USC Roski Eye Institute
Keck Medicine of USC

INSIDE

1 AWARDS & HONORS
USC Eye Roski Institute Receives Top Accolades

2-3 PATIENT FOCUS
Corneal Cross-Linking Procedure
First Use of XEN Gel Stent

4-5 RESEARCH FOCUS
Preschool Children Face Vision Problems
ARVO 2017 Highlights

6 COMMUNITY FOCUS
2017 Los Angeles Times Festival of Books

7 TEAM FOCUS
New Faculty Announcements
Ophthalmic Imaging Equipment Gift

8-9 EDUCATION FOCUS
Case Study Highlight: Donut in a Grown-up
Glaucoma Subspecialty Conference
Refractive Symposium
I am extraordinarily grateful to be a part of the incredibly supportive community at the USC Roski Eye Institute. Our unique surroundings enable us to excel—in research, in education, in patient care and in making our community better. And it is this environment that will be the foundation for our next wave of great accomplishments.

Increasingly, the advances we are making in research and patient care are made possible by collaborations across disciplines. When our institutes’ faculty members and students reach out to collaborate with USC experts in fields including engineering, physics and computer science, truly amazing things happen. As we move forward, we will encourage more nontraditional collaborations. A creative spirit—the ability to see outside of the obvious and dream beyond what has been done—is in evidence everywhere you look at the USC Roski Eye Institute.

In addition we must ensure that a 21st century medical education instills compassion, empathy and understanding in our ophthalmologists of tomorrow, and that our students understand that the human connection is the very core of healing. We will continue to take bold new steps to build upon our tradition of engagement in the Los Angeles community. We can be proud of the many ways in which we serve our neighbors—in particular, and most notably, through our partnership with LAC+USC Medical Center and our numerous clinics throughout Southern California. We can be proud of the faculty and students throughout our ranks who are devoted to making a difference in the lives of the city’s most vulnerable populations.

As we continue on this journey together, we intend to make life-changing innovations in the next several years: ending blindness, reshaping medical education and improving the very structure of how health care is delivered. What is most exciting to me on this day is the real sense of optimism that we—all of us—are on the precipice of something boundless and remarkable. This enthusiasm and energy are there not just among our faculty, but also our staff and students. There is a tangible feeling that we are looking beyond what is good for our own personal gains and instead thinking about what is good for all of us as members of the USC Roski Eye Institute and as citizens of the world.

Rohit Varma, MD, MPH
Dean, Keck School of Medicine of USC
Grace and Emery Beardsley Professor of Ophthalmology
Chair, Department of Ophthalmology
Director, USC Roski Eye Institute
Awards & Honors

USC ROSKI EYE INSTITUTE RECEIVES TOP ACCOLADES

HUMAYUN HONORED WITH 2017 PRESIDENTIAL MEDALLION

The 2017 Presidential Medallion recipient is University Professor Mark S. Humayun, MD, PhD. USC President C. L. Max Nikias, PhD, presented Humayun with the university’s highest honor. Humayun also received the National Academy of Inventors Fellows Medallion, a prestigious recognition for academic inventors that has been given to seven other USC investigators in past years. Humayun is holder of the Cornelius J. Pings Chair in Biomedical Sciences, professor of ophthalmology, biomedical engineering and cell and neurobiology, director of the Institute for Biomedical Therapeutics and co-director of the USC Roski Eye Institute.

For his distinction in the fields of ophthalmology and biomedical engineering, his transformative approach to the treatment of blindness, and his profound influence on patient care.

—C. L. Max Nikias, PhD, USC President

USC ROSKI EYE INSTITUTE K-AWARDS

Congratulations to Amir H. Kashani, MD, MPH, assistant professor, for his National Institute of Health K08 Award for “Functional Imaging in Hypoxic-Ischemic Retinal Disease.”

Congratulations to Grace Richter, MD, MPH, assistant professor, for her 2017 National Institute of Health K23 Award for “Defining the Relationships of Retinal Microcirculation with Glaucoma, Systemic Disease, and Ocular Anatomic Factors in African Americans.”

KASHANI NAMED TO 2017 POWER LIST

The Ophthalmologist named Amir H. Kashani, MD, PhD, assistant professor of clinical ophthalmology, to its 2017 Power List, a showcase of the 100 most influential people in ophthalmology. This year’s list honored clinicians in the early stages of their careers most likely to shape eye care in the next decade or more.

GOKOFFSKI RECEIVES NANOS AWARD

Neuro-Ophthalmology Fellow Kimberly Gokoffski, MD, PhD, received The Thomas and Susan Carlow Young Investigator Award for 2017 from the North American Neuro-Ophthalmology Society (NANOS). The award recognizes basic or clinical research in neuro-ophthalmology by developing investigators.
Patient Focus

“Keratoconus, as in Adam’s case, can be a contraindication for LASIK which is why it is important to get an expert ophthalmologist to perform an initial exam. Our LASIK exam procedure at USC Roski Eye Institute is designed to catch any subtle curvature abnormalities that could be an issue, and in these cases we recommend avoiding LASIK based on possible adverse outcomes.”

—J. Bradley Randleman, MD, Professor of Clinical Ophthalmology

FIRST PATIENT IN LA RECEIVES CORNEAL CROSS-LINKING PROCEDURE

The recently FDA-approved corneal cross-linking (CXL) procedure to help prevent blindness from keratoconus was performed on the first patient in Los Angeles at the USC Roski Eye Institute.

J. Bradley Randleman, MD, professor of clinical ophthalmology and director of the Cornea, External Disease and Refractive Surgery Service, performed the procedure. For the CXL surgery, Randleman removes the epithelium (tissue on the outer layer of the cornea) and then uses a combination of ultraviolet A-light irradiation and application of riboflavin (vitamin B12) eye drops to stabilize the cornea. CXL does not cure keratoconus but, in most cases, stops the progression of the disease to preserve the patient’s sight and partially reverse the damage to the cornea. CXL is a minimally invasive and outpatient procedure.

Randleman explains that keratoconus can be a contraindication for LASIK so it is important to get an expert ophthalmologist to perform an initial eye exam. The LASIK exam procedure at USC is designed to catch any subtle curvature abnormalities that could be an issue, and in these cases recommend that a patient avoid LASIK based on possible adverse outcomes.

“I’ve been in good hands throughout my exams, the corneal transplant and the new corneal cross-linking treatment.”

—Adam Lyons, USC Roski Eye Institute patient
In keeping with the status of a national leader in innovative ophthalmology treatments that prevent blindness, the USC Roski Eye Institute ophthalmologists became the first team in Los Angeles to implant the XEN gel stent in glaucoma patients. The XEN gel stent recently became available for implantation in patients nationwide after approval by the FDA in late 2016. USC Assistant Professors of Ophthalmology Alena Reznik, MD, and Sahar Bedrood, MD, PhD, performed the procedures. The XEN gel stent is made of non-degradable soft collagen-derived gelatin. It is a minimally invasive, outpatient surgical option for glaucoma patients whose intra-ocular pressure (IOP) cannot be managed by medications or laser treatment.

“The XEN gel stent is a unique device that conforms to the ocular tissue and is successful at fluid drainage and reducing eye pressure while also being extremely comfortable for the patient. Since it is a less invasive procedure than other traditional glaucoma surgical options, there are less side effects and the patients recover more quickly.”

—Alena Reznik, MD, Assistant Professor of Clinical Ophthalmology

Keck School of Medicine of USC Dean Rohit Varma, MD, MPH, worked with AqueSys Inc. to help design the device and analyze the outcomes data over several years of clinical trials conducted in refractory glaucoma patients. Data analysis during clinical trials showed that one year after the implant, eye pressure was reduced by 44 percent from baseline and IOP medications, including eye drops, were reduced by 65 percent.

“The XEN device is a game changer for patients with primary open-angle glaucoma, pseudoexfoliative or pigmentary glaucoma with open angles that are unresponsive to maximum tolerated medical therapy.”

—Rohit Varma, MD, MPH
Research Focus

PRESCHOOL CHILDREN FACE INCREASING VISION PROBLEMS

“A child shows signs of having vision problems through behaviors such as sitting close to the TV or holding a book too close, squinting, frequent eye rubbing, sensitivity to light, difficulty with eyehand-body coordination, avoiding coloring activities, puzzles and other visual detail-related tasks.”

—Rohit Varma, MD, MPH

THE LARGEST STUDY OF CHILDHOOD DISEASES EVER UNDERTAKEN IN THE US

- In 2015, >174,000 three-to-five year olds had visual impairments (VI)
- In 2060, a 26% increase is projected, with >220,000 three-to-five year olds affected
- Hispanic children were most likely to have VI, rising 38% in 2015 to 44% by 2060
- African American children, with 25% of VI cases in 2015 and 22 percent by 2060

FUTURE OF PEDIATRIC EYE CARE - A PHYSICIAN’S GUIDE

- Study suggests that a child should have at least one comprehensive eye exam by age three
- Should be regularly monitored for behavior that signals difficulty in seeing

USC Roski Eye Institute experts found an increase in visual problems among U.S. preschool children, with emphasis on the importance of eye screenings for this young group. The study used data from US census records and the Multi-Ethnic Pediatric Eye Disease Study. Most of the children had VA with difficulties focusing on objects up close or far away, which can usually be corrected with eyeglasses.

The study, published in JAMA Ophthalmology, was led by Rohit Varma, MD, MPH, director of the USC Roski Eye Institute and dean of the Keck School of Medicine of USC, and Xuejuan Jiang, PhD, assistant professor of research ophthalmology at USC.

4 | USCeye.org
ARVO 2017 HIGHLIGHTS

USC Roski Eye Institute investigators and collaborators showcased translational and clinical research efforts at the 2017 Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting from May 7-11 in Baltimore. Highlights included a comprehensive approach to enhancing vision care through advancing preventive care, developing innovative imaging technology and discovering novel diagnostic methods.
At the 22nd Annual Los Angeles Times Festival of Books on April 22 and 23, experts from USC Roski Eye Institute performed vision screenings on more than 250 participants, a third of whom had an eye problem that required referral to a USC eye care specialist. In addition to the vision screenings at Keck Medicine of USC Health Pavilion, faculty and staff from Mrs. T.H. Chan Division of Occupational Science and Occupational Therapy, USC School of Pharmacy and USC Herman Ostrow School of Dentistry offered free health activities and health screenings for blood pressure, glucose, skin cancer, sleep apnea and oral health.
Team Focus

NEW FACULTY RECRUITS IN MULTIPLE SUBSPECIALTIES

The newest USC Roski Eye Institute faculty members are from some of the finest institutions across the country. Our ophthalmologists provide their expertise to patients in need of specialized care and cutting-edge interdisciplinary research. We welcome faculty in multiple specialty areas, including oculoplastics, neuro-ophthalmology and glaucoma.

JESSICA R. CHANG, MD
Assistant Professor of Clinical Ophthalmology

Jessica R. Chang, MD, assistant professor of clinical ophthalmology, joins our Oculoplastics Service in August. As a medical student, Chang was selected as a Howard Hughes Medical Institute NIH Research Scholar and spent two years at the National Eye Institute doing basic and clinical research in ophthalmology. She then completed her ophthalmology residency at the Wilmer Eye Institute, during which time she decided to pursue American Society of Ophthalmic Plastic & Reconstructive Surgery fellowship in oculoplastics and neuro-ophthalmology.

KIMBERLY GOKOFFSKI, MD, PHD
Assistant Professor of Clinical Ophthalmology

Kimberly Gokoffski, MD, PhD, assistant professor of clinical ophthalmology, joins our Neuro-Ophthalmology Service following the completion of her USC Roski Eye Institute fellowship in August. Gokoffski completed her internship and residency at UC Davis, followed by a combined MD/PhD program at UC Irvine. Her research interests are centered on the intractable problem of optic nerve regeneration. Gokoffski is investigating how exogenous signals such as electrical fields may facilitate RGC axon growth.

BENJAMIN Y. XU, MD, PHD
Assistant Professor of Clinical Ophthalmology

Benjamin Y. Xu, MD, PhD, assistant professor of clinical ophthalmology, joins our Glaucoma Service following the completion of his UCSD glaucoma fellowship in August. Xu received his medical degree from Columbia University College of Physicians and Surgeons, where he stayed on to pursue his PhD, completing a well-received thesis on the time course of eye position signals in the Macaque monkey’s cerebral cortex. Xu's thesis explored the cortical function of a recently discovered proprioceptive eye position signal originating in the orbit.

ZHOU RECEIVES OPHTHALMIC IMAGING EQUIPMENT GIFT

In early 2017, Mr. Xueqiao Wang of Suoer and Newway Technology, Inc. generously donated six pieces of ophthalmic scanning equipment to support the laboratory of Qifa Zhou, PhD, professor of ophthalmology and biomedical engineering at the USC Roski Eye Institute. The equipment is now being used to develop new ultrasound techniques for ophthalmic diagnostics and therapeutics, both in-vivo and ex-vivo.

Currently, Dr. Zhou is utilizing the equipment in three main areas: imaging for dry eye syndrome, glaucoma research and also for the improvement of ocular drug delivery. The equipment will support his basic and clinical research.

Says Dr. Zhou, “I am so grateful for the support of Mr. Xueqiao Wang, Suoer and Newway Technology, which will allow me to make great strides in my ophthalmic research in a range of areas. I hope that this gift marks the beginning of a long-time collaboration between the USC Roski Eye Institute and Mr. Wang.”
Education Focus

GRAND ROUND CASE STUDY HIGHLIGHT: DONUT IN A GROWN-UP

Presenter
Nadim Rayess, MD

Discussant
Jesse Berry, MD

HISTORY
• Male, age 45, presented with decreased peripheral vision of two-year duration
• Denied flashing lights, floaters or curtains

EXAM FINDINGS
• VA: 20/20; 20/20
• Pupils: RR OU, no RAPD

DIFFERENTIAL DIAGNOSIS
• Melanocytoma
• Juxtapapillary choroidal melanoma
• Choroidal nevus
• Hyperplasia of the RPE
• Combined hamartoma of the retina & RPE
• Adenoma of RPE
• Metastatic melanoma

PATHOPHYSIOLOGY
• Melanocytoma (magnocellular nevus) is a benign tumor considered to be a variant of a melanocytic nevus
• The pathogenesis is unknown but it is thought to be either an acquired lesion or a congenital lesion that may start off amelanotic and acquire dense pigmentation with age

TREATMENT
• The patient was followed up with yearly dilated fundus examination with ancillary fundus photography and B-scan ultrasonography to document the dimensions of the lesion.
• There are no treatments available to prevent growth of a melanocytoma. Patients are examined at least yearly to ensure there is no growth. More frequent examinations are warranted if there is documented growth with suspicion for possible transformation into a malignant melanoma.

PROGNOSIS AND FUTURE DIRECTIONS
• Majority of melanocytomas do not grow or cause visual symptoms. However, a mild decrease in visual acuity can occur in around 26 percent of patients secondary to retinal edema, subretinal fluid or optic disc edema.
• Severe vision loss is extremely rare, but may occur secondary to a central retinal vein occlusion, tumor necrosis or malignant transformation.
• 10 to 15 percent of melanocytomas grow over years. An initial thickness ≥ 1.5mm predicts future growth.
• Malignant transformation can occur in 1 to 2 percent of cases. Patients typically present with a progressively growing lesion that is associated with decreasing visual acuity.
• Other etiologies for a growing melanocytoma include a complication of tumor necrosis that occurs when the melanocytoma outgrows its vascular supply. In addition, a juxtapapillary melanoma needs to be considered in a growing lesion.
• MRI can be helpful in determining extent of retrolaminar extension of the lesion especially when suspecting transformation to choroidal melanoma and also aid in the diagnosis of complications of melanocytoma such as tumor necrosis.
GLAUCOMA SUBSPECIALTY CONFERENCE

On April 8, 2017, USC Roski Eye Institute hosted a Glaucoma Subspecialty Conference. The event was chaired by Keck School of Medicine of USC Dean Rohit Varma, MD, MPH, who is also director of the USC Roski Eye Institute. Approximately 70 physician-scientists attended the event, which focused on the latest glaucoma innovations, including OCT angiography in glaucoma, detecting glaucoma progression and glaucoma care in the United States. Among the distinguished guest speakers were David S. Greenfield, MD, professor and the Douglas R. Anderson Chair in Ophthalmology, Bascom Palmer Eye Institute, and Kuldev Singh, MD, MPH, professor of ophthalmology and director of the Glaucoma Service, Stanford Byers Eye Institute.

REFRACTIVE SYMPOSIUM AT THE CALIFORNIA CLUB

USC Roski Eye Institute's inaugural Refractive Symposium at the California Club was a full day conference chaired by J. Bradley Randleman, MD, professor of clinical ophthalmology and director of the Corneal, External Disease and Refractive Surgery Service. The day consisted of world-renowned speakers and innovative topics, including corneal imaging, corneal refractive surgery, presbyopia correction and corneal cross-linking. Among the guest speakers were refractive surgery experts Dan Reinstein, MD, Steven Schallhorn, MD, Karolinne Maia Rocha, MD, PhD, Farhad Hafezi, MD, PhD, and Marcony R. Santhiago, MD, PhD.
Save the Date

**SUBSPECIALTY CME'S**

**SEPTEMBER 23, 2017**  Oculoplastic Surgery

**OCTOBER 28, 2017**  Complex Cataract Management

**DECEMBER 9, 2017**  3rd Annual USC Ocular Oncology Conference

---

**BE VISIONARY**

Give the gift of sight today!

eye.keckmedicine.org/giving/

For more information, please contact Rebecca Melville, senior director of development (223) 442 - 5296 or at Rebecca.Melville@med.usc.edu