THE Eye & Ear Foundation OF PITTSBURGH

News for Supporters and Friends

2022 SIGHT+SOUND

SPRING EDITION

Standing: Boris Rosin, MD, PhD, José-Alain Sahel, MD, William Smith III, OD
Sitting: Michelle Alabek, MS, CHC, Joseph Martel, MD

In This Issue

All stories written by Lisa A. Goldstein

Good News for People with Retinal Dystrophies

The UPMC Eye Center, led by Dr. José-Alain Sahel, recently became one of 14 ocular gene therapy treatment centers approved in the U.S. to offer LUXTURNA for retinal dystrophy.

Currently, there are no other FDA-approved therapies that target the underlying genetic cause of disease to halt progression or improve vision for individuals with inherited retinal dystrophies (IRDs). Until now, management of IRDs was primarily focused on addressing symptoms. For example, patients with IRDs are at risk for cystoid macular edema, which can affect their central vision. If a patient has this, they can receive drops to help remove the fluid and the resulting effect on their center vision. The Eye Center can also help patients maximize their function with their current vision level (i.e., low vision therapy and support provided by William Smith III, OD, and Holly Stants MS, OTR/L, SCLV, CLVT)

"There are many therapies in development for various types of IRDs, some of which are offered here at UPMC," said Michelle Alabek, MS, CGC, genetic counselor and clinic coordinator. "Each time a patient is seen in clinic, our team provides them with the current landscape of therapies that may be relevant for them in the short-term and long-term based on their current status."

And now there is an exciting new therapy. The main criteria for eligibility are that patients have retinal dystrophy due to the RPE65 gene and that they have viable retinal cells (determined by the physician based on various tests).

Approved by the FDA in 2017 for clinical use, LUXTURNA is administered as a one-time treatment underneath the retina. Patients with RPE65-related disease have difficulty with visual functioning in dark settings. The trials that led to approval by the FDA showed that patients had improved ability to function at lower levels of light a year after being treated with this gene therapy. Eligible patients can choose to receive LUXTURNA therapy at any of the approved treatment centers, but UPMC is the only one in the Pittsburgh area.

The Retinal Dystrophy Clinic and Services (RDCS) at UPMC is comprised of a multidisciplinary team from the Department of Ophthalmology at the University of Pittsburgh, with expert retinologists (Drs. Sahel and Rosin on the adult side), ocular genetic counselors, low vision optometrists, and occupational therapists. Dr. Joseph Martel and Dr. Jay Chhablani perform the surgery for LUXTURNA.

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Leaving a Lasting Legacy for Cancer Survivors

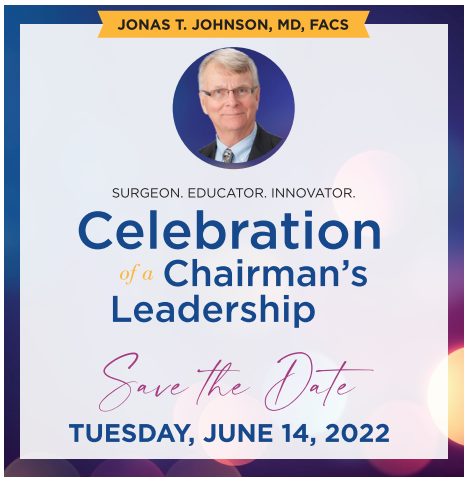
To commemorate Dr. Jonas T. Johnson stepping down after 16 years as Chairman of the Department of Otolaryngology, and to honor his 42 years at the University of Pittsburgh, the Eye & Ear Foundation has created an endowment fund. Called the Department of Otolaryngology Head and Neck Cancer Survivorship Program, the goal is to reach $1,000,000. Thank you, Dr. Mark Mendel-Brown for making a lead gift of $25K to get this fund started.

To that end, EEF is hosting a cockstail and dinner reception on June 14 at the Duquesne Club to lightly roast and honor Dr. Johnson as well as raise money for the endowment. Tickets will be $250 each, or $500 a couple.

In his next phase of life, Dr. Johnson will help run the Survivorship Clinic, a cause close to his heart. He and Marci Nielsen started it in 2016 to provide a more comprehensive standard of care for head and neck cancer patients. It includes long-term follow up, surveillance, prevention, assessment, and help in navigating the health system.

By all accounts, everyone loves Dr. Johnson and will miss him in his current role.

"There are people who you know are special the moment you meet them, and this is how I have always felt about Dr. Jonas Johnson," said Lawton Snyder, EEF CEO. "I have had the distinct pleasure of working with Dr. Johnson for over 12 years, and I can say on behalf of myself and all of the Eye & Ear Foundation team, that he has always inspired us to do everything we can do support his mission for the Department of Otolaryngology, and we have all enjoyed the experience of working with him along the way." S+S



Visit eyeandear.org for event and registration.

Pioneers Giving Forward

Much headway has been made in endowing the Pioneers in Skull Base Surgery Chair, but $300,000 remains before the goal is met. The hope is to have it funded by the end of the fiscal year.

To endow a Chair at Pitt/UPMC is $2 million. Once $1 million has been raised, UPMC has agreed to match the funds up to $1 million.

Dr. Eugene Myers, Distinguished Professor Emeritus of Otolaryngology and Emeritus Chair, Department of Otolaryngology, and Dr. Joseph Maroon, Clinical Professor of Neurological Surgery and the Heindl Scholar in Neuroscience at the University of Pittsburgh School of Medicine, contributed significantly and have been raising additional support to establish this Chair.

More recently, the Coury family made a generous donation, as did Dr. E. Ronald Salvitti, founder and medical director of the Southwestern Pennsylvania Eye Center and Eye & Ear Foundation Board member.

The Pioneers Chair in Skull Base Surgery – which will become the Myers & Maroon Chair once Dr. Maroon retires due to UPMC rules – is housed in the Department of Otolaryngology with a focus on the world class training aspects of skull base surgery that were developed by Drs. Myers and Maroon at the University of Pittsburgh School of Medicine. The inaugural holder of the chair will be Dr. Carl Snyderman, who refined the techniques over the last 25 years. Along with Dr. Paul Gardner, Dr. Snyderman trained not only this generation of surgeons on minimally invasive skull base techniques but is now working on training the next generation on even more advanced treatment modalities.

"The Pioneers Chair will provide world class training opportunities every day of the year to surgeons in Pittsburgh via hands on classes, and from around the globe via tele-mentoring opportunities," said Dr. Jeff Myers, Chair, Department of Head and Neck Surgery, MD Anderson Cancer Center, and the son of Dr. Eugene Myers. "This training opportunity is so important because skull base tumors require highly sub-specialized techniques for removal, and these tumors are relatively rare."

Eugene N. Myers, MD, FACS, FRCS Edin (Hon) (podium) and Joseph C. Maroon, MD

Dr. Jeff Myers was a resident in the Department of Otolaryngology Head and Neck Surgery at the University of Pittsburgh School of Medicine when Dr. Carl Snyderman and his colleagues first performed minimally invasive skull base surgeries. "I am proud to have been witness to this historical medical technological advancement," he said, "and I would like to see the Department and individuals involved and their trainees retain their leadership in this important field." S+S

Always Looking for the Alternative

Deepinder Dhaliwal, MD was lying flat on the table with acupuncture needles in her back when she had an epiphany.

"This is so very interesting," thought the Professor of Ophthalmology at the University of Pittsburgh. "This is an ancient technique thousands of years old, and we're still using it."

Dhaliwal started researching acupuncture and its applications to the eyes. This led to her studying acupuncture in an intense year-long course through UCLA. She learned more intricate surface anatomy than she did in medical school and found it all fascinating. Now she is a licensed acupuncturist with a passion for integrative eye care.

In 2006, Dhaliwal founded the Center for Integrative Eye Care, the first of its kind in the nation. The mission was to help people not only with their eyes, but their bodies, minds, and spirits. Now Dhaliwal's hope is to transition the Center into more of an integrated, cohesive concept in the entire Department.

"There's a lot of power in blending East and West," Dhaliwal said. "It's not one or the other. When you combine the two, you get really amazing results." This holistic view incorporates components like nutrition, mindfulness, and behavior modification.

The first randomized controlled trial done through the Center was on dry eye and acupuncture and opened Dhaliwal's eyes to the power of acupuncture and integrative techniques to help patients heal. Continuing to carefully study integrative medicine techniques for vision care will improve evidence-based medicine and the result, which is to care for patients and improve their quality of life. A second study is being prepared for publication on acupuncture and macular degeneration.

Efforts to study and provide integrative eye care treatments slowed down a bit but will be gearing back up, especially with the Vision Institute opening soon. Integrating all the different disciplines is crucial. Dhaliwal would like to see a nutritionist on staff in the Department of Ophthalmology to provide nutritional guidance, which is elemental in the whole process.

"We would be so much better as a health system if we kept people well and prevented disease," Dhaliwal said.

This means also adding mental health counselors to the staff. Patients can be depressed when given a diagnosis of a condition that results in permanent vision loss. "Patients need help and because we have a crisis right now in mental health, it's difficult to find help," Dhaliwal said.

Deepinder Dhaliwal, MD, L.Ac

And there is not much of a downside to integrative medicine. There are very few side effects from acupuncture.

Dhaliwal strongly believes that integrative ophthalmology is the future. After some strategizing on how to best implement it in the Department, she will continue to pursue this cause that is near and dear to her heart.

"We're helping the entire patient, not just their eyes," Dhaliwal summed up. S+S

Continued from cover

"The goals of the Retinal Dystrophy Center are to provide early and precise diagnosis for patients and to offer innovative and trusted treatments to restore vision or stop progression of the disease," Alabek said. Many trials are in place or about to start artificial retina, optogenetics, beuroprotection, and corrective gene therapy.

Patients are seen on the sixth floor of the Oakland office. Once the Vision Institute at the UPMC Mercy Pavilion is open, the clinic will move to that location. Low vision and genetic counseling services are also offered. Interested patients should contact 412-647-4732 or email retinal.dystrophy@upmc.edu.

"Because there are many different types, causes, and stages of retinal dystrophies, a one-size-fits-all treatment approach will not work," Alabek said. "Multiple therapy options need to be available, so we are thrilled to now have LUXTURNA in our arsenal at UPMC. And this is just the tip of the iceberg. Many other therapies aiming to slow progression or to restore some vision are currently under development or in clinical trials at UPMC and around the world. These advances would not be possible without the dedication of scientists, researchers, financial supporters, and most importantly, patients and their families – this work has not been done for them, but rather with them, and it leaves us more hopeful than ever that we will be able to do more to help!" S+S

Traumatic Brain Injury Often Means Sleepless Nights

A recent multidisciplinary University of Pittsburgh study of veterans with traumatic brain injuries (TBI) uncovered something interesting. Of the 95 participants, 80 percent had a sleep disorder, second only to psychological health problems. Now the team is conducting the first large controlled study specifically looking at former NFL players between the ages of 29-59.

"My hypothesis is that we will see a high percentage of sleep problems in this cohort, just like we did in the veterans," said Ryan Soose, Associate Professor, Department of Otolaryngology at the University of Pittsburgh. As Director of the Sleep Division, Dr. Soose is part of the study team. He gave a shout out to ENT research coordinator Tina Harrison for her tremendous contributions.

The first study – TEAM TBI – (Targeted Evaluation, Action, and Monitoring of Traumatic Brain Injury) laid the foundation for the current one, called the University of Pittsburgh Brain Health Initiative (BHI). TEAM TBI found that targeted treatment of specific disorders resulted in a decrease of symptom burden by about half after a 6–9-month intervention. Indeed, sleep is one of the key components that affects other outcomes.

"What we found was that if you intervene and improve people's sleep, you can also improve their headaches, their balance, and their cognitive function," Dr. Soose said. "Their mood gets better if they sleep better, their pain gets better, and so forth."

People with TBI fall into poor sleep hygiene and spiral out of control, Dr. Soose explained. "They get into this vicious cycle where the head injury messes up their sleep, and then the poor sleep further degrades other TBI outcomes," he added. "This study has the potential to get the cycle spinning the other way."

Ryan Soose, MD in exam room

The biggest thing that the team is trying to get through is that head injuries are likely a complex heterogeneous condition that requires a multidisciplinary evaluation and personalized treatment approach.

To recruit into the randomized cohort, BHI is partnering with the Harvard University Football Players Health Study, which has a robust sample from which they have generated a randomized list to contact for interest/enrollment. "This process preserves the scientific integrity of the study and eliminates self-selection bias," said Kate Edelman, research coordinator for David Okonkwo, a neurosurgeon at UPMC and the Primary Investigator of the Brain Health Initiative. "It is equally important to have a non-randomized sample of players who hear of us largely through word of mouth and choose to volunteer."

The study has been very well received among former NFL players, Edelman said. The day after last year's Super Bowl, the first NFL player enrolled in the study. The schedule has been full since.

Enrollment – which includes a diverse range of race, ethnic backgrounds, socioeconomic status, geographical locations, as well as position and decade of play – will continue through 2022 and beyond, with preliminary data likely being analyzed in 2023. The study results will have wide-reaching implications, as the issue is not limited to the NFL. "This is something we might be able to generalize to the entire sports concussion community," Dr. Soose said. In other words, this could lead to better education and preventative measures – not only in professional and collegiate athletics but also throughout youth sports.

"If we can help these athletes with their sleep and mental health, we'll likely improve many other aspects of their TBI as well," said Dr. Soose. S+S

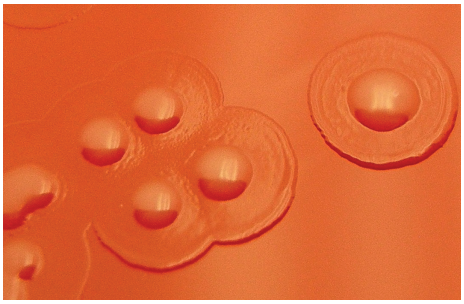
A Lifetime of Battling Eye Infections

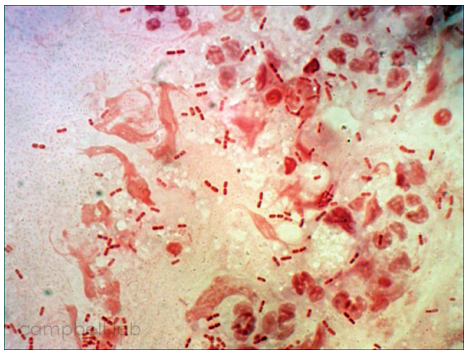
After 40+ years, Regis Kowalski, MS, M(ASCP), is retiring in June from the University of Pittsburgh and as Executive Director of the Charles T. Campbell Eye Microbiology Laboratory.

"I will always be a Professor of Ophthalmology," he says. He is seeking Emeritus status.

His long and successful career began when he majored at the University of Pittsburgh in microbiology and biophysics. An opportunity then opened in the Ophthalmic Microbiology Laboratory at what was then called the Eye & Ear Hospital; he joined as a clinical and research microbiologist researching herpes simplex virus in donor eye tissue.

Kowalski was later promoted to a faculty position in the University of Pittsburgh School of Medicine. In fact, he cites this as his proudest professional achievement: his promotion to Professor of Ophthalmology based on his merits.





Dr. Kowalski has done much research and diagnosis with the bacteria Moraxella. Graphics of Moraxella shown here.

"I have over 160 peer-reviewed publications, six book chapters, and over 250 abstracts for meeting presentations," lists Kowalski. "I have presented on the international stage regarding ophthalmic microbiology. Our laboratory has developed a website for the Charles T. Campbell Eye Microbiology Laboratory. Through this website we can communicate with anyone in the world [about] ophthalmic microbiology. Any interested ophthalmic practice in the U.S. can use the information from our laboratory to send ocular samples to [us] for diagnosis of ocular infection."

The Campbell Laboratory started as a "Mom and Pop laboratory," and is still classified as one. The mission is to diagnose ocular infections in patients and to serve the ophthalmic community – both local and national. To meet this objective, they work very closely with in-house and community physicians. The laboratory is the only independent certified ophthalmic microbiology laboratory in the U.S. and is fully certified by the College of American Pathologists (CAP), the Federal government (CLIA), and the State of Pennsylvania.

Kowalski has seen many positive changes over the years in the field. Molecular diagnostics has made diagnosing eye infections in a timely, definitive manner, he says. Herpes simplex, adenovirus, herpes zoster, cytomegalovirus, chlamydia, and acanthamoeba are being diagnosed within one to three days. Other reference laboratories are now available to detect toxoplasmosis and identify unusual bacteria and fungi.

Regis Kowalski, MS, M(ASCP)

Upon retirement, Kowalski plans to travel from Pennsylvania to South Carolina, where he and his wife built a family summer home near the beach. He wants to spend time with his family, especially his two grandchildren. He would also like to author a book. He leaves fulfilled. The laboratory will continue to function under the leadership of Dr Kowalski's collaborators and strong technical expertise will be maintained.

"Ophthalmology and the University of Pittsburgh provided me with a rewarding livelihood and many people helped me along the way," Kowalski says. "I thank all of those people who touched my life in a positive manner, and I hope that I had an affirmative impact on others." S+S

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- Regis Kowalski, MS, M(ASCP)

Accolades for Audiology

The Department of Otolaryngology at the University of Pittsburgh has two exciting pieces of news to report. Lori Zitelli, AuD, received the Early-Career Audiologist Award from the American Academy of Audiology, and Catherine Palmer, PhD, Director of the Center for Audiology and Hearing Aids, was awarded $25K by the Pitt Innovation Challenge and $75K from the University of Pittsburgh's Chancellor's Gap Funding mechanism for the LiDIA device her team developed.

Lori Zitelli received a clinical doctorate and master's degree in Audiology from the University of Pittsburgh and completed her AuD externship in the Department of Otolaryngology. After graduation, she started her clinical career in the same location. She worked her way up from audiologist to audiology manager. In addition to her clinical work, she serves as clinical instructor within the Department, a lab instructor in the Department of Communication Sciences and Disorders, and as a research audiologist at the Pittsburgh Hearing Research Center.

According to her bio on the American Academy of Audiology website, Dr. Zitelli has garnered a reputation for her expertise in the areas of tinnitus, suicide awareness and prevention, telehealth applications, and interventional audiology.

When the Chair of the Awards committee called to tell Dr. Zitelli she was being recognized for her significant contributions to audiology, she was completely shocked. "I know so many inspiring early career audiologists and never thought that I'd be recognized this way," she said. "I would never have received this award if it weren't for the opportunities I've been afforded through my involvement in the exciting things we do at UPMC and at the University of Pittsburgh."

Dr. Palmer said she truly cannot think of anyone more deserving. "Dr. Zitelli is nationally recognized as an educator both within the University of Pittsburgh and providing hours of continuing education for her peers," she said. "She is especially sought after for her compassionate treatment of those who suffer from relentless tinnitus. We are so fortunate to have Dr. Zitelli as a colleague and leader here at UPMC."

Meanwhile, as one of the Elevator Pitch Competition awardees in the Pitt Innovation Challenge (PInCh) – a program designed to support diverse teams who generate innovative solutions to challenging health problems – Dr. Palmer's team received an additional $5K health disparity bonus award for LiDIA.

LiDIA stands for Listening, iDentification and Instant Amplification. "It directly addresses the main limitations of current state-of-the-art hearing screening and amplification techniques," Dr. Palmer explained. "Instead of using an expensive set of calibrated headphones, the screening takes place with a set of inexpensive headphones that can be left on the user for immediate amplification purposes. Unlike existing hearing screening devices, the screening may take place even in noisy environments, and the procedure is simple enough to be carried out with minimal training burden. Finally, instead of requiring separate pieces of equipment for screening and amplification, the device can be transformed into an amplifier with the flip of a switch and with a dial for volume control, providing effective communication during health care interactions."

The team has a fully working prototype. The combination of funding will move them into the first run of manufacturing LiDIA, which is essential for testing and finalizing specs. The idea is that LiDIA will identify individuals with hearing challenges and make health care interaction accessible. Untreated hearing loss is correlated with poor adherence to treatment recommendations, so anything we can do to improve communication during a health care interaction will be positive, Dr. Palmer said.

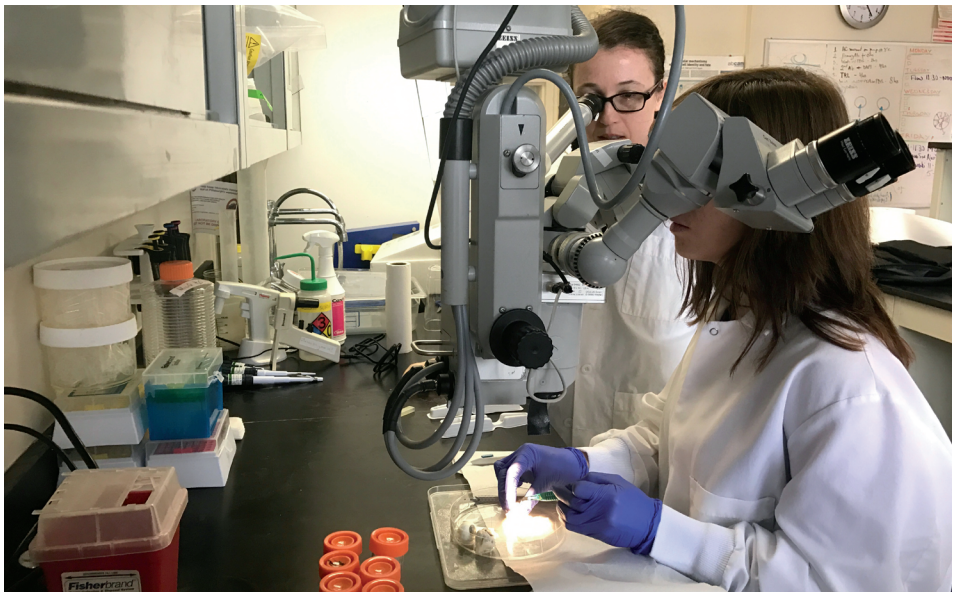
"Over 60 percent of older adults have hearing loss, yet only 18 percent use personal amplification, resulting in the majority of aging individuals being faced with effortful or inaccurate communication during health care visits, which present high stress, complex listening environments," she added. S+S

LiDIA (prototype) in hearing screening mode.

LiDIA (protype) in amplifier mode.

Research Stimulus – The Lifeblood of Innovation

The Department of Ophthalmology at the University of Pittsburgh has bestowed three second round grants funded by the Henry L. Hillman Foundation. The grant funding is part of a $20M gift made by the HLH Foundation designed to stimulate innovative ideas and cross-disciplinary collaborations within the Department and the University.



Rob Shanks, PhD, Associate Professor in the Department of Ophthalmology and Basic Science Director, Charles T. Campbell Ophthalmic Microbiology Laboratory, received $71,128 for one year. His project, "Treating Herpes Virus Simplex Keratitis – A New Approach," addresses an unmet need in anterior eye care.

A major class of therapeutic drugs called "biologics" has had a huge positive impact on modern medicine. However, they are almost completely unused on the eye because they are washed away by tears and blinking. Dr. Shank's group has developed an approach to temporarily anchor biologics on the surface of the eye long enough for them to provide therapeutic activity.

"The goal of this specific project is to use this anchoring system for the treatment of ocular inflammation due to viral infection," he said. "We are teaming up with experts in our department such as virologist-immunologist Tony St. Leger, PhD, and virologist-antiviral expert Eric Romanowski, MS, to achieve our goals. The Hillman grant will allow us the seed money to push this project forward toward the development of new drugs for the eye."

Leah Byrne, PhD, Morgan Fedorchak DiLeo, PhD, José Alain-Sahel, MD, and Joseph Martel, MD, received $202,289 for a two-year project called "Retinal-adhesive thermoresponsive gel for AAV-mediated gene delivery to the outer retina."

Gene therapy is a highly promising approach for the treatment of retinal blinding diseases for the first time, said Leah Byrne, Assistant Professor of Ophthalmology at the University of Pittsburgh. Safe, efficient, and controlled gene delivery to the retina is crucial for its success but remains a significant challenge.

"We've formed a highly interdisciplinary team to address this major obstacle," Dr. Byrne said. "Our project will develop an innovative delivery system to enable safe and efficient delivery of therapeutic genes to retinal cells from an intravitreal injection route. This project will lead to new therapies for many forms of inherited retinal degeneration."

The third Hillman grant went to two scientists collaborating on a project as part of the Louis J. Fox Center for Vision Restoration. Taka Kuwajima, PhD, and Stephen Badylak, DVM, MD, PhD, received $414,825 – in addition to a donation from Mr. Louis Fox – for their two-year project, "Investigation of the neuroprotective and regenerative effects of Statin/MBV-combination therapy in the porcine injury model." MVB stands for matrix-bound nanovesicles, which are attached to the extracellular matrix. Ocular trauma and optic neuropathies causing optic nerve degeneration and retinal ganglion cell (RGC) death are among the leading causes of blindness worldwide. Human RGCs lack regenerative capacity and do not recover from damage. There are no FDA-approved drugs or therapeutic strategies to maintain the optic nerve and RGCs or promote axon regeneration immediately after injury.

To solve this issue, Dr. Kuwajima, Research Assistant Professor of Ophthalmology at the University of Pittsburgh, has been working with Stephen Badylak, Professor of Surgery and Deputy Director, McGowan Institute for Regenerative Medicine, since 2020. They discovered that co-injections of statin and MBV show more robust RGC survival and axon regeneration when compared to treatment with either statin or MBV alone.

To establish therapeutic interventions for human patients, these results will be leveraged in a large animal model. Drs. Kuwajima and Badylak will be working with the ocular trauma team led by Dr. Vijay Gorantla of Wake Forest School of Medicine.

More grants will be given over the next few years as part of the agreement with the Henry L. Hillman Foundation. S+S

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Have Mercy When it Comes to Vision and Hearing

The next Mission of Mercy Pittsburgh event will offer free hearing screenings and otology services for the first time. In 2019 and 2021, Mission of Mercy hosted a two-day clinic providing free dental care to the underserved members of the community. The October 2021 event also offered free vision care by the Department of Ophthalmology at the University of Pittsburgh. Now both vision and hearing will be covered.

"The faculty of the Department of Otolaryngology are entirely supportive of every opportunity to provide enhanced health care for the underserved people of our community," said Department Chairman, Dr. Jonas Johnson. "We are actively planning to provide screening for people with conditions involving their ears at the next Mission of Mercy. This will include removal of wax, diagnostics, and hearing tests. People in need of a hearing aid will be assisted."

While the details are still being worked out, the dates are set for August 5-6, 2022, at the Pittsburgh Convention Center.

"We were pleased to team up with Mission of Mercy in 2021 to provide vision care," said Lawton Snyder, CEO of the Eye & Ear Foundation, which is helping organize the vision and hearing clinics.

Last September, a team of over 50 ophthalmology faculty, staff, and volunteers provided free eye health screening to over 300 people in need. They also provided over 300 free pairs of eyeglasses thanks to the Essilor Foundation.

"We are very grateful that Mission of Mercy has agreed to work with the Department of Otolaryngology and Audiology to provide hearing care services this coming year," Snyder said. "We know the need is great and Pittsburgh is very lucky to have a wonderful organization like Mission of Mercy recognizing this need and stepping up to address it." S+S