

EyeWitness

Newsletter of the Harvard Medical School Department of Ophthalmology



HARVARD
MEDICAL SCHOOL

DEPARTMENT OF
Ophthalmology

Summer/Fall 2013 #23



Joan W. Miller, MD, EARVO
Chief and Chair

NOTES FROM THE CHAIR

Charting the Course: Discovering and Learning at an Accelerated Pace

Former President, and now Chair of the Board of Trustees for Research to Prevent Blindness (RPB), Diane Swift, commented in RPB's 2012 Annual Report that she "has never seen anything like the current acceleration in the pace of vision-saving discoveries." I couldn't agree more. Both nationally and here in the HMS Department of Ophthalmology, patients have significantly better treatment options and outcomes for many blinding diseases than they did just a decade ago. This improvement in clinical care, I believe, is largely a product of our department's generous mentors and educators who share their wisdom and experiences as well as our scientific investigators and clinicians who continually advocate for their patients. These three interconnected tenets continue to strengthen our community and keep us moving towards our goal of eradicating blindness in the world.

In research, for example, we continue to focus our efforts on retinal degenerations, ocular oncology, diabetic retinopathy, glaucoma, corneal and ocular surface disorders, and ocular inflammation and immunology. Together, we have investigated angiogenesis, optic neuropathies, ocular prostheses and biocompatible substitutes, new approaches to drug delivery, laser surgery, gene-gene and gene-environment interactions, gene therapies, and all aspects of ocular therapeutics and surgery. In more recent years, we have given increased attention to research in the fields of neuroprotection, regenerative medicine, and technomedicine.

Continues on page 9

Interactive Video Games: Helping the Blind Navigate Unfamiliar Territory

Life can be a constant battle of wills for some parents whose teenagers spend hours a day playing games on their electronic devices. But for teens who are vision impaired, navigating the real world may be easier because of innovative video game-based technology developed by clinician neuroscientist, Lotfi Merabet, OD, PhD, Director of the Laboratory for Visual Neuroplasticity at Massachusetts Eye and Ear, and members of his laboratory. Dr. Merabet and colleagues build immersive and interactive gaming maps using virtual environment software, such as Audio-based Environment Simulator (AbES).



Individuals with impaired vision currently have several tools at their disposal to navigate their surroundings, including canes, seeing-eye dogs, and portable GPS systems. Now, video games can be added to this list. For current teens who are considered Generation Z—also known as "digital natives"—and other technologically savvy individuals, these "games" help with developing navigation skills as well as improving independence.

Dr. Merabet and colleagues have shown that blind participants can become familiar with the layout of a building by exploring virtual rooms using audio cues in an engaging game where players collect jewels and avoid monsters. In turn, this gaming experience helps them navigate real-world buildings with the same layout.

"The video game not only allows you to build a map in your mind, it allows you to interact with it mentally in a way that you wouldn't be able to if you were taught explicitly by walking through it," Dr. Merabet explained.

This mental mapping is explained, in part, by the finding that in functional magnetic resonance imaging studies, specific regions of the brain—including those normally associated with the processing of visual information—are highly active (*Human Brain Mapping*, 2013).

Continues on page 11



(left to right) Evangelos Gragoudas, MD, Dean Elliott, MD, and Joan W. Miller, MD, FARVO

In this issue:

Notes from the Chair Cover
 Interactive Video GamesCover
 HMS Professorship Celebration 2
 The Vision Rehabilitation Service 3
 2013 HMS Ophthalmology Annual Meeting & Alumni Reunion 4
 2013 Resident and Fellow Graduation 6
 Alumni Giving Society 10
 HMS Welcomes the Class of 2016 12
 Eyes on Research 14
 News from All Over 16
 Save the Dates Back Cover

HMS Professorship Celebration Honors Two Outstanding Retina Faculty

On September 12, 2013 in a dual ceremony, Evangelos Gragoudas, MD and Dean Elliott, MD were honored as the namesake and first incumbent of the Stelios Evangelos Gragoudas Professorship in Ophthalmology at Harvard Medical School (HMS). The celebration was hosted by HMS Dean, Jeffrey S. Flier, MD and attended by nearly 100 colleagues, friends and family. Temporarily bearing his father’s name, the Professorship will be renamed in Dr. Gragoudas’ honor upon his retirement.

“Evan has a very devoted following amongst his patients, colleagues and supporters... and it is fitting that their generous personal donations have been made in his honor,” chief and chair Joan W. Miller, MD, FARVO, noted in her celebration remarks. “This professorship also was made possible through the generosity of Mass Eye and Ear, whose Board of Directors and President dedicated a sizable portion of hard-earned research royalties to create this chair. I’m grateful for their support and thrilled that we have been able to do this together.”

“These chairs are the highest honor in academic medicine,” said President and CEO of Mass. Eye and Ear, John Fernandez.

“They allow us to recruit and retain top faculty, and they serve as a catalyst for groundbreaking research. They are the gift that keeps giving – freeing busy clinicians to put further focus on research and academics.”

Long-term colleague and current Vice President and Global Head of Ophthalmology at Genentech, Inc., Anthony Adamis, MD addressed the gathering with warm congratulatory remarks focusing on the remarkable personality and legacy of Dr. Gragoudas, the Charles Edward Whitten Professor of Ophthalmology at HMS, whose seminal contributions span four decades and forever changed the landscape of retinal science and medicine. A pioneer and a world authority on the diagnosis and management of intraocular tumors and retinal disease, Dr. Gragoudas and colleagues developed the use of proton beam irradiation for choroidal melanoma, treating the first patient in the 1970s. Thousands of treated patients and decades of

“Many of us are familiar with Dr. Gragoudas’ myriad academic accomplishments...however, it’s his unwavering commitment to mentoring trainees and colleagues that makes him such an inspiring leader and role model. Perhaps more importantly, he keeps us all laughing.”

– Dean Elliott, MD



Published three times a year:

Joan W. Miller, MD, FARVO,
 Editor-in-Chief

Suzanne Ward, Ophthalmology
 Communications Director

Wendy Weissner, Sr. Editorial Specialist

Beth Durkee, Graphic Designer

Contributors:

Wendy Chao, PhD

Karen Bernstein

The Vision Rehabilitation Service: Making the Most of Vision



Despite advances in ophthalmic medicine and science, millions of Americans live each day with irreversible vision loss. However, practical training and exciting new technologies—such as electronic magnifiers, eReaders, cell phone accessibility, and tablet computers—allow Mass Eye and Ear's Vision Rehabilitation Service to help patients make the most of their remaining vision.

The Vision Rehabilitation Service is one of the most comprehensive of its kind in the country. Led by nationally renowned vision rehabilitation expert Mary Louise Jackson, MD, and a team of experts in ophthalmology, optometry, occupational therapy, and social work, the Service helps patients with impaired vision achieve greater independence, mobility, and quality of life.

The Vision Rehabilitation Service first opened its doors in the 1960s, under the pioneering leadership of Dr. Joel Kraut, social worker Dagmar Friedman, and a dedicated group of trustees. Together, they developed one of the nation's first comprehensive hospital-based Vision Rehabilitation Service at Mass. Eye and Ear. Thanks in part to their efforts, vision rehabilitation services emerged as a distinct ophthalmic subspecialty around the nation, vital to the continuum of care for those who are vision-impaired.

Today, the Service works with hundreds of patients each year, many of them elderly, who suffer from a range of eye diseases and disorders, including macular degeneration, glaucoma, and diabetic retinopathy. "Because every patient's diagnosis, lifestyle, and situation is unique, it's critical to develop treatment plans that speak to that individual's specific needs," Dr. Jackson noted.

While early efforts in vision rehabilitation were limited to the use of optical devices, Dr. Jackson has led the development of a multidisciplinary model of comprehensive vision rehabilitation (CVR) that addresses all aspects of a patient's life affected by vision loss. CVR treatment focuses on five key areas of intervention: safety, activities of daily living, reading, continuing to participate in activities despite vision loss, and psycho-social well-being. Adopted by the American Academy of Ophthalmology as the national standard of care for vision rehabilitation, this new

clinical model aims to improve each patient's overall quality of life.

At Mass. Eye and Ear, Dr. Jackson and staff utilize sophisticated diagnostic tools and devices to conduct patient evaluations. Patients are given a comprehensive vision assessment that includes visual acuity, contrast sensitivity, and central visual field tests. Detecting patients' remaining visual function is a critical baseline for maximizing their rehabilitation, and, for this purpose, the Service houses one of the few Scanning Laser Ophthalmoscope (SLO) macular perimeters in New England. The macular perimeter enables staff to test patients' central visual field and to create a high-resolution map of the retina and functioning vision areas. Emerging research is directing how to train individuals to optimally use such remaining areas of central vision.

Following an evaluation, a multidisciplinary rehabilitation plan is created based on a patient's individual goals. This may include a consultation with an occupational therapist to evaluate the home setting and to develop approaches for safe and independent daily activities. Magnifier devices can greatly improve a vision-impaired person's ability to read not only newspapers and books, but also medication labels, thereby reducing medication errors. Access to computers, email, cell phones and iPads are often a priority.



Mary Louise Jackson, MD



Computers with enlarged displays are available at the Vision Rehabilitation Service, located on the 8th floor of Mass. Eye and Ear (Charles Street Campus).

Continues on page 9

Brain Injury Vision Rehabilitation Clinic at Spaulding Rehab



Launched in July, 2012 by **Kevin Houston, OD, FFAO**, the Brain Injury Vision Rehabilitation Clinic at Spaulding Rehab is a collaboration between the Mass. Eye and Ear Department of Ophthalmology and Spaulding's Occupational Therapy Department. With two locations—in Boston and Cape Cod—the clinic aims to reduce the impact of early vision disturbances on functional independence, increase overall safety, and reduce fall risk in brain injury and stroke survivors.

Future collaboration between Spaulding Rehab and Mass. Eye and Ear, and other HMS Department of Ophthalmology affiliates, will help serve patients with impaired visual function and mobility due to stroke and brain injury. There is potential to recruit patients from the Brain Injury Vision Rehabilitation Clinic at Spaulding

Rehab to enroll in future studies at Schepens Eye Research Institute and Mass. Eye and Ear.

Dr. Houston is a member of the Mass. Eye and Ear Vision Rehabilitation Service and, as a recipient of the K12 Harvard Vision Clinical Scientist Development Program, conducts clinical research in the laboratory of Dr. Eli Peli at Schepens. ■



HMS Ophthalmology faculty, alumni, and trainees gathered for a three-day festival of events.

2013 Annual Meeting & Alumni Reunion Delivers a High Impact Weekend, June 21 – 23

More than 300 HMS Department of Ophthalmology faculty, alumni, and trainees gathered for a three-day festival of events that included the Annual Meeting and Alumni Reunion, a celebratory dinner, and tours of Fenway Park and the Institute of Contemporary Art. Annual Meeting co-chairs, Drs. Ula Jurkunas and Lucia Sobrin, welcomed everyone on Friday morning to the Starr Center of Schepens Eye Research Institute. Scientific and clinical lectures were given by 12 HMS faculty showcasing their current investigations and clinical advances in glaucoma, cornea, retina, ocular gene therapy, diabetic retinopathy, visual rehabilitation, and oculoplastics.



Cynthia Lee Grosskreutz, MD, PhD was this year's Mariana Mead Lecturer. Director of Translational Medicine at Novartis, Dr. Grosskreutz delivered a compelling presentation describing the challenges of translational medicine.



Above (l to r): Jerre Freeman, MD (class of 1968), Joseph Dowling, MD (class of 1957), B. Thomas Hutchinson, MD (class of 1965), Dennis Freilich, MD (class of 1965), Arturo Quevedo, MD (class of 1968), Lloyd M. Aiello, MD (class of 1964), Alexander Gaudio, MD (class of 1970), and Ralph Hinckley, MD (class of 1962).

In the afternoon, Cynthia Grosskreutz, MD, PhD, Director of Translational Medicine at Novartis, presented a superb keynote Mariana Mead Lecture, entitled, "Target to Therapy: The Challenge of Translational Medicine." The Mariana Mead Lecture was created in 2002 as a centerpiece of the Annual Meeting to honor the memory of a colleague and good friend of the department. A well-respected Boston ophthalmologist, who was passionate about patient care and teaching, Dr. Mead was a gifted eye surgeon, teacher, and member of the HMS Department of

Ophthalmology who passed away in 2002. Dr. Miller commented how pleased she was that Bill Mead, Dr. Mead's husband, was able to attend this year.

The meeting's poster session featured 15 clinical abstracts and 29 basic science abstracts. HMS student, Michael Lin, and Research Fellow, Tobias Elze, PhD, received awards for best clinical poster, while Research Fellows, Thomas Dohlman, MD, and Jinglin Yang, PhD, garnered awards for best basic science poster. This year's clinical judges were Lucy Shen, MD of Mass. Eye and Ear and Deborah VanderVeen, MD of Boston Children's Hospital. Basic science judges included Patricia D'Amore, PhD, MBA, FARVO and Pedram Hamrah, MD, both of Schepens/Mass. Eye and Ear.

Following the awards, tours of Schepens Eye Research Institute and Mass. Eye and Ear were offered to alumni, friends and family. The day concluded with the department's festive dinner celebration at the Four Seasons Hotel, which drew close to 200 guests and was heralded as "a big success."



Clinical poster judges, Lucy Shen, MD (center) of Mass. Eye and Ear and Deborah VanderVeen, MD (right) of Boston Children's Hospital, listen to a poster presentation by Yoshihiro Yonekawa, MD (left).

On Saturday, the HMS Department of Ophthalmology Alumni Meeting, organized by a committee led by Dr. Joseph Rizzo, opened with Chair of the Department, Dr. Joan Miller, introducing the department's newest alumni—the 2013 soon-to-be-graduates—to a strong showing of 160 attending alumni, faculty and trainees. Dr. Miller also presented her annual update on the state of the department.

The main features of the day were ten presentations delivered by representatives from the quinquennial graduating classes, from 1963 through 2008. Lectures spanned a range of topics in research, patient care and medical training, and included presentations on corneal tissue engineering, 3D imaging of the eye, and pharmaceutical milestones, to name a few. Alumnus, Jerre Freeman, MD, inspired the audience with his lecture, entitled "From the Dry Eye to the Seeing Eye: How MEEI How Lab and a Harvard Corneal Fellowship Positively Impacted 45 Years of Clinical Practice and Teaching." The day held many opportunities for alumni to reconnect with friends and former colleagues from near and far, including one international alumnus returning from Guatemala.



François Delori, PhD (left) received the 2013 Distinguished Research Achievement Award, which was presented to him by Evangelos Gragoudas, MD (right).

Another noteworthy event was the conferring of the inaugural 2013 Distinguished Achievement Awards, which recognize the lifetime achievements of Department alumni/ae and/or faculty in eye and vision research and in clinical care. Evangelos Gragoudas, MD presented the Distinguished Research Achievement Award to François Delori, PhD, who delivered a lecture entitled, "In Vivo Assessment of RPE Lipofuscin." Next, Joseph Rizzo III, MD presented Eliot Berson, MD with the Distinguished Clinical Achievement Award. Dr. Berson's presentation was entitled, "Retinitis Pigmentosa: Diagnosis, Prognosis, and Treatment."

On Sunday, the focus shifted to more leisurely pursuits as alumni toured Fenway Park or participated in a guided tour, "Introduction to the Art & Architecture of the ICA," at the Institute of Contemporary Art.

The Annual Meeting and Alumni Meeting weekend event was sponsored by the HMS Department of Ophthalmology, Mass. Eye and Ear Alumni Association, Genentech, Alcon, Allergan, Schepens Eye Research Institute/Mass. Eye and Ear, Boston Children's Hospital, Joslin Diabetes Center and Beth Israel Deaconess Medical Center. CME credit was provided. ■



Eliot Berson, MD (right) received the 2013 Distinguished Clinical Achievement Award, which was presented to him by Joseph Rizzo III, MD (left).



Resident and Fellow Graduation: Hats Off to the Ophthalmology Class of 2013!

On Thursday, June 27, family, friends, and faculty joined together to recognize and congratulate 50 residents and fellows in the Harvard Medical School (HMS) and Massachusetts Eye and Ear Department of Ophthalmology class of 2013 in a graduation ceremony held in Meltzer Auditorium.

Joan W. Miller, MD, FARVO, Chief and Chair of the Department, opened the afternoon ceremony with remarks on the importance of lifelong learning and the dynamic relationship between trainee and teacher. John Loewenstein, MD, HMS Ophthalmology Residency Program Director and Vice Chair for Education, and Carolyn Kloek, MD, Associate Program Director of the HMS Ophthalmology Residency Program, joined Dr. Miller in conferring certificates on the department's eight graduating ophthalmic residents, optometric resident, and the 2012-13 Chief Resident and Director of the Mass. Eye and Ear Ophthalmology Trauma Service, Dr. Peter Veldman.



Chief Resident for the 2013-2014 academic year, Dr. Yewlin Chee (left) stands with Dr. Joan Miller (right) during the dinner celebration.

“We are very proud of our graduates!” commented Dr. Loewenstein. “The three years seem to go by quickly, but as the new junior residents begin, we can see how much the graduates have learned. We wish our 2013 graduates continued success.”



This year's HMS Department of Ophthalmology graduation ceremony was well attended by friends, family and faculty – a standing-room-only event.

Dean Cestari, MD, Director of Ophthalmology Fellowship Training at Mass. Eye and Ear, and Richard Masland, PhD, Director of the Howe Laboratory, introduced the fellows and presented the graduates with certificates. This year, they recognized 25 clinical fellows representing nine subspecialty ophthalmic fields, and 16 graduating post-doctoral and research fellows.

Several awards were bestowed upon outstanding trainees and honored faculty. Steven Pennock, PhD, and Yoshihiro Yonekawa, MD, were the recipients of this year's Gragoudas Prizes for the best clinical and research retina papers published during Academic Year 2012-13 by Mass. Eye and Ear trainees. Sotiria Palioura, MD, PhD received the 2013 Cornea Center of Excellence Resident Research Award in Cornea and Refractive Surgery. The residents

honored Francis Sutula, MD with this year's Teacher of the Year Award, as well as Grace Lee, MD, with their Fellow of the Year recognition. The event concluded with a reception in the Glass Room for the 2013 graduates and their guests. ■



Dr. Evangelos Gragoudas (right) presented ophthalmic resident, Dr. Yoshihiro Yonekawa (left) with the 2013 Gragoudas Prize for best clinical retina research paper.



Dr. Evangelos Gragoudas (right) presented Dr. Steven Pennock (left) with the 2013 Gragoudas Prize for best basic and translational retina research paper.



Dr. Peter Veldman (right) presented the Teacher of the Year Award to Dr. Francis Sutula (left).



Dr. Reza Dana (right) presented ophthalmic resident, Dr. Sotiria Palioura (left) with the 2013 Cornea Center of Excellence Resident Research Award in Cornea and Refractive Surgery Prize.

WHERE ARE THEY NOW?

2013 Ophthalmic Residents

- **Savannah Baril, MD, MSc**, Full-time Academics, Ocular Trauma Service, University of Pittsburgh, UPMC Eye Center, Pittsburgh, PA
- **Yewlin Chee, MD**, Chief Resident & Director of the Ocular Trauma Service, 2013-14, Mass. Eye and Ear/HMS, Boston, MA
- **Ramez Haddadin, MD**, Cornea, External Disease, and Refractive Surgery Service Fellowship, Mass. Eye and Ear/HMS, Boston, MA
- **Rachel Huckfeldt, MD, PhD**, Research Fellowship in Inherited Retinal Diseases, University of Pennsylvania, Philadelphia, PA
- **John Miller, MD**, Vitreoretinal Surgery Fellowship, Mass. Eye and Ear/HMS, Boston, MA
- **Mrinali Patel, MD**, Vitreoretinal Surgery Fellowship, Weill Cornell Medical College, Cornell University, New York City, NY
- **Jessica Rankin, MD**, Private Practice, Comprehensive Ophthalmology, Boston, MA
- **Gargi Khare Vora, MD**, Cornea, Refractive Surgery, and External Disease Fellowship, Duke University Medical Center, Durham, NC

Chief Resident

- **Peter Veldman, MD**, Cornea and External Disease Fellowship, Devers Eye Institute, Portland, OR followed by full-time Academics, Cornea, External Disease, and Refractive Surgery Service, Mass. Eye and Ear/HMS, Boston, MA

Optometric Resident

- **Matt Goodman, OD**, Full-time Academics, Optometry and Contact Lens Service, Mass. Eye and Ear/HMS, Boston, MA

HMS Professorship Celebration continued from page 2...

follow-up have confirmed the effectiveness of this therapy, which is now available around the world.

Together with colleague Dr. Joan Miller, Dr. Gragoudas collaborated on the development of photodynamic therapy, which was the first pharmacological treatment for wet or neovascular macular degeneration. He also was a key member of the HMS research team that elucidated the role of vascular endothelial growth factor or VEGF in neovascular eye disease. These investigations formed the scientific basis for current anti-VEGF therapies for blinding diseases such as macular degeneration, retinal vein occlusion, and diabetic macular edema, and have saved the sight of millions of patients.

Dr. Gragoudas joined the Mass. Eye and Ear Retina Service in 1975 and became director of the Service, which he has grown into a premier center of excellence. Likewise, his committed stewardship of the Uveal Melanoma Service has elevated it to a world-renowned program and research center. Dr. Gragoudas has trained more than 100 clinical retina fellows and (together with Shizuo Mukai, Director of Mass. Eye and Ear's Vitreoretinal Fellowship Program), has expanded the program from one to two years and the number of fellows from two to eight.

In her remarks, Dr. Miller lauded Dr. Gragoudas' academic generosity and reputation as an insightful and patient teacher and mentor who takes joy in the success of his protégées, many of whom are now leaders in academia, clinical practice, or biotech and pharmaceutical industries. Always generous and committed to "paying it forward," Dr. Gragoudas recently established a series of annual scholarship awards at Mass. Eye and Ear and several professional societies, which are now highly coveted.

An influential academician who lectures around the world, Dr. Gragoudas' scholarship is vast, with over 200 publications to his credit. His numerous honors and awards include the Academy Honor Award and Senior Achievement Award from the American Academy of Ophthalmology, Retina Research Foundation prize of the Jules Gonin Lectureship, Senior Scientific Investigator Award from Research to Prevent Blindness, J. Donald M. Gass Medal and Arnold Patz Medal of the Macula Society, and the Mildred Weisenfeld Award for Excellence in Ophthalmology from The Association for Research in Vision



Evangelos Gragoudas, MD (left) and Dean Elliott, MD (right) at the HMS reception



During this standing-room only event, close to 100 colleagues, friends and family joined together to celebrate Evangelos Gragoudas, MD and Dean Elliott, MD as the namesake and first incumbent of the Stelios Evangelos Gragoudas Professorship in Ophthalmology.

and Ophthalmology. More recently, he was inducted into the Massachusetts General Hospital Cancer Center's *The One Hundred*, which honors 100 individuals and groups for their discoveries, philanthropy and passion to advance the fight against cancer.

The focus of the celebration then shifted to Dr. Elliott who is the inaugural Stelios Evangelos Gragoudas Associate Professor in Ophthalmology. A stellar clinician, teacher, and "surgeon's surgeon," Dr. Elliott is acknowledged by his peers to be one of the foremost vitreoretinal surgeons in the world who has pioneered techniques that are now the standard of care. At Mass. Eye and Ear, he leads a well-established research program focused on the development of novel approaches to combat retinal disease. To this end, he has served as a principal investigator on several clinical trials centered on diabetic retinopathy, macular degeneration, retinal detachment, and surgery for complex retina-vitreous disorders.

Dr. Elliott received his MD from Vanderbilt University, followed by ophthalmology residency at Wilmer Eye Institute, and a vitreoretinal surgical fellowship at Duke University. He held faculty positions at Wayne State University and USC's Doheny Eye Institute, where he rose in rank to Clinical Professor of Ophthalmology and served as director of the Vitreoretinal Fellowship Program. Dr. Elliott joined Mass. Eye and Ear in 2010 as Associate Director of the Retina Service.

Like his mentor Evan Gragoudas, Dr. Elliott is a passionate and gifted teacher, and a generous and staunch advocate for his trainees. He is highly sought out by residents and fellows, and by his peers for his clinical insights and ideas, and has been honored with several teaching awards.

His scholarship includes numerous publications in ophthalmic journals and textbooks, including a recently co-authored textbook, titled "Surgical Management of Intraocular Inflammation and infection," the first review of modern surgical approaches for these conditions. His work has earned him numerous honors, including an American Academy of Ophthalmology Achievement Award, the American Society of Retina Specialists' Honor Award, a prestigious fellowship from the Heed Ophthalmic Foundation, and membership in the Alpha Omega Alpha Honor Medical Society. ■

"Dean, while your tenure is still brief, you have clearly established yourself as a leader in research and teaching... and a game-changer when it comes to taking great care of patients."

—John Fernandez, President and CEO, Mass. Eye and Ear

Notes From The Chair continued from cover...

Many of our clinical successes begin in the laboratory with seed funding from our generous and long-standing partners in vision research: the Massachusetts Lions Club, Research to Prevent Blindness, and Foundation Fighting Blindness. Their stalwart and steady financial support plays a pivotal role in ensuring that research innovation continues at every level of investigation and often serves as a springboard for expanded federal funding. It also enables us to pilot meritorious projects of senior faculty so they can parlay their promising results into larger scale investigations.

Additionally, there are many other philanthropists who contribute to our ongoing success. Donors help build new facilities, purchase equipment, and support clinical care. They also make possible free and subsidized care and clinical operations of services that aren't well compensated by insurers—Eye Pathology and Vision Rehabilitation in particular. Too many to single out here, we are entirely grateful to our faculty, alumni, industry sponsors, and numerous foundation donors. Without you, we would not be continuing our upward trajectory in preserving and restoring vision.

One of our most exciting initiatives in recent years has been the expansion of our educational platform. Our faculty, trainees, alumni and vision research community have ample opportunity to share their insights and investigations with colleagues and create multidisciplinary collaborations. In fact, in just the last few years, we've increased the number of educational programs by over 40 percent and, as our HMS Ophthalmology Centers of Excellence and Institutes expand, that number will continue to grow. Along these lines, I am pleased to announce two new departmental events: on October 21st the Ocular Genomics Institute is

launching their inaugural Genetics and Genomics of Eye Disease Symposium, which will explore recent genetic-and genomics-based advances in addressing inherited retinal eye diseases, and the impact on patient care and patient's families. On November 2nd, the department is hosting its first Strabismus Fall Festival, which will focus on techniques and advances in strabismus surgery and pediatric ophthalmology.

It is our hope that these events—plus the many other lectures, workshops, conferences—will inspire trainees, faculty, alumni, and the clinical/research vision community, and encourage knowledge sharing, cross-disciplinary collaboration, and networking among participants. To keep everyone better apprised of upcoming events, lectures and seminars we have developed an electronic HMS Ophthalmology calendar as a one-stop source for viewing, sharing and saving department-wide event information using your electronic devices. Check it out at <http://www.masseyeandear.org/hmscalendar>. Faculty and trainees also may link to the calendar from the department's internal *eyeNews* blasts each month.

Here's to another stellar year of learning, discovery, and giving the gift of sight.



Joan W. Miller, MD, EARVO
Chief and Chair

Vision Rehabilitation Service continued from page 3...

Patients are shown a magnifying device they can wear with a heads-up display and apps for iPhones that identify objects or colors.

“Adaptive devices are powerful tools for our patients,” noted Dr. Jackson. “Many computer systems offer text magnification and speech conversion, and they're touch-sensitive. This combination helps our vision-impaired patients enormously. Some Mass. Eye and Ear benefactors also have donated eReaders to patients who otherwise could not afford them.”

Under Dr. Jackson's guidance, the Mass. Eye and Ear Vision Rehabilitation Service has experienced significant growth in patient referrals, underscoring the value of the patient-centric nature of the program and reflecting the increasing needs of an aging population. Ultimately, Dr. Jackson hopes to significantly boost patient referrals around the country. “There are many people who would benefit from comprehensive vision rehabilitation and who currently are not receiving effective interventions,” said Dr. Jackson.

As Service director, Dr. Jackson devotes significant time to training and mentoring medical students, residents and fellows in these techniques. She also continues to raise the profile of the CVR model by lecturing extensively in the U.S. and abroad and—as a current consultant to the American Academy of

Ophthalmology Vision Rehabilitation committee—by educating her peers about CVR.

Dr. Jackson's research focus is Charles Bonnet Syndrome, in which patients with vision loss report having visual hallucinations. Roughly one-quarter to one-third of patients being treated by the Vision Rehabilitation Service have reported seeing such faces, patterns, or other visual phenomena. “This is a common brain reaction to vision loss,” Dr. Jackson notes, “not a form of mental incompetence. And many of my patients are so grateful to hear that. Studying this syndrome will help us learn more about how the brain really works.”

Dr. Jackson and other members of the Service collaborate with HMS ophthalmology faculty from other departments to bring innovative and novel research to the clinic (see Merabet story, cover). Dr. Jackson also co-directs the Harvard Medical School Department of Ophthalmology Mobility and Vision Rehabilitation Center of Excellence with Eli Peli, MSc, OD, Senior Scientist and the Moakley Scholar in Aging Eye Research at Mass. Eye and Ear/Schepens Eye Research Institute. The center draws on the talent and resources of clinician scientists department-wide to drive collaboration and advance scientific discovery in the areas of mobility enhancement, vision rehabilitation, and sensory perception. ■

Generous Alumni Contributions Fuel Department Growth and Expansion

Since 2010, the Alumni Giving Society's annual contributions have played a pivotal role in supporting the vital work of trainees and faculty in the Harvard Medical School Department of Ophthalmology. Dr. Joseph Rizzo III, Director of Alumni at HMS Ophthalmology, has played an instrumental role in boosting visibility and strengthening alumni ties.

Contributions supporting the Harvard Medical School Department of Ophthalmology for FY13 totaled \$994,785 from 85 members. "This generosity is proof positive that we are succeeding in our efforts to create a culture of philanthropy,"

commented Dr. Miller. "These charitable gifts help build the backbone that will support training our next generation of ophthalmic leaders. Together, we are building a strong community that nurtures our trainees even as it inspires and challenges them."

In past years, the generosity of this dedicated philanthropic group has benefited various educational, clinical, and research endeavors. Alumni contributions can be designated for seed funding for new research projects, new lectureships, facilities improvements, equipment purchasing, clinical care support, and educational program expansion. ■

Do you feel passionate about an aspect of your training?

Have you considered a named lectureship, fellowship or professorship?

What will your legacy be?

Explore the possibilities. Contact Melanie Saunders in the Development Office today at 617-573-3350 or visit www.MassEyeAndEar.org/makeagift/alumni

The Gift of Sight: Alumni Giving Society Fiscal Year 2012-13 Contributions

The Alumni Giving Society recognizes individuals who make annual gifts of \$1,000 or more to the department within the fiscal year (October 1 – September 30). Gifts are tax deductible and may be restricted or used to support one of our numerous programs. A heartfelt thanks to this year's contributors.

Visionary – Gifts of \$10,000 or more

Mark B. Abelson, MD
Evangelos S. Gragoudas, MD
Jack V. Greiner, OD, PhD
Paul P. Lee, MD, JD
Alice R. McPherson, MD
Joan W. Miller, MD
George N. Papaliodis, MD
The Alice D. and Earl S. Seale Estate
Frans Van de Velde, MD, PhD
Janey L. Wiggs, MD, PhD and
Robert J. D'Amato, MD, PhD

Innovator – Gifts of \$5,000 - \$9,999

James V. Aquavella, MD
David G. Hunter, MD, PhD

Pioneer – Gifts of \$2,500 - \$4,999

Anthony P. Adamis, MD
Frank G. Berson, MD
Michael J. Bradbury, MD
James Chodosh, MD, MPH
Claes H. Dohlman, MD, PhD
Thaddeus P. Dryja, MD
Paul S. Greenfield, MD
B. Thomas Hutchinson, MD
Sulayman E. Jallow, MD
Jeffrey C. Lamkin, MD
Simmons Lessell, MD
Robert A. Lytle, MD
Dimosthenis Mantopoulos, MD

Michael F. Marmor, MD
Shizuo Mukai, MD
Arysol Niffenegger, MD and
John H. Niffenegger, MD
Louis R. Pasquale, MD
Arturo R. Quevedo, MD
Joseph F. Rizzo III, MD
David A. Snyder, MD
Albert L. Ungricht, MD
Shelby R. Wilkes, MD, MBA and
Jettie M. Burnett, MD
Lucy H. Y. Young, MD, PhD

Friend – Gifts of \$1,000 - \$2,499

William C. Albert, MD
Mark W. Balles, MD
Eliot L. Berson, MD
Sheila Borbolis-Gerogiannis, MD
David G. Campbell, MD
Joseph B. Ciolino, MD
M. Reza Dana, MD, MPH, MSc
Dean Elliott, MD
Philip M. Falcone, MD
Aaron M. Fay, MD
Suzanne K. Freitag, MD
George E. Garcia, MD
Matthew F. Gardiner, MD
Alexander R. Gaudio, MD
Michael W. Gaynon, MD and
Susan H. K. Ryu, MD
Melanie R. Graham, MD and
Kenneth B. Graham, MD

Cynthia L. Grosskreutz, MD, PhD
Peter S. Hersh, MD
John A. Irvine, MD
Mary Lou Jackson, MD
Ula V. Jurkunas, MD
Paul Kalina, MD
Ernest W. Kornmehl, MD
Peter R. Laibson, MD
David W. Lamberts, MD
Nahyoung G. Lee, MD and
Leo A. Kim, MD, PhD
Daniel R. Lefebvre, MD
Michael A. Lemp, MD
Byron S. Lingeman, MD
Ann-Marie Lobo, MD
John I. Loewenstein, MD
Dennis M. Marcus, MD
Richard H. Masland, PhD
Ronald E. McFarland, MD
W. Wynn McMullen, MD
John B. Miller, MD
Anthony B. Nesburn, MD
Susanna S. Park, MD, PhD
Jose D. Peczon, MD
John W. Reed, MD
Chandrappa S. Reshmi, MD
Hidenao Toyofuku-Ideta, MD
R. Sloan Wilson, MD
Michael K. Yoon, MD

Video Games continued from page 1...

This year, Dr. Merabet, Study Coordinators, Erin Connors and Lindsay Yazzolino, and computer software developer Jaime Sánchez from the Department of Computer Science and Center for Advanced Research in Education at the University of Chile created a 9-minute video illustrating the methods for engaging in the video game and assessing virtual and physical navigation task performances. The video was published in the *Journal of Visualized Experiments (JoVE)* on March 27, 2013: <http://bit.ly/Zqc2yF>

“The main advantage of this technique over existing methods such as standard orientation and mobility training is that the spatial layout of an unfamiliar building can be learned through virtual exploration in a safe and controlled manner,” Dr. Merabet commented in the *JoVE* video.

The applications for this interactive navigation system for the visually impaired are broad-reaching. For example, in the future, major buildings (such as subway stations and museums) could offer audio maps or games to help visually impaired visitors learn their layout before they arrive. ■



Lotfi Merabet received his doctorate degree in neuroscience from the University of Montréal and his clinical doctorate in optometry from New England College of Optometry. He continued his post-doctoral

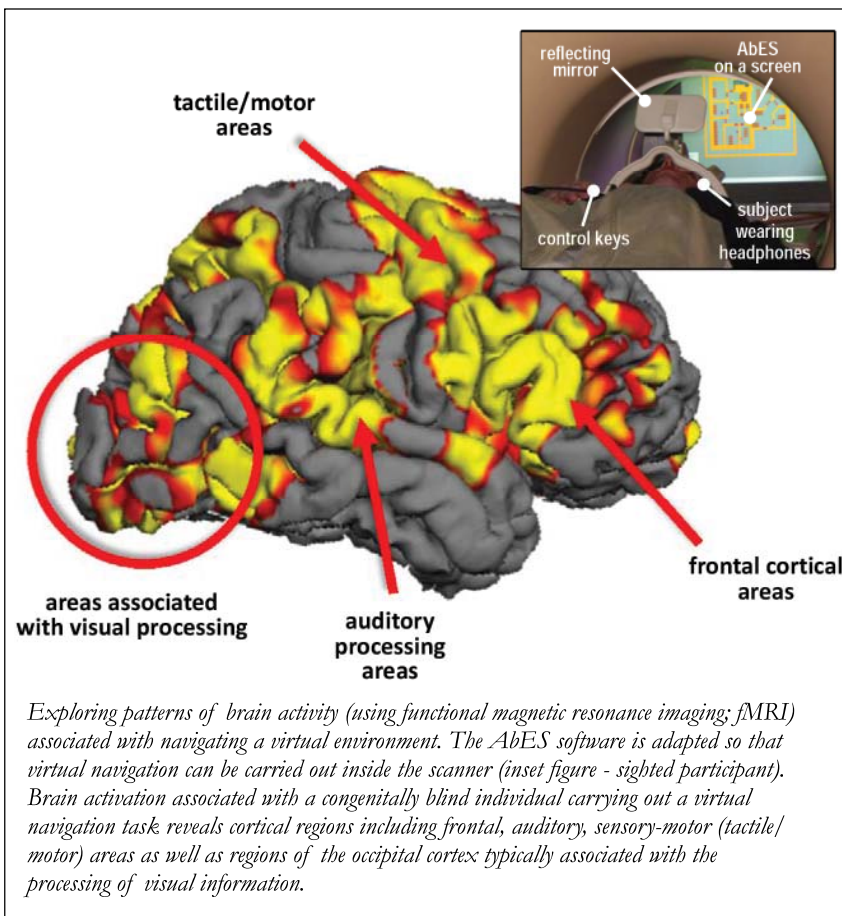
training at Harvard Medical School, Boston University and the MGH Martinos Center for Biomedical Imaging and completed his Master’s degree in Public Health (Harvard). In 2010, he joined Mass. Eye and Ear’s Vision Rehabilitation Service as a clinician scientist and as a member of the research faculty. His work is currently supported by the National Institutes of Health.

Dr. Merabet’s main research interests include the development of virtual environments and game based strategies to assist in orientation and mobility training in the blind. Much of this work is done in local collaboration with the Carroll Center and Perkins School for the Blind as well as internationally with the University of Chile and Milan, Italy.

Contact Information

Phone: 617-573-4130

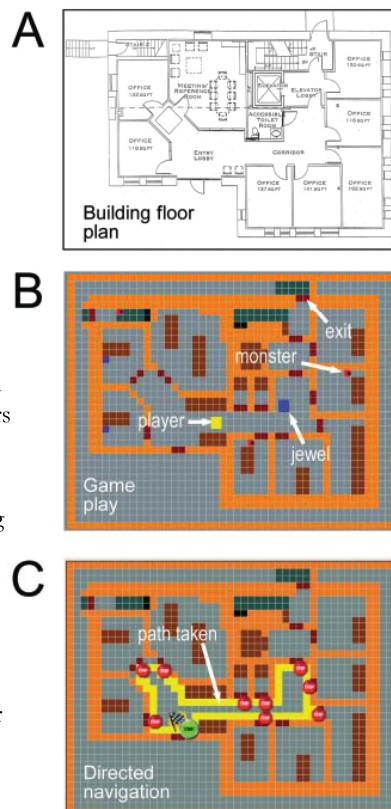
Email: lotfi_merabet@meci.harvard.edu



Virtual rendering of a physical environment represented in the AbES software.

- A) Architectural floor plan of an existing two story building with 23 rooms, 2 stairwells and 3 exits. For simplicity, only the first floor is shown.
- B) In gamer mode, the player (yellow icon) navigates through the virtual environment using auditory cues to locate hidden jewels (blue squares) and avoid being caught by chasing monsters (red icons).
- C) In directed navigation mode, the user learns the spatial layout of the building and the relative location of the rooms using predetermined paths (shown in yellow) and with the assistance of a facilitator.

Merabet LB, Connors EC, Halko MA, Sánchez J. Teaching the blind to find their way by playing video games. *PLOS ONE*. 2012;7(9):e44958.



Scott Barb, MD



Originally from Virginia, Scott received his BS in Biochemistry from Rhodes College and his MD from the University of Tennessee College of Medicine. Elected into Alpha Omega Alpha during medical school, Scott also was a member and president of the Student Interest Group in Ophthalmology, as well as a student coordinator and volunteer for the Student

Sight Savers Program in Memphis, TN. His work on visual system development in children with retinoblastoma and, more recently, refractive growth in children with intraocular lenses, has been presented at major ophthalmic conferences, including AAO and ARVO, and published in *IOVS*. He also has garnered multiple scholarships and awards, including a National Eye Institute Travel Grant to attend ARVO's 2008 annual meeting. Scott recently completed a transitional internship at University of Tennessee Health Science Center.

Lisa Cowan, MD, PhD, MS



A Texas native, Lisa graduated from the California Institute of Technology with a BS in Chemical Engineering and an MS in Materials Science. She remained at Cal Tech to pursue her PhD and was awarded a Philanthropic Educational Organization Scholarship that recognized her outstanding research on super protonic solid acid phase transitions and stability.

During medical school, Lisa received the Wilson Scholarship for her contributions in cancer research and the merit-based Town and Gown Scholarship. She earned her MD in 2012 from the Keck School of Medicine of the University of Southern California and then completed an internship at UCLA. Lisa has a strong track record of first-author publications and has presented several posters at national and international meetings, including the Diabetic Foot Global Conference, American Society of Hematology Conference, and Materials Research Society. She joins us from her internal medicine internship at UCLA Olive View.

Emma Davies, MD



A marine biology enthusiast, Emma completed an honors research project in visual and chemical orientation of estuarine crustaceans at Duke University, where she graduated with a BS in biology and a concentration in marine biology.

After being inducted into Phi Beta Kappa and winning the Duke University Maggie Schneider Award, she attended University

of Pennsylvania School of Medicine. At UPenn, she completed several research projects in neuro-ophthalmology, including an

investigation of ganglion cell layer volume as measured by OCT in patients with multiple sclerosis; this was presented at the North American Neuro-Ophthalmology Society and American Academy of Neurology annual meetings and later published in *Journal of Neuro-Ophthalmology*. Emma received her MD in 2012 along with the University of Pennsylvania Ophthalmology Excellence Award and a Clinical Neuroscience Research Track Certificate. Most recently, she completed an internship at Pennsylvania Hospital.

Seanna Grob, MD, MSc



A Californian native, Seanna completed her undergraduate training in Molecular and Cellular Biology and Education at University of California, Berkeley. She received her MD and a Master's degree in Advanced Studies of Clinical Research from the University of California, San Diego School of Medicine (UCSD).

During medical school, she enjoyed volunteering at multiple eye clinics abroad. Her research projects have largely focused on the genetics of ocular disease, especially age-related macular degeneration. She has authored multiple publications, including two published book chapters, one on diabetic retinopathy (published in *Retina*) and another on ophthalmic disease mechanisms and drug discovery in ocular inflammation. The recipient of numerous awards, Seanna was recently honored with The John and Lola Ross Award in Science and Culture of Medicine, Excellence in Ophthalmology Senior Award, and the San Diego Clinical and Translational Research Institute Grant. She completed her internship at Harbor UCLA Medical Center.

Aliya Jiwani, MD



A Texas native, Aliya majored in chemistry at Harvard College. She received the Detur prize for outstanding academic achievement, conferred to less than 10 percent of her class. After graduation, she was awarded a Harvard Center for Public Interest Careers Fellowship, where she consulted for pharmaceuticals on angiogenesis-based medicines. She then

became the Associate Director of the Parental Stress Line, a state-wide program that aims to prevent child abuse, where she managed 50 volunteers and implemented a number of initiatives. In 2007, Aliya matriculated at Yale School of Medicine. She was awarded a Doris Duke Clinical Research Fellowship that led to a first author publication in *Eye* in 2012 on the effects of caffeinated coffee on intraocular pressure, and Best Clinical Research Poster Award at the 2011 HMS Ophthalmology Annual Meeting on solar exposure as a risk factor for pseudoexfoliation syndrome. Aliya recently completed her internship at Cambridge Hospital.

Ilya Leskov, MD, PhD



Born in Moscow, Ilya graduated from Swarthmore College with a BA in Biology. While working in the Arshavsky Laboratory at Mass. Eye and Ear with the support of a Fight for Sight Fellowship, he investigated the biochemical parameters of retinal phosphodiesterase and the light-driven movement of proteins in rod photoreceptors. With support from an NIH Medical Scientist Training Program

grant, Ilya pursued his MD from Harvard Medical School and his PhD at MIT, where he conducted research on humanized mouse models of leukemia and lymphoma as well as their treatment with targeted immune therapy. He completed his internship in internal medicine at Mount Auburn Hospital. Having authored or contributed to almost a dozen publications, Ilya's most recently accepted article is entitled, "Intermittent Horner Syndrome in a Pediatric Patient," which is slated for publication in the *Journal of Neuro-Ophthalmology*.

Avni Patel, MD, MBA



California-raised, Avni graduated with a BA from Stanford University—majoring in Human Biology and minoring in Spanish—and was elected into Phi Beta Kappa as well as the Cap and Gown Women's Honor Society. She received her MD at Dartmouth Medical School in 2012, was inducted into Alpha Omega Alpha, and was chosen as a Rolf C.

Syvertsen Scholar, an alumni-endowed merit, service and leadership award. Avni also completed an MBA from the Tuck School of Business, which was partially funded with a Norm and Melinda Payson Scholarship. During medical school, Avni developed organizational strategies to improve supply chain management and patient access to care at a 60-bed hospital in Haiti. As a Vermont Schweitzer Public Service Fellow, she also taught a health literacy curriculum for new immigrants enrolled in English as a Second Language class in Manchester, NH. She comes to Mass. Eye and Ear after completing an internship at Brigham and Women's Hospital.

Miin (Irene) Roh, MD, PhD, MSc



Born and raised in Seoul, South Korea, Irene received her Bachelor of Medical Science, MD, MSc, and PhD from Yonsei University. She completed an ophthalmology residency at Yonsei University College of Medicine, Severance Hospital, where she was awarded Best Resident of the Year Award in 2006. The following year, she completed a Retina Fellowship prior to joining the

Yonsei faculty as an Assistant Clinical Research Professor.

A seasoned clinician scientist, Irene joined the Angiogenesis laboratory at Mass. Eye and Ear/HMS in 2009, where she was a postdoctoral fellow conducting research in glaucoma, age-related macular degeneration and macular telangiectasia. With numerous publications, she has been a strong presence at both the Korean Ophthalmological Society and ARVO annual meetings. For her work, she was awarded the ARVO Foundation for Eye Research/Retina Research Foundation/Joseph M and Eula C. Lawrence Travel Grant in 2011. She joins Mass. Eye and Ear after completing an internship at Metrowest Medical Center in Framingham, MA.

Class of 2014

Optometric Resident

Matthew Howell, OD



Matt graduated from Ohio University, *magna cum laude*, with a BS in Biology. He earned his OD from The Ohio State University College of Optometry, where he tutored fellow optometry students in histology, pathophysiology, and binocular vision. Matt rotated through several hospital and vision centers where he gained a broad range

of experience including, but not limited to, binocular vision and pediatric eye care, low vision rehabilitation, and contact lens fittings on keratoconic and post PK patients. During his optometry training during the 2012-13 academic year, Matt received numerous honors and scholarships, including the Miller optometry scholarship, Optometry general scholarship, and Lawrence Shaefer scholarship. A member of Beta Sigma Kappa, Matt received the PLI clinical excellence award in gas permeable/specialty contact lenses.

Following are press release excerpts highlighting several recent research breakthroughs and/or ongoing research investigations in the HMS Department of Ophthalmology. To read the full text and for links to our investigators in the news, visit www.MassEyeAndEar.org/news.

OCULAR GENOMICS INSTITUTE

A New, Complete Catalogue: Gene Expression in the Human Retina



Michael Farkas, PhD, Eric Pierce, MD, PhD, and colleagues of the Harvard Medical School Department of Ophthalmology Ocular Genomics Institute (OGI) at Massachusetts Eye and Ear recently published the most thorough description of gene expression in the

human retina (*BMC Genomics*, 2013). According to researchers, documenting the entirety of these genetic data into a catalogue is crucial for understanding how diseases of the eye develop and lead to vision loss.

The retina is a light-sensitive layer of tissue lining the inner surface of the eye that receives light signals from the environment and sends those signals to the brain for interpretation, resulting in vision. Within the retina are transcripts, or lengths of RNA. By characterizing these transcripts, researchers gather information helpful in understanding the mechanisms underlying the pathology of retinal disease and vision loss.

In this study, investigators used a technique called RNA sequencing (RNA-seq) to identify all of the messenger RNAs (mRNAs) produced in the human retina. This catalog of

expressed genes, or transcriptome, revealed that the majority of the 20,000+ genes in the human body are expressed in the retina.

Dr. Farkas and colleagues also identified almost 30,000 novel exons (portions of the genome that are used to encode proteins or other genetic elements) and over 100 potential novel genes that had not been identified previously. “While this may not sound like a lot, it shows that there is more to discover about the human genome, and that each tissue may use distinct parts of the genome,” said Dr. Pierce, Director of the OGI and the Solman and Libe Friedman Associate Professor of Ophthalmology at Harvard Medical School.



Dr. Pierce and colleagues in the OGI study inherited retinal degenerations, which are common causes of vision loss. These diseases are caused by misspellings or mutations in genes that are needed for vision. To date, investigators have identified more than 200 retinal degeneration disease genes, but identification of new exons used in the retina may help find the cause of disease in currently

undiagnosed patients. The transcriptome data can be viewed via the OGI website at <http://oculargenomics.meei.harvard.edu/index.php/ret-trans> ■

Critical Role for the Complement System in Early Macular Degeneration



Donita Garland, PhD, Rosario Fernandez-Godino, PhD, and Eric Pierce, MD, PhD, of the Harvard Medical School Department of Ophthalmology Ocular Genomics Institute (OGI) at Massachusetts Eye and Ear, along with their colleagues, reported that in

mice genetically engineered to have an inherited form of macular degeneration, turning off the complement system prevented the disease (*Human Molecular Genetics*, 2013).

This is the first report to demonstrate a role for the complement system, which is a part of the immune system, in an inherited

macular degeneration. Previous genetic studies have shown that variants in the genes that encode several complement system components are important risk factors for age-related macular degeneration (AMD). Based on this, drugs that inhibit specific complement system activities are being tested clinically as treatments for AMD.

Though it is not entirely clear how alterations in complement system components lead to AMD, results suggest that abnormalities in the extracellular matrix or the scaffold secreted by retinal cells activates the complement system and plays an important role in the formation of basal deposits, one of the earliest stages of macular degeneration. Basal deposits are precursors of drusen, which appear as spots in the retina on clinical examination, and are accumulations of proteins and lipids outside the retinal cells; their presence is the first clinical indication of a risk of developing AMD. ■

MOBILITY ENHANCEMENT & VISION REHABILITATION CENTER OF EXCELLENCE

Bioptic Telescopes, Blind Areas, and Bi-ocular Multiplexing



In the HMS Department of Ophthalmology Mobility Enhancement and Vision Rehabilitation Center of Excellence, co-directed by **Eli Peli, OD, MSc** and **Mary Louise Jackson, MD**, researchers are working to improve mobility and quality of life

for patients with impaired vision. Here, innovative devices and techniques are being developed and tested to enhance vision for people with various forms of vision loss, including age-related macular degeneration (AMD), retinitis pigmentosa, glaucoma, hemianopia strabismus, and amblyopia.

One vision-enhancing device currently under study is the bioptic telescope for patients with reduced visual acuity. A bioptic is a small telescope attached to a pair of glasses. People with reduced visual acuity are permitted to drive with the aid of bioptic telescopes in 40 states in the USA, the Netherlands, and Quebec, Canada. But, does the blind area (ring scotoma) created by the magnification of the telescope impair detection of traffic-relevant events when using the telescope? And does the increased likelihood of suppression in patients with strabismus affect detection performance?

To investigate these potential safety concerns, Dr. Peli and colleagues from Schepens/Mass. Eye and Ear, including Amy Doherty, who is herself a bioptic user, compared the abilities of patients with and without strabismus to detect stimuli in the ring-like blinded area formed by the telescope around the area enlarged by the telescope. The paper was published in *Ophthalmic and Physiological Optics* in 2013.



Researchers found that patients with and without strabismus were able to detect most targets with the non-telescope eye in the ring-shaped blind area, demonstrating successful adaptation to the device. However, patients with strabismus did have lower detection with than without the telescope on the patterned visual background suggesting at least

partial suppression. They also showed a greater reduction in performance between the patterned and uniform backgrounds than patients without strabismus. This study, along with the team's previous study, highlights the importance of using testing conditions that resemble real world use of devices. Further study using larger samples and possibly moving natural background (such as a driving scene video) is needed to generalize these findings. ■

AGE-RELATED MACULAR DEGENERATION CENTER OF EXCELLENCE

Predicting Responses to Nutritional Supplements

According to a study published online in *Ophthalmology* (August 2013), individuals with moderate age-related macular degeneration (AMD) could benefit from a pharmacogenomic selection of nutritional supplements. Pharmacogenomics technology analyzes how genetic makeup affects an individual's response to drugs, or in this case, nutraceuticals. In particular, certain genetic polymorphisms (CFH and ARMS2) can predict response to antioxidants and zinc.



Ivana Kim, MD and **Anne-Marie Lane, MPH** of the Retina Service at Mass. Eye and Ear, and colleagues, conducted a genetic analysis of participants with moderate to advanced AMD with available peripheral blood-derived DNA taken from the 2001 AREDS randomized, prospective clinical trial (*Archives of Ophthalmology*, 2001). Researchers found that patients with no complement factor H (CFH) risk

alleles and with 1 or 2 ARMS2 risk alleles derived maximum benefit from zinc-only supplementation. Patients with one or



two CFH risk alleles and no ARMS2 risk alleles derived maximum benefit from antioxidant-only supplementation; treatment with zinc was associated with increased progression to advanced AMD. These recommendations could lead to improved outcomes

through genotype-directed therapy.

"This is one of the first examples where you have... genetic findings actually guiding treatment," commented Mass. Eye and Ear retina surgeon and researcher **Leo A. Kim, MD, PhD**, to Medscape Medical News.

While Mass. Eye and Ear clinician scientists are hopeful about the clinical usefulness of these results as a step toward personalized medicine, other medical professionals are cautiously waiting for confirmation of the methodology and analyses; independent verification of these results will be a major step in the widespread adoption of these recommendations. ■

Ophthalmology Grand Rounds

CME

Grand Rounds are held every Thursday from 8:00 - 9:00 am in the Meltzer Auditorium, 3rd Floor, Mass. Eye and Ear and simulcast to the Karp 11 conference room at Boston Children's Hospital and Mass. Eye and Ear, Longwood. Continuing Medical Education credit is available. A monthly list is posted at www.MassEyeAndEar.org/for-professionals/ophthalmology.

Upcoming Events

The HMS Department of Ophthalmology sponsors an extensive array of special lectures and courses. For details, please consult the Ophthalmology Education section at www.MassEyeAndEar.org

or link to our **NEW** HMS online calendar at www.MassEyeAndEar.org/hmscalendar



Faculty Grand Rounds – Quality, Humanism and Professionalism

Mass. Eye and Ear, Meltzer Auditorium
October 24, 2013, 8:00 am – 9:00 am:
 Kevin Pho, MD, Private Practice Physician presents “Connect and Be Heard: Make a Difference in Health Care with Social Media”

Boston Ophthalmic Pathology Lecture Series

Mass. Eye and Ear, Meltzer Auditorium
October 29, 2013, 6:00 pm – 8:00 pm:

Genetics and Genomics of Eye Disease Symposium

CME

NEW

October 21, 2013 (Schepens, Starr Center)



This one-day course will explore recent genetic- and genomic-based advances in the area of inherited eye disease and their impact on the care of patients and their families. Open-ended panel discussions and presentations will review risk factors for common complex eye disorders such as AMD, glaucoma and diabetic retinopathy, as well as disorders caused by highly penetrant mutations, such as inherited retinal degenerations, optic atrophy and strabismus. Discussions will center on therapeutics, ethics, and new methodologies for gene-based testing.

Course Directors: Janey Wiggs, MD, PhD, Eric Pierce, MD, PhD, and Luk Vandenberghe, PhD

Norman C. Charles, MD, Professor of Ophthalmology, NYU Medical Center presents “Diseases of the Orbit: Pathology of Orbital Disorders”

Boston Ophthalmology International Visiting Professor in Cornea and External Eye Disease

Boston University (co-sponsored by BU alumni and Mass. Eye and Ear)

October 31, 2013, 2:00 pm - 4:30 pm:
 Mass. Eye and Ear, Meltzer Auditorium
November 1, 2013, 12:00 pm - 1:45 pm,
 Mass General Hospital, Ether Dome;
 1:45 pm - 6:30 pm, Mass. Eye and Ear,
 Meltzer Auditorium: Paolo Rama, MD,
 San Raffaele Hospital, Milan, Italy

Course Director: Mary Dabj, MD

Pediatric Ophthalmology Visiting Professor Lecture Series

Boston Children's Hospital (video link to Mass. Eye and Ear)

November 6, 2013: Marilyn Miller, MD,
 Professor of Ophthalmology, University of Illinois, Chicago

15th Annual Boston Angiogenesis Meeting

Schepens, Starr Center

November 7, 2013: Elazer Edelman, MD, PhD, Thomas D. and Virginia W. Cabot Professor of Health Sciences and Technology, MIT

Co-Chairs: Kip Connor, PhD, and Demetrios Vavvas, MD, PhD

SERI - Distinguished Lecture Series

Schepens, 2nd Floor Conference Room

November 14, 2013: Danny J. Schust, MD,
 Associate Professor, Director, Division of Reproductive Medicine and Fertility, School of Medicine, University of Missouri Health System

Paul A. Chandler Visiting Professor Lecture

Mass. Eye and Ear, Meltzer Auditorium

December 6-7, 2013: Andrew Lee, MD,
 Professor of Ophthalmology, Neurology, and Neurosurgery at Weill Cornell Medical College

Strabismus Fall Festival

November 2, 2013, 8:00 am – 5:00 pm (Mass. Eye and Ear, Meltzer Auditorium)

Through case-based panel discussions and lectures, this one-day course will focus on techniques and advances in strabismus surgery and pediatric ophthalmology. A discussion will follow each surgical case presentation, with follow-up presentations describing actual surgical interventions and post-operative results.

Case presentation topics and lectures will include:

- Congenital Strabismus: “Surgical Outcomes in CFEOM” (Gena Heidary, MD, PhD)
- Restrictive Strabismus: “Current Strategies in the Management of Restrictive Strabismus” (Linda Dagi, MD)
- Paretic Strabismus: “When to Obtain a Neuro-op Consultation for Your Strabismus Patient” (Dean Cestari, MD)
- Advanced, Complex Strabismus: “Advanced Surgical Techniques in Complex Strabismus” (David G. Hunter, MD, PhD), and “Surgical Strategies for Cyclovertical Strabismus” (David Guyton, MD)

Inaugural guest lecturer, David Guyton, MD, will deliver a presentation entitled, “Dissociated Vertical Deviation: Mechanism and Purpose.”

CME The course, which is offered by Boston Children's Hospital and Mass. Eye and Ear, is approved for CME credit.

Course Directors: Gena Heidary, MD, PhD, and Dean Cestari, MD

NEW



Clinical, Assessments, and Intervention Updates in Neuro-rehabilitation

December 12-14, 2013

(Spaulding Rehabilitation Hospital, Charlestown, MA)

Offered by the Spaulding Rehabilitation Hospital, Dept. of Physical Medicine and Rehabilitation, this course provides participants with an introduction and update on the rapidly advancing field of neurorehabilitation. Overviews of current interventions (including FDA-approved and state-of-the-art research) aimed at improving cognitive, motor, and/or sensory function will be covered, along with concise and informative lectures. Registration is required.

Speakers include:

- Sydney Cash, MD, PhD, Harvard Medical School
- Dylan Edwards, PhD, Cornell University
- Felipe Fregni, MD, PhD, Harvard Medical School
- Lotfi Merabet, OD, PhD, Harvard Medical School
- Margaret Naeser, PhD, LicAc, Boston University
- Ross Zafonte, DO, Harvard Medical School

Course Directors: Felipe Fregni, MD, PhD, MPH, and Lotfi B. Merabet, OD, PhD, MPH

CME

Claes H. Dohlman Visiting Professor

Mass. Eye and Ear, Meltzer Auditorium
December 12-13, 2013: Alan Sugar, MD, Professor and Vice-Chair, Ophthalmology & Visual Sciences, Kellogg Eye Center, University of Michigan

Department of Ophthalmology Research Seminar Series

Mass. Eye and Ear, Meltzer Auditorium

January 10, 2014, 12:00 pm: Hemant Khanna, PhD, Assistant Professor of Ophthalmology, UMass Memorial Medical Center

January 17, 2014, 12:00 pm: Beth Stevens, PhD, Assistant Professor of Neurology, Boston Children's Hospital

Faculty Grand Rounds – Quality, Humanism and Professionalism

Mass. Eye and Ear, Meltzer Auditorium

January 23, 2014: Lynn Gordon, MD, Professor of Ophthalmology, Jules Stein Institute

Orbital Dissection Course

Mass. Eye and Ear, Sloane Room

February 1, 2014: Led by HMS faculty, the course involves several hours of didactic lectures as well as video and live instruction

NEW

utilizing fresh human cadaver heads. Mass. Eye and Ear residents, oculoplastics fellows, and all ASOPRS fellows in the U.S. are invited to attend.

Course Director: Suzanne Freitag, MD

Joint Mass General/Mass. Eye and Ear Neuroscience Grand Rounds

Mass General Hospital, Etherdome

February 6, 2014: Rebecca Stacy, MD, PhD, Instructor in Ophthalmology, Harvard Medical School

Department of Ophthalmology Research Seminar Series

Mass. Eye and Ear, Meltzer Auditorium

February 28, 2014, 12:00 pm: Nicolas

9th Annual Ephraim Friedman Lecture

February 12, 2014 (Meltzer Auditorium)



This annual lecture honors the extraordinary teaching, research, and service of the late Dr. Ephraim Friedman, who made major contributions to the field of ophthalmology and age-related macular degeneration research. This year's invited speaker is Srinivas Satta, MD, Associate Professor of Ophthalmology at Keck School of Medicine of University of Southern California.

Course Directors: Evangelos Gragoudas, MD and Dean Elliott, MD

Bazan, MD, PhD, Ernest C. and Yvette C. Villere Endowed Chair of Retinal Degenerations, LSU Health New Orleans

Cornea Visiting Professor Lecture Series

Mass. Eye and Ear, Meltzer Auditorium

March 6-7, 2014: Andrew Huang, MD, MPH, Professor of Ophthalmology and Visual Sciences, Washington University School of Medicine

Department of Ophthalmology Research Seminar Series

Mass. Eye and Ear, Meltzer Auditorium

March 14, 2014: Wei Lei, PhD, Retinal Neurophysiology Unit, National Institutes of Health, Bethesda, MD presents "Of Squirrels and Men? – a Model for Studying Retinal Neurobiology"

Ruthanne Simmons Lecture

February 5, 2014 (Meltzer Auditorium)



Presented by the Harvard Medical School Ophthalmology **Glaucoma Center of Excellence**, this annual lecture honors the life and career of Ruthanne Simmons, MD. Dr. Ruthanne Simmons, along with her father, Dr. Richard Simmons, practiced together, operated at Mass. Eye and Ear and taught in the HMS Department of Ophthalmology. This year's lecture will be delivered by R. Rand Allingham, MD, Professor of Ophthalmology and Chief of the Glaucoma Service at Duke University Eye Center.

Course Director: Louis Pasquale, MD

CME

Awards, Grants, and Other Honors

Awards



Alex Bowers, PhD was selected as the 2013 recipient of the prestigious Envision Award in Low Vision Research. The award was presented during the Envision Conference held on

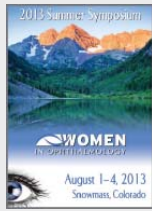
September 19th in Minneapolis. Since 2009, this award has been presented annually to a mid-career senior investigator in low vision and vision rehabilitation research.

HMS Clinical Instructor in Ophthalmology, **Jeffrey Dempski, DO** received the prestigious Hands and Heart Award from the Secretary of Veterans Affairs (VA). The award was established in 1980 and is given annually to a VA employee who administers direct patient care and sets an example for others, going above and beyond the call of duty in responding to veteran medical needs.

David Ramsey, MD, was selected as one of two retina fellows for the inaugural Sunil K. Rao, MD, Memorial Retina Fellowship Award. This award recognizes Dr. Ramsey's achievements to date and supports his attendance at the 2013 American Academy of Ophthalmology Annual Meeting in New Orleans.

Congratulations to Research to Prevent Blindness (RPB) awardees: **Demetrios Vavvas, MD, PhD**, who received the RPB Physician-Scientist Award (\$100,000); **Kip Conner, PhD**, who received the RPB Sybil B. Harrington Special Scholar Award for Macular Degeneration (\$55,000), and **Chynyan Qiao, MD** (working with **Louis Pasquale, MD**), who received the RPB International Research Scholar Award (\$3,000).

Shruti Aggarwal, MD, Juan Ding, PhD, Jing Hua, MD, Wendy Kam, MSc, and Sang-Mok Lee, PhD, MD, received travel awards from the Tear Film & Ocular Surface Society (TFOS) to attend the 7th International TFOS Conference, "Basic Science and Clinical Relevance," held on September 18-21, 2013 in Taormina, Sicily. Clinical posters



Patricia D'Amore, PhD, MBA, FARVO was selected to receive a 2013 Mentorship Award from Women in Ophthalmology and the American Medical Association Women Physicians Sector in recognition of her sustained career commitment to mentoring, significant positive impact on her mentees' careers, and her mentees' contributions to advancing research and patient care in the field of ophthalmology.

winner from the Department's 2013 Annual Meeting poster competition included **Michael Lin** ("Retinal Perifoveal Inner Layer Disorganizer as a Predictor of Visual Acuity Outcomes in Eyes with Center-involved Diabetic Macular Edema") and **Tobias Elze, PhD** ("Finding Patterns in Glaucomatous Visual Field Loss: Components, Prototypes, and Archetypes"). Research poster winners were **Thomas Dohlman, MD, MPH** ("The CCR6/CCL20 Axis Mediates Th17 Cell Migration to the Ocular Surface in Dry Eye Disease") and **Jinling Yang, PhD** ("A Role for Endomucin-1 in Maintaining a Non-Inflammatory Endothelial Surface and in the Regulation of Leukocyte-Endothelial Cell Interaction").

This year's travel award recipients for the 28th Biennial Cornea Conference are:

- **Elizabeth Berger, PhD**, Wayne State University School of Medicine (Detroit, MI)
- **Cintia de Paiva, MD**, Baylor College of Medicine (Houston, TX)
- **Thomas Fuchsluger, MD, PhD**, Heinrich-Heine-University (Düsseldorf, Germany)
- **Rosalind Stewart, MD, PhD**, University of Liverpool (Liverpool, UK)

Grants

Sumit Bhattacharya was selected from a pool of 2,000 applicants to receive a Fight for Sight postdoctoral award grant in the amount of \$20,000 for his project, "Mechanism of Thrombospondin-1 Interaction with Cholinergic and Purinergic Neural Inputs in a Murine Model of Sjogren's Syndrome."

Kip Connor, PhD and **Luk Vandenberghe, PhD** received 2013 Mass. Eye and Ear Curing Kids Fund grants to support their research into childhood vision loss. Dr. Connor received funding for his project, "Translational Profiling of the Neurovascular Unit in Retinopathy of

Prematurity," which will investigate genetic factors that contribute to the development of the disease and seek to identify new target molecules. Dr. Vandenberghe's project, "Gene Therapy for Leber Congenital Amaurosis (LCA)," focuses on developing a new gene therapy to treat LCA, which leads to severe vision loss during infancy and early childhood.

Aaron Fay, MD received a new clinical trial agreement from Premier Research International in the amount of \$653,005 for his investigation, "A Multicenter, Double-Masked, Placebo-Controlled, Efficacy and Safety Study of RV 001, an Insulin-Like Growth Factor-1 Receptor (IGF-1R) Antagonist Antibody (Fully Human), Administered Every 3 weeks (Q3W) by Intravenous (IV) Infusion in Patients Suffering from Active Thyroid Eye Disease (TED)."



The National Institutes of Health awarded **Michael Gilmore, PhD** an R01 totaling \$2.025 million over five years for his project, "Enterococcal Pathogenesis: Role of Cytolysin."

Pedram Hamrah, MD has received an NIH R01 grant totaling \$1.25 million over five years for his project, "The Role of Plasmacytoid Dendritic Cells in Corneal Immunity."

Tammy Osaki a 2011-12 international Research Fellow in Ophthalmic Plastic & Reconstructive Surgery, was chosen to receive the prestigious Merrill Reeh Pathology Award from the American Society of Ophthalmic Plastic & Reconstructive Surgery for her paper, "Immunohistochemical Investigations of Orbital Infantile Hemangiomas and Adult Encapsulated Cavernous Venous Lesions (Malformation Versus Hemangioma)." The

On July 26, 2013 the **Massachusetts Lions Eye Research Foundation (MLERF)** generously awarded research grants to several HMS ophthalmology affiliates and partner institutions during their annual awards dinner hosted this year by Mass. Eye and Ear. A big thank you to MLERF, which has provided the following support:

MASS. EYE & EAR: \$169,00

Tatjana Jakobs, MD, “The Role of a Regulatory Long RNA in Glaucoma”

Ann-Marie Lobo, MD, “Morbidity of Childhood Uveitis”

George Papaliodis, MD, “Biomarkers for Ocular Sarcoidosis”

Lucy Shen, MD, “Glaucoma in Keratoprosthesis Patients”

Lucia Sobrin, MD, MPH, “Discovering Genes that Increase Risk of Diabetic Retinopathy”

SCHEPENS EYE RESEARCH INSTITUTE: \$169,000

Peter Bex, PhD and **Lotfi Merabet, OD, PhD**, “Neuroplastic Reorganization in Cortical Visual Impairment”

Leo Kim, MD, PhD, “Tamoxifen Toxicity of the Retinal Pigment Epithelium as a Model of Dry Age-Related Macular Degeneration”

Meredith Gregory-Ksander PhD, “The NLRP3 Inflammasome as a Novel Target in the Prevention of Glaucoma”

BOSTON CHILDREN'S HOSPITAL: \$110,000

Ron Hansen, PhD and **James Akula, PhD**, “Blood Flow and Retinal Function in Retinopathy of Prematurity”

Gabriel Kreiman, PhD, “Towards Prosthetic Devices to Aid the Visually Impaired”

Danielle Ledoux, MD, “Evaluation of Noninvasive Eye Scanner for Down Syndrome”

Jing Chen, PhD, “Molecular Mechanisms and Therapeutics for Rare Pediatric Vascular Eye Diseases”

In addition, this year's MLERF Presidential Grant was awarded to Children's Ophthalmologist-in-Chief, **David Hunter**, in the amount of \$120,000.

JOSLIN DIABETES CENTER: \$169,000

Lloyd Paul Aiello, MD, PhD, “Diabetic Retinopathy: Pathogenesis, Prediction and Prevention”

- **Allen Clermont, MS**
- **Jennifer Sun, MD**
- **Lloyd Paul Aiello, MD, PhD**

BOSTON UNIVERSITY SCHOOL OF MEDICINE: \$169,000

TUFTS UNIVERSITY SCHOOL OF MEDICINE: \$90,000

Eric Pierce, MD, PhD received an NIH R01 grant totaling \$2.85 million over five years for his project, “Novel Photoreceptor Proteins and Retinal Degenerations.”

Magali Saint-Geniez received a \$120,000 grant from BrightFocus Foundation for her study entitled, “Role of PGC-1 Isoforms in RPE Function and Oxidative Stress: Implications for AMD.”

Other Honors

Neena Haider, PhD was nominated for the Harvard Graduate Women in Science and Engineering (HGWISE) Mentor of the Year Award. The HGWISE Mentoring Program pairs female graduate students with female faculty in order to promote strong mentoring relationships and nurture a new generation of scientists.

Daniel Lefebvre, MD joins Mass. Eye and Ear colleagues Drs. Suzanne Freitag, Aaron Fay, Francis Sutula and Michael Yoon as a member of the American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS). Dr. Lefebvre was inducted into ASOPRS in a ceremony held on June 6, 2013 in Newport, RI. There are approximately 550 ASOPRS members nationwide.

The paper, “Age-Related Macular Degeneration Revisited – Piecing the Puzzle: The LXIX Edward Jackson Memorial Lecture,” authored by **Joan W. Miller, MD** and published in the *American Journal of Ophthalmology* (Volume 155, Issue 1, January 2013) is the third most downloaded full-text article for this journal in the first half of 2013. Dr. Miller delivered the Jackson Memorial Lecture at the 2012 AAO Annual Meeting in Chicago, IL.

Dr. Miller also was invited to serve on the editorial board of the journal, *Ophthalmology*.

Sotiria Palioura, MD was selected for the 8th annual Heed Ophthalmic Foundation Residents Retreat, which will be held at the Intercontinental Chicago O'Hare on October 24-25, 2013. Dr. Palioura is one of 26 residents selected from among 55 residents nominated by their department chairs and/or residency program directors.

Cornea and Refractive Surgery fellow, **Marie-Claude Robert, MD** has been selected as the Harvard Ophthalmology Alcon Scholar for 2013-2014.

paper was published in 2012 in *Ophthalmic Plastic & Reconstructive Surgery*.

Ivana Kim, MD received a clinical trial agreement from Acucela Inc. in the amount of \$290,969 for her project, “A Phase 2b/3 Multicenter, Randomized, Double-Masked, Dose-Ranging Study

Comparing the Efficacy and Safety of Emixustat Hydrochloride (ACU-4429).”

Richard Masland, PhD received an NIH R01 grant in the amount of \$409,583. This award will fund Tatjana Jakobs, MD and her project entitled, “The Induction of Reactivity in Optic Nerve Astrocytes.”

Personnel Updates

HMS appointments:

Darlene Dartt, PhD, FARVO, Schepens Eye Research Institute/Mass. Eye and Ear, Professor of Ophthalmology

Qin Liu, MD, PhD, Mass. Eye and Ear, Assistant Professor of Ophthalmology

Vincent Patalano, MD, Mass. Eye and Ear, Assistant Professor of Ophthalmology

Tobias Elze, PhD, Schepens Eye Research Institute/Mass. Eye and Ear, Instructor in Ophthalmology

Daniel Sun, PhD, OD, Mass. Eye and Ear, Instructor in Ophthalmology

Promotions:

Dean Elliott, MD, the HMS Stelios Evangelos Gragoudas Associate Professor of Ophthalmology, has been named Co-director of the Mass. Eye and Ear Retina Fellowship program.

Suzanne Freitag, MD, Director of the Ophthalmic Plastic Surgery Service at Mass. Eye and Ear and HMS Assistant Professor of Ophthalmology, has been named as the Director of Network Development for Mass. Eye and Ear Ophthalmology. In this role, she will work with department leadership on the strategic development of the department's clinical network. Her scope includes practice acquisitions and referral relations with a focus on continuing the growth of the department patient base and deepening our reach into referring community practices.

Ula Jurkunas, MD has been named Co-Director of the HMS Ophthalmology Cornea Center of Excellence.

Carolyn Kloek, MD, Clinical Director of Ophthalmology at Mass. Eye and Ear, Longwood, and Associate Director of the HMS Residency Program in Ophthalmology, has been appointed as the Associate Chief for Practice Management at Mass. Eye and Ear. In this new administrative role, she will work with Department leadership, service and site directors, and the clinical operations administrators to coordinate and balance the office and surgical schedules of the Mass. Eye and Ear Associates clinical faculty.

Rebecca Stacy, MD, PhD, HMS Instructor in Ophthalmology, has been named Associate Director of the Eye Pathology Service and David G. Cogan Laboratory, Mass. Eye and Ear; and Associate Director, Eye Pathology Service.

Luk Vandenberghe, PhD, Director of the Ocular Gene Transfer Core and HMS Assistant Professor of Ophthalmology, has been named Associate Director of the HMS Ophthalmology Ocular Genomics Institute.

New Recruits:

Pallavi Ojha, MD joined Mass. Eye and Ear's Glaucoma Service in September. Dr. Ojha completed her medical training and ophthalmology residency at the Drexel School of Medicine, where she served as Chief Resident, and completed a glaucoma fellowship at Mass. Eye and Ear in June 2013.

Debra H. Rogers accepted the position of Vice President Ophthalmology. She is serving alongside Jay Balloffet for several months, and then will succeed him upon his retirement next year. Ms. Rogers is an experienced senior leader within HMS-affiliated medical centers and has deep knowledge of physician practice management and service improvement, research and education programs, as well as major hospital initiatives. She served most recently as the Chief Administrative Officer for the Department of Surgery at Beth Israel Deaconess Medical Center, where she transformed the administrative leadership team, increased surgical volume and margin, completed meaningful use rollout, expanded programs and partnerships across the network, and implemented multiple programs to improve patient access in the department.

Departures:

After 15 years of dedicated service **Jay Balloffet**, Vice President of the Department of Ophthalmology, will be retiring in the spring. A consummate professional and talented administrator, Mr. Balloffet has been integral to the recruitment of many research and clinical faculty, improving physician and patient experiences, building new facilities, and forming alliances—including agreements with Massachusetts General Hospital, Brigham and Women's Hospital, Boston Children's Hospital and Joslin Diabetes Center. Some highlights include: the unification of Mass. Eye and Ear and Schepens Eye Research Institute; the recruitment of Drs. Eric Pierce, Dean Elliott, Suzanne Freitag, Deeba Husain, Richard Masland, Michael Gilmore, and



Accolades for the 4th Annual Vitrectomy Course

The 4th Annual Mass. Eye and Ear Vitrectomy Course, once again, received glowing evaluations and unanimously positive feedback from this year's 48 fellows and six residents who attended from around the country. The free, two-day training intensive, held on July 19-20, attracted 33 world-class faculty members who joined together to deliver a brief, but comprehensive, introduction to the theory and practice of vitreoretinal surgery. Organized by Dean Elliott, MD, John Loewenstein, MD, and Demetrios Vavvas, MD, PhD, the course consisted of lectures, panel discussions, surgical simulation lab, and surgical wet lab in a setting with low student-to-teacher ratio. Emphasis on hands-on training and close interaction with faculty has made this course a tremendous success since its inauguration. All of the faculty have volunteered to return next year.

our many talented junior faculty; the launch of Mass. Eye and Ear, Longwood; and our successful 2012 HMS external review.

In late August, **Douglas Rhee, MD**, assumed the position of Chairman of the Department of Ophthalmology & Visual Sciences at Case Western Reserve University, in Cleveland, Ohio. Dr. Rhee has been a highly productive and enthusiastic member of our department for nearly eight years, and will bring his experience and energy to bear in succeeding Dr. Jonathan Lass as head of that prestigious department. An accomplished clinician and scientist, Dr. Rhee has a collection of achievements that place him among the most recognized and respected glaucoma experts worldwide.

Michael Wiedman, MD, Assistant Clinical Professor of Ophthalmology at Harvard Medical School stepped down from the Mass. Eye and Ear Ophthalmology Board of Surgeons after 21 years of dedicated service. Members of

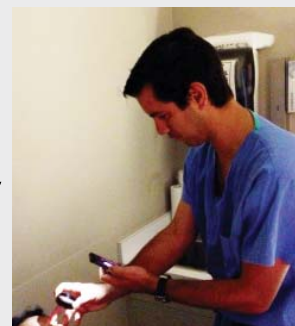
Mass. Eye and Ear Department of Ophthalmology Ranks in National Top Ten



Since 1990, Massachusetts Eye and Ear has been one of the top ranked hospitals in the nation for ophthalmology, according to *U.S. News & World Report* magazine's "America's Best Hospitals" 2013 survey. This year, Mass. Eye and Ear, Massachusetts General Hospital ranked #4 in Ophthalmology.

Smartphone Photography

Luis J. Haddock, MD, Clinical Fellow in Ophthalmology at Mass. Eye and Ear, David Y. Kim, MD, Research Fellow in Surgery at Boston Children's Hospital, and Shizuo Mukai, MD, Associate Professor of Ophthalmology at Mass. Eye and Ear of the Retina Service published an article in *Journal of Ophthalmology* (online, September, 2013) describing a portable and inexpensive technique for taking high-quality fundus pictures for documentation and consultation. Researchers used a smartphone, an inexpensive app for the smartphone, and instruments that are readily available in an ophthalmic practice. This method was tested in both children under anesthesia and in awake adults, as well as in rabbits.



the Board oversee surgeon credentialing, patient care applications, and residents and fellows training.

Service

Ula Jurkanus, MD, and **Michael Young, PhD** presented a seminar entitled, "The Stem Cell Stories: Revolutionary Results from Boston-area Researchers," at a free public forum sponsored by the Harvard Stem Cell Institute as part of the International Society for Stem Cell Research's 11th Annual Meeting. The seminar was held at the OMNI Parker House in Boston on June 11, 2013.

John Loewenstein, MD co-chaired Mass. Eye and Ear's 5th Annual Golf Classic fundraiser, which was held on June 17, 2013 at the Weston Golf Club. More than \$240,000 was raised, bringing the five-year total to nearly \$1.2 million.

On June 22, 2013 **Lucy Shen, MD** gave a talk to the New England Chapter of the Glaucoma Foundation on the importance and meaning of glaucoma tests.

In conjunction with Vision Coalition, Mass. Eye and Ear provided dilated eye exams and eyeglasses for students from the Year Up program in July at both the main campus and at Longwood. Thank you to: **Mark Bernardo, OD**, **Angela DuBois, Myrna Duran, Nolette Ferjuste, Alexander Lascko, Do Lee** and **Amy Watts, OD**, for participating in this important program.

Community Benefits vision screenings for students at Camp Harbor View were held July 23 and August 9, 2013. Staff from Mass. Eye and Ear and the Children's Hospital Ophthalmology Foundation—

Shakhhsanam Aliyeva, Ahley Campbell, MD, Cindy Canavan, Kimberly Chan, OD, Lisa Cowan, MD, Erin Duggan, Matt Goodman, OD, Stephanie Gooltz, Ram Khatri, Alexander Lascko, Do Lee, Katie Luo, MD, PhD, Mi In (Irene) Roh, Julia Ruscansky, and Ankoor Shah, MD, PhD—screened 235 children in total, with 78 requiring follow-up care.

Selected Publications

(Additional publications are included in *Eyes on Research* section on pages 14-15.)

Scott Greenstein, MD, FACS was senior author of a retrospective analysis published in *Clinical Ophthalmology* (June 11, 2013) that reviewed records from a single provider at the Mass. Eye and Ear Comprehensive Ophthalmology Service to determine the various reasons that patients self-refer to an ophthalmology clinic seeking second opinions.

Joseph Ciolino, MD published two articles. The first, "The Boston Keratoprosthesis Type 1 Study Group reported the retention rate of the Boston keratoprosthesis type 1 and identified risk factors for keratoprosthesis loss. This article was published in *Ophthalmology* (June, 2013). His second paper, "Topical Drug Formulations for Prolonged Corneal Anesthesia," was published in the journal *Cornea* (July, 2013).

Members of the Mass. Eye and Ear Retina Service (**John Miller, MD, John Loewenstein, MD, Lucia Sobrin, MD, MPH, Dean Elliott, MD, Demetrios Vavvas, MD, PhD, Joan W. Miller, MD**,

HMS Ophthalmology Residents Present at 2013 Women in Ophthalmology Conference

Cecily Hamill, MD, PhD, Clinical Fellow in Ophthalmology at Mass. Eye and Ear received the Joanne Angle Poster of Distinction Award at the 2013 Women in Ophthalmology Summer Symposium in Snowmass, Colorado for her poster entitled, “Impaired Mitochondrial Membrane Potential in Fuchs Endothelial Corneal Dystrophy.” The award is named in memory of the late Joanne Angle who served as executive director of The Association for Research in Vision and Ophthalmology (ARVO) for 22 years and as the executive director of the ARVO Foundation.

Third-year HMS Department of Ophthalmology residents, **Kristine Lo, MD**, and **Danielle Trief, MD, MSc**, also presented posters. Dr. Trief presented findings from a retrospective review that examined outcomes and characteristics of open globe injuries in Mass. Eye and Ear patients who sustained injuries more than two days before they presented to the ER. Results suggested that late presenters were more likely to have better acuity on presentation and less likely to have posterior (zone 3) injuries. Dr. Lo’s poster was entitled, “Cellular Blue Nevus of the Orbit with Intralesional Hemorrhage.”

Alumni News

Alice R. McPherson, MD, Professor of Ophthalmology at Baylor College of Medicine and a pioneer of scleral buckling procedures, cryotherapy, and xenon and laser therapy in the treatment of retinal diseases, was the Guest of Honor for the Pan-American Associate of Ophthalmology at the XXX Pan-American Congress of Ophthalmology & XXXVII Brazilian Congress of Ophthalmology, which were held August 7-10, 2013 in Rio de Janeiro, Brazil. Dr. McPherson was a retina fellow at Mass. Eye and Ear from 1957 to 1958.

Calliope E. Allen, MD—who was **Aaron Fay, MD**’s first Clinical Fellow in Oculoplastics at Mass. Eye and Ear from 2005-2007—is now an ophthalmologist at Naval Medical Center San Diego, where she is currently deployed as an Individual Augmentee to Afghanistan. Cmdr. Allen was awarded the 2012 Building Stronger Female Physician Leaders in the Military Health System award, Junior Navy category. She is the only NATO Role 3 Ophthalmologist and Oculoplastic Surgeon in southern Afghanistan.

The Merrill Reeh Pathology Award acknowledges a paper considered to represent a truly significant contribution to the field of ophthalmic plastic and reconstructive surgery. This year, this award acknowledges “Immunohistochemical Investigations of Orbital Infantile Hamangiomas and Adult Encapsulated Cavernous Venous Lesions (Malformation Versus Hemangioma),” which was published in the May/June 2013 issue of the journal, *Ophthalmic Plastic & Reconstructive Surgery*. **Tammy H. Osaki, MD** (a previous fellow of Dr. Fay), along with **Frederick A. Jakobiec, MD, Pia R. Mendoza, MD** (Dr. Jakobiec’s fellow at the time), **Yongjae Lee, MD** (then Dr. Fay’s international fellow), and **Aaron Fay, MD**, will receive the award during the ASOPRS Fall Scientific Symposium on November 14-15, 2013 in New Orleans, LA.

Founder and Chairman Emeritus of Sankara Nethralaya, Chennai, one of India’s leading eye hospitals, **Dr. Sengamedu Srinivasa Badrinath**, was featured in an article for International Doctor’s Day on the

FARVO, and **Ivana Kim, MD**) published the finding that converting patients with chronic neovascular age-related macular degeneration to aflibercept results in stabilized vision and improved anatomic outcomes, while allowing injection intervals to be extended, in the *American Journal of Ophthalmology* (July, 2013).

Patricia D’Amore, PhD, MBA, FARVO, and colleagues published an article in *The Journal of the Federation of American Societies for Experimental Biology* (August, 2013) that demonstrated a role for vascular endothelial growth factor (VEGF) in brown adipocytes and preadipocytes to promote survival, proliferation, and normal mitochondria and development. VEGF is critical for angiogenesis, and also has effects on several nonvascular cells.

Members of the Schepens Eye Research Institute Vision Rehabilitation Laboratory, **Andrew M. Haun, PhD**, and **Eli Peli, OD, MSc**, conducted a joint study with collaborators from the Institute of Optics in Madrid where they examined whether visual coding is also adapted to the orientation of the natural high order aberrations of the eye. A resulting article entitled, “Using Pattern Classification to Measure Adaptation to the Orientation of High Order Aberrations,” was published in *PLOS ONE* (August, 2013).

Tomasz P. Stryjewski, MD, MPP, **Christopher M. Andreoli, MD**, and **Dean Elliott, MD**’s manuscript, “Retinal Detachment after Open Globe Injury,” is in press in the journal *Ophthalmology* and

is currently available online. The authors conducted a retrospective chart review of patients with open globe injuries presenting to Mass. Eye and Ear between 1999 and 2011 and performed a Kaplan–Meier analysis to estimate the time to detachment. Additionally, multivariable logistic regression was used to define the clinical factors associated with retinal detachment after open globe injury.

Reza Dana, MD, MPH, MSc, and **Joan W. Miller, MD, FARVO** published “On the Edge: The Clinician-Scientist in Ophthalmology” in *JAMA Ophthalmology*, which discussed the decline in numbers of contemporary clinician scientists in light of barriers to growth, and considerations for future growth (September 26, 2013).

Hidetaka Matsumoto, MD, Joan W. Miller, MD, FARVO, and **Demetrios Vavvas, MD, PhD**, published a method for creating experimental retinal detachments with a reproducible and sustained height of detachment, and without subretinal hemorrhage. The video, “Retinal Detachment Model in Rodents by Subretinal Injection by Sodium Hyaluronate,” was highlighted in “This Month in *JoVE*” and was narrated by **Wendy Chao, PhD**, a member of the HMS Ophthalmology Communications Office and features editor of *JoVE* (September 11, 2013).

website *postnoon.com* commemorating the top doctors in India who have made remarkable contributions to their fields. Dr. Badrinath graduated from the Madras Medical College in 1963 and was a fellow under Dr. Charles Schepens in the Vitreoretinal Service at Mass. Eye and Ear from 1968 to 1970.

Neil M. Bressler, MD, chief of the retina division at the Johns Hopkins University School of Medicine and Hospital, was named this month as editor-in-chief of *JAMA Ophthalmology* (formerly known as the *Archives of Ophthalmology*). The James P. Gills Professor of Ophthalmology at Johns Hopkins, Dr. Bressler graduated from Johns Hopkins University School of Medicine in 1982 and completed an ophthalmology residency and fellowship at Mass. Eye and Ear.

HMS alumna, **Wendy Chao, PhD**, was profiled in the student newsletter of the HMS Division of Medical Sciences. Dr. Chao is currently Manager of Scientific Communications for the HMS Department of Ophthalmology, features editor for *Journal of Visualized Experiments* and adjunct faculty for University at Buffalo, State University of New York.

Mass. Eye and Ear and Harvard Medical School alumnus, **Kirill Martemyanov, PhD**, Research Fellow (2004) and Instructor in Ophthalmology (2004-2005), received the Association for Research in Vision and Ophthalmology's 2013 Cogan Award. This award recognizes a young researcher who has made important and worthwhile contributions to research in ophthalmology or visual science that are directly related to disorders of the human eye or visual system, and who show substantial promise for future contributions.



Joseph P. Walker, MD, founder of Retina Consultants of Southwest Florida, received an Honor Award for service to the American Society of Retina Specialists at the organization's

annual meeting in Toronto. He completed Fellowship training in vitreoretinal diseases and surgery at Massachusetts Eye and Ear of Harvard Medical School.

FDA-Approved Implantable Telescope for Macular Degeneration

The CentraSight® Implantable Miniature Telescope (IMT) received FDA approval in 2010 and is now available as an option for some patients with age-related macular degeneration (AMD). This innovative device is surgically implanted in one eye, where it magnifies and projects central images onto a healthy portion of the retina. This enables patients to see objects in fine detail, and perform “near” activities like reading, watching TV and recognizing faces. The non-implanted eye is then used for peripheral vision. Post-surgery rehabilitation helps patients develop the skills needed to make their eyes work together to achieve the best possible vision.

As one of the lead investigators in the IMT's clinical trials, Dr. Kathryn Colby, Associate Professor of Ophthalmology at Harvard Medical School and surgeon at Mass. Eye and Ear, along with Dr. Joan W. Miller, have played a key role in optimizing methods for implanting the miniature telescope in AMD patients.

Dr. Colby was also an investigator in a multicenter clinical trial that showed the IMT significantly improved vision in most patients who received the implant. She describes the pea-sized technology as a true “breakthrough” for millions of patients with end-stage AMD, whose treatment options, until now, have been limited. But she also cautions that the telescope, approved by the FDA in July 2010, will not work for everyone, and is geared specifically for patients 75 years and older with blind spots (bilateral central scotomas) associated with end stage AMD. ■

In Memoriam

Robert S. L. “Bob” Kinder, MD, age 84 of Jamestown, RI passed away on July 28, 2013. Born in Providence, Dr. Kinder completed his fellowship in ophthalmology at Mass. Eye and Ear. He served as an executive officer and navigator in the Navy; Clinical Professor of Ophthalmology at Brown University; Surgeon-in-Chief, Department of Ophthalmology at Rhode Island Hospital; and numerous additional academic, hospital and professional appointments. He enjoyed model railroading, crossword puzzles (always in ink), tennis, and magic, among many other hobbies. He was the beloved husband of Betty; father of Robert, Chris and the late Jeffrey Kinder; step-father of Richard, Scott (Susan), Jason (Rayanne), and Jennifer Coombs; brother of Joseph G. Kinder; grandfather and step-grandfather of Meghan Konopka, Abigail and Sarah Kinder, Pierce, Noah, Georgia and Alden Coombs.

Daniel Rothenberg of West Newton died on July 23, 2013. He was the beloved husband of Susan (Saftel) Rothenberg; devoted father of Ned Rothenberg, Ann Rothenberg, and the late Jane Rothenberg; grandfather of Emma Rothenberg-Ware and Camilla Faith Rothenberg; and brother of the late Dr. Michael B. Rothenberg. A successful real estate developer in New England, Mr. Rothenberg spread his accumulated wealth widely, giving to some 200 nonprofits regularly. In particular, he made a very generous contribution to Harvard Medical School in support of the Solman and Libe Friedman Professorship. This endowed chair offers research and training support to incumbents while giving them the freedom to pursue independent research without the burden of financial risk.

Errata, Eyewitness #22

In the ‘Awards, Grants, and Other Honors’ section, we mistakenly identified **Balaraj Menon, PhD**, as a postdoctoral fellow in the laboratory of Ilene Gipson, PhD. However, he was promoted in June 2012 to HMS Instructor in Ophthalmology and Investigator at Schepens Eye Research Institute.

In the ‘Personnel Updates/New Recruits’ section, we mistakenly identified Yan Jiang as having an MD. She is a credentialed OD.

EyeWitness

Newsletter of the Harvard Medical School
Department of Ophthalmology



NON-PROFIT ORG.
U.S. POSTAGE
PAID
PERMIT NO. 51711
BOSTON, MA

SAVE THE DATES

Strabismus Fall Festival

NEW

November 2, 2013 **CME**

Offered by Boston Children's Hospital and Mass. Eye and Ear, this one-day course features case-based panel discussions and lectures that explore techniques and advances in strabismus surgery and pediatric ophthalmology.



Guest speaker:

Dr. David Guyton, Zanyvl Krieger Professor of Pediatric Ophthalmology, The Wilmer Eye Institute/The Johns Hopkins School of Medicine.

See page 16 for more information.



15th Annual Boston Angiogenesis Meeting

November 7, 2013

Co-chaired by Kip M. Connor, PhD, and Demetrios Vavvas, MD, PhD, this year's program features keynote speaker **Elazer Edelman, MD, PhD**, Thomas D. and Virginia W. Cabot Professor of Health Sciences and Technology at Massachusetts Institute of Technology, and Professor of Medicine at Harvard Medical School. The event will be held at the Starr Center of Schepens Eye Research Institute.