
FOR IMMEDIATE RELEASE**Thursday, May 4, 2017****USC Roski Eye Institute experts present novel research in preventive care, diagnosis and treatment of visual impairment and eye diseases at ARVO Annual Meeting**

- *Largest population-based study to address vision disorders among multi-ethnic pre-school children; Groundbreaking less invasive pediatric cancer ‘surrogate liquid biopsy’*
- *Largest longitudinal visual impairment study of Latinos offers new insights in preventive care*
- *Earlier diagnosis of corneal disease discovered via ultrasonic imaging technology; Pioneers in Brillouin to address controversy of rapid CXL and LASIK flap creation*
- *Brain mapping research is the next frontier in understanding brain-eye connection in blinding eye diseases*
- *After pioneering OCT 25 years ago, researchers continue to advance technology*

Contact: Sherri Snelling sherri.snelling@med.usc.edu or 949-887-1903

LOS ANGELES – The experts at the [University of Southern California \(USC\) Roski Eye Institute](#), who for 42 years have pursued novel research that address blinding eye diseases, will present their latest groundbreaking studies at the [Association for Research in Vision and Ophthalmology \(ARVO\)](#) Annual Meeting held May 7-11 in Baltimore.

“Research is at the heart of what we do at USC, it drives better preventive care, aids in improved diagnoses and creates innovative treatments that preserve, and in some cases, restore vision,” said [Rohit Varma](#), MD, MPH, dean of the [Keck School of Medicine of USC](#) and director of the USC Roski Eye Institute. “Whether it is multi-ethnic population-based studies to look at visual impairment prevention, breakthroughs in cornea, retina and ocular oncology diagnosis and treatment, or pushing the technological envelope in OCT imaging and brain mapping, USC clinician scientists are international leaders in pioneering ophthalmic research.”

Improved Prevention for Pediatric Eye Diseases, Multi-Ethnic Patients

Population-based research led by Dr. Varma, the principal investigator of the [Multi-Ethnic Pediatric Eye Disease Study \(MEPEDS\)](#), was one of four studies reviewed by the Pediatric Eye Disease Consortium. [Xuejuan Jiang](#), PhD, one of the USC Roski Eye Institute researchers, will present the combined research that represents the largest population-based study involving 17,056 multi-ethnic children age six to 72 months from three continents. The

USC Roski Eye Institute researchers showcase latest studies at ARVO Annual Meeting
2-2-2-2-2

mission is to assess the vision disorders among preschool children to not only lead to a better understanding of the pathophysiology of the development of refractive error in children, but also help inform and develop evidence-based guidelines for population screening of common pediatric vision disorders.

In an eight year follow-up study, the research team led by Dr. Varma, presents the cumulative incidence of visual impairment in the National Eye Institute (NEI)-funded [Los Angeles Latino Eye Study \(LALES\)](#). It is estimated that up to 75 percent of visual impairment among Latinos can be prevented through comprehensive eye exams and prescription glasses as it is attributable to correctable refractive error.

The Next Frontier in Imaging Technology of Eye Disease Prevention

Having pioneered the development of Optical Coherence Tomography (OCT) 25 years ago, USC Roski Eye Institute researchers will present novel 3D OCT-A methods that allow for sharper 3D imaging of retinal vessels. Changes to retinal vessels are potentially valuable indicators to help clinicians understand the progression of diseases such as diabetic retinopathy.

In addition to pioneering new OCT methods, USC Roski Eye Institute researcher, [Qifa Zhou](#), PhD, will present his development of an ultrasonic micro-elastography technique. This breakthrough provides a biomechanical map of the cornea at micrometer resolution to reveal changes in corneal stiffness. The innovative medical ultrasound technology may give clinicians the ability to diagnose corneal disease earlier as well as lead to a better understanding and earlier detection of diseases such as glaucoma, where vision loss is often irreversible.

USC Roski Eye Institute clinician scientists, [Vivek Patel](#), MD and [Amir Kashani](#), MD, PhD – who are part of a multidisciplinary, collaborative team – will present the next frontier in the investigation of how the human brain is affected by blinding eye diseases. Based on a \$4 million grant from the NEI, part of the ambitious Human Connectome Project – originally funded through \$40 million in grants by the National Institute of Health (NIH) in 2010 – the cross-school USC research team includes clinician-scientists in ophthalmology, psychology, neurology and neuroimaging who are using the world’s most advanced retinal imaging combined with the comprehensive brain mapping techniques to unlock the mysteries of the brain as it relates to vision loss.

Novel Approaches to Diagnosis of Eye Disease

A recognized international pioneer in cornea cross-linking (CXL) procedures, [J. Bradley Randleman](#), MD, director of USC Roski Eye Institute’s Cornea, External Disease and Refractive Surgery, and collaborator Giuliano Scarcelli, PhD, will present their research on Brillouin microscopy, a revolutionary method to measure corneal biomechanics in a non-

USC Roski Eye Institute researchers showcase latest studies at ARVO Annual Meeting
3-3-3-3

contact, non-perturbative way. A controversial and much debated topic, Randleman and Scarcelli will be the first to demonstrate the lack of biomechanical impact of rapid CXL combined with LASIK flap creation.

The research team at the USC/Children's Hospital of Los Angeles(CHLA) led by [Jesse Berry](#), MD, have found a breakthrough in diagnosing retinoblastoma (RB), the most common type of eye cancer in children. Dr. Berry's team pioneered the first, safe method to sample the aqueous humor (AH), the clear fluid in the front of the eye, to identify the primary mutation and secondary epigenetic changes in the tumor. The *surrogate liquid biopsy* procedure, isolates DNA from the AH and is done without removing the eye and risking tumor spread.

[Sarah Hamm-Alvarez](#), PhD, is one of the leading experts on aqueous tear deficiency, one of the primary causes of dry eye disorder. She will present studies on the changes in tear protein composition that provide insights into disease mechanisms associated with the autoimmune-mediated dry eye in Sjögren's syndrome.

The ARVO Annual Meeting is the largest gathering of eye and vision researchers in the world, attracting over 11,000 attendees from more than 75 countries. [Click here to see the full schedule of USC Roski Eye Institute presenters at ARVO.](#)

About the USC Roski Eye Institute (usceye.org)

The USC Roski Eye Institute, part of the Keck Medicine of USC university-based medical enterprise, has been a leader in scientific research and innovative clinical treatments for more than 40 years. Ranked No. 2 in National Eye Institute (NEI) research grants for academically-based ophthalmology departments and nationally ranked in *U.S. News & World Report's* annual "Best Hospitals" issue for more than 22 years, the USC Roski Eye Institute is headquartered in Los Angeles with clinics in Arcadia, Beverly Hills and Pasadena. Faculty physicians are also the exclusive ophthalmic doctors affiliated with L.A. County + USC Medical Center (LAC+USC) and Children's Hospital Los Angeles (CHLA).

Patients from across the country come to see the USC Roski Eye Institute experts who treat a comprehensive array of eye diseases across the life spectrum from infants to aging seniors. The USC Roski Eye Institute is known for its scientific research and clinical innovation including:

- Creator of the FDA approved Argus retinal prosthesis implant (also known as the "bionic eye") for retinitis pigmentosa patients
- Leader in NEI eye disease research among multi-ethnic populations
- Developer of stem cell therapies for those who have age-related macular degeneration
- Discovered the gene that is the cause of the most common eye cancer in children
- Treatment for eye infections for AIDS patients
- Inventors of the FDA approved XEN stent, the most widely used glaucoma implant in the world
- Pioneers of a device for long-term intraocular drug delivery
- Creator 25 years ago and ongoing leader in OCT research
- Leading researchers of eye disease prevention and treatment as part of the Human Connectome brain mapping research

#