

# EyeWitness

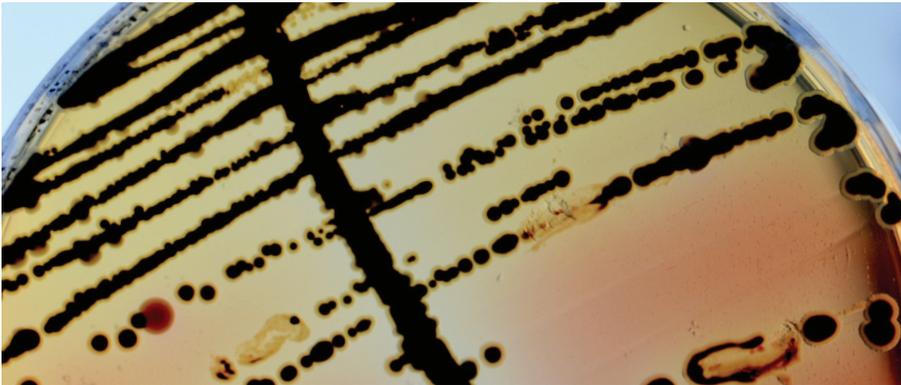
News from the Harvard Medical School Department of Ophthalmology

June 2014 #25



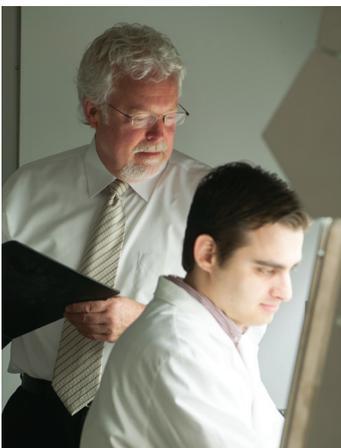
HARVARD  
MEDICAL SCHOOL

DEPARTMENT OF  
Ophthalmology



## Overcoming Antibiotic Resistance

*A conversation with Michael Gilmore, PhD, Director of the Harvard Medical School Department of Ophthalmology Infectious Disease Institute*



**M**ichael Gilmore, PhD is the Sir William Osler Professor of Ophthalmology and a member of the Biological and Biomedical Sciences Program at Harvard Medical School (HMS) as well as a member of the Microbial Sciences Initiative at Harvard University. He was part of the team that described the first vancomycin-resistant Enterococcus isolated in the U.S., and his laboratory currently focuses on developing new ways to prevent and treat antibiotic-resistant infections. In January 2014, Dr. Gilmore became the founding director of the newest multidisciplinary collaboration in the HMS Department of Ophthalmology: the Infectious Disease Institute (IDI). We talked with Dr. Gilmore to learn more about his plans to establish HMS as a

world leader in early-phase antimicrobial discovery; eye, ear, nose, and throat infection research; and early-phase, next generation genomics-based personalized diagnostic development.

### When did you become interested in infectious disease?

I've been interested in antibiotic resistance and infectious diseases since the early days of my training. My bachelor's senior thesis research was on antibiotic resistance. Finding new ways to treat infections at all sites in the body, with particular focus on the eye, ear, head, and neck, has been the main goal of my research.

### What kinds of infectious disease are particularly important to study right now?

Enterococci and staphylococci are leading causes of multidrug-resistant infection, particularly in hospitalized patients. Infections due to the methicillin-resistant bacterium, *Staphylococcus aureus* (MRSA), are especially common and can be life-threatening, as they are usually resistant to many antibiotics. In fact, since 2005, more people in the U.S. have been killed by MRSA than by HIV/AIDS. If we shift the conversation and talk about

*Continued on Page 14*

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Joan W. Miller, MD, FARVO  
Chief and Chair

## A Passion for Learning

The HMS Department of Ophthalmology has a proud history of teaching, training, and mentoring generations of students who become leaders in their fields. Our progressive educational program continues to evolve so that it can challenge and inspire students at every level of their medical education.

Our Residency Training Program features a step-wise surgical curriculum that integrates lectures and customized wet lab sessions with computer-simulated technologies, enabling residents to fine-tune their surgical knowledge and skills outside the operating room. Trainees also deepen their fund of knowledge through an array of journal clubs, teleconferences, scientific symposia, and conferences.

As our HMS Ophthalmology Centers of Excellence and Institutes continue to grow, so do new opportunities for our trainees. These multidisciplinary, collaborative “think tanks” conduct research and provide a learning environment for trainees at every level. Several have already spurred new clinical and research fellowship opportunities focused on subspecialty or disease-specific initiatives.

Our educational offerings have increased by more than 30 percent in just the last five years. Recent additions include the Strabismus Fall Festival, the Orbital Dissection Course, and the Genetics and Genomics of Eye Disease Symposium. These innovative courses attract prominent, international speakers and are rich forums for networking, scientific inquiry and learning. We’ve also added a number of named lectures, including the Ruthanne B. Simmons Lecture.

Our expanded lecture series, visiting professors program, and three-day Annual Meeting & Alumni Reunion also provide opportunities for developing strong alumni ties. These events, as well as departmental meetings, such as the Faculty Retreat, and professional association gatherings, like the New England Ophthalmological Society, encourage networking and conversations that spark innovation and collaboration.

We’re reaching out to global partners to match rising young talent with mentors and research opportunities in our department. And, we’ve added a new one-day workshop for international scholars prior to the biennial conferences for cornea and AMD. Last fall, the International Workshop preceding the Cornea Conference drew 20 international scholars. This year, the Symposium on Ocular Regeneration will precede the Third International Biennial Symposium on AMD.

To truly provide world-class training of future ophthalmic leaders, we must encourage lifelong learning. Consequently, the umbrella of education in our department also covers training opportunities for newly independent clinician scientists, faculty development workshops on mentoring or negotiation skills, and—more broadly still—multidisciplinary collaborations that unite academia, industry, biotech, and investors in a global dialogue.

As you read through this issue of *EyeWitness*, I hope you will keep an eye out for the many ways our department is creating a rich learning environment for trainees, faculty, and the entire ophthalmology and vision community. ■

*Joan W. Miller*  
Joan W. Miller, MD, FARVO  
Chief and Chair



JUNE 2014

Issue #25

*EyeWitness* is published three times per year by the Harvard Medical School Department of Ophthalmology and is intended for faculty, trainees, staff, alumni, affiliates, partners, and friends.

The HMS Department of Ophthalmology strives to provide:

- ✓ Premier clinical care and attention to the patient experience
- ✓ Transformational research that eliminates blinding diseases
- ✓ World-class training of future leaders

Editor-in-Chief:

Joan W. Miller, MD, FARVO

Ophthalmology

Communications Director:

Suzanne Ward

Senior Editor/Writer:

Wendy Weissner

Graphic Designer:

Beth Durkee

Contributors:

Jennifer Woods

Susan Cardoza

Please forward news, comments, and mailing changes to [eyenews@meci.harvard.edu](mailto:eyenews@meci.harvard.edu)

## International Research and Training Program Draws Top Students



Left to right: Shan Gao, MD, PhD[c], Yinan Han, MD, PhD[c] and Fei Fei, PhD[c]

The International Research and Training Program (IRTP) is strengthening ties with institutions around the world by offering opportunities for predoctoral and postdoctoral fellows to work with faculty in the HMS Department of Ophthalmology. Building on previous collaborations between HMS and Fudan University in Shanghai, China, the department established the IRTP in 2013 to formalize the process by which international research trainees are matched with faculty at Massachusetts Eye and Ear and Schepens Eye Research Institute. Led by Reza Dana, MD, MPH, MSc, FARVO, Neena

Haider, PhD, and Dong Feng Chen, MD, PhD, the IRTP Committee has reviewed 32 applications since its inception. Of those individuals, 11 funded international fellows have been accepted and matched with faculty members at Massachusetts Eye and Ear and Schepens Eye Research Institute and an additional five candidates are being considered for the 2014 academic year.

With more than 40 participating faculty members across the HMS Department of Ophthalmology, the IRTP has expanded its collaborative relations to include institutions in Shanghai, Beijing, the Netherlands, and Norway.

“One of the main benefits of this formal process,” noted Dr. Haider, “is that it creates constructive opportunities for both the students and our faculty. Because applications are rigorously screened by a committee, excellent qualified students are matched with mentors who are available and share common research interests.”

Before the creation of this program, individual faculty members were receiving letters of inquiry from international students interested in working in their laboratories. The advent of the IRTP harnessed this interest and potential through a formal application and screening process, thereby developing connections and collaborations with the respective foreign institutions.

Any interested faculty member may contact the IRTP Committee to participate: [irtp@meci.harvard.edu](mailto:irtp@meci.harvard.edu) ■

### Our International Trainees

- **Xueli Chen, MD, PhD**  
Eye and ENT Hospital, Fudan University, Shanghai, China
- **Rima Maria Corraya, MD**  
Oslo University Hospital, Norway
- **Yajian Duan, MD**  
Shanxi Eye Hospital, Taiyuan, Shanxi, China
- **Fei Fei, PhD[c]**  
Xijing Hospital, Xi’an, Shannxi, China
- **Shan Gao, MD, PhD[c]**  
The First Affiliate Hospital of Xi’an Jiaotong University, Xi’an, China
- **Yinan Han, MD, PhD[c]**  
Eye and ENT Hospital of Fudan University, Shanghai, China
- **Rakibul Islam, PhD[c]**  
University of Oslo, Norway
- **Lang Bai, MD, PhD**  
Nanfang Hospital affiliated with Southern Medical University, Guangzhou, China
- **Rui Liu, MD, PhD**  
Eye & ENT Hospital of Fudan University, Shanghai, China
- **Chunyan Qiao, MD, PhD**  
Beijing Tongren Hospital, Beijing Tongren Eye Center, Capital Medical University, China
- **Nan Wu, MD, PhD**  
Southwest Hospital, Third Military Medical University, China

## Highlights from International Educational and Research Exchanges

Since 2010, the HMS Department of Ophthalmology has been cultivating educational and research partnerships with Eye and ENT Hospital of Fudan University.

Early efforts focused on exploring potential opportunities for collaboration between HMS and Fudan and exchanging information about academic, clinical and research efforts of the respective institutions.

In July 2011, third-year HMS resident Nancy Huynh, MD became the first ophthalmology resident in the

U. S. to rotate through Eye and ENT Hospital in Shanghai, China. Now, international research trainees from Eye and ENT Hospital are furthering their training at Mass. Eye and Ear and Schepens through the IRTP.

Collaborative efforts also have encouraged more international participation in scientific conferences. In particular, the HMS Department of Ophthalmology Cornea Center of Excellence sponsored the inaugural International Workshop, which was held the day before the 28th Biennial Cornea Conference. This workshop

drew together a multidisciplinary group of more than 20 international scholars.

Looking ahead to October 2014, the HMS Department of Ophthalmology Ocular Regenerative Medicine Institute is organizing a symposium in partnership with the Third International Biennial Symposium on AMD. This one-day meeting will highlight the current and future status of using regenerative therapies to eliminate eye diseases. *See page 15 for details.*

## Mass. Eye and Ear's Comprehensive Ophthalmology and Cataract Consultation Service



Carolyn Kloek, MD with a patient

The Comprehensive Ophthalmology and Cataract Consultation Service (COS) at Mass. Eye and Ear welcomes close to 30,000 patient visits each year. Patients have access to a full spectrum of integrated care, including annual eye exams and subspecialty referrals for advanced care. Led by a team of primary care ophthalmologists who specialize in cataract evaluation and surgery, the Service is also pioneering efforts to enhance surgical outcomes.

In addition to providing routine eye and vision exams and eyeglass prescriptions, ophthalmologists conduct diabetic eye exams and manage a variety of eye problems, including cataracts, glaucoma, conjunctivitis, dry eye, blepharitis, and macular degeneration.

“What makes our service truly exceptional is that many of our doctors have received fellowship training,” commented Service Director Sherleen Chen, MD. Of the 11 physicians on the service,

8 have completed subspecialty training in corneal diseases, refractive surgery, glaucoma, or immunology and uveitis.

Not surprisingly, Mass. Eye and Ear is a global leader in cataract extraction with intraocular lens implantation, and performs more than 2,500 cataract surgeries each year. In addition, the COS has among the lowest intra-operative complication rates worldwide.

The Service also continues to exceed international benchmarks for refractive outcomes after cataract surgery. As highlighted in *Mass. Eye and Ear's 2013 Quality and Outcomes Report*, the international average for percentage of cataract surgical cases within range of target refraction is between 71 and 90 percent, and the Service has consistently exceeded this benchmark. In a 2014 report published in the journal *Ophthalmology*, members of the COS established a new benchmark for a teaching hospital: 94 percent of patients achieved within one diopter of target refraction after cataract surgery.

COS physicians practice at several Mass. Eye and Ear locations, as well as in collaboration with Dedham Medical Associates (a part of Atrius Health).

“This is an exciting time,” observed Dr. Chen. “As the hospital continues to grow, we are pleased to be able to offer comprehensive ophthalmology services at four convenient locations throughout the greater Boston area to better serve our patients.” ■

### LOCATIONS:

- Mass. Eye and Ear (main campus): 243 Charles Street, Boston
- Mass. Eye and Ear, Longwood: 800 Huntington Avenue, Boston
- Mass. Eye and Ear, Stoneham: One Montvale Avenue, Stoneham
- Mass. Eye and Ear, Waltham (coming soon): 1601 Trapelo Road, Waltham
- Dedham Medical Associates: One Lyons Street, Dedham

## Mass. Eye and Ear's Same-Day Service Streamlines Urgent Eye Care for MGH and BWH Patients

Mass. Eye and Ear's new Same-Day Service has provided significant benefit for Massachusetts General Hospital and Brigham and Women's Hospital patients who require urgent eye care. Launched in December of 2013, the Service is a welcome alternative to the Emergency Department and resulting high patient co-payments.

“This service is designed to accommodate outpatients who present to their MGH provider with ocular complaints that are urgent, but not true emergencies,” said Amy Watts, OD, who directs the Optometry and Contact Lens Service and oversees the Same-Day Service. “There is also same-day availability for patients who need diabetic eye exams, which are recommended annually.”

When physicians page the Same-Day Service a Mass. Eye and Ear Optometrist returns the call to discuss the severity of the patient's signs and symptoms. If needed, the patient will be given an appointment that same day. If the patient does not need to be seen that day, the Optometrist will coordinate a future appointment. Patients with more severe problems may be triaged to the Mass. Eye and Ear Emergency Department. The new service also triages care for patients with diabetic eye disease who require an OPTOS diabetic eye screening or a diabetic eye exam with same-day availability. ■

COS Members



Sheila Borboli-Gerogiannis, MD, FACS



Stacey C. Brauner, MD, FACS



Han-Yin Peggy Chang, MD



Sherleen Chen, MD, FACS  
Director



Matthew Gardiner, MD



Scott Greenstein, MD, FACS



Carolyn Kloek, MD



Ann-Marie Lobo, MD



Ojha Pallavi, MD

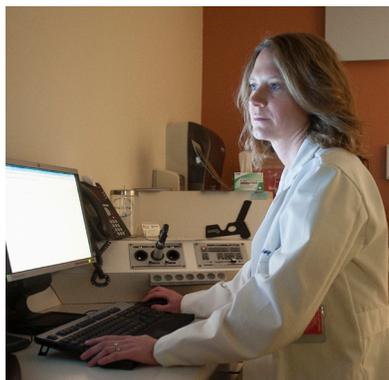


Zhonghui Katie Lou, MD, PhD



George Papaliodis, MD

Optometry and Contact Lens Service



Amy Watts, OD

The expanded Optometry and Contact Lens Service, directed by Amy Watts, OD, is streamlining care for patients at Mass. Eye and Ear’s main campus, as well as at Mass. Eye and Ear, Longwood and Stoneham. The service provides routine eye exams, including ocular health assessment and refraction for eyeglasses; contact lens fittings and evaluations; and care for patients who also see specialty physicians.

The Optometry and Contact Lens Service also offers patients the ability to schedule a

complete eye exam and contact lens visit in one convenient appointment. Patients are reporting increased satisfaction, and there is an overall reduction in the lead time for routine care in both the Comprehensive Ophthalmology Service and Glaucoma Service.

Optometrists include Mark Bernardo, OD, Matt Goodman, OD, Yan Jiang, OD, Charles Leahy, OD, Brittney Mazza, OD, Amy Scally, OD, and Amy Watts, OD. All are trained to detect ocular disorders and will refer to the appropriate ophthalmology services as needed. ■

## Developing Educational and Clinical Collaborations in Uganda and Nepal



*Dr. Roberto Pineda II, MD operates on a patient with cataracts.*

During a week-long trip to Dhulikhel, Nepal in December 2013, Roberto Pineda II, MD (Mass. Eye and Ear) and Ankoor Shah, MD, PhD, MS (Boston Children's Hospital) delivered phaco instruction and didactic lectures to physicians at Dhulikhel Hospital, a Kathmandu University teaching hospital. Working with Dr. Purnima Rajkarnikar, they performed 18 phaco surgeries for patients with cataracts. Drs. Pineda and Shah also met several times with Kathmandu University's Vice Chancellor, Dr. Ram Kantha Makaju Shrestha, to develop a Harvard affiliation with ophthalmology and otolaryngology, cultivate co-participation in grand rounds for ophthalmology, and generate more skill transfer and exchange programs.

A few months later, during the week of March 10, 2014, representatives from Mass. Eye and Ear Departments of Otolaryngology and Ophthalmology visited Mbarara, Uganda to further explore the developing partnership with the Faculty of Medicine at Mbarara University of Science and Technology. Dean Cestari, MD, Shizuo Mukai, MD, and Cynthia Qian, MD, CM met with Ophthalmology faculty members to discuss potential collaborations. Additionally, Drs. Mukai and Qian gave lectures and hands-on demonstrations of the applications of smartphone technology in enhancing ophthalmic care delivery, expanding access to easily accessible educational resources, and providing a cost-effective alternative to expensive, traditional fundus ophthalmoscopy. ■



*Dr. Cynthia Qian, a clinical retina fellow working with Dr. Shizuo Mukai, demonstrates a technique for using smartphone fundus photography.*



### New Research Collaboration Exploring NeoStem's VSEL™ Technology for Retinal Repair

In March 2014, Massachusetts Eye and Ear/Schepens Eye Research Institute entered into a second sponsored research collaboration with NeoStem, Inc., a leader in the emerging cellular therapy industry. The research is being conducted in the laboratory of principal investigator Michael Young, PhD, Co-Director of the HMS Ophthalmology Ocular Regenerative Medicine Institute. The objective of the research is to investigate the role of very small embryonic-like stem cells ("VSELS™"), as well as CD34+ cells, in a study that will compare the efficacy of these two cell types for retinal repair.

"We are enthusiastic about continuing to work with NeoStem to explore the regenerative potential of their human VSEL™ Technology," said Dr. Young. "Our work will use animal models to determine whether highly enriched human VSELS™, when injected in the vitreal or subretinal space, can migrate and integrate into areas of damage and have the ability to differentiate and express markers of retinal stem cells, neuronal cells, and photoreceptors." ■

### Office of Global Surgery and Health Expands Reach with Blog

Mass. Eye and Ear's Office of Global Surgery and Health (OGSH) has created a blog platform ([globalsurgeryandhealth.com](http://globalsurgeryandhealth.com)) to encourage information sharing in the field of eye, ear, nose, and throat. Working with partners in the global health community, the OGSH blog will maintain a database, calendar and map of global surgery activity that is not currently captured elsewhere. To make a contribution, contact Wendy Williams at [wendy\\_williams@meci.harvard.edu](mailto:wendy_williams@meci.harvard.edu)

**NEW**



*Department members and friends enjoyed a beautiful Florida evening at the Annual HMS ARVO reception.*



## In Review: ARVO 2014

HMS Ophthalmology was well represented at ARVO 2014, held this year in sunny Orlando, Florida from May 4 through 8. This year, 8 clinical fellows and 13 residents attended the conference. Departmental abstract submissions totaled 261, which included 48 papers, 184 posters, 5 educational courses, 4 symposia, 4 mini symposia, 12 special interest groups, 2 cross sectional group sessions, and 2 workshops. **Janey Wiggs, MD, PhD**, **Reza Dana, MD, MPH, MSc, FARVO**, **Pedram Hamrah, MD**, and **Demetrios Vavvas, MD, PhD** were this year's top faculty contributors. **Patricia D'Amore, PhD, MBA, FARVO** was one of four featured panelists at the Sixth Annual Women in Eye and Vision Research Luncheon, a networking event that included a panel presentation and discussion on mentoring for success.

Several faculty members, trainees, and alumni received awards. **Joseph F. Rizzo III, MD, FARVO** earned the rank of Gold Fellow, as did two alumni: **Joel S. Schuman, MD, FACS, FARVO** and **Dimitri Azar, MD, MBA, FARVO**. Four alumni earned the rank of Silver Fellow, including: **Jayakrishna Ambati, MD, PhD, FARVO**, **Shiro Amano, MD, FARVO**, **Susana Marcos, PhD, FARVO**, and **Giovanni Staurenghi, MD, FARVO**. **Geeta K. Vemuganti, DNB, FAMS, MD**, who is a collaborative researcher with **David Sullivan, MS, PhD, FARVO**, received the 2013 Merck Collaborative Research Fellowship. Schepens Adjunct Scientist **Martine J. Jager, MD, PhD** was selected to receive the Joanne G. Angle Award, the highest service honor bestowed by ARVO to a volunteer professional. National Eye Institute Travel Grants were awarded to ophthalmology resident **Aubrey Gilbert, MD, PhD**, research fellow **Maria Lopez, MD**, and HMS Ophthalmology alumna **Yao Liu, MD**. Alumnus **Balamurali K. Ambati, MD, PhD** received the 2014 Ludwig von Sallmann Clinician-Scientist Award. Lastly, **Chari Fernandez Godino, PhD**, who is a member of the Ocular Genomics Institute as well as a Senior Fellow in the laboratory of **Eric Pierce, MD, PhD**, was awarded the 2014 MIT Outstanding Poster Award for her poster entitled, "A Primary RPE Cell Culture Model to Study EARLY Mechanism of Macular Degeneration." ■

## A Double-Header: Joan W. Miller and Patricia A. D'Amore Selected for 2015 Achievement Awards

The Association for Research in Vision and Ophthalmology (ARVO) announced the 2015 Achievement Awards at the annual meeting held May 4 through 8 in Orlando, Florida. Patricia D'Amore, PhD, MBA, FARVO received the Proctor Medal and Joan W. Miller, MD, FARVO received the Mildred Weisenfeld Award for Excellence in Ophthalmology. Each will present an award lecture at the 2015 ARVO annual meeting in Denver, Colorado, and both lectures will be published in the journal *Investigative Ophthalmology & Visual Science*.

Established in 1949, the Proctor Medal is named for Dr. Francis I. Proctor, an ophthalmologist who conducted extensive research on the etiology and treatment of trachoma. This was the first ophthalmology-related award to recognize basic scientists in the field.

The Mildred Weisenfeld Award for Excellence in Ophthalmology was established as a tribute to Ms. Weisenfeld's outstanding contributions to the clinical practice of ophthalmology, which included the founding of Fight for Sight in 1946. Dr. Miller is the first woman to receive this honor.

Drs. D'Amore and Miller have been at the forefront of angiogenesis and vision research for over three decades. Together, they and their collaborators have made numerous

seminal discoveries in the field of ophthalmology — forming new paradigms in basic science and successfully translating groundbreaking discoveries into anti-angiogenic therapies. Their contributions include the identification of vascular endothelial growth factor (VEGF) as the elusive "Factor X" that causes pathological blood vessel growth in blinding neovascular eye diseases. These investigations formed the scientific foundations of anti-VEGF therapies, which were first approved for clinical use in 2004 and are currently used to treat various cancers and intraocular vascular diseases, such as diabetic retinopathy and age-related macular degeneration (AMD). The impact of their research has been extraordinary: more than 500,000 ophthalmic patients in the U.S. and over 1 million worldwide are treated annually with anti-VEGF agents, and it is estimated that two years of anti-VEGF treatment for neovascular AMD reduces visual impairment by 37 percent and legal blindness by 7 percent.



*Joan Miller, MD, FARVO (left) and Patricia D'Amore, PhD, MBA, FARVO (right).*

*"We are fortunate to have worked with so many talented collaborators, and we share these honors with them."*

*— Joan W. Miller, MD, FARVO*

Drs. D'Amore and Miller have made additional notable contributions to the field of ophthalmology, including the development of a widely used mouse model of oxygen-induced retinopathy and the discovery of a pharmacological breakthrough for patients with neovascular AMD (photodynamic therapy in combination with verteporfin (Visudyne®)). ■

## Simulation Education Program Leads to Residents' Improved Operating Room Performance at VA Boston



Mary Daly, MD

The ophthalmology simulator training program at the Veterans Affairs (VA) Healthcare System, which consists of surgical and diagnostic components, is helping to refine ophthalmology residents' performance in the operating room. In a 2013 report in the *Journal of Cataract and Refractive Surgery*, researchers demonstrated the program's effectiveness in improving ophthalmology residents' operating room performance during capsulorhexis, the technique that is used to remove the lens capsule during cataract surgery.

Developed by Mary Daly, MD in 2006, the first ophthalmology simulation laboratory in the VA Healthcare System began with an Eyesi Surgical simulator, a virtual reality platform for intraocular surgical training. Today, the VA Boston is one of five VA sites tracking ophthalmic surgery data in order to establish a prospective outcome-based program for comparative assessment and enhancement of the quality of cataract surgery across the VA system.

Dr. Daly, who is Director of the Ophthalmic Surgical and Diagnostic Simulation Laboratory and Associate Director for the HMS Ophthalmology Residency Training Program for the VA Boston Healthcare System, has presented her work on ophthalmic surgical simulation at several venues, including the Association of VA Surgeons and the American Academy of Ophthalmology annual meetings, as well as International Symposium on Refractive Surgery, Cataract, and Cornea, and the European Association for Vision and Eye Research Meeting.

Currently, research efforts at the VA Boston include investigations of ophthalmic surgical simulation in dominant vs. non-dominant hands; construct and face validity of indirect ophthalmoscope simulator; and effectiveness of ophthalmic surgical simulation training vs. paper-based manual training on physiologic tremor and dexterity in dominant and non-dominant hands. ■

## Tuning in to Patient Needs, Graves' Disease and Thyroid Eye Disease

The Massachusetts Eye and Ear and the Graves' Disease & Thyroid Foundation hosted a free educational event for patients living with Graves' disease and thyroid eye disease on May 10 at Mass. Eye and Ear. Organized by Suzanne Freitag, MD, Director of Mass. Eye and Ear's Ophthalmic Plastic Surgery Service, this regional forum provided patients with an opportunity to learn about their diagnoses and have their questions answered by physicians who are experienced in the management of thyroid problems and thyroid-related eye problems.

"Such a meeting really goes to the heart of our collaborative and highly specialized clinical and research environment here at Mass. Eye and Ear," commented Gregory Randolph, MD, FACS, FACE who is Director of the General Otolaryngology Service and Director of the Thyroid and Parathyroid Surgical Service at Mass. Eye and Ear. Of note, the Mass. Eye and Ear Ophthalmic Plastic Surgery Service is well known for its collaborative efforts with Mass. Eye and Ear Otolaryngology as well as many departments at Massachusetts General Hospital.

The American Association of Clinical Endocrinologists estimates that up to 30 million Americans may be affected by a thyroid disorder. Two autoimmune disorders, Graves' disease and Hashimoto's thyroiditis, are responsible for the vast majority of cases of hyperthyroidism (overactive thyroid) and hypothyroidism (underactive thyroid). Patients with autoimmune thyroid disease may experience a condition called thyroid eye disease, which



can cause dryness, light sensitivity, swelling, eye protrusion, and double vision.

"The management of thyroid disease and related eye problems can be challenging for patients and doctors alike," explains Dr. Freitag. "The constellation of symptoms is unique in each patient, and individuals cope with them differently. By hearing patient questions and concerns, participating physicians can be more attuned to the needs of their patients."

In addition to Drs. Freitag and Randolph, physician presenters spanned the fields of ophthalmology, otolaryngology, internal medicine, and endocrinology and included Daniel Lefebvre, MD, Michael Yoon, MD, Dean Cestari, MD, Ben Bleier, MD, and Giuseppe Barbesino, MD. ■

## Orbital Dissection Course Attracts Fellows from Around the Country

Attracting 30 participants, this year's Orbital Dissection Course was held in February at Mass. Eye and Ear. For the first time, participation in the course was extended to include American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS) fellows from around the country. Six faculty members, including guest lecturer Michael Kazim, MD of Columbia University, taught techniques in orbital dissection to HMS Ophthalmology residents, Mass. Eye and Ear ophthalmic fellows, and additional ASOPRS fellows using fresh frozen cadaver heads.

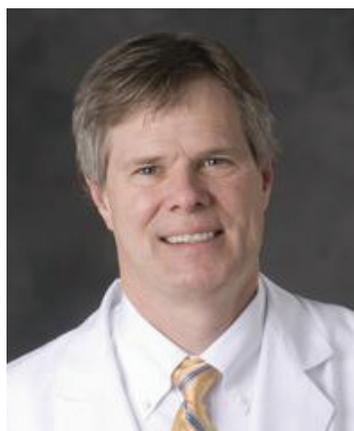


Nahyoung Grace Lee, MD, a Clinical Oculoplastics Fellow at Mass. Eye and Ear, commented, "These types of courses are very difficult to find and tend to be very expensive. But, this orbital dissection course was a well-organized, all-day course that was a highly effective and educational experience. I highly recommend this course to anyone who is interested in oculoplastics and orbital surgery."

The course was organized by Ophthalmic Plastic Surgery Service Director Suzanne Freitag, MD, Michael Yoon, MD, and Daniel Lefebvre, MD. ■



## Emerging Discoveries in the Field of Glaucoma Genetics: The 2nd Annual Ruthanne B. Simmons Lecture



*R. Rand Allingham, MD*

Glaucoma specialist R. Rand Allingham, MD delivered the 2nd annual Ruthanne B. Simmons Lecture in Ophthalmology on Wednesday, February 5th. Dr. Allingham, who is the Richard and Kit Barkhouser Professor of Ophthalmology at Duke University Medical Center, opened with homage to Dr. Simmons, who died of breast cancer at the age of 43. A glaucoma and cataract specialist as well as a Clinical Instructor in Ophthalmology at Harvard

Medical School, Dr. Simmons practiced alongside her father, Dr. Richard (Dick) Simmons, for many years with Ophthalmic

Consultants of Boston. Through a slideshow of photographs, she was remembered for her compassion and dedication—and for her radiant smile.

Dr. Allingham's presentation entitled, "DNA in Translation: Stories about Pressure, Proteins, and Genes in Glaucoma," focused on the genetics of glaucoma, including primary open-angle glaucoma (POAG), exfoliation glaucoma, and primary congenital glaucoma. In particular, he examined recent discoveries in the field of glaucoma genetics, which, he says, "have been the result of hunches, observations, and genetic hints fueled by a global effort to get to the bottom of the world's leading cause of irreversible blindness."

The event concluded with a reception in the Lank Family Dining Room on the 7th floor of Massachusetts Eye and Ear. Financial support for this event was provided by the Ruthanne B. Simmons Lectureship in Ophthalmology, an endowed fund at Mass. Eye and Ear. ■

## Alumni Giving Society of HMS Ophthalmology @ Mass. Eye and Ear

Our alumni know first-hand that supporting the vital work of our students and faculty in the HMS Department of Ophthalmology helps drive continued achievement across all areas of education, research and patient care. In 2009, we launched the **Alumni Giving Society of HMS Ophthalmology@Mass.Eye and Ear** as a means to encourage support of the institution and teachers who inspired us. Last year, the Alumni Giving Society raised nearly \$1 million in support of a wide variety of initiatives, which included HMS Chairs based at Mass. Eye and Ear and many others.

### Our Fiscal Year is Coming to a Close, Please Consider a Gift!

Gifts to the 2014 Alumni Giving Society provide extraordinary opportunities for learning and discovery. You may designate your gift in any way you choose or support one of our numerous programs.

Members who make annual gifts of \$1,000 or more within the fiscal year (October 1–September 30) are invited to Department events throughout the year and are recognized in this newsletter and Mass. Eye and Ear publications.

### To Learn More...

Please contact Nan Wetherhorn in the Development Office at 617-573-3388 or Nan\_Wetherhorn@meei.harvard.edu. Gifts are tax-deductible.

### *Grateful thanks to the following 2013/14 Society members:*

#### Contributors as of June 3, 2014

##### VISIONARY | Gifts of \$10,000 or more

Robert J. D'Amato, MD, PhD and Janey L. Wiggs, MD, PhD	Jack V. Greiner, OD, DO, PhD
Evangelos S. Gragoudas, MD	Joan W. Miller, MD, FARVO
	Frans Van de Velde, MD, PhD

##### INNOVATOR | Gifts of \$5,000 - \$9,999

Anthony P. Adamis, MD	David G. Hunter, MD, PhD
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##### PIONEER | Gifts of \$2,500 - \$4,999

Jettie M. Burnett, MD and Shelby R. Wilkes, MD, MBA	Michael F. Marmor, MD
Thaddeus P. Dryja, MD	Shizuo Mukai, MD
Ralph H. Hinckley, MD	William J. Power, MD
Sulayman E. Jallow, MD	Arturo R. Quevedo, MD*
	Demetrios Vavvas, MD, PhD

##### FRIEND | Gifts of \$1,000 - \$2,499

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Robert Edward T. Ang, MD and Annabelle Ching-Ang, MD	Mohandas M. Kini, MD
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Herbert Giller, MD	Joseph F. Rizzo III, MD
James M. Gordon, MD	Jose E. Sanchez-DiMartino, MD
Jo-Ann E. Haney-Tilton, MD	Ankoor S. Shah, MD, PhD
Peter S. Hersh, MD	Erich C. Strauss, MD
John A. Irvine, MD	Sonia H. Yoo, MD

*\*deceased*

## Consider a Gift!

*Help us continue a culture of excellence by planting the seeds of possibility today. Two current needs within our department are additional educational initiatives and technology support in the David G. Cogan Laboratory of Ophthalmic Pathology, and the renovation and expansion of our Ophthalmology Wet Lab.*



### Cogan Laboratory: Expanding Departmental Resources

The Ophthalmic Pathology Service, based at the David G. Cogan Laboratory of Ophthalmic Pathology at Mass. Eye and Ear, is a regional and national center for the histopathologic diagnosis of ocular conditions and is an integral part of training physicians and researchers in eye pathology. The Laboratory seeks support to develop additional educational programs and expand its central departmental resources. This resource expansion will encourage expanded collaborations for investigators requiring expertise in the interpretation of tissues used in research and clinical studies.

Directed by Frederick Jakobiec, MD, DSc with Rebecca Stacy, MD, PhD serving as Associate Director, the Cogan Laboratory cooperates extensively with the Massachusetts General Hospital Pathology Service to provide enhanced diagnostic

services, resident and fellow teaching, and clinico-pathology research projects. Additionally, an alliance with Boston University (BU) Department of Ophthalmology allows BU residents to rotate through the Cogan Laboratory. At Mass. Eye and Ear, the eye pathology program offers several educational events, including a pathology-based, visiting professor lecture and Ophthalmic Pathology Rounds.

### Ophthalmology Wet Lab: Expansion and Renovation

Heavily utilized by ophthalmology trainees, the Mass. Eye and Ear Ophthalmology Wet Lab is a critical component of surgical training. Designating a gift to the Ophthalmology Wet Lab will support an expansion that will triple the space to accommodate eight practice stations and a proctor station with a plasma screen. This renovation will provide ample, flexible space to accommodate the EyeSi Surgical simulator, surgical supplies, and future developments in surgical training equipment and techniques.

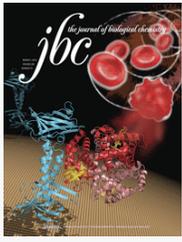
The HMS Residency Training Program features a step-wise surgical curriculum that integrates lectures and customized wet lab sessions with computer-simulated technologies, enabling residents to fine-tune their surgical knowledge and skills outside the operating room. The current wet lab has one full practice station with equipment that includes a Leica operating microscope, an Alcon Infiniti phaco machine, and an EyeSi surgical simulator. With your support, the renovated Wet Lab will become a highlight of the HMS Ophthalmology Residency Training Program and a valuable teaching space for faculty and fellows. ■



### Potential Gift Designations

- Chair of Ophthalmology Discretionary Fund
- **David G. Cogan Laboratory of Ophthalmic Pathology**
- Endowments for faculty and trainees
- Fellowship training
- HMS Chairs based at Mass. Eye and Ear
- Howe Library of Ophthalmology
- Mariana Mead Lectureship
- Multidisciplinary Institutes and Centers of Excellence
- **Ophthalmology Wet Lab**
- Residents' Fund
- Robert Brockhurst Academic Development Award Fund
- Unrestricted Support
- Vision Rehabilitation Service

### Human Retinal Progenitor Cell Transplantation Preserves Vision



Schepens researchers—Michael Young, PhD and Petr Baranov, MD—and colleagues published a study in the *Journal of Biological Chemistry*

demonstrating long-term survival of human retinal progenitor cells in an established model of retina degeneration (March 7, 2014).

### Drivers with Hemiopia Fail to Detect Pedestrians at Intersections, Part IV

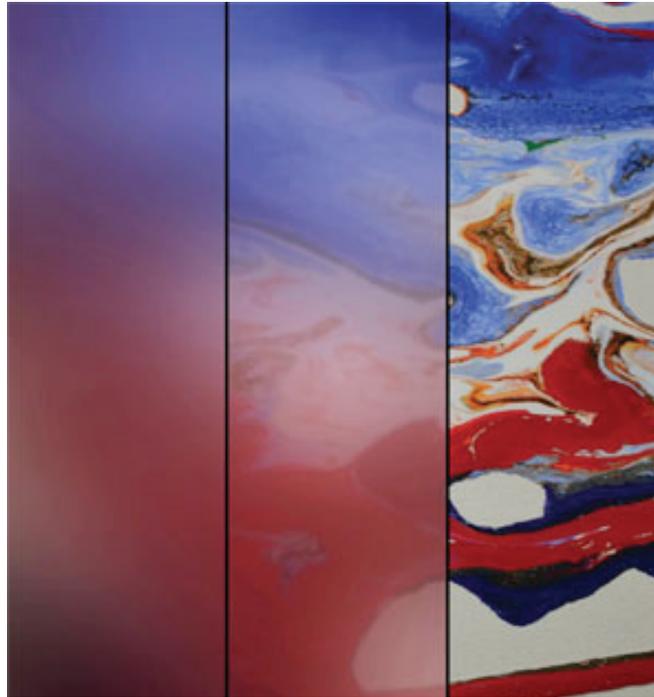
Alex Bowers, PhD, Eli Peli, OD, MSc and co-authors published the next paper in a series about blind-side deficits in drivers with hemiopia in *IOVS* (March 13, 2014). The authors indicate that their ultimate goal is to determine the extent to which people with this condition can compensate for lost vision while driving, with the long-term goal of developing and evaluating devices and training that will assist them to drive more safely.

### Ocular Blast Injuries in Mass-Casualty Incidents: The Marathon Bombing in Boston, Massachusetts, and the Fertilizer Plant Explosion in West, Texas

Yoshi Yonekawa, MD and colleagues published a multicenter case series in *Ophthalmology* that described the ocular injuries sustained by survivors of the 2013 Boston Marathon bombings and fertilizer plant explosion. Some of the key lessons learned include promoting the use of rigid eye shields by first responders and deepening the ophthalmology call algorithm (May 16, 2014).

## Visual Plasticity: Even after Extended Early Blindness, Visual Function Can Be Retained

Deprivation of vision during critical periods of childhood development has long been thought to result in irreversible vision loss. However, researchers from Schepens Eye Research Institute/Mass. Eye and Ear, HMS, and MIT have challenged that theory with the finding that contrast sensitivity—an analysis of basic spatial vision—improved in a unique population of pediatric patients who had early onset blindness from bilateral cataracts (beginning before 1 year of age and lasting 8 to 17 years) and later had the cataracts removed.



*Pictured are simulated views of an abstract painting to depict the development of pattern vision following early and extended blindness. (Image is courtesy of Luis Lesmes, Michael Dorr, Peter Bex, Amy Kalia, & Pawan Sinha)*

Published in the *Proceedings of the National Academy of Sciences USA*, these findings have important implications for potential treatments of congenital cataracts, in addition to providing insight into fundamental questions of development and plasticity in neuroscience. Additionally, they suggest that the human visual system can retain plasticity beyond critical periods, even after early and extended blindness results.

The research took place as part of Project Prakash, a joint scientific and humanitarian effort

led by Pawan Sinha, Professor of Vision and Computational Neuroscience at MIT. Since 2003, members of the Sinha laboratory have worked with ophthalmologists in India and have conducted several studies with individuals who gained sight late in life. In the Western world, children born with cataracts typically are treated in the first year of life, but children with this condition in rural India often go untreated because their families lack the necessary financial resources. Project Prakash aims to address problems of treatable blindness in India by providing surgeries free of charge to children with cataracts.

The Schepens/Mass. Eye and Ear contribution to Project Prakash was an iPad-based assessment of visual function and new analytical methods to track vision changes in individuals, developed in the laboratory of Peter Bex, PhD. Dr. Bex's test measures contrast sensitivity function, which is the minimum contrast required to detect symbols of various sizes. This new test is more precise and easier to apply than previous contrast sensitivity assessments. ■

## Higher Total Folate Intake May Be Associated with Lower Risk of Exfoliation Glaucoma

In a new study published in *JAMA Ophthalmology*, researchers from Mass. Eye and Ear, Brigham and Women's Hospital/HMS, and Harvard School of Public Health observed that folate intake was associated with a lower risk for exfoliation glaucoma or suspected exfoliation glaucoma, supporting a possible causal role of homocysteine in these syndromes.

Exfoliation glaucoma is caused by exfoliation syndrome, a condition in which white clumps of fibrillar material form in the eye. It is the most common cause of secondary open-angle glaucoma, and a leading cause of blindness and visual impairment. Currently, effective strategies are lacking for the prevention of this disease.

The prospective cohort study evaluated the association between the intake of vitamin B6, vitamin B12, and folate and exfoliation glaucoma, using more than 20 years of follow-up data from the Nurses' Health Study and the Health Professionals Follow-up Study (78,908 women and 41,221 men).

Significant research attention has been given to studying the role of homocysteine in exfoliation glaucoma, and elevated homocysteine is considered one possible risk factor for exfoliation glaucoma. However, high intake of vitamin B6, vitamin B12, and folate are associated with lower homocysteine levels.

"More work needs to be done," said Louis Pasquale, MD, FARVO, senior author and Director of the Glaucoma Service at Mass. Eye and Ear, "but these are critical insights that may give us a better understanding of how exfoliation glaucoma progresses, which brings us closer to developing interventions or treatments that prevent this blinding disease." ■



## The Alternative Complement Pathway Regulates Pathological Angiogenesis in the Retina



A defining feature in proliferative retinopathies is the formation of pathological neovessels. New research by Kip Connor, PhD and members of the

Angiogenesis Laboratory at Mass. Eye and Ear/Schepens published in *The FASEB Journal* suggests that the complement system allows the body to identify these abnormal vessels and specifically target them for removal without damaging healthy cells (March 25, 2014).

## Enterococci: From Commensals to Leading Causes of Drug Resistant Infection

Over the past 30 years, multidrug-resistant enterococci have emerged as leading causes of hospital acquired infection. Researchers have consolidated much of what is known about enterococci in this free, public access textbook—co-edited by Michael Gilmore, PhD—available on the National Institutes of Health's NCBI bookshelf (March 28, 2014).

## Mass. Eye and Ear Launches New Clinical Publication, *Eye Advisory*

Mass. Eye and Ear strategically launched a new clinical ophthalmology newsletter, *Eye Advisory*, in April—the month that marked the one year anniversary of the 2013 Boston Marathon bombings. Mailed to 18,000 practicing ophthalmologists, *Eye Advisory* offers practical, concise and relevant best practice information to busy clinicians, and aims to raise awareness of the department's clinical strengths among the U. S. ophthalmology community.

The inaugural issue focused on ocular trauma and provided benchmark protocols for managing open globe injuries. The issue also highlighted key lessons learned from the 2013 Boston Marathon bombings. *Eye Advisory* will be published bi-annually in the spring and fall. To receive a copy, please email [eyenews@meci.harvard.edu](mailto:eyenews@meci.harvard.edu). Back issues are available online at [www.MassEyeAndEar.org](http://www.MassEyeAndEar.org). ■



**Staying Boston Strong!**  
Improving ophthalmic disaster readiness and response planning

Inside:

- Benchmark protocols for managing open-globe repairs
- Keeping endophthalmitis rates near zero

April 2014

**April 15, 2013:** Residents, fellows and faculty from Mass. Eye and Ear and Harvard Medical School (HMS) clinical affiliates and Boston Medical Center at Boston University coordinated efforts to provide ocular trauma care to victims of the Boston Marathon bombings.

- 164 of 264 casualties were transported to Level 1 treatment centers affiliated with Harvard Medical School, Boston University and Tufts University Medical School.
- Mass. Eye and Ear ophthalmology residents were strategically mobilized in the Emergency Department and across several HMS clinical affiliates.
- 21 spectators and one runner required ophthalmic consultations.

\*Mass General Hospital, Boston Children's Hospital, Beth Israel Deaconess Medical Center and Brigham and Women's Hospital

## Achieving Target Refraction after Cataract Surgery

Physicians from Mass. Eye and Ear's Comprehensive Ophthalmology and Cataract Consultation Service published a study in



*Ophthalmology* that established a new benchmark for a teaching hospital: 94 percent of patients achieved within 1.0 D of target refraction after cataract surgery (February 2014). Cataract surgery refractive outcomes at Mass. Eye and Ear exceed average international benchmarks.

## Overcoming Antibiotic Resistance, continued from Page 1

healthcare costs, we're looking at more than \$30 billion per year spent on antibiotic-resistant infections.

**You were editor-in-chief of a new textbook on infectious disease that was just published in March. What is unique about this text?**

The textbook is called *Enterococci: From Commensals to Leading Causes of Drug Resistant Infection*. It's the first public access infectious disease textbook to be available free-of-charge on the National Institutes of Health's NCBI bookshelf. As leaders in this field, we want to freely share all that we know so that others can help in the search for new treatments for infections caused by these highly resistant microbes. This enhanced access, we hope, will draw in more people to tackle the infectious disease dilemma together.

**Are there collaborations that are currently trying to solve the infectious disease problem? Who are the key players involved in these discussions?**

The Harvard-Wide Program on Antibiotic Resistance—which has received more than \$17 million since 2006 through the National Institutes of Health—is comprised of a team of Harvard University and Harvard Medical School scientists who take novel approaches to understand antibiotic resistance. Together, they are working to develop new drugs to treat antibiotic resistant infections that pharmaceutical companies can then go on to develop. The Boston Area Antibiotic Resistance Network is hosted by this Program. Our 2013 BAARN symposium—which I chaired and was held at the AstraZeneca facility in Waltham, Mass.—attracted a diverse audience that included representation from industry, biotech, academia, diagnostics, medical centers, and others.

**What was the impetus to launch the Infectious Disease Institute (IDI)?**

Infections of the eye, ear, nose, and throat are some of the main reasons that patients go to their doctors. Because these infections are becoming more difficult to treat, we want to make Massachusetts Eye and Ear the world leader in developing the latest technologies to diagnose and treat infections, provide patients with cutting-edge care, and train future leaders in the field.

**You are quoted in the April/May issue of *Harvard Magazine* as saying, “there’s a lag between when we realize a problem is big enough and when we can come up with a solution.” How might the IDI help shrink this timeline?**

The IDI will hopefully expedite the bench-to-bedside translation by starting to screen new compounds that may be useful in controlling infection, rather than waiting until we completely run out of effective antibiotics. Our only hope for keeping up with the rapid development of antibiotic resistance is to increase our drug discovery efforts to outpace it.

**What departmental assets are you leveraging?**

Since we launched the IDI in January, one of our early wins was the creation of a strain and metadata repository in the Diagnostic Microbiology Laboratory at Mass. Eye and Ear. Now, the repository contains more than 400 isolated bacterial strains, and we anticipate this to climb to over 1,500 strains of bacteria and fungi by the end of 2014. These strains will be used in collaborative research with companies interested in testing

their latest antibiotics against recent isolates, in our own research focusing on new ways to treat and prevent infections of the eye, ear, nose and throat, and possibly with others who share our interest in developing new treatments for these infections. We are also working closely and utilizing the expertise of the Ocular Genomics Institute, led by Dr. Eric Pierce.

**What's next? Where is your research taking you?**

When the first antibiotics, such as penicillin, came on the market, they were life savers. But over time, overuse of these antibiotics caused another problem: antibiotic resistance. It turns out that when you destroy all the bacteria in order to treat an infection, the bacteria mutate and antibiotic resistance develops. So we're moving from a “one-size-fits-all approach” to fine-tuning the antibiotics that we have so they can be used to treat specific infections, such as *Staphylococcus aureus*, without killing the “good” bacteria too. We're also working on new ways to more quickly and accurately diagnose infections to ensure we have the right drug for the job. Finally, we're exploring new types of drugs as well as new strategies for prevention of infection, including changing the composition of contact lenses and other devices, and possibly even vaccines. ■

## High-Volume, Affordable Cataract Surgery at Aravind

India's Aravind Eye Hospital—one of the HMS Department of Ophthalmology's international partners—is revolutionizing the concept of efficient and sustainable eye care across the developing world. In the past two years, Aravind has received increasing attention in global media outlets, such as the *New York Times* and *The Futurist*, for its ability to provide affordable, high-quality care for millions of individuals but also serve as a sustainable healthcare business model. According to a May 6, 2014 article in *Ophthalmology Times*, Aravind continues to offer cataract surgery at a very low cost, while keeping complications low because of an extraordinarily high volume of patient visits and minimal surgical time.

### By the Numbers:

- Surgical cost: \$2.25/patient
- Surgical volume: 65 patients/day
- Complication rate: 1.5%
- Endophthalmitis rate: 0.02%
- Time per surgery: 6 minutes
- Time in hospital: 82% of patients spend less than 5 hours in the hospital

\*Data taken from: Dalton M. (May 6, 2014). *Cataract surgery costs, complications low at Aravind*. *Ophthalmology Times*

## Upcoming Events

The HMS Department of Ophthalmology sponsors an extensive array of special lectures and courses. Scan the QR code to be taken directly to the HMS online calendar at [www.MassEyeAndEar.org/hmscalendar](http://www.MassEyeAndEar.org/hmscalendar)



### Ophthalmology Grand Rounds

Meltzer Auditorium, Mass. Eye and Ear and simulcast to the Karp 11 conference room at Boston Children's Hospital and Mass. Eye and Ear, Longwood  
**Thursdays, 8:00 - 9:00 am:** Continuing Medical Education credit is available.

### HMS Department of Ophthalmology Annual Meeting & Alumni Reunion Weekend

**June 20-22, 2014:** This 3-day departmental event combines scientific exchange with networking events and social activities. Thaddeus Dryja, MD and Alfred Sommer, MD will deliver presentations as the recipients of the 2014 Distinguished Research, and Clinical, Achievement Awards, respectively. Roberto Pineda II, MD will present the Mariana Mead Lecture. CME credit is available, supported by the HMS Department of Ophthalmology. *Course Directors: Lucia Sobrin, MD, MPH, Ula Jurkunas, MD, Joseph Rizzo III, MD, FARVO and Joan W. Miller, MD, FARVO*

### Graduation for Residents and Clinical Fellows

Mass. Eye and Ear, Meltzer Auditorium  
**June 26, 2014, 4:00 pm**

### Vitrectomy Course for First-Year Retina Fellows

Mass. Eye and Ear  
**July 18-19, 2014:** Now in its fifth year, this comprehensive workshop covers the theory and practice of vitreoretinal surgery using didactics, video, a simulation lab, and wet lab. An eminent international faculty and a low student-to-teacher ratio make this a popular workshop. Visit [www.MassEyeAndEar.org/VRcourse](http://www.MassEyeAndEar.org/VRcourse) to register. *Course Directors: Dean Elliott, MD, John Loewenstein, MD, and Demetrios Vavvas, MD, PhD*

### Soft Tissue Suture Course

Sloane Teaching Room, Mass. Eye and Ear  
**July 29, 2014:** In this regional oculo-plastics training course, junior residents receive instruction on suture material and needles, general principles of soft tissue handling and suturing, and specifics of managing eyelid lacerations. Residents will have the opportunity to practice suturing on pig ears and feet in a hands-on wet lab. *Course Director: Suzanne Freitag, MD*

### Inaugural Pei Fei Lee Lecture

Meltzer Auditorium, Mass. Eye and Ear  
**September 12, 2014:** Paul Lee, MD, JD, Chair of Ophthalmology and Vision Sciences at University of Michigan and Director of the W.K. Kellogg Eye Center, will present this lecture in honor of his father, Dr. Pei Fei Lee, who trained at Mass. Eye and Ear.

NEW

### Cornea Center of Excellence Visiting Professor

**September 18-19, 2014:** Frank Larkin, MD, Lecturer in Ophthalmology at the University of Bristol will present,

“Influences on Outcome of Corneal Transplantation” on Thursday. *Course Director: Reza Dana, MD, MPH, MSc, FARVO*

### Boston Ophthalmology International Visiting Professor in Cornea and External Eye Diseases

**October 8, 2014, 2:00 pm – 4:30 pm,** Boston University  
**October 10, 2014, 12:00 pm – 1:45 pm,** MGH, Ether Dome, 1:45 pm – 6:30 pm, Mass. Eye and Ear, Meltzer Auditorium  
Co-sponsored with the Boston VA Healthcare System. *Course Director: Mary Daly, MD*

### Neuro Ophthalmology Fall Festival

Meltzer Auditorium, Mass. Eye and Ear  
**November 8, 2014:** This workshop provides a comprehensive overview on the diagnosis and management of common or important neuro-ophthalmic disorders. The course includes case presentations and lectures by the faculty. Registration is required and opens in June 2014. *Course Director: Joseph Rizzo III, MD, FARVO*



### The Symposium on Ocular Regeneration: Cell Therapy and Regeneration in the Retina

Starr Center, Schepens Eye Research Institute

**October 23, 2014:** Highlighting the current and future state of regeneration and stem cells in eye diseases, this one-day meeting will bring together thought leaders in the field to discuss the latest advances in, and the potential future of, retinal regeneration. This year's keynote speaker is Pawan Sinha, PhD, who is Professor of Neuroscience at MIT, founder of Project Prakash (see page 12), and a researcher interested in brain mechanisms of learning and vision.

*Course Directors: Demetrios Vavvas, MD, PhD, and Michael Young, PhD*



### Third International Biennial Symposium on AMD

Starr Center, Schepens Eye Research Institute

**October 24-25, 2014:** The event kicks off with a cocktail reception on Thursday, October 23 at 6:30 pm in the Lank Family Dining Room on the 7th floor at Mass. Eye and Ear. On Friday, an array of international researchers will present on topics such as Retinal & Choroidal Vasculatures, Animal Models, Inflammation, and New Concepts in Pathology. Friday concludes with a Gala Dinner at the Liberty Hotel. On Saturday, the symposium continues with more scientific presentations spanning topics such as Functional Implications of Genetic Risk Factors, Imaging, RPE Biology, and RPE Transplantation.

*Course Directors: Joan Miller, MD, FARVO, Ivana Kim, MD, Patricia D'Amore, PhD, MBA, FARVO*

## Awards, Grants, and Other Honors

### Awards & Grants

The Mass. Eye and Ear Curing Kids Fund provides funding for research and treatment for children with conditions that affect vision, hearing and other debilitating disorders of the eyes, ears, nose, throat, head, and neck. This year, several individuals, including **Peter Bex, PhD**, **Qin Liu, MD, PhD**, **John Loewenstein, MD**, and **Eric Ng, PhD**, were awarded \$50,000 each by the Curing Kids Committee in support of their projects.

**Reza Dana, MD, MPH, MSc, FARVO** received a clinical research agreement from Rigel, Inc. for \$300,000 in support of his project entitled, “A Phase 2, Multi-Center, Randomized, Double-Masked, Placebo-Controlled Clinical Study to Assess the Safety and Efficacy of 0.2% and 0.5% R932348 Ophthalmic Solutions for the Treatment of Keratoconjunctivitis Sicca in Patients with Chronic Ocular Graft versus Host Disease.”

**Baojian Fan, MD, PhD** of the Howe Laboratory received \$100,000 payable over two years from BrightFocus Foundation for his project entitled, “Discovery of PDS/PG Genes by Exome Sequencing.”

**Xiaowu Gai, PhD**, Associate Director of the Ocular Genomics Institute, was awarded \$29,000 by Loyola University Chicago to support the project, “Urinary Bacterial Communities in Urge Incontinence Women.”

**Michael Gilmore, PhD** was awarded \$275,000 from Institut Merieux for his project entitled, “Exploring the *Staphylococcus aureus* Innate ‘Resistome’ Using Next Generation Sequencing Technology Tn-seq.”

Dr. Gilmore also was awarded an R01 in the amount of \$1.6 million payable over four years from the National Institutes of Health for his project entitled, “Molecular Basis for Ocular Surface Tropism in Conjunctivitis.”

**Ahmad Kheirkhah, MD** received a grant from the Eye Foundation of America for his project on UV Cross-linking.

**Louis Pasquale, MD, FARVO** received an R01 renewal from the National Institutes of Health totaling \$1.84 million

### A Mentoring Sweep!

Three ophthalmology faculty members were selected to receive 2013-2014 HMS Excellence in Mentoring Awards from the Office for Diversity Inclusion and Community Partnership—a high honor awarded to 18 out of 11,000 total HMS faculty each year. Faculty members were recognized at the Excellence in Mentoring Awards Ceremony on June 12, 2014 from 4pm to 6pm in the Carl Walter Amphitheater in the Tosteson Medical Education Center at Harvard Medical School.



#### Simmons Lessell, MD

Paul Austin Chandler Distinguished Professor of Ophthalmology  
William Silen Lifetime Achievement in Mentoring Award



#### Reza Dana, MD, MPH, MSc, FARVO

Claes Dohlman Professor of Ophthalmology  
A. Clifford Barger Excellence in Mentoring Award



#### Magali Saint-Geniez, PhD

Assistant Professor of Ophthalmology  
Young Mentor Award

Additional nominees from the department include: **Alexandra Bowers, PhD**, **Teresa Chen, MD**, **James Chodosh, MD, MPH**, and **Shizuo Mukai, MD**.

payable over four years for his project entitled, “Gene-Environment Interactions in Glaucoma.”

Graduating resident, **Sotiria Palioura, MD**, was one of 10 winners to receive the 2014 American Society of Cataract and Refractive Surgery (ASCRS) Foundation Resident Excellence Award. The award provided a \$1,000 stipend to be used to attend the ASCRS Annual Symposium, which was held this year in Boston.

**Eleftherios Paschalis, PhD, MSc** was selected to receive this year’s Harvard Cornea Center of Excellence Fellowship in the amount of \$25,000. This award is one of the Eleanor and Miles Shore 50th Anniversary Fellowships for Scholars in Medicine.

**Eric Pierce, MD, PhD** received \$187,000 from the European Commission in support of his participation in TreatRush consortium project entitled, “Fighting Blindness of Usher Syndrome: Diagnosis, Pathogenesis and Retinal Treatment (TreatRetUsher).”



#### Angela Turalba, MD

—whose expertise lies in the epidemiology and surgical treatment of glaucoma—received the 2014 Norman Knight Leadership Award during the

Mass. Eye and Ear Trustees Meeting, held June 3 at Mass. Eye and Ear. This award provides critical seed funding to promising ophthalmologists at the start of their academic careers. Past recipients of this award have included Ivana Kim, MD (Retina), Dean Cestari, MD (Neuro-Ophthalmology), Douglas Rhee, MD (Glaucoma), and Ula Jurkunas, MD (Cornea).

**Mary Whitman, MD, PhD** of Boston Children’s Hospital has been chosen as the 2014 National Eye Institute Harvard-Vision Clinical Scientist Development Program K12 recipient. Working with Elizabeth Engle, MD, Dr. Whitman is investigating how axons grow in the normal development of congenital fibrosis

of the extraocular muscles. This non-progressive form of strabismus occurs at birth is associated with difficulty moving the eye, weak eye muscles, and severe eye misalignment. She will remain at Boston Children's Hospital as a faculty member.

## Other Honors

**Lloyd Paul Aiello, MD, PhD**, Director of Joslin's Beetham Eye Institute, was appointed the adjunct Hong Leong Visiting Professor in Ophthalmology at the National University of Singapore.

The Carroll Center for the Blind and the Massachusetts Commission for the Blind selected **Henry Apfelbaum** to be inducted into the Carroll Society. The Carroll Awards recognize outstanding blind or visually impaired employees in the workforce and their employers throughout Massachusetts. Mr. Apfelbaum is a Research Associate in the laboratory of Eli Peli, OD, MSc.

**Larry Benowitz, PhD** of Boston Children's Hospital was selected by the New York Academy of Medicine for the Rudin Award, which is granted for the most significant scholarly article on glaucoma published in the prior calendar year. His winning paper shows that damaged axons can be stimulated to regenerate the full length of the optic nerve in mature mice with reinnervation of their central target areas and a partial recovery of vision.

**James Chodosh, MD, MPH** was appointed Co-Editor-in-Chief of the *British Journal of Ophthalmology*.

**Patricia D'Amore, PhD, MBA, FARVO** was the recipient of the 2014 International Society for Eye Research Endre A. Balazs Prize, which recognizes her outstanding contributions toward progress in the field of experimental eye research and vision science.

For her extraordinary leadership and dedication to ophthalmology, **Carolyn Kloek, MD** was selected as the 2014 recipient of the Women in Ophthalmology (WIO) Emerging Leader Award. This prestigious award will be presented to Dr. Kloek during the 2014 WIO Summer Symposium, held August 7-10 in Leesburg, Virginia.

## 2014-2015 Heed Fellowship Awards

The Society of Heed Fellows is a public charitable and educational foundation that provides funding for post-graduate studies in ophthalmology and the ophthalmic sciences. Three incoming fellows and two graduates of the HMS Department of Ophthalmology Residency Training Program were awarded 2014 Heed Fellowships:

- Incoming fellow **Hilary Brader, MD** will work with Dr. Deeba Husain in Medical Retina—a new fellowship for this academic year.
- Incoming fellow **Brian Hafler, MD, PhD** is the first person to match with the Inherited Retinal Degenerations Fellowship and will be working with Drs. Eric Pierce and Jason Comander. Dr. Hafler also received a Clinical Research Fellowship award from the Foundation Fighting Blindness.
- Incoming fellow **Mira Sachdeva, MD, PhD** will join Dr. Dean Elliott in the Vitreoretinal Surgery Fellowship.
- Graduating resident **Yoshihiro Yonekawa, MD** will join the Associated Retina Consultants at William Beaumont Hospital for a Retina Fellowship.
- A 2013 graduate of the HMS Department of Ophthalmology Residency Training Program **Rachel Huckfeldt, MD, PhD** will be pursuing a Medical Retina Fellowship at the University of Iowa.



**Richard Masland, PhD** received the 5th annual Jay Pepose '75 Award in Vision Sciences from Brandeis University. Dr. Masland's retinal research has yielded important

insights into cell organization and the functioning of higher visual centers. His laboratory was the first to reveal the retina as a multiple parallel system made up of more than 60 cell types, which are organized into more than a dozen parallel informational channels.

**John Miller, MD** was selected to receive the 12th Raymond R. Margherio Award at the Retina Society 47th annual meeting held September 11-14, in Philadelphia, PA. Currently a Vitreoretinal Fellow at Mass. Eye and Ear, Dr. Miller completed his ophthalmology residency at HMS in 2013. He will be presenting his work, which was conducted in collaboration with Demetrios Vavvas, MD, PhD: "Iron Rescue of Deferoxamine Toxicity in Human RPE Cells."

**Eli Peli, OD, MSc** presented the 1st Annual Moshe Lahav, MD Lecture—"Driving with Low Vision"—at the New England Eye Center graduation held in June.

As the 2014 American Glaucoma Society Clinician-Scientist Lecturer, **Janey L. Wiggs, MD, PhD** presented, "Glaucoma Genetics: Families and NEIGHBORS," March 1st at the American Glaucoma Society's 24th annual meeting.

## Personnel Updates

### HMS appointments:

**Marlene Durand, MD**, Associate Professor of Ophthalmology (secondary appointment)

**Ula Jurkunas, MD**, Associate Professor of Ophthalmology

**Jaya Rajaiya, PhD**, Assistant Professor of Ophthalmology

## More Support for Research into Genetics of Age-related Macular Degeneration

With a giving relationship that dates back to the 1950s, trustees of the Edwin S. Webster Foundation have been long-time supporters of Schepens Eye Research Institute. Over the years, funds used to support research at Schepens have proven fruitful, making Schepens "a wise investment." This year, the Foundation has generously donated \$50,000 to support **Neena Haider, PhD** and her work investigating the genetics of age-related macular degeneration. Furthermore, Dr. Haider received a \$120,000 BrightFocus grant to study a new model for neovascular wet age-related macular degeneration in collaboration with **Kip Connor, PhD**.



The International Council of Ophthalmology elected HMS Ophthalmology alumna Alice McPherson, MD as the recipient of the 2014 Gonin Medal. The Gonin Medal was instituted in 1937 in memory of Swiss-born Jules Gonin, MD, and it is the oldest and most prestigious medal awarded in ophthalmology. Awarded once every four years, the gold medal was presented to Dr. McPherson during the April 2014 World Ophthalmology Congress held in Tokyo.

**New Recruits:**



**Maggie Hymowitz, MD** joined Mass. Eye and Ear's Emergency Department in early May, part-time. After completing her medical school training at Boston University School of

Medicine, Dr. Hymowitz completed an ophthalmology residency at Montefiore Medical Center/Albert Einstein College of Medicine in New York and a glaucoma fellowship at Bascom Palmer Eye Institute. Most recently, she was on staff at Wills Eye Hospital and was an Instructor of Ophthalmology at Jefferson Medical College. Dr. Hymowitz continues to maintain a part-time position as a Medical Officer/Glaucoma Specialist for the U. S. Food and Drug Administration in Maryland.



Following graduation in June, **Alice Lorch, MD** will become the Chief Resident and Director of the Mass. Eye and Ear Trauma Service for the 2014-2015 academic year. Before joining the

HMS Ophthalmology Residency Training Program, Dr. Lorch earned her MD at Harvard Medical School, worked in rural Guatemalan medical clinics, and conducted research in Santiago, Chile. Dr. Lorch demonstrates exceptional surgical mastery and possesses a deep fund of knowledge about disease pathophysiology.



Former Mass. Eye and Ear Chief Resident, 2012-13, **Peter Veldman, MD** will re-join the HMS full-time this summer. In addition to serving on Mass. Eye and Ear's Cornea

and Refractive Surgery Service, he will also serve as the HMS Residency Training Program Associate Program Director. Dr. Veldman earned his MD from the Perelman School of Medicine at the University of Pennsylvania and completed his ophthalmology residency at HMS. This past year, Dr. Veldman pursued a one-year cornea fellowship at Devers Eye Institute in Portland, Oregon.

Starting in September, **Ambika Hoguet, MD** will join the Mass. Eye and Ear Glaucoma Service and Boston Children's Hospital. After obtaining an MD from Duke University School of Medicine, Dr. Hoguet conducted an ophthalmology residency at New York Eye & Ear. She then pursued fellowship training in glaucoma at Bascom Palmer Eye Institute. She also speaks multiple languages, including Hindi/Urdu.

After completing her ASOPRS training with Suzanne Freitag, MD in July, **Nahyoung Grace Lee, MD** will join the Ophthalmic Plastic Surgery Service. Dr. Lee attended college and medical school at Johns Hopkins University, and completed her residency at Doheny Eye Institute. She followed with a fellowship at Casey Eye Institute in Ophthalmic Oncology and Pathology, before arriving in Boston with Leo Kim as newlyweds in 2011. She worked as a clinical research fellow with Suzanne Freitag before entering into the ASOPRS fellowship.



Senior resident **Kristine Lo, MD** will join the Comprehensive Ophthalmology and Cataract Consultation Service in November 2014. A native of the Philippines, Dr.

Lo pursued her medical degree, residency and cornea subspecialty training in the Philippines before pursuing ophthalmic plastic and reconstructive surgery training with Aaron Fay, MD at Mass. Eye and Ear. She will complete her HMS residency training in October 2014.

**Departures:**

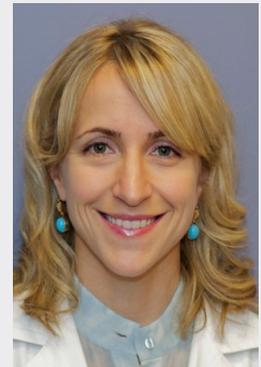
At the end of June, **Kenneth Chang, MD, MPH, MBA** will end his practice at Mass. Eye and Ear and move home to sunny Hawaii to work in private practice. Dr. Chang has been an outstanding member of our faculty, a top-notch clinician and surgeon, and a valued mentor to his trainees. He and Sheila Borboli-Gerogiannis were instrumental in launching Mass. Eye and Ear's Comprehensive Ophthalmology practice at Joslin's Beetham Eye Institute and helped build it into the practice that is now located at the Longwood center. A devoted teacher, Dr. Chang has helped many residents hone their skills in microsurgical cataract techniques, and served on the development team for the Mass. Eye and Ear's Cataract Master™, which is now available to trainees nationwide.

**Aaron Fay, MD** left Mass. Eye and Ear in June to focus on private practice. A valued member of the Ophthalmic Plastic Surgery Service, Dr. Fay has been at Mass. Eye and Ear since his fellowship training in 1997. Between 2006 and 2011, he led the subspecialty as its service director while continuing to work in private practice. With a strong reputation as a skilled surgeon and true commitment to training and motivating residents and fellows to become top performers in the field, Dr. Fay has sponsored and mentored a series of international fellows who have returned to their underserved countries with critical skills.



**Westward Expansion: Mass. Eye and Ear, Waltham**

Joining the Mass. Eye and Ear family, the cornea and refractive surgery practice of **Jonathan H. Talamo, MD** and **Kathryn Masselam Hatch, MD** will soon be known as Mass. Eye and Ear, Waltham. An integral part of the Department of Ophthalmology’s regional business development strategy to the west, this practice offers a full range of specialty care, including cataract surgery, on-site laser vision correction, corneal crosslinking, and optometric services. Both Drs. Talamo and Hatch completed cornea fellowships at Mass. Eye and Ear. The fusion of a very talented and well established specialty practice with the Mass. Eye and Ear family adds strength to the array of services and ease of accessibility for patients and referring clinicians in the region.



**Alumni News**

**Ron Adelman, MD, MPH, MBA**, Professor of Ophthalmology and Visual Science and Director of the Yale Retina Service, will serve as interim Chair of the Department of Ophthalmology and Visual Science for the Mount Sinai Health System, effective September 1. Dr. Adelman completed his ophthalmology residency training at Harvard Medical School as well as a two-year retina fellowship at Mass. Eye and Ear. During his years at Harvard, he received many awards, including the Club Vit Fellow Research Award, the Ron G. Michels Fellowship Award, and Fellow of the Year 2000.

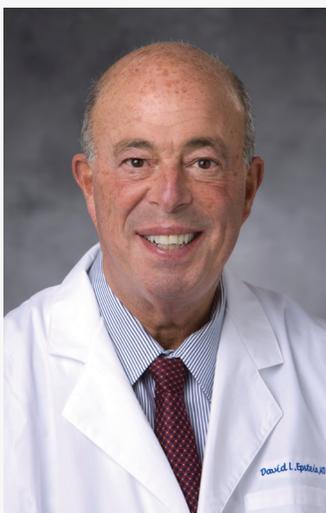
**In Memoriam**

**Arturo Roberto Quevedo, MD** died March 8, 2014. Known by his colleagues as “a giant in his field,” Dr. Quevedo was a humble and exceptionally competent ophthalmologist and surgeon. More than 30 years ago, he founded the Guatemalan Eye Foundation to attract funding for what would become the National Eye Unit of Guatemala. Since then, he has helped an estimated 1 million people—most of whom were economically disadvantaged—and has saved more than 60,000 people from going blind in Guatemala. He also was active in teaching and training residents. Dr. Quevedo is an alum of

Harvard College (class of 1959) and completed his ophthalmology residency at Harvard Medical School in 1968.

Please forward news, comments and mailing changes to [eyenews@meei.harvard.edu](mailto:eyenews@meei.harvard.edu)

**A Tribute to Influential Glaucoma Leader Dr. David Epstein**



Ophthalmologist David Epstein, MD, MMM passed away on March 4, 2014. Dr. Epstein was a skilled clinician, teacher, and investigator who completed both his residency training and a clinical research fellowship in glaucoma at Mass. Eye and Ear. Following his training, he joined the staff in 1976 and went on to serve as Director of the Glaucoma Service from 1982 to 1991. Despite his busy clinical practice and numerous administrative responsibilities, Dr. Epstein’s research was continuously funded by the National Eye Institute for over 32 years. He served as a model and a generous mentor to several generations of aspiring academic ophthalmologists and particularly clinician-scientists.

A distinguished clinician-scientist, Dr. Epstein authored more than 230 scholarly papers and consulted in glaucoma clinical care while maintaining an active glaucoma research program. His research focused on developing novel specific treatments for glaucoma that are directed at the trabecular meshwork, the tissue that is known to be abnormal in glaucoma, causing increased resistance to outflow of aqueous humor from the anterior chamber of the eye. He received many awards for his work including the 2013 Mildred Weisenfeld Award for Excellence in Ophthalmology from the Association for Research in Vision and Ophthalmology (ARVO).

As Chair of the Department of Ophthalmology at Duke Eye Center for more than 20 years, Dr. Epstein built and led an outstanding community of ophthalmologists and vision scientists. Under his leadership, the department grew to include its current team of 73 faculty members and more than 300 staff members. Dr. Epstein also served on numerous national scientific advisory boards, and was a past president of ARVO, the Chandler-Grant Glaucoma Society and Association of University Professors of Ophthalmology.

# EyeWitness

News from Harvard Medical School  
Department of Ophthalmology



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## SAVE THE DATES



### **The Symposium on Ocular Regeneration: Cell Therapy and Regeneration in the Retina**

**October 23, 2014**

The Starr Center, Schepens Eye Research Center

*See page 15 for details.*



### **3rd Biennial International Symposium on Age-Related Macular Degeneration**

**October 24-25, 2014**

The Starr Center, Schepens Eye Research Center

*See page 15 for details.*

### **Neuro-Ophthalmology Fall Festival**

**November 8, 2014**

Meltzer Auditorium, Mass. Eye and Ear

*See page 15 for details.*