American Association for Pediatric Ophthalmology and Strabismus

Kari E. Branham, MA
Scientific Advisory Board, Foundation Fighting Blindness

Grant M Comer, MD, MS
Best Doctors in America

Theresa M. Cooney, MD
Best Doctors in America
Castle Connolly Top Doctors
President and President Elect, Michigan Society of Eye Physicians and Surgeons

Wayne T. Cornblath, MD
Best Doctors in America
Topic Chair, Annual Meeting Neuro-Ophthalmology/Neuro-Otology, American Academy of Neurology
Abstract Review Committee for Annual Meetings, American Academy of Neurology
Walsh Committee, North American Neuro-Ophthalmology Society

John M. Cropsey, MD
David Paton, MD Lecture, Wills Eye Academic Global Ophthalmology, Wills Eye Hospital

Sherry H. Day, OD
Board Member, Academic Medical Center Optometrist, Special Interest Group, American Academy of Optometry

Lindsey B. De Lott, MD

Monte A. Del Monte, MD
Castle Connolly Top Doctors

Hakan Demirci, MD
Grant reviewer, PRESTIGE Marie Curie post-doc fellowships programme, International Student and Researcher Mobility, The French National Agency

Joshua R. Ehrlich, MD
Editorial Board, Ophthalmic Epidemiology
Ad hoc reviewer, Special Emphasis Panel on Immune System, the Brain, and Visual System, National Institutes of Health Chair, AGS CARES Committee, American Glaucoma Society

Susan G. Elner, MD
Best Doctors in America

Victor M. Elner, MD, PhD
Castle Connolly Top Doctor
Inaugural Dortzbach Lecture, North American Society of Academic Orbital Surgeons

Jerome I. Finkelstein, MD
Best Doctors in America
WQE Standard Setting Panel, American Board of Ophthalmology Board of Governors, Michigan Society of Eye Physicians and Surgeons
Patrice E. Fort, PhD
Editorial Board, Journal of Clinical and Experimental Ophthalmology
Editorial Board, PlosOne
Guest Editor, Frontiers in Genetics; Frontiers in Neuroscience
Grant Reviewer, American Diabetes Association’s Research
Grant Reviewer, Research and Training Grant, Fight for Sight
Grant Reviewer, Vidi Program, The Netherlands Organisation for Scientific Research
Grant Reviewer, Development Research Projects Program, INBRE
[DeA Network of Biomedical Research Excellence], National Institutes of Health
Ad-hoc Reviewer, Study Section, Disease and Pathophysicsology of the Visual System, National Eye Institute, National Institutes of Health

Bruce A. Furr, MD
Editorial board, Journal of Binocular Vision and Ocular Motility
Editorial board, Journal of Pediatric Ophthalmology and Strabismus

Christopher Gappy, MD
Best Doctors in America
Castle Connolly Top Doctors

Thomas W. Gardner, MD
Castle Connolly Top Doctors
Editorial board, Clinical Diabetes and Endocrinology
Editorial board, Associate Editor, Acta Ophthalmologica
Editorial board, Diabetes Care
Grant Reviewer, Icelandic Research Fund
Chair, Restoring Vision Moonshot Workshop, Juvenile Diabetes Research Foundation

Peter F. Hitchcock, PhD
Academic Editor, PLoS ONE
Grant reviewer, Special Emphasis Panel, Immune System, Brain, and the Visual System, National Institutes of Health Grant Reviewer, Retina France
Board Member, External Advisory Board, Collaborative Opportunities for Success in Mentoring of Students (PNW-COSMOS), Alliances for Graduate Education and Professoriate, National Science Foundation, Pacific Northwest Alliance

Bret A. Hughes, PhD
Castle Connolly Top Doctors
Study Section, NEI Center Core Grants for Vision Research (P30), National Eye Institute, National Institutes of Health

Kanishka (Thiran) Jayasundera, MD
Associate Editor, BMC Ophthalmology
Inventor, U.S. Patent awarded 2/2018: Automated measurement of changes in retinal, Retinal pigment epithelial, or choroidal disease, 9898818

Denise A. John, MD
Fellowship Compliance Subcommittee, American Glaucoma Society

Mark W. Johnson, MD
Castle Connolly Top Doctors
Best Doctors in America
Editorial Board, American Journal of Ophthalmology
Editorial Board, The Journal of Vitreoretinal Diseases, Retina
Editorial Board, Retinal Physician
Lorand Johnson Lecture, Case Western Reserve University Hospital, Cleveland Ophthalmological Society
J. Robert Meyers Lecture, Penn State University, Penn State College of Medicine
Philip P. Ellis Lecture, University of Colorado School of Medicine
J. Donald M. Gass Memorial Lecture, Ophthalmic Photographers Society
Associate Examiner, American Board of Ophthalmology
Life Achievement Honor Award, American Academy of Ophthalmology
Program Committee, American Academy of Ophthalmology Retina Subspeciality Day
Retina Society:
Immediate Past President
Nominating Committee Chair
Awards Committee Chair
Program Committee
The Macula Society:
Treasurer
Credentials Committee

Alon Kahana, MD, PhD
Best Doctors in America
Editorial board, Oculoplastic Surgery Section, Ocular Surgery News
Drs. Frank Nesi and Evan Black Lectureship, Department of Ophthalmology, Kresge Eye Institute, Wayne State University
Richard Dortzbach Inaugural Lecture, Annual Meeting, North American Society of Academic Orbital Surgeons
Adrian and Gladys Drouihet Lecture, Ophthalmology & Visual Sciences, University of Texas-Houston
Founding President, North American Society of Academic Orbital Surgeons
Chair, Scientific Advisory Committee, American Society of Ophthalmic Plastic and Reconstructive Surgery
Chair-Elect, Thesis Committee, American Society of Ophthalmic Plastic and Reconstructive Surgery
FDA Approval, Investigational Device Exemption for the Slit Stent II Lacrimal Stent
Education Committee, American Society of Ophthalmic Plastic and Reconstructive Surgery
Program Directors Committee, American Society of Ophthalmic Plastic and Reconstructive Surgery

Ariane D. Kaplan, MD
Review Committee, Basic and Clinical Science Course Book 1, American Academy of Ophthalmology

Harjeet Kaur, MD
Castle Connolly Top Doctors
Paul P. Lee, MD, JD
Castle Connolly Top Doctors
Advisory Committee, JAMA Ophthalmology
David W. Parke, MD Lecture, Connecticut Society of Eye Physicians
David Paton Medical Lecturer, Baylor College of Medicine
Paul A. Webber Lecture, Havener Eye Institute, Ohio State University
Clement McCulloch Lecture, Li Ka Shing Knowledge Institute, University of Toronto
Stephen J. Munz Lecture, Kaiser Permanente 35th Annual Ophthalmology Symposium
Advisory Board, Hoskins Center for Patient Safety and Quality
Member at Large, Board of Directors, American Glaucoma Society
Board of Directors, American Board of Ophthalmology
Chair, American Board of Ophthalmology
Trustee-at-Large, Association of University Professors of Ophthalmology
Board of Trustees, Society of Heed Fellows
Board of Directors, NAEVER and AEVER Board
Telemedicine Working Group, American Academy of Ophthalmology

Paul R. Lichter, MD
Best Doctors in America
Castle Connolly Top Doctor
Steven M. Pados, MD, Lecture, Mt. Sinai Icahn School of Medicine
Vice President, International Council of Ophthalmology Foundation
2018 Bernardo Streiff Gold Medal, Academia Ophthalmological Internationalis

Shahzad I. Mian, MD
Best Doctors in America
Castle Connolly Top Doctors
Editorial Board, Cornea
Past-President, Program Director’s Council, Association of University Professors in Ophthalmology
Co-director, Cornea Society Fellows Summit
Co-director, Cornea Day, American Society of Cataract and Refractive Surgery
Co-chair, Accreditation Board, Eye Bank Association of America
Program Committee, American Academy of Ophthalmology
Residency Review Committee, Accreditation Council for Graduate Medical Education

Sayoko E. Moroi, MD, PhD
Harold Gifford, Jr., MD Lecture, Truhlsen Eye Institute, University of Nebraska Medical Center

David C. Musch, PhD (cont.)
Cornea Preferred Practice Pattern Guidelines Panel, American Academy of Ophthalmology
Methodologist, Preferred Practice Patterns Committee, American Academy of Ophthalmology
Methodologist, Ophthalmic Technology Assessment Committee, American Academy of Ophthalmology
Chair, Data & Safety Monitoring Boards:
Gluaekus Corporation, Laguna Hills, CA (iStent Supra for glaucoma treatment)
InFocus, LLC, Miami, FL (MicroShunt for glaucoma treatment)
Neurotech & MacTel Group (CNTF treatment for macular telangiectasia)
Ophthea, Ltd, Victoria, Australia (VEGF-C/D trap treatment for neovascular AMD)
Refocus, Inc., Dallas, TX (scleral implant for presbyopia treatment)
Aura Biosciences, Inc., Cambridge, MA (AU-011 for treatment of choroidal melanoma)
Chengdu Kanghong Biotechnology Co., Ltd., China (Conbercept treatment for neovascular AMD)
Member, Data & Safety Monitoring Committees:
NEI Intramural Branch Clinical Trials, National Eye Institute, National Institutes of Health
META-MUST Uveitis Treatment Trials, National Eye Institute, National Institutes of Health
ADVISE Uveitis Treatment Trial, National Eye Institute, National Institutes of Health
Stopping Anti-TNF Agents in Rheumatoid Arthritis (STAR-A), National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health & MedStar Health Research Institute

Christine C. Nelson, MD
Board Trustee, American Society of Ophthalmic Plastic and Reconstructive Surgery
Board Member, World Association of Eye Hospitals

Yannis Paulus, MD
Editorial Board, International Journal of Ophthalmic Research
Editorial Board, International Journal of Ophthalmic & Eye Science
Executive Committee, Technical Group on Therapeutic Laser Applications, Optical Society of America
Fundraising Committee, International Society for Eye Research
Fellow, American College of Surgeons
Member, Macula Society
United States Patent, 15/584,317, Method and Apparatus for removing microvessels

Jillian N. Pearring, PhD
Career Development Award, Research to Prevent Blindness

Howard R. Petty, PhD
Co-Chief Editor, Frontiers in Cell and Developmental Biology, Molecular Medicine

Donald G. Puro, MD, PhD
Best Doctors in America
Rajesh C. Rao, MD
Best Doctors in America
Castle Connolly Top Doctors
Editor, Social Media, Ophthalmology
Grant Reviewer, Epidemiology Merit Review Panel (EPID), Merit and Career Development Awards
Programs, Office of Research and Development, Clinical Science Research & Development Service, Department of Veterans Affairs
Grant Reviewer, Million Veteran Program (SPLM/MVP) Veterans Administration (VA) Merit, Department of Veterans Affairs
Grant Reviewer, Biomedical Laboratory Research &Development Service, Department of Veterans Affairs
Inducted Member, Retina Society

Anjali R. Shah, MD
Advisory Board, Eye Care Innovator Track, American Medical Group Association

Nakul Shekhawat, MD, MPH
2018 Resident Excellence Award, American Society of Cataract and Refractive Surgery

Terry J. Smith, MD
Best Doctors in America
Merit Award, University of Missouri School of Medicine

H. Kaz Soong, MD
Assistant Editor, Cornea

Joshua D. Stein, MD
Castle Connolly Top Doctors
Editorial Board, JAMA Ophthalmology
Board of Directors, American Glaucoma Society
Board of Directors, National Quality Forum
Joseph E. Koplowitz Memorial Lecture, Wilmer Eye Center
Pisart Award in Vision Science, Lighthouse Guild

Alan Sugar, MD, MS
Best Doctors in America
Editorial Board, and Editor-in-Chief, Journal of the Cornea Society, Cornea
Grant Reviewer, National Medical Research Council of Singapore
Troutman Award Committee, Cornea Society
Eye Bank Association of America:
Medical Advisory Board, Research Committee, and Paton Award Committee

Bradford L. Tannen, MD
Editor, Journal of Ocular Biology
Associate Editor, and Editorial Board, Case Reports, American Journal of Ophthalmology
Case Reports, American Journal of Ophthalmology

Debra A. Thompson, PhD
Editorial Board, Experimental Eye Research
Grant Reviewer, BrightFocus, Harrington Discovery Institute

Jonathan D. Trobe, MD
Castle Connolly Top Doctors

Sara L. Weidmayer, OD
Editorial Board, Review of Optometry
Regional Vice-Chair, Admittance Committee, American Academy of Optometry

Jennifer S. Weizer, MD
Best Doctors
Resident Education Committee, American Academy of Ophthalmology

Kwoon Y. Wong, PhD
Editorial Board, Current Eye Research
Grant Reviewer, Royal Society Te Apārangi (New Zealand)
Grant Reviewer, Swiss National Science Foundation
Grant Reviewer, CAREER grant review, National Science Foundation
Study Section, R01 Special Emphasis Panel “Retinal Circuitry, Signaling and Physiology,” National Institutes of Health

Sarah K. Wood, OD
Secretary and Treasurer, Glaucoma Section, American Academy of Optometry

Maria A. Woodward, MD, MS
Associate Editor, International Journal of Eye Banking
Colleen Conway Grace MD Memorial Lectureship, University of Maryland
Chair, Research Committee, Eye Bank Association of America
Research, Regulatory & External Scientific Relations Committee, American Academy of Ophthalmology
Telemedicine Working Group, American Academy of Ophthalmology
Faculty of the Department of Ophthalmology and Visual Sciences

Steven Abcouwer, PhD
Robin Ali, PhD, FMedSci
David Antonetti, PhD
Steven Archer, MD
Bernadete Ayres, MD
Cagri Besirli, MD, PhD
Jill Bixler, MD
Brenda Bohnsack, MD, PhD
Brittany Boland, OD
Kari Branham, MS, CGC
Kuen-Ren (Ralan) Chen, PhD
Grant Comer, MD, MS
Theresa Cooney, MD
Wayne Cornblath, MD
Sherry Day, OD, FAAO
Lindsey De Lott, MD
Monte Del Monte, MD
Karen Deloss, OD
Hakan Demirci, MD
Laxmi Devisetty, MD
Tatiana Deveney, MD
Courtney Dewey, OD
Joshua Ehrlich, MD, MPH
Angela Elam, MD
Susan Elmer, MD
Victor Elmer, MD, PhD
Abigail Fahim, MD, PhD
Cherie Farkash, OD
Jerome Finkelstein, MD
Patrice Fort, PhD
Carlton Foster, OD
Bruce Furr, OD, PhD
Philip Gage, PhD
Samantha Gagnon, OD
Christopher Gappy, MD
Thomas Gardner, MD, MS
Paul Grenier, OD
Sean Hansen, MD
Peter Hitchcock, PhD
Christopher Hood, MD
Bret Hughes, PhD
Diane Jacobi, OD
K. Thiran Jayasundera, MD
Vanitha Jayaraj, MD
Denise John, MD, FRCS
Mark Johnson, MD
Shannon Joseph, MD, MSc
Alan Kahana, MD, PhD
Shivani Kamat, MD
Ariane Kaplan, MD
Harjeet Kaur, MD
Naheed Khan, PhD
Denise Kim, MD
Zvi Kresch, MD
Amy Laguna, OD
Scott Lawrence, MD
Paul Lee, MD, JD
Hélène Leung, OD, PhD
Paul Lichter, MD, MS
Philip Liao, MD
Cheng-mao Lin, PhD
Michael Lipson, OD, FAAO
Xuwen Liu, MD, PhD
April Mao, MD
Matthew Mc Ke, MD
Shazad Mian, MD
Sayoko Moroi, MD, PhD
David Musch, PhD, MPH
Mikiyo Nagashima, PhD
Christine Nelson, MD, FACS
Paula Anne Newman-Casey, MD, MS
Yannis Poulos, MD
Jillian Pearring, PhD
Howard Petty, PhD
Colleen Podd, OD
Shreyu Prabhu, MD
Donald Puro, MD, PhD
Rajesh Rao, MD
Alan Robin, MD
Julie Rosenthal, MD
Frank Reza, PhD
Gary Sendall, MD
Jill Schafer, OD
Treci Seng, OD
Anjali Shah, MD
Manojel Shah, MD
Nakul Shekhawat, MD, MPH
Ron Shtein, MD, MS
Frank Sloan, PhD
Terry Smith, MD
Michael Smith-Wheelock, MD
H. Kaz Soong, MD
William Sray, MD
Joshua Stein, MD, MS
Jeffrey Stern, MD, PhD
Alien Sugar, MD, MS
Jeffrey Sundstrom, MD, PhD
Bradford Tannen, MD, JD
Sally Temple, PhD
Debra Thompson, PhD
Jonathan Trobe, MD
Joshua Vrabec, MD
Grace Wang, MD, PhD
Sarah Weidmayr, OD
James Weiland, PhD
Jennifer Weizer, MD
Adrienne West, MD
Donna Wicker, OD
Kwoon Weng, PhD
Sarah Wood, OD, MS
Maria Woodward, MD, MS
Rebecca Wu, MD
David Zacks, MD, PhD

All of us at the Kellogg Eye Center are committed to improving lives through curing, preventing and treating eye disease.

Our guiding principles are teamwork, caring, innovation and integrity.

Executive Officers of Michigan Medicine
Marschall S. Runge, MD, PhD
Executive vice president for medical affairs, dean
University of Michigan Medical School, CEO, Michigan Medicine

David A. Spahlinger, MD
President, Michigan Medicine, and executive vice dean for clinical affairs University of Michigan Medical School

Patricia D. Hurn, PhD
Dean, School of Nursing

The Regents of the University of Michigan
Jordan B. Acker, Michael J. Behm, Mark J. Bernstein, Paul W. Brown, Shauna Ryder Diggs, Denise Ilitch, Ron Weiser, Katherine E. White, Mark S. Schlissel (ex officio)

Annual Report Team
Editors: Julie Rosenthal, MD, Christopher Gappy, MD
Writers: MargaretAnn Cross, Rosemary Clandos, Shelley Zalewski
Design and Art Direction: David Murrel
Photographers:
Michigan Photography: Eric Bronson, Daryl Marshke, Scott Soderberg, Austin Thomson; U-M Kellogg Eye Center
Department of Ophthalmology and Visual Sciences: Tim Costello, Tim Steffens; Department of Communication: Bryan A. McCullough; Nicole Haley Photography: Nicole Haley

FOR PATIENT APPOINTMENTS, PLEASE CALL 734.763.8122

For additional copies, please contact us:
University of Michigan
Department of Ophthalmology and Visual Sciences
W.K. Kellogg Eye Center
1000 Wall Street
Ann Arbor, Michigan 48105
www.umkelloggeye.org
The University of Michigan Kellogg Eye Center is proud to be ranked in the top 10 in the country by U.S. News & World Report—recognizing our outstanding care for patients with complex eye conditions.

Kellogg has seen extraordinary growth in all aspects of patient care, research and education since the department was established in 1872. Every day, our clinicians, scientists, trainees and staff work together to shape the future of eye care and vision science.

~ Our Purpose ~

To improve lives through curing, preventing and treating eye disease