Renowned Retina Specialists Join the Department

Gholam A. Peyman, MD

A pioneer in refractive and vitreoretinal surgery and intraocular drug delivery, Dr. Peyman has achieved many firsts in his research and clinical career. He received a patent in 1989 for the LASIK procedure (which uses an excimer laser to modify refractive error), and he was one of the first to implant an artificial silicone retina in patients with retinitis pigmentosa. He is one of twelve living members of the ASCRS (American Society of Cataract and Refractive Surgery) Ophthalmology Hall of Fame.

Dr. Peyman earned his medical degree from the University of Freiburg, West Germany. He completed internships in medicine at St. Johannes Hospital, Duisburg, West Germany, and at The General Hospital Center at Passaic, N.J. He completed residencies in ophthalmology at the University of Dusseldorf and the University of Essen, West Germany. He completed postdoctoral fellowships in retina at the University of Essen and at the Jules Stein Eye Institute, University of California School of Medicine, Los Angeles.

Mandi D. Conway, MD

Dr. Conway earned her medical degree from the Chicago Medical School at the University of Health Sciences, Chicago, and completed her transitional medicine and surgery internship at the Swedish Covenant Hospital/Rush Medical College, Chicago. She completed a pre-residency research fellowship and a residency in ophthalmology at Tulane University Medical Center, followed by a National Institutes of Health post-doctoral fellowship in molecular biology at Tulane Regional Primate Research Center, Covington, La. She also completed vitreoretinal fellowships at Retinal Consultants, Ltd., St. Louis, and at Washington University Department of Ophthalmology and Visual Science, St. Louis.

Prior to joining the faculty at Tulane University School of Medicine, she held faculty appointments at Louisiana State University School of Medicine (including joint appointments as associate professor in the Department of Ophthalmology and the Neuroscience Center of Excellence), and at Washington University in the Department of Ophthalmology and Visual Science.

She was ranked one of New Orleans’s best female physicians in a survey published in New Orleans Magazine, which also selected her for their annual “Top Doctors” in New Orleans list every year from 2000 to 2006. She also has been listed in The Best Doctors in America from 2003 to 2006.

Drs. Peyman and Conway see patients at the new UPH Retina Center at UPH Hospital and Clinics at Kino Campus, 2800 E. Ajo Way; for an appointment, call (520) 694-1460.
Jeannette Russell, executive director of the Lions Vision Center, Inc., in Phoenix, has joined the department’s Advisory Board.

“I am excited to join the Advisory Board and to help support the ophthalmology department’s mission of preserving the eyesight of people not only in Arizona but also in the Southwest, the nation and the world,” says Russell.

The Lions Vision Center is a non-profit organization committed to the philosophy that all individuals are entitled to quality eye care regardless of opportunity and income. As executive director, Russell oversees a volunteer workforce that provides eye exams and new corrective eyewear to more than 5,000 people in need per year.

“We work closely with the Lions Clubs of Arizona and approximately 30 other service organizations to provide services to children, the disabled, the working poor and the elderly population,” says Russell. “We recently expanded our eye services with the Arizona Medical Eye Unit, a mobile eye-care facility that allows us to provide vision screening, glaucoma testing and eye glass prescriptions to rural areas of Arizona where ophthalmologists aren’t available.” (The Arizona Medical Eye Unit (AMEU) provided medical eye exams in rural Arizona for 30 years under the administration of the UA Department of Ophthalmology and Vision Science in collaboration with the Arizona Ophthalmological Society and the Odd Fellows and Rebekahs of Arizona. Changes in the manner in which the UA College of Medicine provides clinical services since the AMEU’s founding necessitated the transfer of ownership to the Lions Vision Center.)

In October, Russell attended the Phoenix Phil-Am Lions Club medical mission in Daet, Philippines, where doctors, nurses and Club members screened more than 2,000 students at three schools, performed refraction tests for more than 1,800 people, performed diabetes screenings and 161 cataract surgeries, and distributed 3,000 pairs of eye glasses. Russell is an Arizona-licensed optician.

The unique expertise and perspective of the Advisory Board members help support the department’s mission of preventing blindness through research, education, patient care and humanitarian outreach while increasing community awareness and funding opportunities throughout Arizona and the Southwest.

**Jeanette Russell Joins Advisory Board**

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*Lions Club representatives

**Drs. Conway and Peyman Welcomed**

**Department Advisory Board**

*The image contains photographs of individuals and text related to the reception welcoming Drs. Conway and Peyman.*
Thank you for helping! For thanks to you, it is a beautiful day today on the University of Arizona campus, as we have moved our research team into the most advanced laboratory space here at the University of Arizona. The laboratories are located in the Medical Research Building. Perhaps you have noticed the new brick and glass structures located north of Speedway and west of Campbell Avenue, with a beautiful white canopy seeming to float in the air between the structures. Thanks to the support that you have given, our group has made significant advances in the fight against blindness and warrant the move to this space that will make them even more productive.

We have come so far--the time when we had no laboratory research underway seems so distant. We have moved, in the last 15 years, from no research funding to being in the top 25 eye research programs in the United States in terms of National Institutes of Health funding!

Our vision research group is now all in one location, able to talk with each other, share ideas, and develop new strategies to fight blinding eye disease. As an added benefit, they no longer have to worry about what is going to blow in to the laboratory when they open the door. Before this move, they were housed in “temporary” space in the desert behind the University Medical Center. Those labs served their purpose, and launched this most successful research group. Now they are much better able to work effectively in an “open lab” environment.

The scientists who made the move are an accomplished group, making bold new discoveries in the areas of retinal eye disease and glaucoma. The teams led by Drs. Daniel Stamer, Alan Marmorstein, Lihua Marmorstein, and Brian McKay have experienced success in generating new knowledge, as evidenced by their publications, students graduated, and new projects funded.

This year they are joined by two new faculty with tremendous clinical experience, who allow us to offer the highest level of clinical care for patients with retinal disorders arising from macular degeneration and diabetes. Dr. Mandi Conway, director of the new Retinal Center at University Physicians Healthcare Hospital at Kino Campus, is joined by Dr. Gholam Peyman in creating new training and research opportunities in southern Arizona. They bring with them a greatly needed fellowship training program that will enable the next generation to receive the care that is needed.

For too long, a diagnosis of macular degeneration was the harbinger of bad times ahead, for many people ending in irrevocable vision loss. In the past year, new treatments have been shown to be dramatically effective in slowing, and in some cases, reversing the vision loss of macular degeneration. Dr. Robert Park of our department helped validate the value of these treatments and should be congratulated, along with the courageous patients who volunteered to participate in the clinical studies that demonstrated the value of these treatments to inhibit the growth of neovascular membranes.

We have so much to be grateful for with respect to the advances that have been achieved through your help and the help of others who share your dream of a lifetime of clear vision. Thank you for your help in making this such a successful year. I hope that the coming year is as good as the past year. As always, I and the other members of our department are most grateful for your past support. And, as always, if I can be of help in arranging eye care for you or a loved one, please call me.

Best wishes for the coming year!

Joseph M. Miller, MD, MPH
Head, Ophthalmology and Vision Science
The Tohono O’odham Vision-Screening Program is a collaborative effort by the UA Department of Ophthalmology and Vision Science, sponsored by the Tohono O’odham Nation and funded by the NEI.

The program began in 1997 when Joseph M. Miller, MD, MPH, professor and department head, received NEI funding to test and treat 4- to 5-year-olds on the reservation for astigmatism and to identify the best screening methods to detect the condition.

The initial four-year study found that about one in every three Tohono O’odham preschool children required eyeglasses for astigmatism, compared to one in 20 in the general U.S. population. The study tested more than 800 Native American children for astigmatism and corrective glasses were given to those who had the condition.

In 2000, the NEI awarded $1.7 million to extend the study for four years. Phase II, which ended in July 2005, focused on children in kindergarten through sixth grade to determine the maximum age at which children could be successfully treated for amblyopia resulting from uncorrected astigmatism.

The newly-funded Phase III of the study will run through 2010. Study co-investigators Drs. Harvey and Miller and Velma Dobson, PhD, UA professor with joint appointments in the Departments of Ophthalmology and Vision Science and Psychology, are being joined by researcher Jim Schwiegerling, PhD, UA associate professor with joint appointments in the Department of Ophthalmology and Vision Science and the College of Optical Sciences.

The results of Phase III will help determine at what age children with astigmatism develop amblyopia, and when eyeglasses should be prescribed to prevent its development.

“Previous research suggested that treatment of amblyopia only would be successful before age 7, but didn’t supply strong enough evidence,” says Dr. Harvey. “So far, the results of our study of a large number of children suggest that older children with amblyopia do have significant improvement in vision over time with eyeglasses.”

Since it began, the Tohono O’odham Vision-Screening Program has provided more than 3,500 eye examinations and more than 4,000 pairs of eyeglasses at no charge to children living on the Tohono O’odham Reservation.

Researcher Erin Harvey, PhD, assistant professor, has received a $3.5 million grant from the National Eye Institute (NEI) of the National Institutes of Health to expand a study of vision screening, astigmatism and amblyopia on the Tohono O’odham Nation, south of Tucson.

The grant will allow the study — called the Tohono O’odham Vision-Screening Program — to screen and treat Tohono O’odham children from 6 months of age through first grade for astigmatism. The study also will focus on the early development of astigmatism and amblyopia.

Astigmatism is a condition in which the shape of the cornea prevents clear vision at any distance. If not corrected at an early age, astigmatism can lead to amblyopia (sometimes called “lazy eye”), poor vision that cannot be treated successfully with corrective lenses.

Amblyopia — sometimes called “lazy eye” — is a neural visual deficit that persists even when appropriate corrective lenses are worn. “Amblyopia results when a child experiences poor input to the visual system, due to problems like crossed eyes or blurred vision, during early development,” Dr. Harvey explains.

Dr. Harvey was nominated for the 2005 award by Joseph M. Miller, MD, MPH, professor and department head. The award will be distributed over a four-year period that began Jan. 1, 2006.

This is the department’s fourth RPB Career Development Award. Prior recipients are: Lihua Marmorstein, PhD, assistant professor with joint appointments in the Department of Ophthalmology and Vision Science and UA Department of Cell Biology and Anatomy (2003 award); James T. Schwiegerling, PhD, UA associate professor with joint appointments in the Department of Ophthalmology and Vision Science and UA College of Optical Sciences (2002 award); and W. Daniel Stamer, PhD, associate head for vision science and associate professor, ophthalmology and vision science (2001 award).

RPB established the Career Development Award in 1990 to attract young physicians and basic scientists to eye research positions in departments of ophthalmology at universities across the country.
Research Report: New research space, new vision science colleague, new research funding

The last six months have brought three pieces of good news for the department’s research program.

The first is that our neurodegenerative diseases of the eye research group will be moving into the new Medical Research Building. This state-of-the-art facility will house the newly-formed Medical Neuroscience theme on the second floor. Theme director Frank Porreca, PhD, says, “I am excited to have our strong vision research group in the College join the Medical Neuroscience theme. This will be one of three areas of emphasis for future research development in the College of Medicine”.

The second piece of good news is that Nicholas Delamere, PhD, a prominent vision researcher, has joined the UA College of Medicine Department of Physiology as their new head (see story on page 6). His research group will complement the strong group that we currently have in the department and enable future joint recruitments of faculty, applications to the National Eye Institute for core grants and new collaborative projects.

The third piece of good news is that two of our research faculty successfully renewed their National Eye Institute grants. Lihua Marmorstein, PhD, renewed her project to study a specific type of macular degeneration for five years ($1.9 million), and Daniel Twelker, OD, PhD, renewed his project to study the relationship between ethnicity and myopia (nearsightedness) development for five years ($1.2 million). Congratulations!

W. Daniel Stamer, PhD
Associate Head for Vision Science
Associate Professor, Ophthalmology and Vision Science

New Development in Implantable Lenses to Enter Clinical Trials Outside U.S.

A device that can be implanted in the eye to restore the ability to read for patients who have lost central vision has been developed by a researcher with the Department of Ophthalmology and Vision Science at The University of Arizona College of Medicine, and colleagues in Illinois and Florida.

The new device, a foldable implantable telesystem, was developed by Dr. Gholam Peyman, UA professor of ophthalmology and vision science; Edwin J. Sarver of Sarver and Associates in Carbondale, Ill.; Dr. Donald R. Sanders of the Center for Clinical Research in Elmhurst, Ill.; and John Clough and Hayden Beatty with Lenstec Inc., in St. Petersburg, Fla.

The telesystem consists of a foldable intraocular lens that allows distance vision, plus magnification for reading when used with special eyeglasses.

When central vision is lost “due to age-related macular degeneration, diabetes or myopia, only peripheral vision remains. To read, patients must use hand-held magnifiers, electronic equipment or reading telescopes, which can limit the visual field,” Peyman said.

The foldable lens replaces the eye’s natural lens and provides full peripheral vision for distance vision and requires only a 4.5 mm incision for implantation. Special eyeglasses worn for reading convert “the centrally located lens into a Galilean telescope with three times magnification,” Peyman said. A Galilean telescope uses one convex lens and one concave lens aligned in a tube to magnify an object.

Manufactured by Lenstec Inc., the telesystem soon will enter clinical trials outside the United States as a first step toward ultimate U.S. Food and Drug Administration approval.

For nearly 20 years, Peyman has been developing a low-vision aid that provides good peripheral vision and magnification for reading. In 1988, he and several colleagues devised the concept of a system consisting of an intraocular lens implanted in the eye to replace the eye’s lens, coupled with special eyeglasses to be worn for reading.

For more information, visit www.eyes.arizona.edu.
Eye Researcher Heads Physiology Department

Nicholas A. Delamere, PhD, renowned for research on the physiology of the eye, has been appointed head of the Department of Physiology at the UA College of Medicine. He also holds joint appointments as professor of physiology and ophthalmology and vision science.

A renowned authority on ion transport proteins in the eye, Dr. Delamere’s research relates to glaucoma, cataracts, diabetic retinopathy and macular degeneration. His research investigates how ocular pressure (pressure in the eye) is controlled and the way cells transport fluid, and seeks to find methods to regulate the mechanisms involved. His goal is to develop drugs that reduce intraocular pressure, thereby decreasing the severity of glaucoma and damage to the retina. His cataract research also offers a promising model for tissue preservation, which will delay the onset of cataracts.

He is principal investigator for several basic research studies funded by the National Eye Institute of the National Institutes of Health. He received a Senior Scientific Investigator Award from Research to Prevent Blindness in 1998, and recently was appointed to the Board of Trustees of the Association for Research in Vision and Ophthalmology.

His work has been published in numerous professional journals, including Investigative Ophthalmology & Visual Science.

His professional memberships include the Association for Research in Vision and Ophthalmology, Association for Eye Research (Europe) and International Society for Eye Research.

Prior to joining the UA, Dr. Delamere was professor and distinguished university scholar at the University of Louisville in Kentucky where he had been a faculty member in the Department of Ophthalmology and Visual Sciences and the Department of Pharmacology and Toxicology for 20 years.

He earned his doctorate in biophysics from the University of East Anglia in Norwich, England, and was with the University of Colorado Health Sciences Center in Denver for ten years before joining the Kentucky Lions Eye Research Institute at the University of Louisville.

Thank You, Dr. Brigatti

Many thanks to our colleague, Dr. Luca Brigatti, who is relocating to Rockville, Maryland. Dr. Brigatti developed health problems that, hopefully only temporarily, that prevent his practice of ophthalmology. Please join us in wishing him thanks, and best wishes for a full recovery.
Simple Conversation Sparks Potential Glaucoma Treatment Breakthrough

“Great things are not done by impulse, but by a series of small things brought together,” said the Dutch painter Vincent Van Gogh.

What began as a “small thing” – a simple conversation between UA “lab neighbors” from very different scientific disciplines — has led to a $1.8 million grant from the National Eye Institute (NEI) of the NIH, to begin a collaboration between two scientists to study the role of cadherin molecules in glaucoma.

Glaucoma researcher W. Daniel Stamer, PhD, associate head for vision science and associate professor of ophthalmology and vision science, has been studying the cellular mechanisms that cause glaucoma, while in a neighboring lab cancer researcher Ronald L. Heimark, PhD, professor of surgery, has been studying the role of cell adhesion proteins in prostate cancer metastasis.

One day, Dr. Heimark, whose mother has glaucoma, asked Dr. Stamer about his research and current therapies for the disease. During their conversation, they discovered that their work had something in common: each had been studying cadherins – a family of proteins that mediate adhesion between similar cells. They concluded that cadherins possibly played a role in controlling the outflow of fluid in the eye.

That led to a $450,000 grant in 2002 from the National Eye Institute (NEI) of the NIH, to begin a collaboration between the two scientists to study the role of cadherin molecules in glaucoma.

That collaboration in turn led to the recent five-year $1.8 million award from the NEI to develop a new drug for a more effective treatment of glaucoma.

“We came up with a cutting-edge approach for the treatment of glaucoma that had never been investigated,” says Dr. Stamer. “Neither of us would have come up with this approach on our own.”

Glaucoma occurs when the drainage pathways inside the eye become blocked or unresponsive, disrupting the normal balance between the amount of fluid that enters and exits the eye and pressure builds up. While a certain amount of pressure is necessary to maintain the shape and function of the eye, too much pressure can injure the optic nerve and lead to loss of vision. Glaucoma is the leading cause of preventable blindness, affecting at least three million people in the United States, and 70 million worldwide.

Medications to lower intraocular pressure are the primary way to treat the disease.

“In the past, the primary target for treating glaucoma has been decreasing fluid movement into the eye, like turning off a faucet,” says Dr. Stamer. “Today, better drugs have focused on increasing fluid out of the eye, like opening the drain. The problem with these newer drugs is that they can affect only a small percentage, about 20 percent, of the fluid that leaves the eye.”

Drs. Stamer and Heimark manipulated the adhesive strength of cadherins and were able to disrupt the adhesion between outflow cells, opening “the drain that moves 80 percent of the fluid out of the eye, just like Drano,” says Dr. Stamer.

“We found a new treatment to relieve the increasing pressure in the eye,” says Dr. Heimark.

“Our drug has the potential to help delay or replace glaucoma surgery and to help prevent glaucoma from progressing to blindness,” Dr. Stamer says.

Advanced Glaucoma Technologies, Inc. (a subsidiary of Advanced Refractive Technologies, Inc., a medical device company focused on the development and marketing of innovative ophthalmic applications), has licensed their patent from the UA and is working with Drs. Stamer and Heimark in translating their innovative concept into a drug for future clinical trials.

Glucoma Specialist Joins Department

Todd W. Altenbernd, MD, a glaucoma specialist, has joined the department as clinical assistant professor of ophthalmology and vision science. He also has joined University Physicians Healthcare (UPH), the physicians group for the UA College of Medicine faculty.

Dr. Altenbernd sees patients at the Arizona Lions Eye Care Clinic, 707 N. Alvernon Way, and the UPH Retina Center at University Physicians Healthcare (UPH) Hospital and Clinics at Kino Campus, 2800 E. Ajo Way. For an appointment at either location, call (520) 694-1460.

Prior to joining the UA, Dr. Altenbernd was with Desert Eye Associates in Green Valley and Coconino Eye Center in Flagstaff. He also has served as a volunteer ophthalmologist with the UA Student Sight Savers Program glaucoma screening clinic at St. Elizabeth of Hungary Clinic in Tucson.

Dr. Altenbernd earned his medical degree from the University of Missouri-Columbia School of Medicine. He completed a residency in medicine at the University of Missouri Hospitals and Clinics in Columbia and a residency in ophthalmology at The University of Arizona Health Sciences Center. He completed a fellowship in ophthalmology (glaucoma) at the University of Florida College of Medicine in Gainesville. He is certified by the American Board of Ophthalmology.
Upcoming Events

Fridays, Jan. 5, Jan. 26, 2007, 1:30-5 p.m. (call for appointment)

**UA Student Sight Savers Program Glaucoma Screening Clinic**

Glaucoma screenings by UA Student Sight Savers – a group of medical and nurse practitioner students from the Colleges of Medicine and Nursing and volunteer ophthalmologists from the department and the community. The UA Student Sight Savers Program is a community service project funded and administered by the Friends of the Congressional Glaucoma Congress Foundation.

UPH Retina Center
University Physicians Healthcare Hospital and Clinics at Kino Campus
2800 E. Ajo Way, Tucson
Appointment, more information: UPH Retina Center, (520) 694-1460

Saturdays, Jan. 20, Feb. 17, March 17, 2007, 8 a.m.-noon

**UA Student Sight Savers Program Glaucoma Screening Clinic**

Glaucoma screenings by UA Student Sight Savers (see description above).

St. Elizabeth of Hungary Clinic
140 W. Speedway, Tucson
Appointment, more information: St. Elizabeth of Hungary Clinic, (520) 628-7871

(Note: January is National Glaucoma Awareness Month – be sure to get screened!)

These events are free and open to the public.

AN EYE TO THE FUTURE

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