

## A map for eye disease

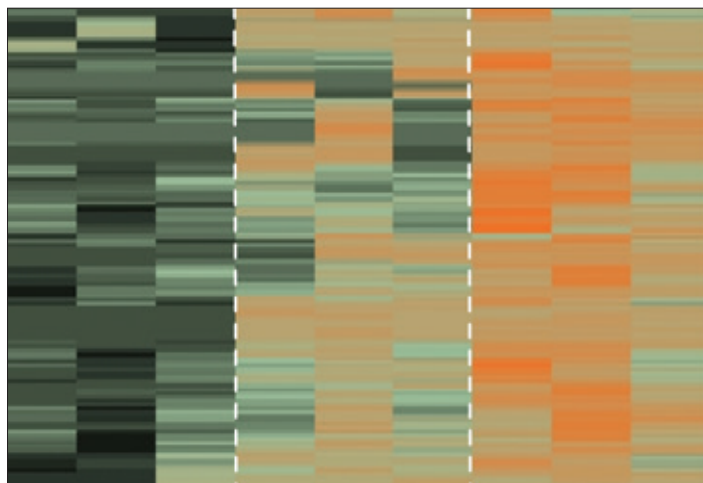
UI researchers create detailed molecular map of eye region associated with vision loss

Understanding eye diseases is tricky enough. Knowing what causes them at the molecular level is even more confounding.

Now, University of Iowa researchers have created the most detailed map to date of a region of the human eye long associated with blinding diseases, such as age-related macular degeneration. The high-resolution molecular map catalogs thousands of proteins in the choroid, which supplies blood and oxygen to the outer retina, itself critical in vision. By seeing differences in the abundance of proteins in different areas of the choroid, the researchers can begin to figure out which proteins may be the critical actors in vision loss and eye disease.

“This molecular map now gives us clues why certain areas of the choroid are more sensitive to certain diseases, as well as where to target therapies and why,” says **Vinit Mahajan, MD, PhD**, assistant professor in ophthalmology and corresponding author on the paper, published in the journal *JAMA Ophthalmology*. “Before this, we just didn’t know what was where.”

What vision specialists know is many eye diseases, including age-related macular degeneration (AMD), are caused by inflammation that damages the choroid and the accompanying cellular network known as the retinal pigment epithelium (RPE). Yet they’ve been vexed by the anatomy: Why does it seem that some areas of the choroid-RPE are more susceptible to disease than others, and what is happening at the molecular level? The researchers set about to answer that question with non-diseased eye tissue donated by three deceased older individuals through the Iowa Lions Eye Bank. From there, Mahajan and **Jessica Skeie, PhD**, a post-doctoral researcher in ophthalmology at the UI, created a map that catalogs more than 4,000 unique



University of Iowa researchers have created the most detailed map to date of the abundance of thousands of proteins in the choroid, a region of the human eye long associated with blinding diseases. By seeing differences in protein abundance, the researchers can begin to figure out which proteins may be the critical actors in vision loss and eye disease. Image courtesy of Vinit Mahajan lab, University of Iowa.

proteins in each of the three areas of the choroid-RPE: the fovea, macula, and periphery.

Because of this, now the researchers can see which proteins are more abundant in certain areas, and why. One such example is a protein known as complement factor H, or CFH, which helps prevent a molecular cascade that can lead to AMD, much like a levee can keep flooding waters at bay. UI researchers learned, through the map, that CFH is most abundant in the fovea. That helps, because now they know to

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## UI Hospitals and Clinics a leader in ophthalmology



The University of Iowa Department of Ophthalmology and Visual Sciences was ranked as one of the best in the nation according to the *U.S. News & World Report* annual listing of “The Best Hospitals in America.” Iowa has been among the top 10 programs since the survey began.

## Nursing wins prestigious Magnet Prize

The American Nurses Credentialing Center (ANCC) has awarded the 2014 Magnet Prize® to the University of Iowa Hospitals and Clinics, recognizing the innovative use of evidence-based practice to positively impact patient care. The Iowa Model provides a framework and structure for nurses to implement new knowledge, research, innovations, resources, and other evidence in daily practice. To date, more than 30 countries have adopted the Iowa Model for improving patient care.

“Our clinic scored very well in terms of patient satisfaction and measures of clinical operations across the hospital. This award is nice reflection of the impact that ophthalmic nurses, technicians, and other support staff have on the level of care we provide our patients each and every day,” states **Sarah Smith, RN, MA, CRNO, COA**, nurse manager of the eye clinic.

## ONLINE EXTRA

### Iowa family hit hard by rare eye disease

An Iowa man shares his family’s journey dealing with a rare genetic eye disease and the promise of a cure at the UI.

Watch the story of Jerry Jackson at <http://now.uiowa.edu/2013/05/blind-mans-daily-journey>



## CLINICAL RESEARCH AT UI

### Glaucoma drug helps women with blinding disorder linked to obesity

A clinical trial conducted by University of Iowa researchers and colleagues across the U.S. and Canada found that combining a glaucoma drug with a low-sodium, weight-reduction diet is better at treating vision loss caused by idiopathic intracranial hypertension (IIH) than weight loss alone. The study, published in *JAMA*, is the first to provide hard evidence that the drug acetazolamide (Diamox) improves vision outcomes in IIH.

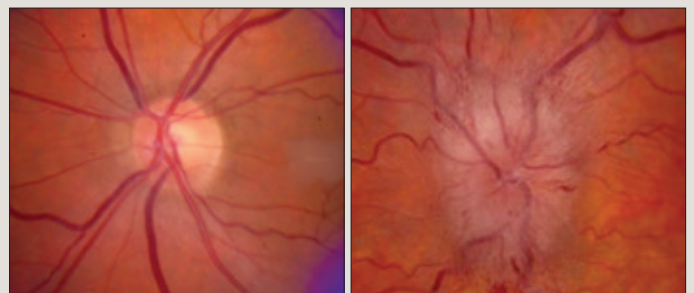
Also known as pseudotumor cerebri, IIH involves increased pressure around the brain and optic nerve. The condition, which mostly affects young, overweight women, causes vision loss and severe headaches.

“Our results show that acetazolamide can help preserve and actually restore vision for women with IIH, when combined with a moderate but comprehensive dietary and lifestyle modification plan,” says **Michael Wall, MD**, professor of neurology and ophthalmology and director of the Neuro-Ophthalmology Research Disease Investigator Consortium (NORDIC) study.

Acetazolamide is best known as a glaucoma drug. It has been commonly prescribed for IIH, but without much evidence that it helps. The NORDIC IIH Treatment Trial tested the benefits of acetazolamide plus a weight loss plan versus the weight loss plan with a placebo pill over six months. One hundred and sixty-one women and four men with IIH and mild vision loss participated in the study.

Patients in both treatment groups had improved vision, but those receiving the drug and diet had about twice the improvement of the placebo plus diet group. All patients were allowed to take headache medications throughout the trial, and both groups experienced a similar reduction in headaches. The drug-weight loss combination also led to greater improvements in daily function and quality of life.

The study was funded by the National Eye Institute and conducted by the Neuro-Ophthalmology Research Disease Investigator Consortium. UI’s principal investigator for the study was **Reid Longmuir, MD**.



On the left is a normal optic nerve (light circle at center) and on the right is the optic nerve swelling seen in IIH. Courtesy of Michael Wall, University of Iowa.

### UI retina surgeons collaborating on novel treatment study for AMD

Vitreoretinal disease specialists at the University of Iowa are working on a new treatment option for patients with “wet” age-related macular degeneration (AMD). The study, supported by biopharmaceutical company Oxford BioMedica, is evaluating the effect of RetinoStat, a lentiviral vector-based treatment for neovascular wet AMD. The Phase 1 trial of RetinoStat involves 21 patients and tests a single subretinal administration of the drug. Currently available treatments for wet AMD involve frequent, repeated administration and can be costly.

“AMD is the number one cause of irreversible blindness in the elderly, and while recently discovered medicines can restore partial sight for some of those impacted by the ‘wet’ form of AMD, it requires monthly injections, which in many patients continue indefinitely. Decreasing the burden to patients from frequent injections is an active area of research,” states **Elliott Sohn, MD**, assistant professor of ophthalmology and lead investigator on the study at UI.

“This trial, which is the first of its kind for macular degeneration, uses an innovative gene therapy approach as a potential one-time treatment for patients who lose vision from ‘wet’ AMD. Completion of enrollment for this early human trial is a crucial step to making sure it is safe for use in larger numbers of patients.”

***The University of Iowa is active in clinical research with potential impacts on patients in our Eye Clinic and beyond. Research studies are designed to answer important questions about eye disease by testing their safety and effectiveness in patients. Before new medicines, devices, or diagnostic tests can be approved for public use, they are all tested in these types of clinical trials.***

## TV personality back to work after fireworks accident

Lighting fireworks is something many people do to celebrate the Fourth of July holiday. The loud booms and bright lights are entertaining, but fireworks carry risk of injury. More than 9,000 firework injuries happen each year, and this year’s statistic included TV personality Dave Rexroth.

Rexroth, chief meteorologist for WXYZ-TV in Detroit, was severely injured while visiting Iowa City over the Fourth of July holiday with his family. He is still not sure exactly what went wrong that fateful night. While lighting fireworks behind a family member’s home, one of the fireworks inadvertently flew directly into his face, causing irreversible damage to his left eye, a broken orbital bone in his eye socket, and nerve damage to his forehead.

He was rushed to University of Iowa Hospitals and Clinics, where doctors and staff made every attempt to save his vision and left eye. After two major surgeries – the first to try and save his left eye and a subsequent surgery to remove the damaged eye and prepare him for a prosthetic eye – Rexroth continues to recover physically, emotionally, and spiritually.

A milestone in his recovery came when Rexroth returned to broadcasting in September. During his first broadcast, he explained how he is coping with the loss and adapting to his new level of vision. Rexroth also credited the eye care team at the University of Iowa.

“I’m so appreciative to people at the University of Iowa Hospitals and Clinics, particularly the folks at the Eye Institute. They have helped me heal physically and emotionally and even, in some cases, spiritually. They have been so extraordinarily helpful in my full recovery, not just my left eye socket. It’s been amazing.”



**Left:** Local ocularist, David Bulgarelli, of Iowa Eye Prosthetics crafts a prosthetic eye. The company developed and fit Mr. Rexroth with a new prosthetic eye.

**Right:** Dave Rexroth (center) praises the eye care he received from UI Hospitals and Clinics physicians and staff including Drs. Richard Allen (left) and Meredith Baker (right). Images courtesy of Rexroth family.

## New imaging device improves detection of eye disease in children

Doctors who care for children in the UI Department of Ophthalmology and Visual Sciences have a new tool to help them diagnose eye disease in their youngest patients.

A Bioptigen handheld optical coherence tomography (OCT) imager is being used to help diagnose pediatric eye diseases. About the size of a handheld video camera, the device enables physicians to detect causes of poor vision in children such as foveal hypoplasia and posterior staphyloma. The device, only recently given FDA clearance for use as a handheld instrument, uses light waves in a manner similar to the use of sound waves in ultrasound images. High-definition OCT images from the device allow clinicians to noninvasively visualize the 3-D structure of key regions, such as the macula and optic nerve head.

Adults routinely receive OCT screening as part of their diagnostic clinic visits, but until now the youngest patients



UI ophthalmologists, Drs. Arlene Drack (left) and H. Culver Boldt (right) review images from an OCT scan conducted by Dr. Matthew Weed.

have not been able to benefit from this technology since children often cannot tolerate standard testing, and there was no device that could be used on a flat patient in the operating room. The handheld OCT solves that problem. When combined with electroretinography (ERG), it provides an unprecedented ability to diagnose and treat pediatric vision loss.

The imager can also be mounted on the operating microscope for use during retinal surgery for patients of any age. This device enables intraoperative visualization of epiretinal membranes that might otherwise be difficult to visualize. It can also be used in the Neonatal Intensive Care Unit, where it is useful to track the developing retina in babies with retinopathy of prematurity.

“Having the handheld OCT has allowed us to diagnose the cause of poor vision in many children,” according to **Arlene Drack, MD**, associate professor of ophthalmology and **Ronald V. Keech, MD**, Associate Professor in Ophthalmic Genetics. “We can now tell parents that with an ERG and OCT under anesthesia, we can offer young children the same detailed evaluation we offer adults, and this greatly increases our ability to get the right diagnosis.”

## Class of 2017 first-year residents



Pictured left to right:

### Steven Christiansen, MD

BS, Brigham Young University, Provo, Utah; MD, University of Utah School of Medicine, Salt Lake City, Utah

### Lucas Lenci, MD

BA, Drury University, Springfield, Mo.; MD, University of Missouri School of Medicine, Columbia, Mo.

### Jaclyn Haugsdal, MD

BS, University of Iowa; MD, University of Iowa Carver College of Medicine

### Prashant Parekh, MD, MBA

BS, Florida International University, Miami, Fla.; MBA, University of Miami School of Business Administration, Miami, Fla.; MD, University of Miami Miller School of Medicine, Miami, Fla.

### William Flanary, II, MD

BS, Texas Tech University, Lubbock, Texas; MD, Geisel School of Medicine at Dartmouth, Hanover, N.H.

## New fellows



### Megan Chambers, MD - Glaucoma

MD, Boonshoft School of Medicine, Wright State University, Dayton, Ohio; Residency, Havener Eye Institute, The Ohio State University, Columbus, Ohio



### Yasser Elshatory, MD, PhD - Retina

PhD, University of Rochester School of Medicine, Rochester, N.Y.; MD, University of Rochester School of Medicine, Rochester, N.Y.; Residency, Dean McGee Eye Institute, Oklahoma City, Okla.



### Rachel Huckfeldt, MD, PhD - Medical Retina

MD, Washington University, St. Louis, Mo.; PhD, Washington University, St. Louis, Mo.; Residency, Massachusetts Eye and Ear Infirmary, Boston, Mass.; Research Fellow and Assistant Clinical Instructor, Scheie Eye Institute, University of Pennsylvania, Philadelphia, Pa.



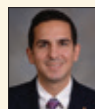
### Ashley Ko, MD - Pediatric Ophthalmology

MD, University of British Columbia Faculty of Medicine, Vancouver, B.C.; Residency, University of British Columbia Faculty of Medicine, Vancouver, B.C.



### Matthew Raecker, MD - Cornea and External Disease

MD, University of Iowa Carver College of Medicine; Residency, Casey Eye Institute, Oregon Health and Science University, Portland, Ore.



### Enrique Rivera, MD - Neuro-Ophthalmology

MD, University of Puerto Rico School of Medicine, San Juan, P.R.; Residency, University of Puerto Rico School of Medicine, San Juan, P.R.



### C. Nathaniel Roybal, MD, PhD - Retina

MD, UNM Health Sciences Center at the University of New Mexico, Albuquerque, N.M.; PhD, UNM Health Sciences Center at the University of New Mexico, Albuquerque, N.M.; Residency, UCLA Health, Los Angeles, Calif.

**Graduation 2014**



**Class of 2014 residents pictured left to right. Thomas Oetting, MD, residency program director on far left.**

**Justin Risma, MD** - Fuerste Eye Clinic, Dubuque, Iowa

**Angela McAllister, MD** - Essentia Health, Duluth, Minn.

**Pavlina Kemp, MD** - Pediatric Ophthalmology Fellowship, Massachusetts Eye and Ear Infirmary, Boston, Mass.

**Elizabeth Gauger, MD** - International Ophthalmology Fellowship, Dean McGee Eye Institute, Oklahoma City, Okla.

**Matthew Weed, MD** - Ophthalmic Genetics Fellowship, University of Iowa Hospitals and Clinics

**Graduating fellows with new location**



**Elisabeth Aponte, MD** - Palmer Eye Center, Tallahassee, Fla.



**Amanda Maltry, MD ('13R)** - University of Minnesota Medical Center, Minneapolis, Minn.



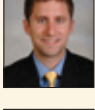
**John J. Brinkley, MD ('13R)** - Eye Associates of New Mexico, Albuquerque, N.M.



**Katrina Mears, MD, MSc, MRCOphth** - LSU Health Sciences Center, New Orleans, La.



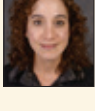
**John J. Chen, MD, PhD ('13R)** - Mayo Clinic, Rochester, Minn.



**Jordan Rixen, MD ('13R)** - Eye Surgical Associates, Lincoln, Neb.



**Kevin Gertsch, MD** - University of North Carolina Health Care, Chapel Hill, N.C.



**Parinaz Shams, MBBS, FRCOphth** - Moorfields Eye Hospital, London, England



**Lorna Grant, MD** - Eye Associates of Utica, Utica, N.Y.



**Elizabeth Tegins, MD** - North Carolina Retina Associates, Chapel Hill, N.C.

**Orthoptic Program Graduates**

**Oxana Chemerynska, CO**

**Dimitra Triantafilou, CO**

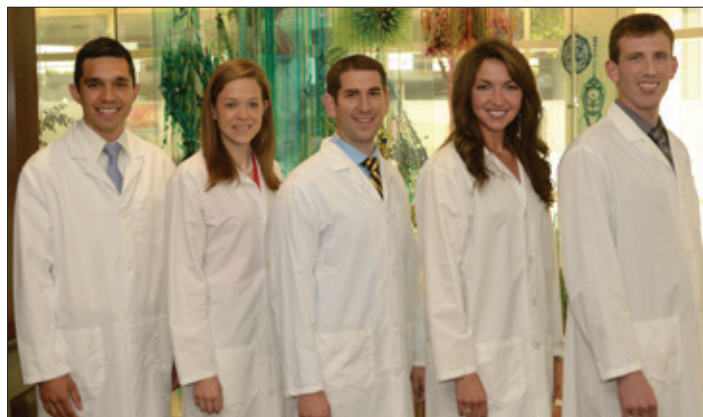
**Integrated internship begins**

The start of the new academic year brought an exciting change in the resident program curriculum at the University of Iowa. For the first time, an integrated internship program is being offered to incoming ophthalmology residents and is required for interns beginning in July 2015.

The internship offers a combination of five four-week rotations in ophthalmology and eight four-week rotations in the Department of Internal Medicine. The medicine rotations will provide a broad exposure to chronic and acute medical conditions in both inpatient and outpatient settings. Ophthalmology rotations will focus on the acquisition of basic skills in the VA Medical Center and UI Hospitals and Clinics ophthalmology clinics.

Interviews for the internship take place at the same time as the ophthalmology residency interviews, which makes the process simpler and more economical for applicants. The combined internship will better prepare interns to take call on July 1 of their first year of residency and ease the stresses of resident availability for call, thus eliminating the so-called "summer of pain." The internship will also allow early exposure to the wealth of research opportunities in the department and enable longer projects during residency.

Residency program director **Thomas Oetting, MD**, states, "So far, so good. I am proud to work with a medicine department that has done such a nice job getting our integrated internship started. The internal medicine rotations are solid, general ward and consult services of value to our residents with no ICU rotations that might not be of long-term value. I am convinced that the earlier ophthalmology experience and exposure to the electronic medical record system and overall UIHC system of care will get our residents off to a quicker start."



New interns, or PGY-1 years, are the first class to test the integrated internship at the University of Iowa. The new internship program will be become required for interns beginning in July 2015. Left to right: Tyler Risma, MD, Lindsay McConnell, MD, Matthew Miller, MD, Lorraine Myers, MD, and T.J. Clark, MD.



## Results from the EyeRounds photo competition are in!

Each year, ophthalmology residents and fellows submit their best photos that are judged by a panel of their peers. Top images this year with photographer listed include:

- A. Arteriovenous malformation in Wyburn-Mason Syndrome (Carol Chan, CRA)
- B. Iris mammillations (Toni Venckus, CRA)
- C. Morning Glory Disc Anomaly with Peripapillary Staphyloma (D. Brice Critser, CRA)
- D. Persistent pupillary membranes (Critser)
- E. Corneal burn, thermal (Venckus; Randy Verdick, FOPS)
- F. Kissing Choroidals (Critser)
- G. Central retinal vein occlusion with cilioretinal artery occlusion (Venckus)
- H. Christmas tree cataract (polychromatic cataract) (Stefani Kerakas, CRA)
- I. Herpes simplex virus (HSV) geographical epithelial keratitis (Critser)
- J. Axenfeld-Reiger Syndrome (Critser)

For more information, visit [eyerounds.org/atlas/contests](http://eyerounds.org/atlas/contests)

## EyeRounds updates

Content on our educational website continues to grow and deepen while the new academic year brought changes to the editorial board. Chief medical editor for the website is now **Jesse Vislisel, MD** ('15R), who replaces **Justin Risma, MD** ('14R). New members to the board include second-year residents **P. Christi Carter, MD** and **Chris Kirkpatrick, MD**. Our executive director and editor remains **Trish Duffel, MA**.

A complete list of Editorial Board members and Advisors is at <http://webeye.ophth.uiowa.edu/eye-forum/editorial-board.htm>



## Resident recognized for 'Good Catch'

Resident **Johanna Beebe, MD** (right) received a Good Catch Award for her role in an after-hours Emergency Department case. Her thorough examination revealed the patient had a full thickness corneal laceration, traumatic cataract, and small but significant intraocular foreign body in his eye. Surgery was scheduled immediately and the individual was able to preserve his eye and hopefully retain full vision.

Good Catch Awards are given to staff members at University of Iowa Hospitals and Clinics in recognition of their efforts to prevent a potential accident, injury, or illness. **Keith Carter, MD** presented Beebe with the award during a Morning Rounds session.



## Alumni abroad

UI ophthalmology alumni **Narendra (Nick) Patel, MD, MPH** ('09F) (center) and **Liz Gauger, MD** ('14R) (right) are helping to establish affordable and sustainable eye care abroad. Their paths crossed at the Eye Clinic of the Good Shepherd Hospital in Siteki, Swaziland earlier this summer. Gauger was there for a short-term assignment as part of her international ophthalmology fellowship training. **She blogged about her experiences at <http://eyecare-abroad.blogspot.com/>** Photo courtesy of Liz Gauger.

## ALUMNICORNER

The American Academy of Ophthalmology (AAO) recognizes several University of Iowa alumni for their contributions. 2014 awards include:

- ❖ **Secretariat Award**
  - **Alan E. Kimura, MD** ('89F, former faculty)
  - **Gregg T. Lueder, MD** ('85MD, '91R)
  - **Raj K. Maturi, MD** ('99F)
  - **Thomas A. Oetting, MD** ('95R, current faculty)
  - **David T. Tse, MD** ('82F, former faculty)
  
- ❖ **Life Achievement Award**
  - **Richard A. Lewis, MD** ('83F)
  
- ❖ **Senior Achievement Award**
  - **Lisa B. Arbisser, MD** ('83R)
  - **David M. Brown, MD** ('93R, '95F)
  - **Francois Codere, MD** ('81F)
  - **Arlene V. Drack, MD** ('91F, '92F, current faculty)
  - **Gregg T. Lueder, MD** ('85MD, '91R)
  - **Thomas A. Oetting, MD** ('95R, current faculty)
  - **Scott R. Sneed, MD** ('89F)
  
- ❖ **Achievement Award**
  - **Alan B. Brackup, MD** ('89F)
  - **Raj K. Maturi, MD** ('99F)
  - **Jacob Pe'er, MD** ('95F)
  - **Michael J. Price, MD** ('83F)
  
- ❖ **The AAO also selected their Leadership Development Program Class of 2015. Iowa alumni include:**
  - **James G. Howard, MD** ('05R, '07F) – Retina Associates of Utah, Murray, Utah
  - **Michael Scott, MD** ('93MD) – Medical Associates Clinic, Dubuque, Iowa

Congratulations to each of our alumni and colleagues for their hard work 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](mailto:iowaeyecare@uiowa.edu)

### REMEMBRANCES

- ❖ **Edward Scott, MD** ('67MD, '74R), passed away on September 21, 2014. Dr. Scott practiced ophthalmology for 36 years at Medical Associates in Dubuque, Iowa.

### OPHTHALMOLOGY ALUMNUS RECOGNIZED FOR CONTRIBUTIONS TO ALMA MATER

The University of Iowa Alumni Association selected **Stephen A. Wolken** ('65BS, '68MD, '75R) as a 2014 Distinguished Alumni Award recipient. Wolken, an adjunct clinical instructor of ophthalmology, received the Hickerson Recognition Award for his contributions to the UI Alumni Association and UI Carver College of Medicine. In addition to roles leading alumni and university advisory boards, Wolken established a medical scholarship for UI students.



### OTHER ALUMNI NOTES

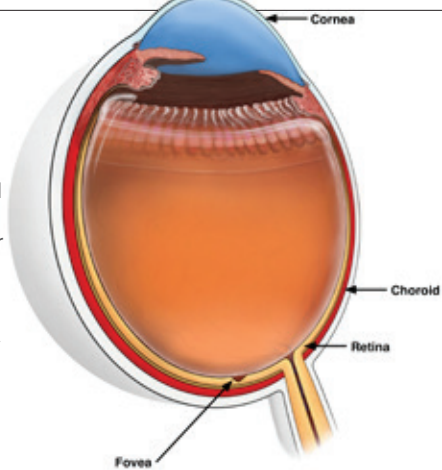
- ❖ **Adel Alsuhaibani, MD** ('08F), was promoted to professor and chair of the Department of Ophthalmology at King Saud University, the academic affiliate of King Khaled Eye Specialist Hospital in Riyadh, Saudi Arabia.
- ❖ **Ahmed Abdullah Ahmed, MD** ('74F), was elected Interim President of Middle East Africa Council of Ophthalmology.
- ❖ **Puwat Charukamnoetkanok, MD** ('02R), has been appointed Deputy Secretary of the Royal College of Ophthalmologists of Thailand. Puwat visited the department while in the U.S. for the AAO meeting. Here he points out a younger version of himself in a department photograph from 2000.
- ❖ **Susan Day, MD** ('80F), joined the Accreditation Council for Graduate Medical Education (ACGME) as vice president, medical affairs of ACGME International. She was most recently chair and program director for the Department of Ophthalmology at California Pacific Medical Center.
- ❖ **Parisa Taravati, MD** ('09R), became residency program director for the University of Washington Department of Ophthalmology.



**Thank you to the alumni and Iowa ophthalmologists who have renewed their Iowa Eye Association membership. We appreciate your support of our training programs and continuing education activities through association dues!**

“A map for eye disease” continues from page 1

The image shows the choroid and fovea in relation to the entire human eye. The choroid (in red) supplies blood and oxygen to the outer retina. The fovea is a dimple-like structure located at the back of the eye. Image courtesy of Vinit Mahajan lab, University of Iowa.



monitor CFH abundance there; fewer numbers of the protein, for instance, could mean increased risk for AMD, for instance.

“Now you can see all those differences that you couldn’t see before,” explains Mahajan.

Previous studies have compared the abundance of single proteins in the fovea, macula, and periphery. The UI choroid-RPE map corroborates findings from these studies, while also opening a whole new avenue of research into thousands of proteins that may be involved in vision loss. Mahajan likens it to a leap from the first topological drawings of a landscape to the detailed satellite images we have now.

“We were able to identify thousands of proteins simultaneously and develop a map that shows the patterns of proteins that make these regions unique. This has helped explain why certain genes are associated with macular degeneration, and helps point us to new treatment targets,” says Skeie, the study’s first author.

The work was funded by the Bright Focus Foundation, a nonprofit organization whose mission is to eradicate brain and eye diseases, including Alzheimer’s disease, macular degeneration, and glaucoma.

Skeie helped design the study and performed research. She, like Mahajan, is supported through grants from the National Institutes of Health.

*Story adapted from Iowa Now online publication written by Richard C. Lewis.*



The schematic shows the three regions of the choroid, in relation to the entire eye (left) and as regions (fovea, macula and periphery). Images courtesy of Vinit Mahajan lab, University of Iowa.



Presenters and participants in the Midwest Vision Research Symposium paused for a photograph.

## Research symposium draws crowds from across Midwest

The UI Stephen A. Wynn Institute for Vision Research sponsored the 6th Annual Midwest Vision Research Symposium this past summer. The event provided broad knowledge in the function and dysfunction of the visual system and presented different approaches in vision research.

One aim of the symposium was to improve the ability of students, scientists, and faculty to design and implement interdisciplinary research. With delegates from nine states attending, the program also promoted collaborative connections between individuals and groups.

Another goal was to inspire young scientists to pursue a career in vision research. Frederick Gregory, PhD, led a roundtable discussion of diversity issues and career planning. Additionally, the University of Iowa Carver College of Medicine Office of Cultural Affairs and Diversity Initiatives provided funds for travel scholarships to undergraduates from American institutions with a history of serving under-represented minority students.

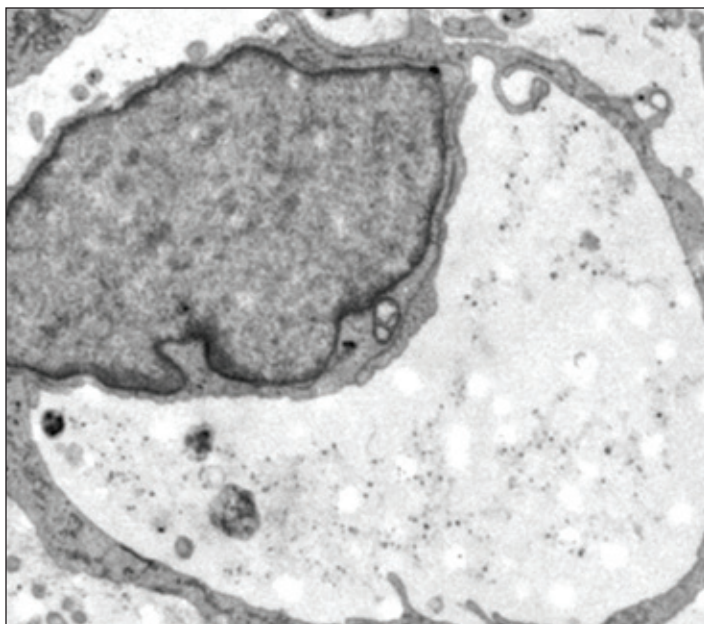
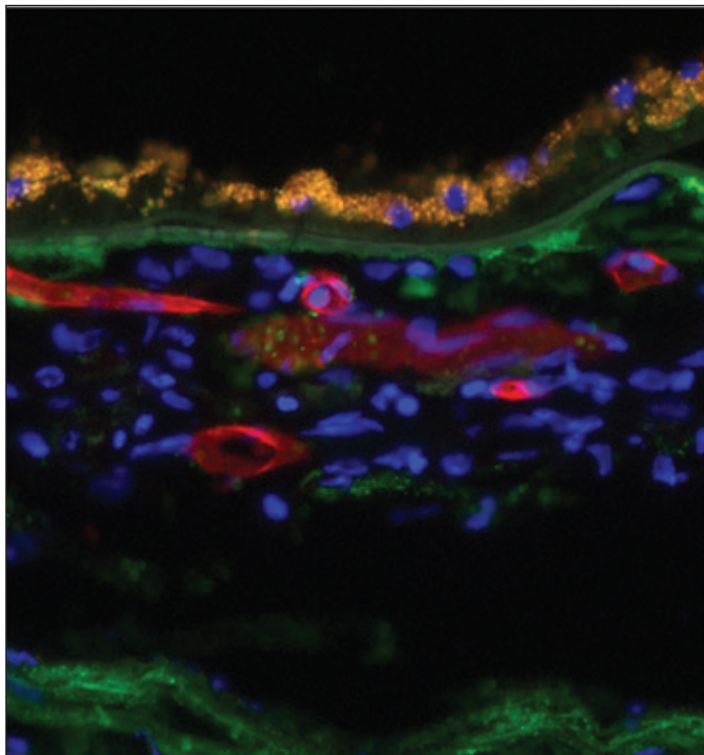


## Leinfelder Award winners

Winners of this year’s P.J. Leinfelder Research Day Award for research excellence were announced at the Iowa Eye Annual Meeting in June. Winners include **Ralph Hazelwood**, graduate student in the Glaucoma Genetics Lab (left), and **Jeffrey Welder, MD**, third-year resident (center). Research day director, **John Fingert, MD, PhD**, presented the awards.



# UI researchers receive award to study how cell injury and death can lead to AMD



Labeling of sections of human donor eyes with macular degeneration (top image) shows injury and loss of choriocapillaris blood vessels (red) early in age-related macular degeneration that can occur earlier than loss of the retinal pigment epithelium (orange). The bottom image shows an electron microscopic image of a blood vessel cell that was made from stem cells derived from a patient's skin. Images courtesy of Robert Mullins.

University of Iowa Carver College of Medicine researchers studying age-related macular degeneration (AMD) received a four-year, \$1.5 million grant from the National Eye Institute, part of the National Institutes of Health, to better understand cell injury and death that can lead to AMD and to develop preventative treatments.

**Robert Mullins, PhD**, professor of ophthalmology and visual sciences who holds the Hansjoerg EJW Kolder Professorship in Best Disease Research, and **Budd Tucker, PhD**, assistant professor of ophthalmology and visual sciences, are the principal investigator of the study. Both are with the Stephen A. Wynn Institute for Vision Research.

AMD is a major cause of blindness characterized by deterioration of the part of the eye that is responsible for visual acuity, including reading, driving, and recognizing faces. Mullins and Tucker recently found that the loss of choriocapillaris blood vessels is linked to the earliest stages of AMD. This study also found that the loss of the vessels is likely caused by the complement membrane attack complex (MAC).

With the new study, researchers hope to determine responses of cells injured by the MAC, as well as identify molecules that protect the capillaries from such attacks. They also hope to develop and test new methods for the eventual replacement of these lost or injured cells using adult stem cells.

“We believe that reaching these goals will lead to an important new understanding of ways to protect and repair the choriocapillaris in AMD, which may lead to new therapies for this blinding disease.”

*Robert Mullins, PhD*



**Imaging project wins translational research award**

**Michael Abramoff, MD, PhD**, (left) was awarded \$20,000 from the Institute for Clinical and Translational Science (ICTS) at the University of Iowa.

The award supports the development of a low-cost, patient-friendly, and easy-to-administer quantitative technique to identify patients at increased risk for complications from diabetes. Research will focus on the development of a set of ocular imaging — corneal- and retinal-derived biomarkers that can be quantified in a patient-friendly manner at the point of care.

The ICTS award program is generously funded by Drs. Allen H. and Marian Frerichs from DeKalb, Ill. The program supports collaborative, medical-based research that has a likelihood of impacting human health within four to six years. It supports advanced research that is at the critical stage of acquiring data that will move the project toward either human application or commercialization.

Abramoff is a professor of ophthalmology and visual sciences and a member of the Iowa Institute for Biomedical Imaging at the University of Iowa.

**Welcome aboard!**

The University of Iowa Foundation recently added another member to the development team working on behalf of the department and Wynn Institute for Vision Research.



**Sara Volz** joins the UI Foundation as director of development for ophthalmology and visual sciences. She joins us from West Music where she was the Vice President/ Director of Regional Sales. She has a wealth of experience in customer centrality with direct involvement in sales, operations,

marketing, strategic planning, goal setting, and associate development. We look forward to working with Sara!

**Philanthropic donations support our mission to prevent and treat blinding eye diseases. If you are grateful for the compassionate care you have received, the advanced research taking place, or the medical training that has advanced your career, please consider making a donation today.**



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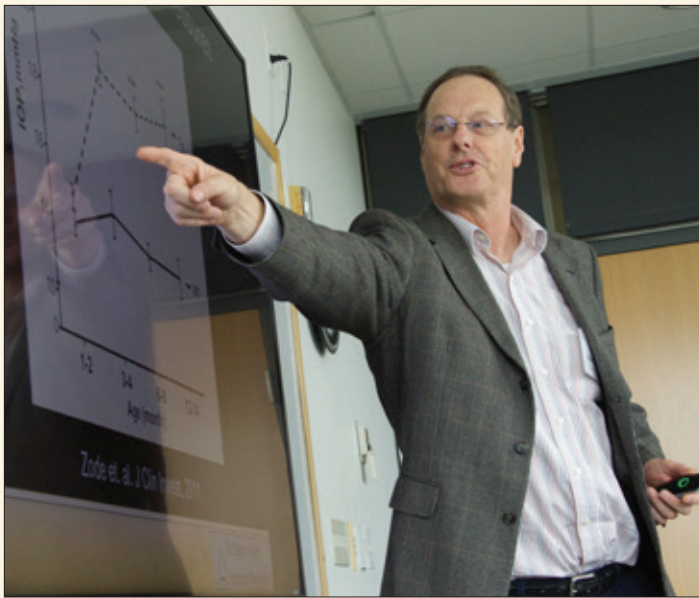
The UI acknowledges the UI Foundation as the preferred channel for private contributions that benefit all areas of the university. For more information or to make a donation in support of the eye program, visit the UI Foundation's secure website at [givetoioowa.org/eye](http://givetoioowa.org/eye)

# Golf event continues to grow in size and scope

Over 200 golfers took to the links for the 2nd Sam's Scramble for Sight, a golf tournament benefiting vision research taking place at the Stephen A. Wynn Institute for Vision Research.

The tournament and silent auction that followed took place at the Egypt Valley Country Club in Ada, Mich. and netted nearly \$430,000!

For more information, visit [scrambleforsight.com](http://scrambleforsight.com)



## Event showcases glaucoma research

Researchers from the Iowa Glaucoma Center, a unit within the Wynn Institute for Vision Research, hosted a group of supporters and friends for an insider look into the exciting glaucoma research taking place on campus.

The *Inside Iowa Medicine* event was co-hosted by Vice President of Medical Affairs **Jean Robillard, MD**, and Dean of the Carver College of Medicine **Debra Schwinn, MD**. Participants enjoyed a full day of presentations by glaucoma researchers and tours of the laboratories.



**Faculty accolades**



Congratulations to **Richard Olson, MD** ('96R, '97F), clinical associate professor of ophthalmology, for his selection to the 2014-17 Class of Teaching Scholars from the Carver College of Medicine Office of Consultation and Research in Medical Education. Olson also recently assumed responsibility as director for medical education in the department.



**Milan Sonka, PhD**, professor of electrical and computer engineering, and director of the Iowa Institute of Biomedical Imaging has been elected as a fellow of the Medical Image Computing and Computer Aided Intervention Society, one of the highest honors in the international professional society for medical image analysis. Sonka was also appointed to the Lowell C. Battershell Chair in Biomedical Engineering. He holds a secondary appointment in the Department of Ophthalmology and Visual Sciences and actively collaborates on imaging research and analysis involving the eye.



**Glaucoma faculty “Down Under”**

Drs. Lee Alward (left) and John Fingert (right) delivered Raine Lectures at the University of Western Australia in Perth as well as at the state conference of the Royal Australian and New Zealand College of Ophthalmologists. Here they stand with their Raine Lectureship Medals and Vice-Chancellor of the University of Western Australia, Professor Paul Johnson.

**Faculty changes**

Two faculty members recently left the department and are heading south for new opportunities.



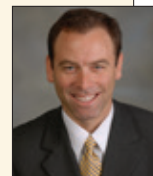
Pediatric ophthalmologist **Susannah Longmuir, MD** ('07R, '08F), and her neuro-ophthalmologist spouse **Reid Longmuir, MD** ('02MD, '06R, '07F, '08F), relocated to Nashville. Both served on the faculty since completion of their training at the University of Iowa and have family in the Nashville area. Their contributions will be missed and we wish the Longmuir family all the best.

Following the departure of Reid Longmuir, the neuro-ophthalmology service welcomed a new member to their team. **Robert Mallery, MD**, is a visiting faculty member who joins us from Philadelphia. Mallery completed his medical training at Washington University in St. Louis. He completed a neurology residency at Massachusetts General and Brigham and Women's Hospital in Boston, followed by a neuro-ophthalmology fellowship at the University of Pennsylvania and Children's Hospital of Philadelphia.



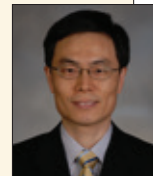
**RPB awards UI researchers**

**John Fingert, MD, PhD** ('00MD/PhD, '04R, '06F), assistant professor of ophthalmology, has been awarded the 2014 Research to Prevent Blindness (RPB) Physician Scientist Award.



The Fingert lab recently discovered that extra copies of the TBK1 gene (gene duplications or triplications) are one of the most common known causes of normal tension glaucoma. The award will be used to support studies investigating how TBK1 gene duplications lead to glaucoma and vision loss.

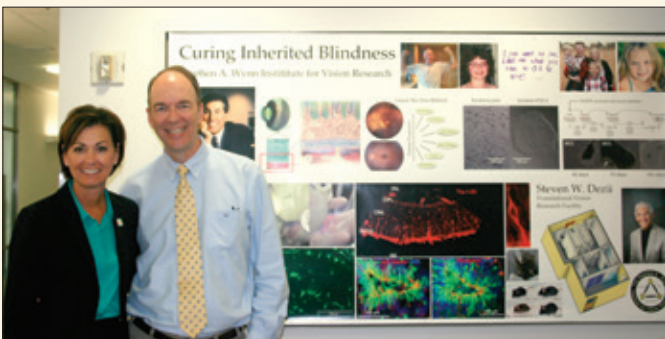
**Seongin Seo, PhD**, assistant professor of ophthalmology, was selected to receive a Research to Prevent Blindness Ernest & Elizabeth Althouse Special Scholar Award. The award supports outstanding young scientists who are conducting research of unusual significance and promise.



Seo's laboratory studies the protein network that builds and maintains the primary cilium and the pathophysiological mechanisms of cilia-related hereditary diseases such as Bardt-Biedl syndrome. His lab investigates the protein composition of the ciliary protein network, what the roles of these proteins are, how loss of these proteins results in each phenotypic component of the cilia-related diseases, and how to prevent or treat the disease.

## Reception in Chicago

Alumni and friends of the department gathered in Chicago during the American Academy of Ophthalmology Annual Meeting for our Iowa Eye Alumni Reception. With over 120 attending, we had a full house and lots of fun reconnecting! **More images at [iowaeyealumni.shutterstock.com/](http://iowaeyealumni.shutterstock.com/)**



## Lt. Governor tours vision labs

Iowa Lt. Gov. Kim Reynolds visited the University of Iowa campus to tour research facilities, including the Wynn Institute for Vision Research. Institute director **Ed Stone, MD, PhD**, shared an update on the UT's efforts to treat and cure inheritable eye disease. Image courtesy of the Wynn Institute for Vision Research.



## WIO gathering in Virginia

A group of faculty and alumni gathered at the 2014 Women in Ophthalmology Summer Symposium. Pictured left to right are P. Chrisi Carter, Alina Dumitrescu ('10F, '11F), Linda Lehman ('91MD), Erin O'Malley Schotthoefer ('06R), Erin Shriver ('06R), Lisa Arbisser ('83R), Nancy Christmas ('01F), Nasreen Syed, Traci Kangas, and Esther Bowie ('04F). Dr. Arbisser delivered the Bernice Z. Brown Memorial Lecture.



Kenneth Goins, MD, medical director of the Iowa Lions Eye Bank and clinical professor of ophthalmology, shared remarks at the event.

## Celebrating the gift of donation

Community members and families affected by organ, eye, and tissue donation gathered at the Iowa Lions Donor Memorial & Healing Garden annual dedication ceremony in May to honor and celebrate the gifts given by Iowa families, and the work of all who facilitate the donation and transplantation process. The memorial garden commemorates those who have restored vision and transformed lives through their generosity and courage, as well as Iowa Lions and others who support the work of donation.

## 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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If you are interested in receiving future editions of this publication electronically or wish to be removed from the mailing list, please send an email specifying your request to [iowaeyecare@uiowa.edu](mailto:iowaeyecare@uiowa.edu).

## The votes have been counted

In recognition of Ophthalmic Medical Technicians Week (Nov. 3-7), Stephanie Roy was selected by her peers as “Technician of the Year” in the Eye Clinic. Stephanie assists patients in the Comprehensive General Clinic.

The observance is a combined effort of the Joint Commission of Allied Health Personnel in Ophthalmology, the Association of Technical Personnel in Ophthalmology, Inc., and the Contact Lens Society of America. It recognizes the important contributions that technicians make in eye care and raises awareness of ophthalmic careers.



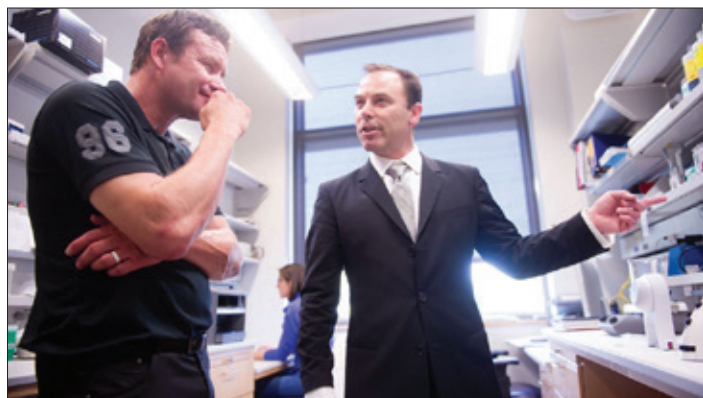
# Wynn Institute's Indy 500 race car makes pit stop in Iowa City



Former Indianapolis 500 champion Buddy Lazier and his No. 91 race car were in town for the University of Iowa's Homecoming weekend.

Lazier Partners Racing teamed up with the University of Iowa Stephen A. Wynn Institute for Vision Research (WIVR) earlier this year at the Indianapolis 500 race to raise awareness of the groundbreaking vision research taking place on the UI campus.

Photos and videos from the visit are at <http://now.uiowa.edu/2014/10/lazier-visits-new-garage>



While in town, Lazier (above left) toured the laboratories and received updates from WIVR scientists including glaucoma researcher Dr. John Fingert.



Buddy Lazier served as Grand Marshal of the 2014 Homecoming parade. The race car was featured in the parade and on display outside the Wynn Institute. Images courtesy of the Wynn Institute for Vision Research and Tim Schoon.

## ONLINE EXTRA

### Wynn Institute race car featured on Big Ten Network

Watch the exciting story of the University of Iowa Wynn Institute for Vision Research's Indy 500 race car on the Big Ten Network.

Check out the video footage at <http://now.uiowa.edu/2014/07/racing-cure>

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## Information on continuing education opportunities:

www.medicine.uiowa.edu/  
eye/education

## Department news, events, and information:

www.medicine.uiowa.edu/eye



Department of Ophthalmology  
and Visual Sciences

200 Hawkins Drive, 11136 PFP  
Iowa City, IA 52242

## IOWA VISION UPCOMING EVENTS

### *The 2014-2015 Clinical Conference Series*

- |                     |   |
|---------------------|---|
| <b>Mar 6, 2015</b>  | <b>Retina</b> - Cynthia A. Toth, MD, Duke Eye Center                            |
| <b>Apr 10, 2015</b> | <b>Pediatric Ophthalmology</b> - M. Edward Wilson, Jr., MD, Storm Eye Institute |

### *Other Events*

- |                         |   |
|-------------------------|---|
| <b>May 1, 2015</b>      | <b>17th Annual Iowa Optometric Conference</b> , Iowa City   |
| <b>May 3-7, 2015</b>    | <b>ARVO 2015 Annual Meeting and Iowa Alumni Reception</b> , Denver  |
| <b>May 22, 2015</b>     | <b>Department of Ophthalmology Resident and Fellow Research Day</b> , Iowa City   |
| <b>June 5-6, 2015</b>   | <b>Iowa Eye Association Annual Meeting and 90th Anniversary Celebration</b> , Iowa City                                   |
| <b>June 12-13, 2015</b> | <b>UI Carver College of Medicine Alumni Reunion Weekend</b> (Classes of '45, '50, '55, '60, '65, '70, and '75), Iowa City |
| <b>Oct 9-10, 2015</b>   | <b>UI Carver College of Medicine Alumni Homecoming Weekend</b> (Classes of '80, '85, '90, '95, and '05), Iowa City        |

## Mark your calendars

Make plans to join us for the Iowa Eye Association Annual Meeting on June 5-6, 2015.

In addition to an excellent educational program, we will be celebrating our department's 90th anniversary. All alumni are encouraged to attend!

Details to be posted at [medicine.uiowa.edu/eye](http://medicine.uiowa.edu/eye)

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