

Building on foundation of teaching excellence

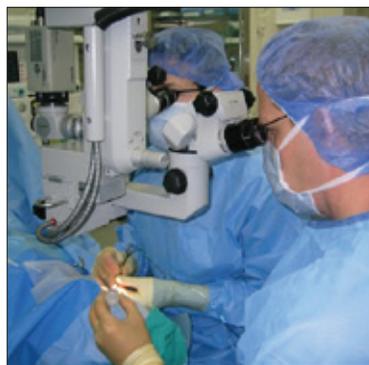
RESIDENCY PROGRAM TO BENEFIT FROM NEW PROFESSORSHIP

“Education is the most powerful weapon which you can use to change the world.”

Nelson Mandela

One of the primary missions of an academic medical center is education. For the University of Iowa Department of Ophthalmology and Visual Sciences this means providing an environment and experience that encourages lifelong learning, fosters intellectual curiosity and collaboration, and values moral and ethical behavior. It involves providing the best possible preparation for resident physicians to take their next career step, which typically means joining a private practice or training through a fellowship before practice or an academic career.

“Iowa has long valued education and teaching, and our faculty pride themselves in helping our residents become excellent practitioners and continuous learners. We want residents to receive a broad comprehensive background in ophthalmology and develop research skills to make them better clinicians,” states residency program director **Thomas Oetting, MD** (‘95R, pictured above).



The importance and value of education was not lost on department alumnus **Rodolfo “Rudy” Perez, Jr., MD** (‘77R, ‘78F). Perez completed his residency and retina fellowship at the University of Iowa under the guidance of his men-

tors, **Frederick Blodi, MD**, and **Robert Watzke, MD**. He practiced ophthalmology in southern Texas while his spouse, Margaret, taught language arts and English.

“My ophthalmology residency and fellowship in retina at Iowa have been central to my career in ophthalmology. I had the best training one could hope for and was able to offer quality care to my patients in an underserved area,” says Perez.

After 37 years practicing medicine, he retired and the couple relocated to Colorado. They recently had an opportunity to return to the UI campus to see what was taking place in the residency program and visit with faculty and residents. Perez was pleased to see the commitment to teaching excellence remained since his time in Iowa City and that the department continues to seek better ways of preparing trainees for the changing face of today’s health care. “While in town, we sat in on Morning Rounds in the auditorium, and I was gratified to learn that Rounds still occurred on a daily basis,” adds Perez.

The couple was inspired to create the *Rodolfo N. Perez, Jr., MD and Margaret Perez Professorship in Ophthalmology Education* through an estate gift. The Perezes feel the endowed professorship is a fitting way to fulfill their values of giving and promoting education. “It provides us a role in perpetuating and improving the training of current and future ophthalmology residents,” Perez says.

An endowed position for ophthalmology education is uncommon and considered valuable at a time when medical education funding is stretched. Inaugural holder of the position **Thomas Oetting, MD** comments, “We have a very simple

“Teaching” continues on page 8

IN THIS ISSUE:

CLINICAL RESEARCH AT UI

PROFILE OF A STUDY COORDINATOR

The Department of Ophthalmology and Visual Sciences has a group of certified and trained staff conducting clinical research within the Eye Clinic. These team members help our physicians identify, recruit, and follow patients in clinical trials involving treatments, medications, or medical devices. Clinical research coordinators also conduct diagnostic testing and assist with the care of patients enrolled in clinical trials.



BARB TAYLOR, CCRC, COA

What does the 'CCRC' in your title designate, and how does someone obtain that certification?

COA is certified ophthalmic assistant and CCRC is certified clinical research coordinator. The Association of Clinical Research Professionals grants the CCRC certification for meeting specific educational requirements, a certain number of work hours in research, and upon successfully passing a written exam that covers all aspects of ethical and responsible clinical research. I met the educational requirement by having a bachelor's degree. I passed the written exam in 2007 and have maintained my certification with continuing education.

How long have you been in the department and involved in clinical research in the Eye Clinic?

I started working in ophthalmology research in July 2004, so I'm going on 13 years already!

How would you describe your position??

Every day is different in this position. I have five studies now where I am the primary study coordinator, so I juggle schedules with patients, physicians, refractionists and visual acuity specialists, photographers, imagers, techs, nurses, pharmacists, and outside study monitors. I've performed many refractions and visual acuity tests, taken intraocular pressures, instilled drops, etc. I record study data and make sure we are conducting research according to the protocol. There is paperwork involved with starting, continuing, and finishing a study. We have ongoing training, as there is always something to learn. I most recently learned how to use a microperimeter and how to measure corneal curvature.

What do you enjoy most about work?

I really enjoy working with all the study patients, especially the ones with age-related macular degeneration. It is rewarding to watch people benefit from some of our studies. I also enjoy working with the physicians and my co-workers.

What is an interesting project or study that you're working on now?

I am most excited about the new GALA (geographic atrophy lipoic acid) trial we just started. We're hoping to slow down the progression of dry macular degeneration. Except for the AREDS2 eye supplements, we don't have anything to treat the dry form of AMD. So far, the participants are excited about it, and we'll know more in about two years. I am always hopeful that the next study will be the one to make a breakthrough.



U.S. News recognizes UI Hospitals and Clinics

The Department of Ophthalmology and Visual Sciences remains among the best ophthalmology programs in the United States, according to *U.S. News & World Report*. The publication released its annual rankings for 2016-17 listing UI Hospitals and Clinics at No. 7 nationally.

UI Hospitals and Clinics is nationally ranked in seven adult specialties and eight pediatric specialties.

A complete list of all rankings may be found at usnews.com/besthospitals

ONLINE EXTRA

Are you at risk for glaucoma? Find out more about the condition, who is at risk, and the latest treatments available at University of Iowa Hospitals and Clinics online at vimeo.com/200363436



ERG suite makeover

One of the key ancillary services in the Eye Clinic at UI Hospitals and Clinics is the Electrophysiology Service that we offer. This expanding service recently modified their space to improve access and testing capabilities for our patients and referring physicians.

Electrophysiology testing includes an array of tests that can be used to provide information about the visual system beyond the standard clinical examination of the eye. The primary objective is to assess the function of the visual pathway from the photoreceptors of the retina to the visual cortex of the brain.

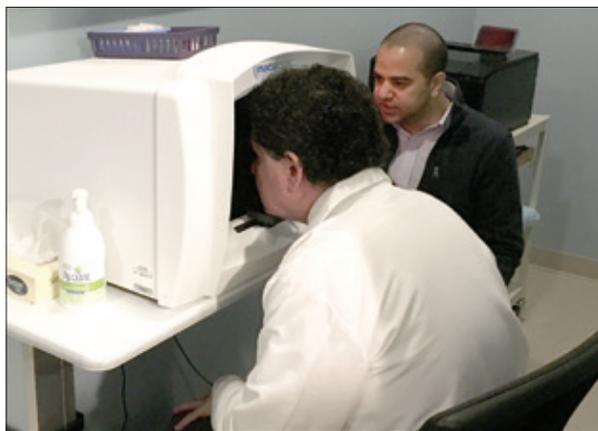
Information obtained from these diagnostic tests helps establish the correct diagnosis or may rule out related ophthalmic diseases. Additionally, electrophysiologic testing is useful in diagnosing a variety of inherited retinal and optic nerve diseases, toxic drug exposure, inflammatory conditions, intraocular foreign bodies, and retinal vascular occlusions.

This type of testing is performed most often in large referral centers that have expertise in obtaining and interpreting the results. The data collected are used in conjunction with the clinical examination and other tests such as perimetry, optical coherence tomography (OCT), and dark adaptometry to establish a correct diagnosis.

The UI Electrophysiology Service specializes in a number of tests that include standardized full-field electroretinography (ERG), multifocal electroretinography (mfERG or mERG),



New space features two separate rooms inside the Kolder Electrodiagnostic Laboratory, as well as an additional ERG machine. The service has quadrupled in activity from providing 60 tests per year in 2010 to 255 tests during 2016.



full-field stimulus testing (FST) which measures how well the retina of the eye responds in the dark, and the AdatpDx, which tests dark adaptation just in the macula and may be able to detect very early age-related macular degeneration.

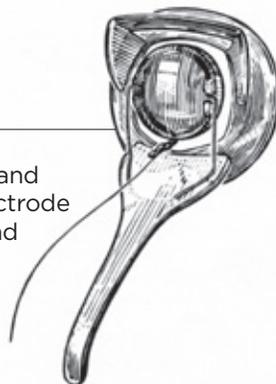
Patients who have had ERG testing in the past are often concerned about having the test again due to the uncomfortable contact lens electrodes that used to be required. These lenses, called Burian-Allen lenses, represented the “gold standard” for many years. However, a new, hair-thin type of contact lens electrode, called a DTL, can achieve equivalent clinical results and is much easier for patients, even many young children. The use of these electrodes has greatly decreased the need to put children under anesthesia for the test. If a child is too young to cooperate, however, ERG testing under anesthesia can be performed. Photographs of a child having an ERG performed can be found at DrackResearch.org and

are helpful to ease concern in parents and children prior to having the test.

The service is led by associate professor of ophthalmology **Arlene V. Drack, MD**, and staffed by **Wanda Pfeifer, OC(C),COMT**, and **Sajag Bhattarai, MS**. **For more information or to arrange a consultation, contact 319- 356-1985 or wanda-pfeifer@uiowa.edu**

I DID YOU KNOW?

Electrodes used in ERG testing include the DTL™ Plus Electrode and the Burian-Allen Electrode. Created in 1954, the Burian-Allen Electrode (see Figure 1) is named after former University of Iowa faculty and developers **Hermann Burian, MD** and **E. Lee Allen, BCO**.



Speculum Contact Lens from Burian HM, Allen L. “A speculum contact lens electrode for electroretinography.” EEG Clin Neurophysiol., 1954; 6:509-511. (Modified)

Graduation 2016



Graduating residents pictured left to right

- Johanna Beebe, MD** - Neuro-Ophthalmology Fellowship, University of Iowa
- Philip Niles, MD, MBA** - Vitreoretinal Surgery Fellowship, University of Toronto
- P. Christi Carter, MD** - Alamo City Eye Physicians, San Antonio, Texas
- Christopher Kirkpatrick, MD** - Davis Deuhr Dean Eye Care, Madison, Wis.
- David Phillips, MD** - Glaucoma Fellowship, Moran Eye Center, University of Utah, Salt Lake City

Graduating fellows with new location



Andrew Carey, MD - Wilmer Eye Institute, Johns Hopkins University, Baltimore, Md.



C. Nathaniel Roybal, MD, PhD - Eye Associates of New Mexico, Albuquerque, N.M.



Jiaxi Ding, MD - Carolina Eye Associates, Greensboro, N.C.



Chauhni Van, MD - Ophthalmology Residency, St. Vincent Hospital, Worcester, Mass.



Yasser Elshatory, MD, PhD - Eye Surgeons Associates, Bettendorf, Iowa



Jesse Vislisel, MD - Associated Eye Care, Stillwater, Minn.



Rachel Mercer, MD - Midwest Eye Care, Omaha, Neb.



Matthew Weed, MD - Spokane Eye Clinic, Spokane, Wash.



Orthoptic Program Graduates

- Tony Klauer, CO** - Lurie Children's Hospital, Chicago, Ill.
- Tori Rausch, CO** - Children's Mercy Hospital, Kansas City, Mo.

Class of 2019 first-year residents



Pictured left to right:

Stephanie Lynch, MD

BS, Yale University, New Haven, Conn.
MD, University of California, San Francisco

Brittini Scruggs, MD, PhD

BS, Trinity University, San Antonio, Texas
PhD, Tulane University Graduate Program in Biomedical Science, New Orleans, La.
MD, Tulane University School of Medicine, New Orleans, La.

Aaron Ricca, MD

BSME, University of Arkansas, Fayetteville, Ark.
MD, University of Arkansas for Medical Sciences, Little Rock, Ark.

Daniel Terveen, MD

BS, University of Sioux Falls, Sioux Falls, S.D.
MD, University of South Dakota Sanford School of Medicine, Sioux Falls, S.D.

Spenser Morton, MD

BS, Pennsylvania State University, State College, Penn.
MD, Sidney Kimmel Medical College, Thomas Jefferson University, Philadelphia, Penn.

Fostering excellence in teaching

Each year medical students and residents select the best teachers. The 2016 awardees include:

Medical Student Teaching Awards:

Johanna D. Beebe, MD (Resident)
Andrew Carey, MD (Fellow)
Daniel Bettis, MD (Faculty)

Resident Teaching Awards:

Harinderpal Chahal, MD (Fellow)
Jesses Vislisel, MD (Fellow)
James C. Folk, MD (Faculty)



Graduating resident physician, P. Christi Carter, MD (right), was awarded the Stacy Thompson Resident Leadership Award at the 2016 Graduation ceremony.

New fellows



Michelle Boyce, MD – Cornea, External Disease and Refractive Surgery
MD, Saint Louis University School of Medicine, Saint Louis, Mo.
Residency, University of Kansas Medical Center, Prairie Village, Kan.



Christine Clavell, MD – Medical Retina
MD, SUNY Downstate College of Medicine, Brooklyn, N.Y.
Residency, Rutgers-New Jersey Medical School, Newark, N.J.



Maria Foley, MD – Ocular Pathology
MD, Lisandro Alvarado University, Venezuela
Residency, Universidad Central de Venezuela, University Hospital of Caracas, Caracas, Venezuela
Fellowship, Ophthalmic Plastic and Reconstructive Surgery, Centro Medico Docente La Trinidad, Francisco A. Rísquez Hospital, Caracas, Venezuela



Jason Kam, MD – Glaucoma
MD, University of Illinois College of Medicine
Residency, University of Washington School of Medicine, Seattle, Wash.



Sun Young Lee, MD, PhD – Surgical Retina
MD, Pusan National University School of Medicine, Pusan, South Korea
PhD, Medicine, College of Medicine, University of Ulsan, Seoul, South Korea
Residency, Asas Medical Center, University of Ulsan, Seoul, South Korea
Fellowship, Vitreoretinal, University of Ulsan, Asan Medical Center, Seoul, South Korea
Fellowship, Postdoctoral, Wilmer Eye Institute, Johns Hopkins University School of Medicine, Baltimore, MD
Residency, USC Keck School of Medicine, Los Angeles, Calif.



Orwa Nasser, MD, MPH – Pediatric Ophthalmology
MD, The Hebrew University Hadassah Medical School, Jerusalem, Israel
MPH, Braun School of Public Health and Community Medicine, Hebrew University, Jerusalem, Israel
Residency, Bnai Zion Medical Center, Haifa, Israel
Fellowship, Pediatric Ophthalmology, Akron Children's Hospital, Akron, Ohio



James Peairs, MD – Surgical Retina
MD, Boston University School of Medicine, Boston, Mass.
Residency, George Washington University Medical Center, Washington, D.C.

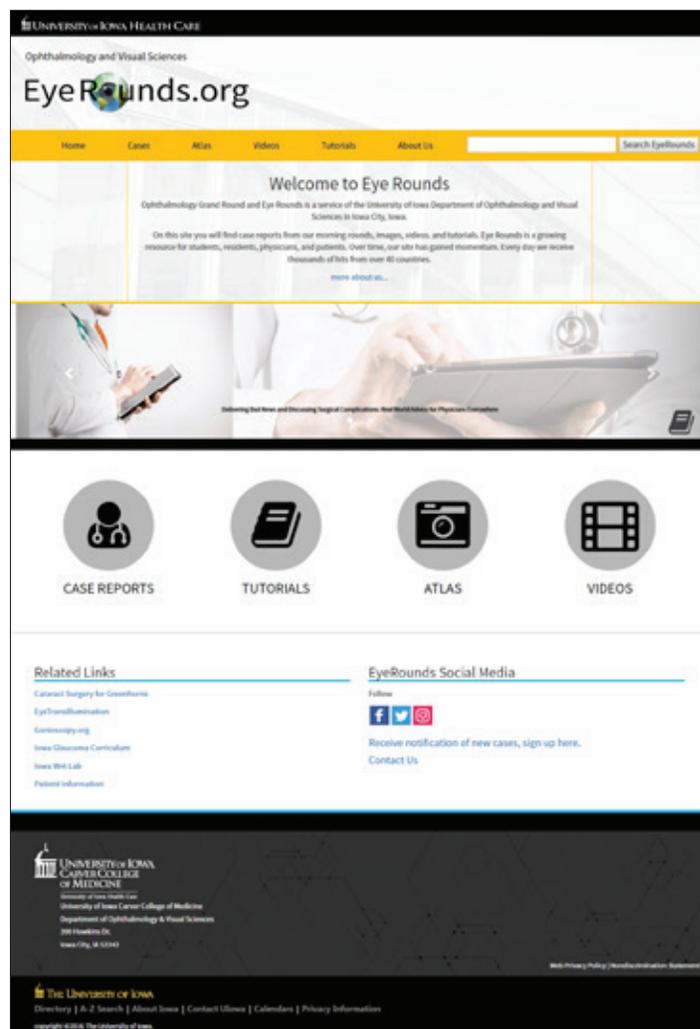


Shira Simon, MD, MBA – Neuro-Ophthalmology
MBA, Harvard Business School, Boston, Mass.
MD, Harvard Business School, Boston, Mass.
Residency, Northwestern Hospital, Chicago, Ill.

New look, same great content

The website known as EyeRounds has undergone a redesign to improve usability. This popular site provides case reports from the University of Iowa Morning Rounds series, images, videos, tutorials, and more! Content spans a host of eye diseases and conditions, as well as other topics of interest.

EyeRounds is a growing resource for students, residents, physicians, and patients. The site is provided by the University of Iowa Department of Ophthalmology and Visual Sciences and receives funding through the Iowa Eye Association.



ONLINE EXTRA

Residency program director **Thomas Oetting, MD**, and colleagues highlight the benefits associated with integrating the internship year into ophthalmology residency training. **Read the white paper at ncbi.nlm.nih.gov/pubmed/27423312**

Evaluating career and practice opportunities

Ophthalmology practice management consultant John Pinto (center right) visited the department last fall to meet with residents and fellows. Known for his “little green book for ophthalmologists,” Pinto provided a customized seminar series on a variety of topics related to choosing a career opportunity. The training is part of the department’s ongoing efforts to better prepare residents and fellows for business and practice choices during their careers.

The five-part series was videotaped and is available as complimentary content on EyeRounds, the education website for ophthalmic learners. **Check out eyerounds.org**



Establishment of new fellowship

The department received approval to move forward with the establishment of a one-year Retinal Clinical and Molecular Research Fellowship under the direction of **Elliott Sohn, MD**.

The new fellowship blends clinical and research exposure in adult retinal diseases (especially those with genetic dimension) following residency or surgical retina fellowship. It offers trainees an opportunity to further explore their interest in retinal research and molecular ophthalmology. The first individual to pursue this fellowship is current vitreoretinal surgery fellow **Elaine Binkley, MD**.

ALUMNICORNER



Resource for alumni

A new website has been created for the Iowa Eye Association, an alumni-based organization that supports the education and mission of the University of Iowa Department of Ophthalmology and Visual Sciences. The site provides event information, access to the alumni directory, online dues payment, and more. **Visit iowaeye.org**

Thank you to the alumni and area ophthalmologists who continue to support the Iowa Eye Association! Dues provide vital support of the training program and the educational resources we make available to future ophthalmologists and broader ophthalmology community.

If you have yet to make a dues contribution and would like us to send you another dues notice, please let us know. Alternatively, you may use our secure online option for dues payment at iowaeye.org

Contact Joe Schmidt at 319-384-8529 or joe-schmidt@uiowa.edu

Academy recognition

Congratulations to the following alumni, faculty, and lowa ophthalmologists for their recognition by the American Academy of Ophthalmology (AAO).

LIFE ACHIEVEMENT AWARD

- **Keith D. Carter, MD** ('88F, current faculty)
- **Andrew G. Lee, MD** (former faculty 2000-09). Lee also becomes president-elect of the North
- **Mark J. Mannis, MD** ('80F)

SENIOR ACHIEVEMENT AWARD

- **Young H. Kwon, MD, PhD** (current faculty)
- **Louise A. Mawn, MD** ('95R)
- **Lawrence Tychsen, MD** ('83R)
- **David D. Verdier, MD** ('84F)

ACHIEVEMENT AWARD

- **Mark Greiner, MD** (current faculty)
- **Jason J. Jones, MD**
- **Elliott H. Sohn, MD** (current faculty)

Several individuals were selected for Becker's ASC Review "51 Ophthalmologists to Know":

- **Sean P. Donahue, MD, PhD** ('94F, '95F)
- **Jane C. Edmond, MD** ('90F)
- **Edward J. Holland, MD** ('85F)
- **Andrew G. Lee, MD** (former faculty 2000-09)
- **Richard A. Lewis, MD** ('83F)
- **Thomas A. Oetting, MD** ('95R, current faculty)

Congratulations to our alumni and colleagues for their accomplishments and dedication on behalf of the field of ophthalmology. If you receive a special award or distinction, let us know. Email us at iowaeyecare@uiowa.edu



Other Alumni Notes

- ❖ **Jordan Graff, MD, FACS** (top left in above image), was selected as a 2016 Fellow of the American College of Surgeons. Graff, an Iowa Eye Alumni Advisory Council member, returned to Iowa City for a "Lunch and Learn" session with a captive audience of resident trainees.
- ❖ **Byron L. Lam, MD** ('90R), was awarded the Robert Z. and Nancy J. Green Chair in Ophthalmology at Bascom Palmer Eye Institute.
- ❖ **Amy Maltry, MD** ('13R, '14F), was named "Best Teaching Faculty" and was awarded the Krachmer Surgical Teaching Award for excellence in surgical teaching at the University of Minnesota.
- ❖ Coe College in Cedar Rapids, Iowa recognized **Bruce Spivey, MD, MS, MEd** ('59MD, '64MS, '64R) with the college's 2016 Award of Merit.

Remembrances

- ❖ **R. Josef Hofmann, MD** ('54BA), passed away on Aug. 27, 2016, in Bettendorf, Iowa
- ❖ **John A. Puk, MD**, father of Iowa ophthalmologists David Puk, MD ('92MD) and Michael Puk, MD ('89MD), died on Nov. 7, 2016, Cedar Rapids, Iowa.
- ❖ The University of Iowa and Department of Ophthalmology and Visual Sciences lost a dear friend and key supporter. **Jim O'Brien Gross** passed away in Aug. 12, 2016 in Boulder City, Nevada. Gross is grandson of Dr. C.S. O'Brien, the first chairman of the department. He and members of the Gross family supported the funding of the Lillian C O'Brien and Dr. C.S. O'Brien Chair in Ophthalmology, an endowed position held by professor and chairman, **Keith Carter, MD.**

mission – to produce the very best ophthalmologists in the country. This professorship is a wonderful way to stay on track and stay focused on our mission of teaching.”

Success in our education mission is reflected by the impact that training has on our resident and fellow physicians. This impact translates to each of our alumni, providing the best possible care for their eventual patients and changing the world in their own unique ways.



Rudy and Margaret Perez returned to Iowa City to participate in a special Investiture Ceremony in recognition of the professorship established in their name.

“Iowa has a long-standing tradition of excellence in ophthalmology and in teaching, and I was fortunate to be a beneficiary of this training. We felt it was important to support the institutions that have been most important to our lives. So we chose to make an impactful gift to the ophthalmology program in Iowa.”

Rudy Perez, Jr., MD

Celebrating a commitment to education and vision research

Distinguished guests joined faculty and staff of the Department of Ophthalmology and Visual Sciences for an investiture ceremony recognizing the department’s commitment to ophthalmic education and vision research.

Three faculty accepted endowed positions created through the generosity of grateful patients, alumni, and other supporters of the department. Those recognized included:

- **Scott A. Larson, MD**, who was selected for the *William E. Scott Professorship in Pediatric Ophthalmology*
- **Thomas A. Oetting, MD**, who was selected for the *Rodolfo N. Perez, Jr, MD, and Margaret Perez Professorship in Ophthalmology Education*
- **Michael D. Wagoner, MD, PhD**, who was named the *Beulah and Florence Usher Chair in Cornea/External Disease and Refractive Surgery*

The department currently has 18 endowed positions that are filled. These named chairs and professorships allow the University of Iowa to attract and retain top physicians, educators, and vision researchers.

Video footage of the ceremony is at vimeo.com/185801454



Other endowed professors and chairs of the department include:

Front Row: Young Kwon, MD, PhD; Scott Larson, MD; Michael Wagoner, MD, PhD; Ed Stone, MD, PhD; H. Culver Boldt, MD; Arlene Drack, MD

Back Row: Stephen Russell, MD; Thomas Oetting, MD; Lee Alward, MD; Keith Carter, MD; James Folk, MD; Val Sheffield, MD, PhD

(not pictured: Michael Abramoff, MD, PhD; Thomas Casavant, MS, PhD; Randy Kardon, MD, PhD; Robert Mullins, MS, PhD; Todd Scheetz, MS, PhD; and Budd Tucker, PhD)

Reached our goal!

The Department of Ophthalmology and Visual Sciences and UI Stephen A. Wynn Institute for Vision Research concluded a successful philanthropic campaign that saw \$127 million raised toward our mission. The amount exceeded the department and Wynn Institute’s ambitious \$125 million goal set nearly eight years ago.

Donations from 7,883 grateful patients, alumni, organizations, and friends of the department were received to support collaborative research, endowed professorships and chairs, superior medical education for residents and fellows, and excellence in patient care.

“We are thrilled and grateful to have received such tremendous support of our eye program from so many individuals! The generosity of our donors and alumni move us even closer to being the best program in the country,” states professor and department chairman **Keith Carter, MD**.

“Philanthropic support is very important to all aspects of academic medicine. Gifts such as those made by Mr. (Stephen) Wynn and many others are allowing us to aggressively pursue treatments for all forms of heritable blindness regardless of the rarity of each individual condition,” says **Edwin Stone, MD, PhD**, the Seamans-Hausser Chair of Molecular Ophthalmology and director of the UI Stephen A. Wynn Institute for Vision Research.



Perhaps serendipitously, the gift that lifted the department past the goal came from the late Jim Gross O’Brien and his widow, Donnita Gross, of Boulder City Nevada, who have a long history with the department. Jim’s grandfather C.S. O’Brien was the founder and head of the department for nearly 25 years. The family established the *Lillian C. O’Brien and Dr. C.S. O’Brien Chair in Ophthalmology*

which is currently held by Carter. Nearing the official end of the campaign, Donnita continued the passion of her late husband by committing a deferred estate gift in support of education and faculty retention.

The department raised one of the largest amounts among colleges and academic units in the University of Iowa’s *For Iowa. Forever More. Campaign* which raised \$1.975 billion in total.

More information at
uifoundation.org/press/fifm-close/



Keith Carter remarked about the importance of philanthropy in the UI’s sight-saving efforts during a campaign press release event held in the Old Capitol Senate Chamber on campus.



The University of Iowa Foundation

To learn more about how philanthropic support helps advance the work of the UI Department of Ophthalmology and Visual Sciences and Stephen A. Wynn Institute for Vision Research, please contact:

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 Iowa City, IA 52244-4550
 319-335-3305 or 800-648-6973

The UI acknowledges the UI Foundation as the preferred channel for private contributions that benefit all areas of the university. For more information or to make a donation in support of the eye program, visit the UI Foundation’s secure website at givetoioowa.org/eye

If you do not want University of Iowa Health Care to contact you for fundraising efforts based on your status as a patient, please contact the University of Iowa Hospitals and Clinics Privacy Officer at 1-800-777-8442.

Exploring foveal differences may lead to better therapies for AMD

Researchers from the UI Stephen A. Wynn Institute for Vision Research are using novel RNA sequencing technology and innovative strategies to discover molecular differences between foveal cones and extrafoveal cells. Their efforts

stem from a new R21 grant award by the National Eye Institute of the National Institutes of Health that provides \$228,750 in support during the initial year. The project is directed by **Todd Scheetz, MS, PhD**, professor of ophthalmology and biomedical engineering.

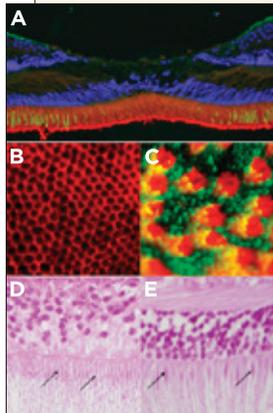


Figure: Structural distinctions of foveal cones.

Immunohistochemical analysis of human retinas with antibodies directed against rhodopsin (green) and peanut agglutinin (red) reveal the rod free zone of the fovea, with displacement of inner retinal neurons out of the foveal pit (A); close packing of foveal (B) compared to peripheral (C) cones; and the narrow, non-tapering foveal (D) compared to peripheral (E) cones (arrows).

Research is expected to be important for several reasons. First, foveal cones are considered the most important cells for visual acuity, and hence are critical targets for gene augmentation therapy. A better understanding of their physiology will be important for the development of stem cell-directed therapies. Foveal cones persist for years in some patients with AMD, leaving a ring scotoma but good acuity, so understanding why they survive may lead to approaches to help rescue other photoreceptor cells from degeneration. Research may also help determine the mechanism underlying the delayed dark adaptation phenotype in AMD patients. These latter outcomes will improve the accuracy of the clinical prognosis for AMD patients, lead to new avenues of investigation to delay vision loss, and extend the lifetime of visual acuity in patients with AMD.

“We know that foveal cones are structurally distinct from cone photoreceptors found outside the fovea, and are critical to our high acuity vision, but to date no one has investigated the molecular differences that underlie these differences. Understanding what sets foveal cones apart will be critical as we move forward with gene- and cell-based therapies to restore vision in patients. Iowa is one of the few places that has the personnel, resources, and technologies to investigate the molecular profile of foveal cone photoreceptors with single-cell technologies,” says Scheetz.

Looking for answers in

Adapted from story by Laura Shoemaker

One of the most traumatic life events any individual can face is losing a child – especially an infant. It is a heartbreaking loss that seems senseless and unnatural. Many families find donation can help with the journey of grief and loss, but unfortunately, there are limited donation opportunities for families who lose an infant. Their organs, eyes, and tissues are typically not developed enough to be used for transplant.

However, since 2013, seven eastern Iowa families have found comfort and peace in knowing that their children’s eyes will benefit the Infant Globe Project, an Iowa Lions Eye Bank (ILEB) research project being conducted at the University of Iowa Stephen A. Wynn Institute for Vision Research (WIVR). Researchers are seeking to learn the mechanism of how the fovea – the part of the retina that is responsible for our sharpest vision – normally forms and why it fails to develop in some children.

Professor of ophthalmology and lead researcher on the project, **Robert Mullins, MS, PhD**, explains, “We currently know very little about the anatomical and molecular development of the fovea, which develops in the first few months after birth, so the donation of these precious infant eyes is critical to this research. A better understanding of the fovea is essential for developing treatments for children in whom the fovea doesn’t form properly.”

Fluorescence microscopy of the newborn macula shows the presence of rod photoreceptor cells (labeled in green) and three layers of cell nuclear (labeled in blue). Studying the formation of the fovea in these eyes is providing insight into



the eyes of an infant

macular diseases. Before the inception of the Infant Globe Project, eye donation was not an option for infants who died in the state of Iowa. Mullins is grateful this research project has provided grieving families with the opportunity to donate. “In situations where the parents are very motivated to donate and it will help them cope with a terrible situation, we are truly glad to be a part of that,” he says.

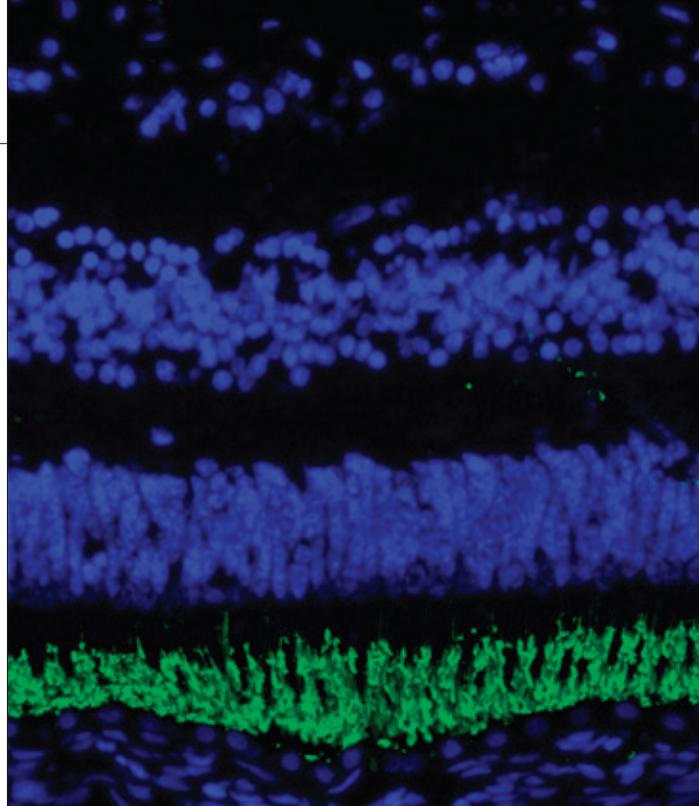
Adrianna Morgan became one of these highly motivated parents when her infant daughter, Olivia, died in May 2016. “Our decision to donate was immediate, and I don’t regret it at all. My mother made the same decision for my brother when he died,” says Morgan.

In 2013, Matthew and Mary Rysavy, who were both medical students at the University of Iowa when their son Samuel died at only four days old, also decided to donate to the Infant Globe Project. “Working at the hospital, we encountered so many individuals who had benefited from donation to transplant and research. Even though it was a difficult time for us, we felt that it was a great way to honor Samuel’s life in hopes of benefiting someone else,” says Mary.

Mullins acknowledges the great sacrifice parents like Morgan and the Rysavys have made and how this changes his approach to research, “As researchers, we often work on mice and cultured cells, and the science can be pretty impersonal. Working with human tissue has a much different dynamic – many of our adult donors were grateful patients at the Department of Ophthalmology and Visual Sciences, and their families are often interested in helping with our studies,” says Mullins. “While we treat all our samples with the utmost respect and care, I consider the Infant Globe Project donations even more precious, especially knowing someone is undergoing the horrific loss of a child. We take the stewardship of these tissues very seriously and are careful to maximize their use to ultimately help as many people as possible.”

Adam Stockman, director of laboratory operations at Iowa Lions Eye Bank, has recovered the globes of each of the seven infant donors. The father of three children of his own, Stockman has great empathy for the families of the infants who have donated to the project. “I can only imagine how hard it must be for these families to lose a child. Many of these families were first-time parents; some had been trying for years for their miracle baby, only to lose them,” Stockman says.

Despite the sensitive nature of the Infant Globe Project, Mullins and Stockman continue to persevere because they trust that it will lead to clinical advancements in treatments for visual disabilities.



Electron micrograph showing developing vascular cells in the eye of a newborn.

“I have faith that Dr. Mullins and the other researchers at WIVR will find answers through their research, and that’s what keeps me going – knowing something might be learned that can help other children,” says Stockman.

After the first two infant globe donations, Mullins visited with the staff at ILEB to share some of his exciting discoveries. Although the findings are preliminary, Mullins believes they have detected markers in these infant foveas that may lay the groundwork for the development of macular degeneration, a leading cause of vision loss, far later in life.

“If we are able to determine what the blueprints are to develop a fovea at the molecular level, we may be able to use this knowledge to rebuild a fovea that has been destroyed by disease, for example, by using stem cells,” says Mullins. “This could impact the future sight of countless individuals.”

Although the lives of the seven infant donors were short, they have the potential to have a lasting impact far beyond what many of us have in a lifetime. We recognize and commemorate the special gifts these families made during one of the most difficult times in their lives, all with the hope of helping others.

Learn more about the Iowa Lions Eye Bank at iowalionseyebank.org

Learn more about vision research taking place at the University of Iowa by visiting wivr.uiowa.edu or visit Dr. Rob Mullins’ research at mullins.lab.uiowa.edu

A new approach to glaucoma

A team of researchers from the University of Iowa and Iowa City VA Health Care System led by **Markus Kuehn, PhD**, UI associate professor of ophthalmology and visual sciences, recently published its work on infusing stem cells to help restore proper drainage for fluid-clogged eyes at risk for glaucoma in the *Proceedings of the National Academy of Sciences*. The influx of cells regenerated the tiny, delicate patch of tissue known as the trabecular meshwork, which serves as a drain for the eyes to avoid fluid buildup. When fluid accumulates in the eye, the increase in pressure could lead to glaucoma.

The disease damages the optic nerve and can result in blindness. One potential

advantage of the approach is that the type of stem cells used—called induced pluripotent stem cells—could be created from cells harvested from a patient's own skin. Researchers plan to continue studying their approach for more insight into potential glaucoma treatments.

More online at <http://bit.ly/2mbCQYe>

Going to Baltimore for ARVO?

Join researchers and alumni from the University of Iowa at our Iowa Eye Reception on Sunday, May 7. The group will gather at Forno Restaurant and Wine Bar located in the heart of the Charm City.



Researcher notes



Arlene V. Drack, MD (center), associate professor of ophthalmology, was chosen as the Outstanding Mentor in Translational Research by the UI Carver College of Medicine.



Kristan Worthington, MS, received the 2016 Postdoctoral Award from Fight for Sight. Worthington is a team member in Budd Tucker's laboratory. Her research focuses on the design and analysis of materials for re-growth and/or replacement of degenerate retinal layers.

Research award goes to Abramoff



The department's 2016 Charles D. Phelps Research Award went to **Michael Abramoff, MD, PhD**, (right) professor of ophthalmology and holder of the Robert C. Watzke, MD, Professorship in Retina Research. Abramoff was recognized for his work on automated

image analysis of optic nerve photos and OCT. Along with University of Iowa colleagues Young Kwon, Milan Sonka and Mona Garvin, Abramoff has developed OCT algorithms that can reproduce Humphrey visual field findings.

A decade of sharing research



The Midwest Eye Research Symposium tradition continues with the 10th annual meeting on Aug. 4, 2017. This event draws researchers and scientists from academic medical centers and institutions across

the Midwest. Special guest lectures, panel discussions, and poster presentations round out a fantastic day of vision-related science.

Carter to lead AAO and AUPO



Keith Carter, MD, began his term as president-elect of the American Academy of Ophthalmology (AAO) on Jan. 1, following his election by the AAO membership of eye physicians and surgeons. Carter is professor and head of the department and holds the Lillian C. O'Brien and Dr. C.S. O'Brien Chair in Ophthalmology.

"I am deeply honored to serve as president of the American Academy of Ophthalmology," Carter says. "I and all of my fellow AAO members are fully committed to advancing

the academy's mission of preserving vision and preventing blindness for all the patients we serve."

A specialist in oculoplastic surgery, his research interests include Grave's eye disease, inflammatory orbital disease, anophthalmic socket reconstruction, and predictive factors for eyelid reconstruction.

Carter will also serve as 2017 president of the Association of University Professors of Ophthalmology (AUPO).

Two of the department's former chairs served as president of the AAO including, **Thomas A. Weingeist, PhD, MD**, and **Frederick C. Blodi, MD**.

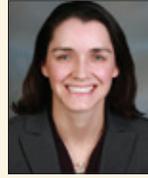
Contact lens specialist recognized



Congratulations to **Christine Sindt, OD, FAAO**, clinical professor of ophthalmology and visual sciences, for being recognized as one of the top 30 most influential individuals in contact lenses by Contact Lens Spectrum. The list recognizes those who have made a significant impact in the field

of contact lenses over the last 30 years.

AAO leadership program features two from Iowa



The American Academy of Ophthalmology has selected two local ophthalmologists for their Leadership Development Class of 2017. The class includes **Erin Shriver, MD ('06R)**, UI clinical associate professor of ophthalmology, who was nominated based on her role with the Women in

Ophthalmology organization.

Also selected was **Jeffrienne Young, MD**, of Physicians Eye Clinic in West Des Moines, who was nominated on behalf of the Iowa Academy of Ophthalmology.

The Academy's Leadership Development Program has helped identify and develop future leaders of state, subspecialty and specialized interest societies. During the one-year program, class participants learn about leadership, advocacy and association governance.

Faculty additions



Ian Han, MD, joins the Retina and Vitreous Service as an assistant professor of ophthalmology. Han comes to UI Hospitals and Clinics after completing ophthalmology residency and advanced training in medical and surgical retina at the Wilmer Eye Institute, Johns Hopkins

School of Medicine in Baltimore. He received his medical degree from Duke University.

Han specializes in surgical and medical diseases of the retina, including diabetic retinopathy, age-related macular degeneration, retinal detachments, and vitreoretinal surgery. His research involves the evaluation of current and developing retinal imaging for improved diagnosis and management of retinal disease.



Also joining our faculty is **Alison Bozung, OD**, a clinical assistant professor of ophthalmology. Bozung received her Doctor of Optometry degree from the Southern College of Optometry in Memphis and completed optometry residency training in ocular disease at the

Bascom Palmer Eye Institute. She provides eye care in the Primary Eye Care and Cornea, External Disease Services.

Advocating for ophthalmology

The department received the 2016 Commitment to Advocacy Award from the American Academy of Ophthalmology (AAO). This annual award recognizes an ophthalmology training department and its leadership for outstanding support of the Academy’s Ambassador Program. The Advocacy Ambassador Program is a collaboration with state and subspecialty societies, along with training programs, to support attendance by residents at legislative functions at the state and federal level.



University of Iowa faculty and resident physicians met with legislators including Rep. Dave Loebsack (D-Iowa) (center) during the 2016 AAO Mid-Year Forum.



Mark your calendar

The Iowa Eye Annual Meeting and Alumni Reunion will be held on Friday and Saturday, June 9-10, 2017. Join us for a continuing education opportunity covering the latest advances in the diagnosis and management of cataracts, glaucoma, retinal diseases, and other conditions. Skill-building workshops, case discussions, and research updates round out a program geared toward general ophthalmologists and subspecialists alike.

Several activities will allow participants to network and socialize with colleagues, alumni, faculty, and trainees. We will recognize Iowa’s class of 2007 and welcome all alumni back for this annual event.

Guest Speakers:

John Hart, Jr., MD, FACS (Wolfe Foundation Lecturer)
Associates in Ophthalmology, Farmington Hills, Mich.

Mark Humayun, MD, PhD (Alson E. Braley Lecturer)
USC Roski Eye Institute, Los Angeles, Calif.

Ronald Pelton, MD, PhD, FACS (Wolken Family Ethics Lecturer)
Private practice, Colorado Springs, Colo.

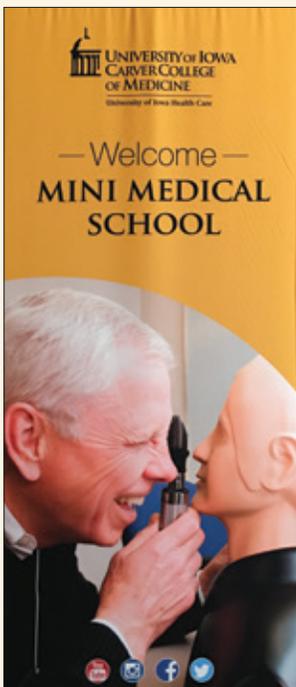
Plus, additional guest and faculty speakers

For registration and conference information, contact Joe Schmidt at 319-384-8529 or joe-schmidt@uiowa.edu. Or, visit us online at medicine.uiowa.edu/eye/iowa-eye

Sohn returns to Seattle for alumni event

Elliott Sohn, MD, who completed ophthalmology residency training at the University of Washington in Seattle, visited the Emerald City to present at a Carver College of Medicine Mini Medical School event for University of Iowa alumni and guests.

Sohn discussed the causes and latest treatments for age-related macular degeneration and inherited diseases of the retina. He also shared updates on the exciting research taking place at the University of Iowa Stephen A. Wynn Institute for Vision Research.



My, how time flies!

The past year marked the 20th anniversary of our department's move into the Pomerantz Family Pavilion. The space continues to serve the department well and has seen numerous updates in clinic spaces and amenities over the years.

We have also expanded by adding an eye clinic at UI Health Care – Iowa River Landing, off-site facilities for the Iowa Lions Eye Bank and Iowa KidSight, and more. Most notably, the UI Wynn Institute for Vision Research now occupies nearly 40,000 square feet in the Medical Education and Research Facility on the UI health sciences campus.



Images show construction of the Pomerantz Family Pavilion in 1996 where the main eye clinic is located.

Honoring those who have given the gift of life

The Iowa Lions Eye Bank co-hosted a reception honoring organ, eye, and tissue donors at University of Iowa Hospitals and Clinics. The event featured inspirational stories by donor family members and transplant recipients, including Andrea Carlson, who shared her family's experience with cornea transplantation. Carlson's youngest son received the gift of sight through a transplant surgery performed at UI Hospitals and Clinics.



The Giving Tree honors those who gave the gift of life or enhanced the lives of patients through organ, eye, and tissue donation at UI Hospitals and Clinics. A cherished holiday tradition, the tree is displayed in the main entrance lobby of the hospital during the holiday season. It is adorned with butterfly ornaments – each representing an organ, eye, or tissue donor who transformed the life of a transplant recipient.



IOWA VISION

IOWA VISION is published for alumni, colleagues, and friends of the Department of Ophthalmology and Visual Sciences at the University of Iowa.

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IOWA VISION UPCOMING EVENTS

Ophthalmology Clinical Conferences

April 7, 2017

Cataract / Comprehensive - John Berdahl, MD, Vance Thompson Vision

Sept. 15, 2017

Pediatric Ophthalmology - Mary Elizabeth Hartnett, MD, Moran Eye Center

Oct. 20, 2017

Glaucoma (Armaly Lecture) - Robert Ritch, MD, FACS, New York Eye and Ear Infirmary

Other Events

April 21, 2017

Resident and Fellow Research Day, Iowa City

May 7-11, 2017

ARVO Annual Meeting and Iowa Eye Alumni Reception, Baltimore

May 19, 2017

19th Annual Iowa Optometric Conference, Iowa City

May 26, 2017

Midwest Pediatric Ophthalmology Symposium, Iowa City

June 9-10, 2017

Iowa Eye Annual Meeting and Alumni Reunion, Iowa City

June 9-10, 2017

UI Carver College of Medicine Alumni Reunion Weekend (Classes of '47, '52, '57, '62, '67, '72, and '77), Iowa City

June 29, 2017

Resident and Fellow Graduation, Kinnick Stadium Press Box, Iowa City

Aug. 4, 2017

10th Annual Midwest Eye Research Symposium, Iowa City

Oct. 5-6, 2017

UI Carver College of Medicine Alumni Homecoming Weekend (Classes of '82, '87, '92, '97, and '07), Iowa City

Nov. 11-14, 2017

AAO 2017 Annual Meeting and Iowa Eye Alumni Reception, New Orleans

Increase your
ophthalmic
knowledge and
enhance your clinical
skills at the Iowa Eye
Annual Meeting and
Alumni Reunion.

This year's event is
scheduled for
Friday and Saturday,
June 9-10, 2017.

See page 14 for
more information.