ANNUAL REPORT 2015





DEPARTMENT OF Ophthalmology and Visual Sciences UNIVERSITY OF WISCONSIN SCHOOL OF MEDICINE AND PUBLIC HEALTH

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On Cover: (top) Orthoptist Michele Harn, MS, CO, COMT; (bottom) Kristina Whisenhunt, laboratory manager of the Terri Young Ophthalmic Genetics Research Program

FROM THE CHAIR



Dear Colleagues,

Since our founding as an independent department in 1970, the Department of Ophthalmology and Visual Sciences has been at the forefront of developing treatments, diagnostics, and eye disorder definitions and parameters for patients locally to globally to prevent and cure blinding eye diseases. Recently, we have intensified our efforts to work in more

impactful and relevant ways to secure this mission by placing greater priority in aligning clinical unmet needs with laboratory pursuits. We are continuing to develop cross-disciplinary teams that nurture collaboration among clinician and basic scientists. This culture of "fresh perspective" reaches deep into our new ophthalmology resident training program initiatives, where residents now have protected time and are placed in research laboratories and incubators to enhance their development as critical thinkers and creators of translational advancements in vision science. Our burgeoning partnerships enable innovative, translational intersections with vision researchers throughout multiple University of Wisconsin departments as well as with researchers from other institutions.

The department has much to celebrate. We are ranked number 3 relative to all departments of ophthalmology in the country in National Institutes of Health/National Eye Institute competitive grant funding this year. As you'll learn in this report, Paul Kaufman, MD, previous chair of the department, was recently awarded the prestigious Research to Prevent Blindness, Inc. Stein Innovation Award for his groundbreaking research in developing a gene replacement therapy delivery system for glaucoma. Aparna Lakkaraju, PhD, and David Gamm, MD, PhD, were jointly awarded another prestigious Research to Prevent Blindness, Inc. Award - The Catalyst Collaboration Award for their work in stem cell research for age-related macular degeneration. Our clinical mission has expanded offerings such as femto-assisted laser for cataract surgery, and our University of Wisconsin departmental team led by Sarah Nehls, MD, Michael Altaweel, MD, and Amy Walker, OD, MBA, provides a program of implanting miniature telescopes that allows visual recovery for patients with severe bilateral age-related macular degeneration. An inaugural University of Wisconsin

Ophthalmology international rotation to Delhi, India for senior ophthalmology residents was highly successful this past year. We used a novel model of faculty mentorship by Andrew Thliveris, MD, PhD, and Daniel Knoch, MD, with provision of a compressed teaching curriculum on site. One of our own, Dr. Alice McPherson, the first female ophthalmology resident of the department, was recognized and received the University of Wisconsin's most prestigious alumni award for her pioneering work in retinal surgery and for her vision to end blinding retinal disorders. And at the heart of it all, as you will also learn in this report, is the story of a grateful patient who came to our department seeking more than just exemplary eye care.

Despite these successes, it is still a difficult battle to secure funding for blue-sky initiatives and pilot projects to move thoughtful proof-of-concept ideas to actual patient care therapies and preventives. Federal funding agencies, industry and other traditional sources of funding are more risk averse than ever, and are more likely to fund projects that are advanced in staging, or perpetuate a re-purposing of successful products. Innovation should not be contained however, and support is crucial for nurturing new ideas that will culminate in the commercialization of translational advancements affecting clinical practice and vision-related issues. It is also just as difficult to find monetary resources to support the academic mission with respect to medical student, resident and fellow training, and for the enactment of patient programs in low vision and personalized medicine.

The important work of our department encompasses strategic, purposeful efforts to provide personalized, culturally sensitive, evidence-based care to patients. We engage in sophisticated, translational and relevant research toward the betterment of human health and to cure disease. We teach our learners to become competent and ethical leaders, and advocates of vision science and medicine. The department faculty, learners, and staff embrace and practice inclusiveness, and local-to-global citizenship. In essence, our core mission is to improve lives and impact society.

Hope lives here! Please join us in this journey.

Best,

Im L Yz MD, MBA

Terri L. Young, MD, MBA Peter A. Duehr Professor and Chair

NEW PROVIDERS

Melanie Schmitt, MD, returned to Madison after completing a

pediatric ophthalmology and

adult strabismus fellowship at

Schmitt completed her residency

at the Beaumont Eye Institute at

the William Beaumont Hospital in

Michigan. She earned her medical

Alice McPherson, MD, earned

medical degrees in 1948 and

1951, respectively, from UW-

Madison, as well as completing

Department of Ophthalmology

and Visual Sciences in 1958.

She was the first woman to

her undergraduate and

her residency in the UW

degree from the University of

the Cole Eye Institute at the

Cleveland Clinic in Ohio. Dr.

The Department of Ophthalmology and Visual Sciences is pleased to welcome four new clinicians and an ophthalmic genetics counselor.



Melanie Schmitt, MD

Wisconsin School of Medicine and Public Health. Dr. Schmitt has a special interest and experience in ophthalmic genetics and serves as the UW Ophthalmic Genetics medical director. "I am acutely interested in how genetics play into childhood eye disorders," Dr. Schmitt said. "My current research is centered on the area of inherited retinal degenerations." Dr. Schmitt also specializes in comprehensive ophthalmology, amblyopia, nasolacrimal disorders, pediatric cataract and lens implantation, retinopathy of prematurity and pediatric and adult inherited retinal disorders. Dr. Schmitt sees patients at the UW Health University Station and East eye clinics in Madison.



Anna Momont, MD

Anna Momont, MD, a glaucoma subspecialist, also returns to Madison after completing a glaucoma fellowship and her residency at the University of Michigan Kellogg Eye Center in Ann Arbor, and an internship at Penn Presbyterian Medical Center in Philadelphia. She earned her medical degree from the University of Wisconsin School of Medicine and Public Health. "It is

great to be back home in Wisconsin," Dr. Momont said. "I look forward to working with the ophthalmology team and providing excellent care to patients." Dr. Momont's special areas of interest are glaucoma, anterior segment surgery and optic nerve imaging. Patients can make appointments with her at the University Station Clinic in Madison and the Deming Way Clinic in Middleton.

DISTINGUISHED ALUMNI AWARD



Alice McPherson, MD

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complete an ophthalmology residency at the UW. In 1960, she moved to Houston, Texas to begin practice as the world's first full-time

ALICE MCPHERSON, FIRST FEMALE OPHTHALMOLOGY RESIDENCY GRADUATE, HONORED

> woman vitreoretinal specialist, and became established and recognized as one of the pioneers in the field.

In 1960, Dr. McPherson founded the retina service at the Baylor College of Medicine in Houston in conjunction with a private practice in retina. She developed and promoted several procedures that are now accepted basic elements in successful retinal detachment surgery and the treatment of diabetic retinopathy.

In 1969, Dr. McPherson established the Retina Research Foundation (RRF) in Houston, and under her leadership as president and scientific adviser, the RRF has funded



Tracy Klein, OD



Sanbrita Mondal, OD

Two optometrists also join the department. Tracy Klein, OD, and Sanbrita Mondal, OD, bring a variety of private-practice experience. Dr. Klein comes to UW Health Eye Clinics from private practice in Madison. She graduated from the Illinois College of Optometry in Chicago and sees both adults and older children at the UW Health Specialty Clinic in Prairie du Sac and at UW Health Deming Way Eye Clinic in Middleton

Dr. Mondal comes to Madison from the East Coast. She completed her optometry training at the New England College of Optometry in Boston. "I am very excited to join an eye care team at an academic institution," Dr. Mondal said. "I very much enjoy the synergies of clinical practice with research and education in the university setting." Dr. Mondal sees patients at three area clinics: Deming Way in Middleton, and University Station and UW Health West in Madison.



Ophthalmic genetics is a field experiencing rapid change and advances, resulting in a new specialty area for ophthalmology. UW Health Eye Clinics has expanded its services to include genetic counseling for inherited eye diseases. Emily Higuchi, MS, CGC, now provides genetic counseling services to patients at the University Station Clinic in Madison. Higuchi works with

Emily Higuchi, MS, CGC

patients and families to obtain and understand a genetic diagnosis and its implications.

"I work as a team with the ophthalmologist to determine the right genetic test for each patient, and can connect families to resources and support if needed," Higuchi said. "This will improve the level of patient care we provide."

more than 1,000 grants and has helped launch the careers of many of the major vision researchers in the United States and abroad. Her vision, inspiration and support were critical in the establishment of the McPherson Eye Research Institute (MERI) at UW-Madison. She serves on its advisory board, and has shepherded MERI in gaining international prominence as a center of excellence for vision research.

Dr. McPherson's many other contributions to the University of Wisconsin are impressive. She served for 12 years on the board of directors of the UW Foundation. She was the founding president of the UW Ophthalmology Alumni Association, and has established numerous endowed chairs and lectureships at the university. Dr. McPherson's UW-Madison honors include delivering the 1995 commencement address and receiving a UW-Madison honorary degree in 1997. The University of Wisconsin School of Medicine and Public Health is divided into "houses" for study and social programs, and McPherson House is named to recognize her contributions. A bronze bust and a portrait of McPherson grace the medical school.

The Distinguished Alumni Award is the highest honor bestowed by the Wisconsin Alumni Association. Since 1936, the alumni association has presented the award to its most prestigious graduates of UW-Madison to recognize their professional achievements, contributions to society, and support of the university.



An implantable miniature telescope can offer improved quality of life to patients with age-related macular degeneration. The telescope is placed during cataract surgery.

IMPLANTABLE MINIATURE TELESCOPE SURGERY

Surgery to place the implantable miniature telescope (IMT) offers vision recovery for patients with severe bilateral age-related macular degeneration (ARMD). Candidates for IMT surgery are patients with a visually significant cataract, ages 65 years old or older, suffering from moderate to profound vision loss from bilateral ARMD. The miniature telescope is implanted into the eye at the time of cataract extraction during an outpatient, Medicare approved procedure. Once implanted, IMT technology magnifies the view 2.7 times to project an image outside the area of retina that is dysfunctional. Vitreoretinal specialist Michael Altaweel, MD, recognized the need for IMT technology in his busy practice treating patients with ARMD. He observed that despite new advances to manage exudative (wet) ARMD there are many patients who develop central scar tissue that

results in vision loss. Non-exudative (dry) ARMD also can result in atrophy that causes poor central vision. In both situations we were unable to help patients with medical treatment and we sought assistance with external low-vision aids such as magnifiers. Many patients with ARMD have had great difficulty with using hand-held magnifiers due to fatigue and have abandoned their use. We have hoped for an alternate solution and now have one in the IMT.

Results of a 5-year multicenter trial published in the journal *Clinical Ophthalmology*, showed that IMT implantation can allow 63 percent of patients to see 2 or more lines of vision and 47 percent of patients to achieve 3 or more lines of vision. DOVS patient Judy Palmer, 75, of Janesville, Wis., underwent IMT surgery in the summer of 2014 with cornea specialist Sarah Nehls,

MD. Palmer summarizes her outcome as very good. "What I see on television is fantastic," she says. "When people are losing vision, it's hard to imagine how nice it is to be able to watch television with my husband." Her only complaint is that the limited field of vision means she cannot see an entire face in person. "But I would do this again in a New York minute," she adds. "I think this procedure could help a person stay independent longer. I can see to cut food, the flame on my stove, and I can read Facebook on my iPad so I can keep up with my grandchildren."

Complications from IMT surgery are low but include corneal swelling, persistent post-operative inflammation, and an 8 percent need for telescope removal.

Neal Barney, MD, and Dr. Nehls are the DOVS IMT surgeons who partner with other IMT team members who assess patient candidacy for IMT surgery and provide post-operative rehabilitation. Optometrist Amy Walker, OD, MBA, performs an assessment with an external telescope before surgery and provides refractive correction for the patient afterwards. UW Health clinical occupational therapist, Peggy Nied, OT, performs a lifestyle analysis pre-operatively and postoperative vision training to help patients adapt to their new vision from the IMT. "The recovery is longer than with basic cataract surgery because there is a larger incision made for the IMT insertion and rehabilitation is needed to adapt to the new vision," states Dr. Nehls. "My patients have done extremely well with their surgery; one patient is enjoying the ability to read the New York Times on his iPad."

Using the established IMT clinical team, the DOVS clinical trials unit is actively enrolling patients in a prospective, multicenter post-FDA-IMT approval study supported by Vision Technology. Dr. Nehls serves as the principal investigator for the study which will further understanding of success with IMT surgery and outcomes.



Judy Palmer, of Janesville, Wis., received the implantable miniature telescope and likes being able to stay in touch with her grandchildren on Facebook.



Michael Altaweel, MD



Sarah Nehls, MD



2015 Annual Report



Left to right: Katie Schwartz (accompanying nurse), Pimkwan Jaru-Ampornpan, Daniel Knoch, Ashley Lundin and Andrew Thliveris

RESIDENTS TRAVEL TO INDIA

RESIDENTS GAIN MORE THAN JUST SURGICAL EXPERIENCE FROM INTERNATIONAL ROTATION

By Ashley Lundin, MD, University of Wisconsin Department of Ophthalmology and Visual Sciences Residency Class of 2015

The inaugural University of Wisconsin Ophthalmology International rotation for senior residents was a huge success. Two senior residents, Ashley Lundin, MD, and Pimkwan Jaru-Ampornpan, MD were accompanied by faculty members Andrew Thliveris, MD, PhD, and Daniel Knoch, MD, for a two-week trip to Delhi, India in February 2015.

The residency rotation was designed to help residents expand their surgical skills in extracapsular cataract surgery, a procedure that is now rarely performed in the United States. What we gained in India was much more than just enhanced ophthalmologic training.

India is a country rich in culture and diversity. Our brief introduction into India's languages, religions, architecture, food, and customs was an enlightening experience. We experienced local shopping markets where many thousands of people gather daily to purchase homegrown food for their families as well as barter for other goods. India is home to more than 100 languages with thousands of indigenous dialects. We learned how to say a few words in Hindi including "Namaste" for "hello," and "Dhanyawad" for "thank you." While touring, we saw several Indian

WORDS CANNOT EXPRESS HOW GRATEFUL {WE} ARE TO HAVE HAD THIS OPPORTUNITY TO EXPERIENCE A SMALL TASTE OF INDIA AND EXPAND OUR OPHTHALMIC KNOWLEDGE!

historical monuments deeply rooted in religious history and learned that India is the birthplace of Hinduism, Buddhism, Jainism and Sikhism. A favorite monument was the Taj Mahal in Agra. This monument is an absolutely awe-inspiring vision with tremendous history behind it. Indian cuisine was a real treat that we found to be as diverse and varied as the Indian people. We enjoyed the many Indian spices and especially appreciated chicken tikka masala.

One of the most striking features of India is the kindness and hospitality of its citizens. Indian hospitality is based on the principle Atithi Devo Bhava, meaning "the guest is God." Our group felt welcomed and appreciated throughout our stay.

Dr. Shroff's Charity Eye Hospital (SCEH) was the primary destination for our trip, and was where we spent the majority of our time. We worked at the hospital six days each week and were given the opportunity to see patients in subspecialty clinics, outreach clinics, and in the operating room. SCEH consultants (attending surgeons) and our UW attending surgeons supervised as we learned how to perform extracapsular cataract extraction surgery. We each performed 16 of these surgeries while at SCEH, and are extremely grateful for this learning opportunity. The commitment to excellence and dedication to teaching at SCEH was evident and we are so thankful to have learned from their experts. While at SCEH, we also honed our newly learned surgical skills in their wet lab, and presented at their daily grand rounds conference.

Words cannot express how grateful Dr. Jaru-Ampornpan and I are to have had this opportunity to experience a small taste of India and expand our ophthalmic knowledge! Thank you to our Chair, Terri Young, MD, MBA, and the University of Wisconsin Department of Ophthalmology and Visual Sciences, Dr. Suresh Chandra and the University of Wisconsin Division of International Ophthalmology, and the University of Wisconsin Graduate Medical Education Department for making this elective rotation possible. A very special thank you to Drs. Thliveris and Knoch for all their hard work in making this long-awaited dream a reality, and for their deep dedication to education.

Truly, this was the experience of a lifetime. Dhanyawad!



Pimkwan Jaru-Ampornpan with two Dr. Shroff's Charity Eye Hospital surgical technicians



Ashley Lundin operating with a Dr. Shroff's Charity Eye Hospital Consultant

RESEARCH TO PREVENT BLINDNESS, INC. AWARDS

UW RESEARCHERS EARN CATALYST COLLABORATION AWARD

The team of David M. Gamm, MD, PhD, Aparna Lakkaraju, PhD, and Janis Eells, PhD, recently garnered the Research to Prevent Blindness, Inc. Catalyst Award for their project "Optimizing Cell Transplantation Strategies for Age-related Macular Degeneration: Roles of Mitochondrial Integrity and Function in hiPSC-Retinal Pigment Epithelium Survival." For their proposal, Dr. Gamm and Dr. Lakkaraju, both of the UW-Madison as the principals, along with Dr. Janis Eells of UW-Milwaukee, developed a plan to address an area of tremendous need in stem cell age-related macular degeneration research: improving survival of stem cell-derived photoreceptors through small molecules. Specifically, their research will aid in the identification of interventions that improve mitochondrial function and respiratory capacity in human induced pluripotent stem cell-derived retinal pigment epithelial cells, which in turn may improve the expansion, survival, and function of these cells upon transplantation into eves with retinal disease.

Dr. Gamm is an associate professor of ophthalmology and visual sciences and is a physician-scientist-teacher who combines expertise in pediatric ophthalmology with pioneering work in retinal stem cell biology, and directorship of the UW-Madison McPherson Eye Research Institute. His scientific accomplishments have profoundly impacted the vision science community and have contributed substantially to the global regenerative medicine landscape. As a result of his contributions, he is regarded as a leading expert on applications of human induced pluripotent stem cell technology to model, study and develop therapies for retinal degenerative diseases such as age-related macular degeneration and retinitis pigmentosa.

Dr. Lakkaraju, assistant professor of ophthalmology and visual sciences, has exceptional expertise in retinal cell biology, neuroscience, and nervous system pharmacology. Her research interests include identifying



Aparna Lakkaraju, PhD, who with David Gamm, MD, PhD, earned the Catalyst Collaboration Award for a project addressing survival of stem cell-derived photoreceptors.

cellular deficits in the retinal pigment epithelium (RPE) that contribute to the pathogenesis of macular degenerative diseases. She has pioneered the use of high-speed live imaging of adult primary RPE monolayers to identify mechanisms of early damage. Using live imaging and a mouse model of Stargardt disease – a hereditary retinal degeneration – her laboratory recently delineated a step-wise mechanism by which age-related accumulation of lipofuscin bisretinoids derails cellular clearance in the RPE and leads to RPE dysfunction. Through this groundbreaking work, Dr. Lakkaraju has identified more than 30 FDAapproved compounds that improve the efficiency of debris removal and decrease inflammation in the RPE.

A Catalyst Award Symposium was held at the UW-Madison School of Medicine and Public Health in August 2015 showcasing the remarkable science completed after a single year of funding for the team. The symposium also provided a platform for further discussion and collaboration among multiple research laboratories, including those of Dr. Budd Tucker (University of Iowa) and Dr. Akiko Maeda (Case Western Reserve University).



Paul Kaufman, MD, received a prestigious award for his work investigating the use of minimally invasive glaucoma surgery.

PHYSICIAN SCIENTIST RECEIVES STEIN INNOVATION AWARD

Paul Kaufman, MD, professor of ophthalmology and visual sciences and Ernst H. Bárány Professor of ocular pharmacology and Department of Ophthalmology and Visual Sciences chair emeritus, was awarded the prestigious Research to Prevent Blindness, Inc. Stein Innovation Award for the project "Trabecular Meshwork, Schlemm's Canal Drug, Gene Delivery via Minimally Invasive Glaucoma Surgery Devices." His research laboratory is investigating the use of minimally invasive glaucoma surgery (MIGS) techniques for gene therapy of glaucoma. Earlier studies in his laboratory demonstrated that visco-canalostomy could be successfully performed in monkeys. The advent of the newest iteration of MIGS surgical techniques has appeal as a method of delivering therapeutic genes directly to the tissue of interest in impaired aqueous humor outflow causing elevated intraocular pressure.

Dr. Kaufman's laboratory has pursued the feasibility of several MIGS devices, investigating how to modify them for his experiments. A minified MIGS catheter can be inserted successfully in Schlemm's canal in monkeys, and can be used as a conduit to inject lentiviral vector viruses carrying reporter genes. He has demonstrated that these viruses transduce trabecular meshwork cells with gene expression over all 360 degrees of the circumference after a single 1-clock hour catheter insertion and injection. The lentiviral vectors are developed collaboratively in the research laboratory of Curtis Brandt, PhD, professor, a world expert virologist and immunologist, and principal investigator of the Department's NIH-funded Vision Core Research Laboratory. Self-complementary adeno-associated viral vectors are being developed collaboratively with the Ocular Gene Therapy Core of the National Eye Institute.

Over time, glaucoma patients will require more than one drug class of self-administered topical eye drops to control their disease. Unfortunately, patient adherence to topical eye drop regimens is often poor, reducing the effectiveness of the therapy. This innovative project has the potential to be a significant therapeutic breakthrough for glaucoma patients, freeing them from the burden of adherence to multiple topical drop regimens, while providing long-term, stable eye pressure control. Patients in areas where access to health care resources is poor are at an even greater disadvantage with conventional therapeutic approaches and this technique could be especially valuable for patients in underserved areas where access to and compliance with topical eye drop regimens and/or frequent visits to a clinical site are problematic. Targeted delivery of vector constructs encoding therapeutic proteins to the fluid outflow pathways of the eye has the potential to alter tissue configuration, resulting in consistent and long-lasting decreases in intraocular pressure.



MULTIPLE TREATMENTS SAVE MAN'S VISION

EXCELLENT VISION CARE IMPROVES QUALITY OF LIFE

Gary Bjarnson, of Lanark, Illinois, started losing his vision slowly over several years in one eye, and much to his dismay, faster in the other. His quality of life and independence was threatened and changing quickly. Resigned to a life of blindness, he confessed to his wife, Dixie, that they should consider a move to an assisted living home for the elderly and disabled. Gary is a voracious reader, accustomed to devouring the Chicago Tribune and the Wall Street Journal every morning. That became difficult as his vision dwindled. "It got to the point where I could not read a book, magazine or a newspaper," he recalled.

The Bjarnsons raised four biological children, and made a home for six foster children as well. They have particularly close relationships with their grandchildren who spent summers at their lake home. When Gary and Dixie built their home in Lanark, they made sure the kids had a place they could hang out, cook pizza, and stay up late. No one ever stayed up too late, however, because the first one awake meant the first to water ski behind the boat piloted by Gary.

Macular Degeneration

Macular degeneration was the first challenge Gary faced. His local ophthalmologist referred Gary to the UW Health Retina Clinic at Freeport Memorial Hospital.

"I'M GRATEFUL THAT MY VISION IMPROVED SO THAT I COULD CONTINUE WITH THOSE ACTIVITIES MOST MEANINGFUL TO ME.

There Gary met University of Wisconsin retina specialist Michael Altaweel, MD, who gave Gary the diagnosis of age-related macular degeneration.

There is no treatment for dry macular degeneration,

which Gary has in his right eye. Some lifestyle changes and taking certain nutritional supplements may help prevent progression to the more aggressive wet form of macular degeneration. Gary had wet age-related macular degeneration in his left eye. The treatment for wet age-related macular degeneration is frequent injections into the back part of the eye to stop leakage and bleeding from abnormal retinal blood vessels that destroy the central retina.

Before starting eye injections to stop the progress of the wet macular degeneration, Gary's vision was poor. He stopped driving cars and had to add an additional spotter to the ski boat to point out obstacles on the water. The grandchildren lobbied for him to continue at the helm. Injections in an eye may seem scary. Gary said they were "not a big deal," especially when the alternative was losing his eyesight. The injections improved his vision so dramatically that he was able to drive the boat, and eventually his car again. "Gary is definitely one of the best responders I have seen. To be able to drive again has been a great outcome for him," Dr. Altaweel said.

Cataracts

Months later, because of the development of severe cataracts, Dr. Altaweel referred Gary to Heather Potter, MD, a comprehensive ophthalmologist and cataract specialist at UW Health Eye Clinics. Cataracts are a condition of cloudiness of the lenses in the middle part of the eye. Dr. Potter performed cataract surgery of each eye. "That was a big improvement, too," Gary said. Gary was pleased that Dr. Potter was "not a prima donna. During the surgeries, she was professional and respectful to her staff. They did a great job and took really good care of me," he said. Dr. Potter is a firm believer in the team approach, and that all members are essential in providing the very best personalized experience for each patient. "We planned a modified strategy for Mr. Bjarnson's surgeries because of his medications," she said. "It was important that he have his cataract surgery with a team that could accommodate those changes."

Eyelid Droop (Ptosis)

A few years later, Gary's visual progress had yet another setback. Gary's eyelids and brows drooped, blocking part of his field of vision. "It's not unusual for people to develop such changes as they age," said Mark Lucarelli, MD, an oculofacial plastic and reconstructive surgeon in the Department. "Gary had great vision after his cataract surgery," Dr. Lucarelli said. "He just couldn't see the whole field."

You can't hold up your eyelids while you're driving a boat or a car, so Dr. Lucarelli recommended surgical correction with a blepharoplasty procedure. After the blepharoplasty, Gary was again impressed by the improvement in his vision. "Almost every day in the clinic someone raves about how much better they can see after this surgery," Dr. Lucarelli said.

Meeting him today, it's hard to imagine a more vibrant and energetic man moving into any kind of facility. Gary is pleased to have worked with the team of ophthalmologists involved in each facet of his ophthalmic care. "The one thing I always said was I couldn't handle losing my eyesight," Gary said. "I'm grateful that my vision improved so that I could continue with those activities most meaningful to me. The specialists at the University of Wisconsin-Madison Department of Ophthalmology and Visual Sciences truly gave me my life back."



When Gary Bjarnson's vision was at its worst, he could not read a book or a newspaper. This was a hardship for a man who loves reading. Here, he and Dixie relax in their library.



"We live here because we fell in love with the lake," Dixie said. Because of Gary's successful eye treatments he was able to drive the ski boat for many additional years.

THE DAVIS LECTURESHIP

DEPARTMENT CELEBRATES FIRST CHAIRMAN WITH NAMED VISITING PROFESSORSHIP

The Department of Ophthalmology and Visual Sciences created a visiting professorship in 2014 in honor of its first Chairman, Matthew Dinsdale (Dinny) Davis, MD. Dr. Davis led the Department through many years of growth (from 1970-1986), and created the foundation for its current success.

Although Dr. Davis has a long history of leadership in the Department, the lectureship is more a testament to his major contributions as a scientist, a clinician, and a teacher.

Worldwide, Dr. Davis is known for his work as a superb retina specialist, especially for helping establish standards for studying treatments for diabetic retinopathy. "In the 1970s, it was not obvious how to do a clinical trial in diabetic retinopathy," said Frederick (Rick) Ferris, MD, at the inaugural MD Davis Lecture. "At that time for someone with severe diabetic retinopathy, blindness was often the outcome." In fact, in people with proliferative diabetic retinopathy the five-year risk of blindness in both eyes was 50 percent; today, with treatment, that risk is less than 5 percent.

The Diabetic Retinopathy Study (DRS) was the first clinical trial sponsored by the then newly established National Eye Institute (NEI) of the National Institutes of Health (NIH). Planning for it was initiated by an NIH subcommittee in 1968. On the basis of recent scientific exhibits and publications by Dr. Davis and Yvonne Magli, a medical illustrator who assisted him in documenting the natural course of proliferative diabetic retinopathy using stereoscopic retinal photographs, Dr. Davis was asked to collaborate in developing the protocol for the trial and he subsequently served as Study Chairman.

Assessments of serial retinal photographs were an important part of the trial. Davis and Magli established a central reading center for doing so, the Fundus Photograph Reading Center at the University of Wisconsin-Madison. The Center continues today and has been involved in many studies funded by the NEI and other sponsors. "Without Dinny's attention to detail, the Reading Center would not have succeeded," Dr. Ferris said. "He has made a difference in a spate of trials that followed the Diabetic Retinopathy Study."

"The DRS had a complicated structure", said Dr. Ferris, "including policy advisory, data monitoring and clinic monitoring committees. Such committees were not familiar to ophthalmologists at the time," Dr. Ferris said.

As a member of the clinic monitoring committee one of Dr. Ferris's jobs was to visit the clinics to determine if the retinal surgeons and other personnel were following the protocol. He found they often were not. "Dinny visited each clinical center and was able to explain to the surgeons why it was critical to the trial's outcome to follow the protocol," Dr. Ferris said.







Stuart Fine, MD



At the first Matthew Davis lecture, (left to right) Frederick (Rick) Ferris, MD, clinical director of the National Eye Institute Matthew Davis, MD; Barbara Blodi, MD; and Stuart Fine, MD, the inaugural Davis lecturer.

"Clinical research is studying patients to determine what the best treatment is," said Barbara Blodi, MD, medical director of the Clinical Trials Unit and the Fundus Photograph Reading Center in the UW Department of Ophthalmology and Visual Sciences. "Dinny's work has always been about treating people, about taking the best care possible of them."

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...THE LECTURESHIP IS MORE A TESTAMENT TO HIS MAJOR CONTRIBUTIONS AS A SCIENTIST, A CLINICIAN, AND A TEACHER.

When Dr. Blodi joined the Department in 1997, Dr. Davis was still evaluating and treating patients. He has since retired but continues an active research program. "We often saw patients together on Fridays," she recalled. Although it was nerve-wracking to share patients with "the world's greatest diabetic retinologist," because Dr. Davis was always patient and engaged with both the patient and the young physician, the process was actually enjoyable. "It was such a good experience to be practicing with this great man," Dr. Blodi said "You can't help but learn things when you work with Dinny."

Dr. Davis also influenced and mentored many physicians who subsequently became ophthalmologists and he had a special skill for working with residents. "Dinny was a great teacher," said Richard Dortzbach, MD, an emeritus professor in the Department who trained with Dr. Davis. "He was a meticulous surgeon and he brought that level of attention to all his work."

Stuart Fine, MD, a retina specialist and the former chair of the Scheie Eye Institute in Philadelphia, was the first MD Davis Lecturer. 'The idea of giving a talk to celebrate Dinny, who was the major role model for me since I met him 47 years ago, is quite an honor," Dr. Fine said. "I thought at the time I met him 'This is someone I could model my career after' and to the best of my ability, I have."



MATTHEW D. DAVIS LECTURE

October 21, 2016 Emily Chew, MD, Deputy Clinical Director

National Eye Institute

FREE RURAL EYE CLINIC GIFT

HONORING A LIFETIME OF DEDICATION

By Robert Castrovinci, MD, Residency Class of 1977

When Dr. Guillermo (Guil) and his wife, nurse Marta de Venecia started their journey of providing eye care in the Philippine Islands in 1978, they never realized that 36 years later they would still perform the same work and much more. They had the vision to bring sight-restoring surgery to the Filipino rural community, where thousands of people are needlessly blind from cataracts because of limited access to health care.

Guil grew up in an occupied Philippines during World War II. Early on, he knew his deep desire to help others was his life's calling. He became a medical doctor and was attracted to Madison, Wisconsin where he completed his ophthalmology residency training. After Guil studied eye pathology in Washington, DC, and returned to Madison to study retinal diseases and serve as a professor at the University of Wisconsin. Before long he opened the first Ocular Pathology Lab in Wisconsin at the University of Wisconsin-Madison Department of Ophthalmology, and ran an active medical retinal disease clinic-rising guickly to the rank of Professor. He also started the first Donor Eye Bank in Wisconsin. Guil used all of his vacation time to travel to the Philippines. Initially he developed a mobile, traveling system to provide free eye care in various parts of the Philippines. Before long patients started seeking him out, and Guil and Marta- along with friends, built the Free Rural Eye Clinic (FREC) in San Fabian near Guil's

As FREC evolved, people from all walks of life volunteered to help in the many tasks that needed to be completed. The volunteers came together to be part of this 'larger than any one individual' medical-mission project. You can't be part of one of these mission trips and not feel changed. When you make a part of someone's life better you are changing the world, one person at a time.

If the people who work with FREC are the "life blood" then the "heartbeat" of FREC are the many generous donors that make it possible to give sight to blind people. The constant donations from our friends and family, and from the Wisconsin Lions and Lioness Clubs made so much of the project possible. The dollars contributed to FREC went only to one thing – examining and treating blind Filipinos. Our estimate is that for every \$15 donated, one blind person was able to see after surgery at FREC.

After 36 years of providing free eye surgery in the Philippines, nearly 250,000 patients were screened, and over 26,000 cataract operations were completed. Guil de Venecia was an active director of FREC for those 36 years. In the early years, he spent weeks in the Philippines working, and after retirement spent half of each year. The enormous impact that Guil made over the three decades is incalculable.

A gift of saving sight in perpetuity

The de Venecias, through the Free Rural Eye Clinics Corp. recently donated a significant gift to the University of Wisconsin Department of Ophthalmology and Visual Sciences - The Guillermo and Marta de Venecia Fund of \$422,000. This fund will be used by the Department to provide free eye care and surgery to indigent patients of the Philippine Islands, and to train tomorrow's eye doctors and vision science researchers from both sides of the world with transformational overseas learning opportunities. The de Venecia's dedication, generosity, and compassion manifested through their work and with this gift leave an indelible legacy. This Fund will touch the lives of many.

This extraordinary gift is accepted with deep gratitude by the Department's Division of International Ophthalmology and the educational teaching programs for residents, fellows, and young researchers.



Dr. Guillermo de Venecia examines a patient's eye at the Free Rural Eye Clinic in the Philippines. The Eye Clinic was a labor of love for Dr. de Venecia and many residents trained there. The gift to the Department will continue his work.

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SELECTED GRANTS

The Department of Ophthalmology and Visual Sciences (DOVS) is home to 38 research faculty nationally and internationally recognized as leaders in basic, clinical and translational vision research. In 2015, the Department ranked 3rd in both National Eye Institute and National Institutes of Health (NIH) funding received by ophthalmology departments according to current NIH funding data. DOVS has consistently ranked in the top 10 for NIH funding received among ophthalmology departments over the past five years, resulting in an average annual growth rate of 10.5 percent in NIH funding received for that period. The total research funding in 2015 exceeded \$12.5 million, with approximately 84 percent of this support coming from the National Institutes of Health.

2015

Julie Mares, PhD & Barb Blodi, MD

NIH/NEI

Mechanisms of Cellular Clearance in the Retinal Pigment Epithelium

Ron Klein, MD, MPH

NIH/NEI

Epidemiology of Age-related Macular Degeneration and Other Retinal Diseases

JUVENILE DIABETES RESEARCH FOUNDATION

Retinal Vessel Biomarkers for Risk Assessment of Incident Diabetic Complications in the Wisconsin Epidemiological Study of Diabetic Retinopathy

NATIONAL OPINION RESEARCH CENTER

Center for Disease Control & Prevention Subaward Establish a Vision and Eye Health Surveillance System for the Nation

Aparna Lakkaraju, PhD

NIH/NEI

Mechanisms of Cellular Clearance in the Retinal Pigment Epithelium

MACULAR SOCIETY

Modulating Mitochondrial Dynamic in the Retinal Pigment Epithelium as a Therapeutic Strategy for Macular Dystrophies

BRIGHT FOCUS FOUNDATION

Can RPE-derived Exosomes Contribute to Subretinal Drusenoid Deposits?

Paul Kaufman, MD

GLAUCOMA RESEARCH FOUNDATION Gene Therapy for Glaucoma

RESEARCH TO PREVENT BLINDNESS

Trabecular Meshwork, Schlemm's Canal Drug, Gene Delivery via Minimally Invasive Glaucoma Surgery Devices

UNIVERSITY OF MIAMI

NEI Subaward Endogenous Lipid Protectants Against Neurodegeneration

Nader Sheibani, PhD

VITREORETINAL SURGERY FOUNDATION The Role of Beta-adrenergic Signaling in Neovascular Age-Related Macular Degeneration

Curtis Brandt, PhD

AMEBAGONE, INC NEI Subaward Biological Treatment of Bacterial Keratitis

Ron Danis, MD

GEORGE WASHINGTON UNIVERSITY NIDDK Subaward Treatment Options for Type 2 Diabetes in Adolescents and Youth 2 (TODAY 2)

KEY

Federal Funding:

NIH - National Institutes of Health NEI - National Eye Institute NIA - National Institute on Aging

- NIDDK National Institute of Diabetes an
- Digestive and Kidney Disease

CLINICAL AND RESEARCH FACULTY



Daniel M. Albert. MD. MS Frederick Allison Davis and Lorenz E. Zimmerman Professor & Chair Emeritus Ocular oncology, ophthalmic pathology, comprehensive ophthalmology



Michael M. Altaweel, MD Professor Retina, vitreous, macula, ocular melanoma



Richard E. Appen, MD Professor Emeritus Neuro-ophthalmology



Neal P. Barney, MD Professor Cornea & external disease, cornea & cataract surgery. uveitis, ocular immunology



Barbara A. Blodi, MD Professor, Director of the Fundus Photograph Reading Center Retinal diseases including macular degeneration and diabetic retinopathy



Yasmin S. Bradfield. MD Associate Professor, Associate Residency Program Director Pediatric ophthalmology & strabismus, pediatric glaucoma



Professor

gene therapy

Virology, cell & molecular

biology, genetic mapping

& recombinant techniques,

Cat N. Burkat. MD Associate Professor Ophthalmic reconstructive & cosmetic surgery



Suresh R. Chandra, MD Professor Emeritus Vitreoretinal disease, macular disease, ocular melanoma. trauma, international ophthalmology



Judy A. Chen. MD. PhD Assistant Professor Neuro-ophthalmology



Eugene D. Cropp, OD Clinical Optometrist Molecular/genetic studies Optometry of retinal degeneration in



Karen J. Cruickshanks, PhD Professor Epidemiology of age-related ocular disorders, hearing loss, diabetes



Janet Cushing, OD Clinical Optometrist Optometry







Matthew D. Davis, MD Professor Emeritus Vitreoretinal disease, diabetic retinopathy, clinical trials



Richard K. Dortzbach. MD Professor Emeritus Ophthalmic plastic & reconstructive surgery, surgical techniques



Thomas D. France, MD Professor Emeritus Pediatric ophthalmology & strabismus, amblyopia, visual function testing



Nansi Jo Collev. PhD

Professor

Drosophila

David M. Gamm, MD, PhD Associate Professor Pediatric ophthalmology & strabismus, retinopathy of prematurity, pediatric cataract surgery & intraocular lens implantation, pediatric

glaucoma



Justin L. Gottlieb. MD Professor Retina, vitreous, macula



Gregg A. Heatley, MD, MMM Associate Professor Vice-Chair/Clinical Glaucoma, anterior segment & cataract surgery



Michael S. Ip, MD Celeste K. Jend. OD Associate Professor Clinical Optometrist Vitreoretinal surgery for Optometry diabetic retinopathy and retinal detachment, treatment of agerelated macular degeneration, clinical trials research





Ronald E. Kalil, PhD Professor Neural cell death & repair after brain damage



Paul L. Kaufman. MD Professor Glaucoma, aqueous humor dynamics, anterior segment physiology & pharmacology, presbyopia



Marilyn Kay, MD Barbara E.K. Klein, MD, MPH Associate Professor Professor Neuro-ophthalmology Glaucoma, comprehensive ophthalmology, cataracts, diabetic retinopathy, epidemiology, preventive



Ronald Klein, MD, MPH Professor Vitreoretinal disease, diabetic retinopathy, age-related eve diseases, epidemiology



Tracy L. Klein, OD Clinical Optometrist Optometry



Daniel W. Knoch, MD Associate Professor Professor Emeritus Comprehensive ophthalmology, Pediatric ophthalmology cataract surgery & strabismus, amblyopia. surgical techniques





Aparna Lakkaraju, PhD Assistant Professor Retinal cell biology, pathogenesis of retinal degenerations identification of therapeutic targets



UW Department of Ophthalmology and Visual Sciences

medicine



Leonard A. Levin, MD, PhD Professor Neuro-ophthalmology, ganglion cell death



Assistant Professor Adult & pediatric glaucoma, cataract surgery, anterior segment surgery



Oculoplastic, cosmetic facial and orbital surgery



Julie A. Mares, PhD Professor Epidemiology of eye disease, nutritional epidemiology



Gillian McLellan, BVMS, PhD Assistant Professor Glaucoma pathogenesis and identification of new therapeutic targets



Mihai Mititelu, MD, MPH

Retinal vascular diseases,

Assistant Professor

age-related macular

degeneration, retinal dystrophies



Anna Momont, MD Assistant Professor Glaucoma, anterior segment surgery, optic nerve imaging



Sanbrita Mondal, OD Clinical Optometrist Optometry



Frank L. Myers, MD Professor Emeritus Retina



Sarah M. Nehls, MD Robert W. Nickells, PhD Associate Professor Vice-Chair/Education & Professor Vice-Chair/Research Faculty Development Molecular biology of cell death Refractive surgery, cornea in glaucoma & retinoblastoma & external disease, cornea & cataract surgery, uveitis



Michele M. Martin, OD

Clinical Optometrist

Optometry

T. Michael Nork, MD, MS Professor Diseases & surgery of the retina & vitreous



Nayan Patel, OD Clinical Optometrist Optometry



Richard W. Patterson, OD

Clinical Optometrist

Optometry



Arthur S. Polans, PhD Professor Cancer-related ocular pathologies



Heather A.D. Potter, MD Associate Professor Comprehensive ophthalmology, ophthalmic pathology, cataract surgery, refractive surgery



Patricia C. Sabb, MD Assistant Professor Comprehensive ophthalmology, Comprehensive ophthalmology, cataract surgery, refractive cataract surgery



Stephen K. Sauer, MD Melanie A. Schmitt, MD Associate Professor Assistant Professor Pediatric ophthalmology & strabismus, ophthalmic genetics



Nader Sheibani, PhD Professor Diabetic retinopathy. retinopathy of prematurity, animal models and retinal vascular cell biology and



Gary W. Sterken, MD Assistant Professor Comprehensive ophthalmology, cataract surgery, glaucoma





Michael C. Struck, MD Professor Pediatric ophthalmology & strabismus, retinopathy of prematurity, pediatric cataract surgery & intraocular lens implantation, pediatric glaucoma



John E. Temprano, MD Associate Professor Comprehensive ophthalmology, cataract surgery



Professor

William S. Middleton

Memorial Veterans Hospital Comprehensive ophthalmology, cataracts, ocular genetics

surgery

Andrew T. Thliveris, MD, PhD James N. Ver Hoeve, PhD Senior Scientist Vice Chair for Resident Visual electrophysiology Education Chief of Ophthalmology



Amy L. Walker, OD, MBA Clinical Optometrist Optometry



signal transduction

Terri Young, MD, MBA Peter A. Duehr Professor and Chair Pediatric ophthalmology & strabismus, ophthalmic genetics





RESIDENTS AND FELLOWS



CLASS OF 2018

Roman Krivochenitser, MD Dr. Roman Krivochenitser earned his BA in Accounting from Michigan State University, where he also earned his MD. Dr. Krivochenitser completed his PGY-1 internship year at Oakwood Hospital and Medical Center in Dearborn, Mich.



Angeline Wang, MD

Angeline Wang, MD

Dr. Angeline Wang earned her SB in Neuroscience at MIT in Cambridge Mass. Dr. Wang earned her MD from the University of Michigan in Ann Arbor, and completed her PGY-1 internship at Harbor-UCLA Medical Center in Torrance, Calif.



Jennifer Ciske Larson, MD

Dr. Jennifer Larson earned her BS in **Biomedical Sciences from Marguette** University. Dr. Larson received her MD and completed her PGY-1 internship year at the University of Wisconsin.

Paul Selid, MD

Dr. Paul Selid earned his BS in Chemistry from the University of North Dakota, where he also received his MD. Dr. Selid completed his PGY-1 internship year at the University of North Dakota.

Paul Selid, MD



CLASS OF 2017

Han Kim, MD Dr. Han Kim earned his BA in Biochemistry from Harvard University in Cambridge, Mass. Dr. Kim earned his MD from Washington University in St. Louis and completed his PGY-1 internship at Mercy Hospital-St. Louis.

Han Kim, MD



Alexander Ringeisen, MD Dr. Alexander Ringeisen earned his BS in Biology from the University of Wisconsin, and his MD from the University of Minnesota in Minneapolis. Dr. Ringeisen completed his PGY-1 internship at Gundersen Medical Foundation in LaCrosse, WI.

Alexander Ringeisen, MD



Brandon M. Metcalf, MD, MPH



Sapna Gangaputra, MD, MPH

CLASS OF 2016

Sapna Gangaputra, MD, MPH

Dr. Sapna Gangaputra earned her MD from Karnataka University and DO from Rajiv Gandhi University of Health Sciences, Karnataka India. Dr. Gangaputra received her MPH/PhD and was a post-doctoral fellow at Wilmer Eye Institute, Johns Hopkins University in Baltimore. She was an assistant scientist at the Fundus Photograph Reading Center, UW Madison and completed her PGY-1 year at Duke University in Durham, NC.



Jeremy Lavine, MD, PhD



Jeremy Lavine, MD, PhD

Chief resident

Dr. Jeremy Lavine earned his BA in molecular biology from Kenyon College, Gambier, Ohio. Dr. Lavine earned his PhD and MD from the University of Wisconsin-Madison and completed his PGY-1 internship at St. Luke's Medical Center in Milwaukee.

Brandon M. Metcalf, MD, MPH

Dr. Brandon Metcalf earned his BS from Washington College, Chestertown, Md. Dr. Metcalf earned his MPH at Johns Hopkins Bloomberg School of Public Health and MD from the School of Medicine at Johns Hopkins University, Baltimore, and completed his PGY-1 internship at MedStar Harbor Hospital in Baltimore.

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Paul S. Boeke, MD

Christopher K. Burris, MD

CLINICAL FELLOWS

Christopher K. Burris, MD

(Pathology) 2016

Paul S. Boeke, MD (Retina) 2017

Dr. Paul Boeke earned his BS with distinction from the University of Iowa in 2005 and MD from UI Carver College of Medicine in Iowa City in 2011. Dr. Boeke completed his ophthalmology residency training at the University of Missouri, Columbia.

Dr. Christopher Burris earned his BA at

his MD from Howard University College

pathology fellowship at Johns Hopkins, Baltimore in 2010, and a research

of Medicine, Washington, DC in 2009.

Dr. Burris completed an ophthalmic

fellowship from the London Ocular

Oncology Service in England in 2012.

residency training with a final year as

Dr. Burris completed his ophthalmology

the Chief Resident at Howard University

Emory University in 2004. He earned



Meisha Raven, DO (Pathology) 2016

Dr. Meisha Raven earned her BS from Grand Valley State University, Allendale MI and DO from A.T. Still University, School of Osteopathic Medicine in Mesa, Ariz. Dr. Raven joined the ocular pathology lab in June to begin a pre-residency fellowship.

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Maria Rodriguez, MD (Pathology) 2016 Dr. Maria Rodriguez earned her MD at the University of Zulia in Maracaibo, Venezuela in 2011. Dr. Rodriguez was a research scholar at the Bascom Palmer Eye Institute, University of Miami Miller School of Medicine and joined the ocular pathology lab in May to begin a pre-residency fellowship.

Maria Rodriguez, MD



Noah B. Saipe, MD (Cornea) 2016

Chicago Medical Center.

Dr. Noah Saipe earned his AB at Princeton University in Princeton, NJ in 2007 and his MD from Rush University Medical Center in Chicago in 2011. Dr. Saipe completed his ophthalmology residency training at the University of Wisconsin.

Noah B. Saipe, MD



Patrick P. Sassani, MD



Courtney Y. Kauh, MD

Courtney Y. Kauh, MD, MS (Oculoplastics) 2017

Hospital.

Dr. Courtney Kauh earned her BS at The University of Akron in Ohio in 2001 and MS at the Ohio State University in Columbus in 2006. Dr. Kauh earned her MD degree at the University of Toledo College of Medicine in Ohio in 2011 and recently completed her ophthalmology residency training at the University of Michigan.



Cajal K. Patel, MD (Glaucoma) 2016 Dr. Cajal Patel earned her BA and MD from the University of Missouri, Kansas City (2010/2011). Dr. Patel completed her ophthalmology residency training program at the Kresge Eye Institute in Detroit. She was chief resident in her senior year.

Cajal K. Patel, MD



SELECTED CLINICAL TRIALS

The Department of Ophthalmology and Visual Sciences Clinical Trials Unit coordinated 30 active trials in 2015. These studies receive support from the Department, industry partners and the National Eye Institute.

OHR-002 Phase 2 study of the efficacy and safety of squalamine lactate ophthalmic solution 0.2% administered twice daily in subjects with neovascular age-related macular degeneration

PI Michael Ip, MD Ohr Pharmaceutical, Inc

Multicenter, randomized, single masked Phase 2 study of intravitreal injections of Sirolimus in the treatment of central geographic atrophy associated with age-related macular degeneration

Pl Barbara Blodi, MD Santen Pharmaceutical Co., Ltd

A Phase 2b/3 multicenter, randomized, double-masked, doseranging study comparing the efficacy and safety of Emixustat Hydrochloride (ACU-4429) with placebo for the treatment of geographic atrophy associated with dry age-related macular degeneration

Pl Barbara Blodi, MD Acucela Pharmaceuticals

A Phase 3 randomized, double-masked, controlled trial to establish the safety and efficacy of intravitreous administration of Fovistatm (anti pdgf-b pegylatedAptamer) administered in combination with Lucentis® compared to Lucentis® monotherapy in subjects with subfoveal neovascular agerelated macular degeneration

PI Michael Ip, MD Ophthotech Corporation

CATT FS (Comparison of AMD Treatment Trials Follow-up Study) Describe long-term effects of treatment with intravitreal anti-VEGF agents on vision and retinal morphology

PI Mihai Mititelu, MD, MPH National Eye Institute

Study of Comparative Treatments for Retinal Vein Occlusion 2 [SCORE2]: A multicenter, prospective, randomized noninferiority trial of eyes with macular edema secondary to central retinal vein occlusion, comparing intravitreal bevacizumab every 4 weeks with intravitreal aflibercept every 4 weeks

PI Michael Altaweel, MD National Eye Institute Evaluation of Abicipar Pegol (AGN-150998) in patients with decreased vision due to diabetic macular edema *PI Michael Ip, MD Allergan, Inc*

A Phase III, multicenter, randomized, double-masked, shamcontrolled study of efficacy and safety of 10 mg Lampalizumab intravitreal injections administered every 30 or 45 days to patients with geographic atrophy secondary to age-related macular degeneration

PI Barbara Blodi, MD Roche-Genentech

A Phase 2 randomized double masked multicenter active controlled study evaluating administration of repeated intravitreal doses of hl-con1 in patients with choroidal neovascularization secondary to age-related macular degeneration

PI Barbara Blodi, MD Iconic Therapeutics Inc

A Phase I open-label, dose-escalating, multi-center trial to evaluate the safety and tolerability of topical ocular PAN-90806 in patients with neovascular age-related macular degeneration *PI Mihai Mititelu, MD, MPH Panoptica*

A two-year, randomized, double-masked, multicenter, threearm study comparing the efficacy and safety of RTH258 versus Aflibercept in subjects with neovascular age-related macular degeneration

Pl Michael Altaweel, MD Alcon

DRCR network protocol – M: Effect of diabetes education during retinal ophthalmology visits on diabetes control *PI Justin Gottlieb, MD National Eye Institute*

DRCR network protocol- T: A comparative effectiveness study of intravitreal Aflibercept, Bevacizumab and Ranibuzumab for diabetic macular edema

PI Justin Gottlieb, MD National Eye Institute DRCR network protocol - V: Treatment for central-involved diabetic macular edema in eyes with very good visual acuity

PI Justin Gottlieb, MD National Eye Institute

DRCR network protocol – U: Short term evaluation of combination corticosteroid + anti VEGF treatment of persistent central involved diabetic macular edema following anti VEGF therapy

PI Justin Gottlieb, MD National Eye Institute

A randomized trial of bilateral lateral rectus recession versus unilateral lateral rectus recession with medial rectus resection for intermittent exotropia

PI Yasmin Bradfield, MD National Eye Institute

Pilot study to assess the results of multifocal electroretinography and multifocal visual evoked potentials in patients with glaucoma

PI Yao Liu, MD Investigator-Initiated

A prospective, multicenter post-approval study of Visioncare's implantable miniature telescope in patients with bilateral severe to profound central vision impairment associated with endstage age-related macular degeneration

PI Sarah Nehls, MD Visioncare Ophthalmic Technologies, Inc.

Influence of lifelong dietary plant pigments on their density in the macula and vision function

PI Julie Mares, PhD Investigator-Initiated

A randomized, double masked parallel group, phenylephrine controlled study of the effect of OMS302 added to standard irrigation solution on intraoperative pupil diameter and acute postoperative pain in children ages birth through three years undergoing unilateral cataract extraction with or without lens replacement

PI Michael Struck, MD Omeros Corporation

Clinical and molecular analysis of genetic eye disorders *PI Terri Young, MD, MBA Investigator-Initiated* A prospective, double-masked, randomized, multi-center, active-controlled, parallel-group 12-month study assessing the safety and ocular hypotensive efficacy of PG324 ophthalmic solution compared to AR-13324 ophthalmic solution, 0.02% and Latanoprost ophthalmic solution, 0.005% in subjects with elevated intraocular pressure

PI Yao Liu, MD Aerie Pharmaceuticals

Bevacizumab against recurrent retinal detachment PI Michael IP, MD Investigator-Initiated

Vision response to dopamine replacement PI Michael Struck, MD Investigator-Initiated

The MacTel Study A natural history observation and registry study of macular telangiectasia Type 2

PI Barbara Blodi, MD The Lowy Medical Research Institute

Compare pupil reactivity to light stimulus in patients with optic nerve dysfunction to normal control subjects using computerized binocular infrared pupillography

PI Judy Chen, MD, PhD Investigator-Initiated

The MacTel Study A Phase 2 multicenter randomized clinical trial of ciliary neurotrophic factor (CNTF) for Macular Telangiectasia Type 2 **PI Barbara Blodi, MD**

The Lowy Medical Research Institute

LUNAR study A randomized, multicenter, double-masked, parallel group study comparing the safety and efficacy of BOL-303259-X 0.024% (latanoprostene Bunod) ophthalmic solution with timolol maleate ophthalmic solution 0.5% in subjects with open angle glaucoma or ocular hypertension

PI Yao Liu, MD Bausch & Lomb

Randomized, double-masked, vehicle controlled, clinical evaluation to assess the safety and efficacy of nepafenac ophthalmic suspension, 0.3% for improvement in clinical outcomes among diabetic subjects following cataract surgery

PI Heather Potter, MD Alcon

SELECTED PUBLICATIONS

Akuffo KO, Nolan JM, Howard AN, Moran R, Stack J, **Klein R**, **Klein BE**, Meuer SM, Sabour-Pickett S, Thurnham DI, Beatty S. Sustained supplementation and monitored response with differing carotenoid formulations in early age-related macular degeneration. Eye (Lond). 2015 Jul;29(7):902-12. PMID: 25976647.

Albert DM, Phelps PO, Surapaneni KR, Thuro BA, Potter HA, Ikeda A, Teixeira LB, **Dubielzig RR**. The significance of the discordant occurrence of lens tumors in humans versus other species. Ophthalmology. 2015 Jun 27. pii: S0161-6420(15)00511-4. PMID: 26130328.

Aref AA, Scott IU, Oden NL, **Ip MS**, **Blodi BA**, VanVeldhuisen PC; SCORE Study Investigator Group. Incidence, risk factors, and timing of elevated intraocular pressure after intravitreal triamcinolone acetonide injection for macular edema secondary to retinal vein occlusion: SCORE Study Report 15. JAMA Ophthalmol. 2015 Jun 18. PMID: 26086920.

Bacher JW, Sievers CK, Albrecht DM, Grimes IC, Weiss JM, Matkowskyj KA, Agni RM, Vyazunova I, Clipson L, Storts DR, **Thliveris AT**, Halberg RB. Improved detection of microsatellite instability in early colorectal lesions. PLoS One. 2015 Aug 7;10(8):e0132727. PMID: 26252492.

Bagheri A, Soheili ZS, Ahmadieh H, Samiei S, **Sheibani N**, Astaneh SD, **Kanavi MR**, **Mohammadian A**. Simultaneous application of bevacizumab and anti-CTGF antibody effectively suppresses proangiogenic and profibrotic factors in human RPE cells. Mol Vis. 2015 Apr 10;21:378-90. PMID: 25883524.

Bartels CM, Wong JC, Johnson SL, Thorpe CT, **Barney NP**, **Sheibani N**, Smith MA. Rheumatoid arthritis and the prevalence of diabetic retinopathy. Rheumatology (Oxford). 2015 Aug;54(8):1415-9. PMID: 25731768.

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Chacko BG, Edwards MS, Sharrett AR, Qureshi WT, **Klein BE**, **Klein R**, Herrington DM, Soliman EZ. Microvasculature and incident atrioventricular conduction abnormalities in the Multi-Ethnic Study of Atherosclerosis (MESA). Vasc Med. 2015 May 21. pii: 1358863X15586475. PMID: 25999364.

Crowe ME, Lieven CJ, Thompson AF, **Sheibani N**, **Levin LA**. Borane-protected phosphines are redox-active radioprotective agents for endothelial cells. Redox Biol. 2015 Jun 26;6:73-79. PMID: 26188467. **Cruickshanks KJ**, Dhar S, Dinces E, Fifer RC, Gonzalez F 2nd, Heiss G, Hoffman HJ, Lee DJ, Newhoff M, Tocci L, Torre P 3rd, **Tweed TS**. Hearing impairment prevalence and associated risk factors in the Hispanic Community Health Study/Study of Latinos. JAMA Otolaryngol Head Neck Surg. 2015 Jul 1;141(7):641-8. PMID: 26021283.

Cruickshanks KJ, Nondahl DM, Dalton DS, Fischer ME, Klein BE, Klein R, Nieto FJ, Schubert CR, Tweed TS. Smoking, central adiposity, and poor glycemic control increase risk of hearing impairment. J Am Geriatr Soc. 2015 May;63(5):918-24. PMID: 2595319.

Danesh-Meyer HV, **Levin LA**. Glaucoma as a neurodegenerative disease. J Neuroophthalmol. 2015 Sep;35 Suppl 1:S22-8. PMID: 26274833.

Dawes P, **Cruickshanks KJ**, **Fischer ME**, **Klein BE**, **Klein R**, **Nondahl DM**. Hearing-aid use and long-term health outcomes: Hearing handicap, mental health, social engagement, cognitive function, physical health, and mortality. Int J Audiol. 2015 Jul 3:1-7. PMID: 26140300.

Dawes P, **Cruickshanks KJ**, Moore DR, Fortnum H, Edmondson-Jones M, McCormack A, Munro KJ. The effect of prenatal and childhood development on hearing, vision and cognition in adulthood. PLoS One. 2015 Aug 24;10(8):e0136590. PMID: 26302374.

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