

EYE WITNESS

NEWS FROM HARVARD OPHTHALMOLOGY | Issue 37 • March 2019

The Future Builds on the Past



HARVARD
MEDICAL SCHOOL

DEPARTMENT OF
Ophthalmology

AFFILIATES: Massachusetts Eye and Ear | Schepens Eye Research Institute of Mass. Eye and Ear | Massachusetts General Hospital
Joslin Diabetes Center/Beetham Eye Institute | Beth Israel Deaconess Medical Center | Boston Children's Hospital
Brigham and Women's Hospital | VA Boston Healthcare System | VA Maine Healthcare System | Cambridge Health Alliance
PARTNERS: Aravind Eye Hospital (India) | L V Prasad Eye Institute (India) | Shanghai Eye and ENT Hospital, Fudan University (China)

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The future builds on the past

Pivotal developments in medicine are often a culmination of decades of work by many individuals across numerous institutions. Discovery is a cumulative process in which disruptive breakthroughs are interlaced with many incremental, yet important, findings. In this way, knowledge accumulates over time, with each successive researcher building on the advances of previous ones. As more is learned and shared, we come to a more complete understanding of a disease or process. We hopefully avoid redundant efforts (unless observations are misplaced), verify insights, and stimulate innovation—benefits that can galvanize bench-to-bedside discoveries and lead to treatments and cures for our patients.

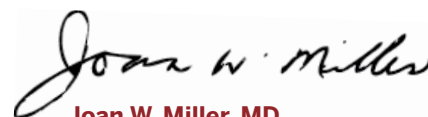


An example of accumulated knowledge leading to positive outcomes is gene therapy. In 1953, scientists at the University of Cambridge, who later received the Nobel Prize in Physiology or Medicine for their work, revealed the structure of DNA. At Massachusetts Institute of Technology in 1956, a molecular biologist found that the cause of a disease can be traced back to a specific chemical alteration in hemoglobin protein. In 1975, the Sanger method of rapid DNA sequencing was developed by scientists at the University of Cambridge. They subsequently received the Nobel Prize in Chemistry for their discovery. The first disease gene was mapped in 1983 by scientists at the Harvard Medical School/Mass General Hospital Center for Human Genetic Research (now Center for Genomic Medicine). Then in 1990, the Department of Energy and National Institutes of Health launched the Human Genome Project, which was completed in 2003.

These advances set the stage for breakthroughs in gene therapy for inherited diseases, including inherited retinal disorders, a key area of focus in the Harvard Department of Ophthalmology since the 1970s (see timeline on pages 8–9). In 1974, the Berman-Gund Laboratory for the Study of Retinal Degenerations and Electroretinography Service (renamed the Inherited Retinal Disorder Service in 2016) was established at Mass. Eye and Ear with the support of Foundation Fighting Blindness, Gordon Gund, and Ben Berman. Led by Dr. Eliot Berson, it was here that scientists first discovered the gene associated with retinitis pigmentosa. In 2011, we launched the Harvard Ophthalmology Ocular Genomics Institute (led by Dr. Eric Pierce) as the centerpiece of our efforts to accelerate cures and therapies for blinding diseases. Then in March 2018, we performed the first FDA-approved gene therapy procedure on a patient with an inherited blinding disorder.

This therapy for retinal degenerations caused by a mutation in the RPE65 gene received historic FDA approval in December 2017 thanks to groundbreaking work performed by research teams from the University of Pennsylvania, University College of London, the National Institutes of Health, and the University of Florida College of Medicine. For their role in the development of the first gene therapy for an inherited disease, those who led the research efforts—Jean Bennett, MD, PhD; Samuel Jacobson, MD, PhD; Albert M. Maguire, MD; Robin Ali, PhD; James Bainbridge, MD, PhD; Michael Redmond, PhD; and William W. Hauswirth, PhD—received the 2018 António Champalimaud Vision Award.

We are just at the beginning of a precision-based approach to medicine that will continue to evolve in the years to come. If we boldly build on the knowledge of those who came before us, as well as our peers, we can accelerate the breakthroughs that will result in a world without blindness.



Joan W. Miller, MD
Chief and Chair

A new interface in medicine: Ophthalmology Hospitalists fortify connections with inpatient colleagues and enrich trainee education

In June 2017, **Matthew Gardiner, MD**, Associate Chief for Clinical Operations and Director of the Ophthalmic Emergency Service at Mass. Eye and Ear, and **Carolyn Kloeck, MD**, (former) Chief of the Division of Ophthalmology, Department of Surgery at Brigham and Women's Hospital (BWH, 2012-2018), rolled out a unique emergency department (ED) and inpatient consultation service, known as the Ophthalmology Hospitalist Program. The program not only fortifies connections between Harvard Department of Ophthalmology hospital affiliates, but also enhances trainee education and the existing consult service at Mass. Eye and Ear.

A shifting care model

Until recently, Mass. Eye and Ear ophthalmologists split their time between outpatient and inpatient care settings, the latter including the Mass. Eye and Ear ED.

"Historically, medical doctors cared for patients in multiple settings—in an office, home, or hospital setting," says Dr. Gardiner. This clinical care model shifted to outpatient office settings 20 years ago, when U.S. hospitals started to reserve inpatient beds for the very ill.

What is an Ophthalmology Hospitalist?

The Ophthalmology Hospitalists of Mass. Eye and Ear are senior credentialed ophthalmologists who provide consults for patients admitted to general hospitals, including BWH and Massachusetts General Hospital. They help to maintain a consistent Mass. Eye and Ear presence at these hospital systems, which are, in turn, sources of referrals to the outpatient offices.

While hospitalist work is nonsurgical, there are ample opportunities for teaching and mentoring. In particular, Ophthalmology Hospitalists enrich trainee education in the Mass. Eye and Ear ED by providing an increased level of supervision and a range of expertise.

To date, three hospitalists have joined the program—**Jo-Ann Haney-Tilton, MD**; **Jane Schweitzer, MD**; and **Aisha Traish, MD**. The goal is to hire another hospitalist—for a total of four—by September 2019. "This will result in shorter waiting times and more access to attending-level care for patients," says Dr. Gardiner.

"Ophthalmology hospitalists focus their practice on caring for patients while they are hospitalized," says Dr. Kloeck. "It's a new and innovative position."

Education gets a boost



Dr. Haney-Tilton wanted to work in a hospital setting with more opportunities for teaching. She was a surgical preceptor for many years at the Jamaica Plain VA

Hospital and a volunteer in the Mass. Eye and Ear ED before accepting the hospitalist role at Mass. Eye and Ear in 2017. She recently completed an executive master's program in healthcare leadership at Brown University.



After 12 years working in private practice as a comprehensive ophthalmologist, Dr. Schweitzer joined the Mass. Eye and Ear hospitalist program in June 2017. A year later,

she was named Clinical Teacher of the Year by our ophthalmology residents—a testament to her impact on teaching. "It is an extraordinary experience to see how quickly these brilliant young doctors meet and exceed challenges," she says.



After working in private practice and academic hospital settings, Dr. Traish joined the Ophthalmology Hospitalist Program in September 2018. She also cares for patients in

the Mass. Eye and Ear Cornea and Refractive Surgery Service and the Comprehensive Ophthalmology Service. A Mass. Eye and Ear alumna (Class of 2009), Dr. Traish was Associate Residency Director at Illinois Eye and Ear Infirmary from 2010 to 2015, and Ophthalmology Medical Student Director and Ophthalmology Fellowship Director at Cook County Hospitals Health System from 2017 to 2018.

The importance of developing outcome measures for ophthalmology

We live in an evidence-based era, when patients, payers, and hospitals all want to make informed healthcare decisions based on the best available data. Patients want to receive the highest quality care and to know what to expect. Payers increasingly base reimbursement on performance. And hospitals want to identify and address problems to prevent errors.



"Everyone in medicine is increasingly focused on outcomes research," says **Alice Lorch, MD, MPH**, who succeeded **Teresa Chen, MD**, as Chief Quality Officer for Ophthalmology at Mass. Eye and Ear in July 2018.

"By studying outcomes, we can improve the patient experience, improve the health of populations, and reduce the cost of healthcare," she says, referring to a framework known as the Triple Aim. Designed to optimize health-system

performance, the Triple Aim was developed by the Institute of Healthcare Improvement—the premier organization nationwide for quality improvement.

A case for clinical registries

In order to establish clinical benchmarks, stakeholders first need to agree on which outcomes are meaningful. National clinical registries might be part of the answer. Registries aggregate electronic health records (EHR) and manual chart data from participating practices, effectively creating larger datasets, or "big data."

There are huge opportunities to learn about disease courses and quality improvement from these databases, but they require significant dedication and effort on behalf of physicians and research groups. Nonetheless, quality leaders believe that consumers will seek quality information over time and push providers to share more of it, according to a *U.S. News* blog article by Ben Harder (published October 2016).

Leading the way: outcome measures for ophthalmology

Mass. Eye and Ear has led the ophthalmology community in the development of outcome measures for the hospital's nine ophthalmic subspecialty areas, consistently publishing these measures since 2010 in a Quality and Outcomes Report. Mass. Eye and Ear was also among the first to contribute electronic health record data to the American Academy of Ophthalmology's IRIS® Registry (Intelligent Research in Sight). As one of five academic groups recently awarded unique access to the IRIS Registry, Mass. Eye and Ear is now at the forefront of working with big data for quality improvement and monitoring.

Launched in 2014, the IRIS® Registry is the nation's first comprehensive eye disease and condition registry and the world's largest specialty clinical data registry. As of April 1, the Registry includes 17,877 physicians, 47.62 million unique patients from all payers contributing 199.57 million patient visits. The Mass. Eye and Ear IRIS® Registry Analytics

team—led by co-principal investigators Dr. Lorch and **Joan W. Miller, MD**, Chair of the Harvard Department of Ophthalmology and Chief of Ophthalmology at Mass. Eye and Ear, Mass General Hospital, and Brigham and Women's Hospital—will involve investigation and partnership with many faculty at Mass. Eye and Ear over the coming years.

Simultaneously, Dr. Lorch has launched an initiative to collect Patient Reported Outcome Measures (PROMs) for cataract procedures at Mass. Eye and Ear's Longwood location. Patient Reported Outcomes assess vision-related outcomes that matter most to patients, including daily function and quality of life. These outcomes are collected by survey before and after each surgical procedure and aggregated in the patient's chart to track progress. When outcomes from many patients are combined together, PROMs will be used to assess the overall patient experience for any procedure at Mass. Eye and Ear. These data will also enable patients to understand what functional changes to expect if they proceed with surgery.



Diane E. Kaneb: a lifetime of service to others

**Courageous. Generous.
Tenacious. Gracious.**

These are some of the words that best describe Diane E. Kaneb, one of Mass. Eye and Ear's and Harvard Department of Ophthalmology's most dedicated volunteer leaders and generous philanthropists.

From an early age, Diane had a special gift for giving. The oldest of a family of five from East Bridgewater, Massachusetts, Diane worked hard to help her family after her father died and times were tough. She worked summers on Cape Cod and saved money so she could go to college. And when Diane learned of a poor unmarried mother of four living two miles out of town without a car, she began babysitting for free. "That was the beginning of my recognizing other people's problems," said Diane.

Diane graduated from Smith College, began a career at IBM, and then married her lifelong partner Al. They soon started a family, and Diane stayed home to help raise their children. However, as soon as they were established in schools, she returned to volunteer service.

"At first, I worked with the Cub Scouts, the Pope John XXIII Seminary, and a local hospice, and held many positions as a parent child advocate in the Weston Public Schools," she said. In the years that followed, she and Al became active in many other charities. In 1986, Diane was introduced to Mass. Eye and Ear, which has held a very special place in her heart ever since.

Diane joined the Board of Directors in 1989, bringing a passion and dedication to improving patient care, expanding research, and fueling Mass. Eye and Ear's strategic direction and financial stability. She served as Chairman from 2006 to 2009 and led the effort to recruit John Fernandez as President and CEO of Mass. Eye and Ear in 2007.

In addition to her immense generosity as a volunteer leader, Diane and Al are among the Department of Ophthalmology's most generous philanthropic supporters. Most recently, they established the Albert and Diane Kaneb Chair in Ophthalmology, which will serve as a lasting tribute to their extraordinary legacy and enable Mass. Eye and Ear to recruit and retain the best ophthalmologists in the world.

"By establishing the Kaneb Chair, Diane and Al are leaving an important legacy to the Department of Ophthalmology that will inspire our dedicated faculty for generations to come," said **Joan W. Miller, MD**, Chief and Chair. "We are forever grateful for their generosity, leadership, and friendship."



Highlights of Diane and Al Kaneb's charitable giving in ophthalmology

FACULTY SUPPORT

Endowed chairs are crucial to the success of faculty in the Department of Ophthalmology because they provide a steady stream of annual funding that enables senior clinicians and scientists to advance their academic research and teaching missions. Endowed chairs also serve as an invaluable tool for recruiting future leaders in our specialties. The **Albert and Diane Kaneb Chair in Ophthalmology at Mass. Eye and Ear** not only honors Diane and Al's exceptional contributions to the department, but also strengthens the Department of Ophthalmology for years to come.

TRANSFORMATIONAL RESEARCH, SIGHT-SAVING CURES

The Kanebs' generous support of the **Harvard Ophthalmology Ocular Genomics Institute** is fueling life-changing discoveries in the field of inherited eye diseases. Medical milestones like the recent gene therapy administered by Dr. Jason Comander—the first FDA-approved gene therapy for an inherited retinal disease—was made possible in partnership with donors like Diane and Al.

EDUCATION AND TRAINING

The Kanebs have also contributed generously to the **Simmons Lessell Fellowship in Neuro-Ophthalmology** and the **Thomas J. Madden Fellowship in Retina**, helping to ensure that future trainees receive a world-class education at Mass. Eye and Ear.



Highlights from the 2018 AAO Annual Meeting

More than 75 Harvard Ophthalmology faculty and trainees participated in the American Academy of Ophthalmology Annual Meeting on October 26–30 in Chicago.

Harvard Ophthalmology Chair **Joan W. Miller, MD**, presented the Charles L. Schepens, MD/AAO Award Lecture. Her talk revisited the pathway to successful treatment of neovascular age-related macular degeneration and shared insight on how to continue to innovate in the field. Dr. Miller is the first person ever to receive this award along with the Gertrude D. Pyron Award of the Retina Research Foundation and the Lucien Howe Medal from the American Ophthalmological Society; and she won them all in one year.

James Chodosh, MD, MPH, David Glendenning Cogan Professor of Ophthalmology in the field of Cornea and External Disease, presented the Jones/Smolin Lecture. **Joseph F. Rizzo III, MD**, David Glendenning Cogan Professor of Ophthalmology in the field of Neuro-Ophthalmology, presented the William F. Hoyt Lecture. And Alumna and former faculty member Kathryn Colby, MD, PhD, presented the Whitney G. Sampson Lecture.

Congratulations to all faculty, trainees, and alumni who were recognized for their outstanding contributions to vision research, education, and service.

Symposia facilitate dialogue on innovative research

Attendance for Harvard Ophthalmology's biennial symposia on Ocular Regeneration and AMD continues to climb each year, reflecting the value they bring to their respective fields.

The third **Biennial International Ocular Regeneration Symposium**, held on October 11, facilitated engaging discussions on the latest advances in tissue engineering and potential applications to eye diseases. Keynote speaker Robert S. Langer, ScD—an internationally renowned chemical engineer, inventor, and entrepreneur from Massachusetts Institute of Technology—discussed major advances in biomaterials and biotechnology.

Budd Tucker, PhD, Associate Professor of Ophthalmology & Visual Sciences at the University of Iowa, said the symposium was an “outstanding meeting that continues to increase in size and interest each year.”

On October 12–13, the fifth **Biennial International Symposium on AMD** brought together vision scientists and researchers



from related fields to discuss the latest topics in AMD research, ranging from novel biomarkers and vascular pathogenesis to inflammation. **François C. Delori, PhD**, a Harvard Medical School Professor of Ophthalmology, presented the 2018 Ephraim Friedman Lecture, entitled “Fundus autofluorescence.” The symposium was designed to propel innovative AMD research that will ultimately eradicate this blinding disease.

Tea Soon Park, a Research Associate at Johns Hopkins School of Medicine, said, “It was my first time attending the AMD symposium, and I found the program really interesting. I really liked the open discussion time, which allowed attendees to have informal conversations.”

2018 LIFE ACHIEVEMENT HONOR AWARDS

Steven E. Feldon, MD, MBA, alumnus
Peter Kaiser, MD, alumnus
Peter A. Netland, MD, PhD, alumnus
Johanna M. Seddon, MD, ScM, alumna
Nicholas J. Volpe, MD, alumnus

SENIOR ACHIEVEMENT AWARDS

Nisha Acharya, MD, alumna
Teresa C. Chen, MD, faculty
Laura K. Green, MD, alumnus
Dennis M. Marcus, MD, alumnus
Louis R. Pasquale, MD (faculty 1992–2018)
Prithvi S. Sankar, MD, alumnus
Jerry Sebag, MD, alumnus

ACHIEVEMENT AWARDS

Mona Harissi-Dagher, MD, alumnus
Vandana Jain, MBBS, alumnus
Yannek I. Leiderman, MD, PhD, alumnus
Joseph J. Ma, MD, alumnus
Aparna Ramasubramanian, MD, alumnus
Yoshihiro Yonekawa, MD, faculty

SECRETARIAT AWARDS

Neil M. Bressler, MD, alumnus
Cynthia Mattox, MD, alumna

OPHTHALMOLOGY TIMES

RESIDENT WRITER'S AWARD

Harvard Ophthalmology resident Huy Nguyen
(2nd place)

A warm welcome to our new trainees

8 join the Harvard Ophthalmology Residency Training Program, class of 2021

Tedi Begaj, MD	University of Massachusetts Medical School
Marguerite Cullen, MD	Duke University School of Medicine
Jenny Dohman, MD	Yale School of Medicine
Clifford Kim, MD	Harvard Medical School
Kevin Ma, MD	Columbia University, College of Physicians and Surgeons
Catherine Marando, MD	Albert Einstein College of Medicine
Noam Rudnick, MD, PhD	Columbia University, College of Physicians and Surgeons
Laurel Tainsh, MD, MHS	Yale School of Medicine

1 optometry resident joins Harvard Ophthalmology, class of 2019

Lenna Walker, OD	New England College of Optometry
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22 pursue subspecialty training in 12 areas

Anterior Segment, Mass. Eye and Ear

Program Director: Kathryn Hatch, MD
 • Jennifer Yong, MD

Cornea, Mass. Eye and Ear

Program Directors: James Chodosh, MD, MPH, and Hajirah Saeed, MD
 • Shawn Lin, MD
 • Kunal Merchant, MD
 • Yusra Siddiqui, MD

Glaucoma, Mass. Eye and Ear

Program Director: Lucy Shen, MD
 • David Smits, MD
 • Astrid Werner, MD

Inherited Retinal Degenerations, Mass. Eye and Ear

Program Director: Rachel Huckfeldt, MD, PhD
 • David Terrell, MD, PhD

Neuro-Ophthalmology, Mass. Eye and Ear/Brigham and Women's Hospital

Program Director: Dean Cestari, MD, Mass. Eye and Ear
 • Tariana Bakaeva, MD, PhD
 • Ryan Gise, MD

Ocular Immunology and Uveitis, Mass. Eye and Ear

Program Directors: George Papaliodis, MD, and Lucia Sobrin, MD, MPH
 • Caroline Minkus, MD

Ophthalmic Pathology, Mass. Eye and Ear

Program Director: Frederick Jakobiec, MD, DSc
 • Paula Cortés, MD
 • Lina Ma, MD, MS

Ophthalmic Plastic and Reconstructive Surgery (ASOPRS), Mass. Eye and Ear

Program Director: Michael Yoon, MD
 • Natalie Wolkow, MD, PhD

Pediatric Ophthalmology and Strabismus, Boston Children's Hospital/ Mass. Eye and Ear

Program Director: Jason Mantagos, MD
 • Anna Escuder, MD
 • Eric Gaier, MD, PhD
 • Crystal Sin Yi Cheung, MD

Vitreoretinal, Mass. Eye and Ear

Program Directors: Dean Elliott, MD, and John B. Miller, MD
 • Tomasz Strykowski, MD, MPP
 • Cindy Ung, MD
 • Jay Wang, MD

Medical Retina, Mass. Eye and Ear

Program Director: Deebea Husain, MD
 • Ravi Parikh, MD

Medical Retina, Joslin Diabetes Center

Program Director: Lloyd P. Aiello, MD, PhD
 • Omar Abdelal, MD
 • Siamak Shokrollahi, MD

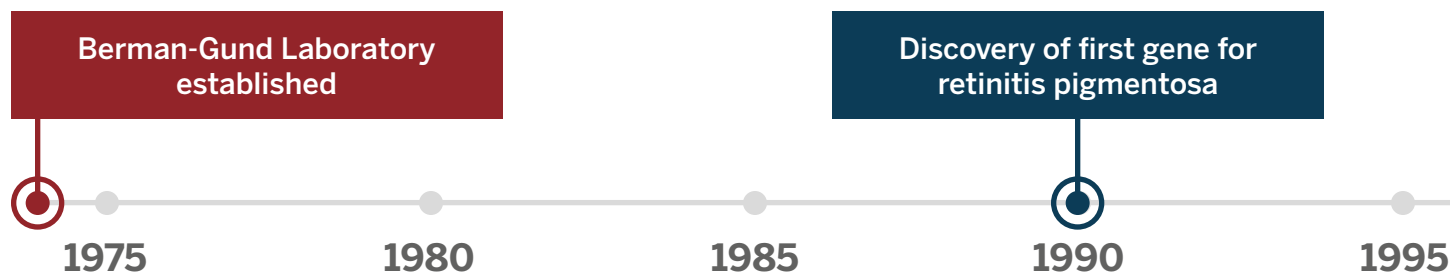
Innovative workshops add new dimension to resident teaching

Organized by **Elizabeth Rossin, MD, PhD**, Chief Resident and Director of the Mass. Eye and Ear Trauma Service, a series of monthly, three-hour workshops provide residents with innovative and interactive learning experiences in the Altschuler Surgical Training Laboratory.

"The feedback from the residents has been really positive," says Dr. Rossin. "Our hope is to continue offering these workshops, so I encourage faculty to contact me with ideas for future sessions."

The inaugural session on August 3 was sponsored by Alcon and led by **Silas Wang, MD**, and Dr. Rossin. All residents practiced folding and loading 1-piece and 3-piece intraocular lenses (IOLs). Junior residents learned how to set up and operate the microscope, construct main wounds and paracenteses, and suture corneal full-thickness lacerations. Intermediate and senior residents were taught how to load and implant capsular tension rings and 3-piece IOLs.

During the November 2 session, junior residents learned how to perform BScan and AScan ultrasonography techniques and optical coherence tomography from imaging experts Alexis LaVerde, Patrick Lavalle, and Yehbinda Ambrose. Intermediate and senior residents participated in an intraocular iris suturing workshop with **Emma Davies, MD**, and **Christian Song, MD**. The session was sponsored by Alcon.



Mass. Eye and Ear leads efforts in research and care of patients with IRDs

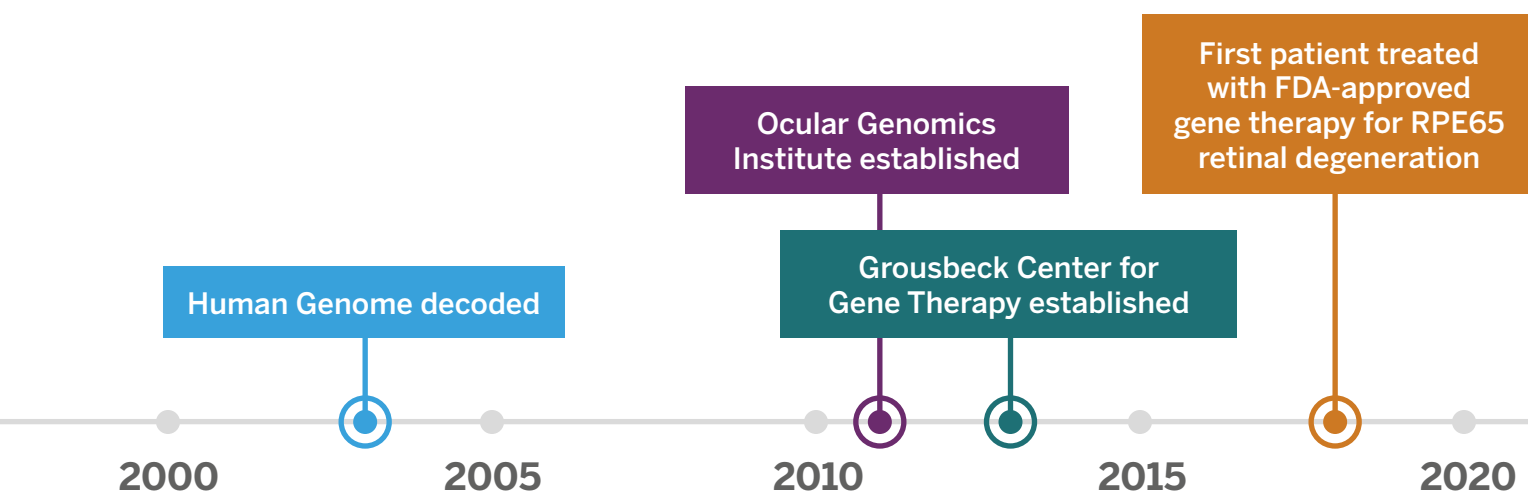
In 1974, the **Berman-Gund Laboratory** for the Study of Retinal Degenerations and Electroretinography Service (renamed the Inherited Retinal Disorders Service in 2016) were established at Mass. Eye and Ear under the direction of Eliot Berson, MD, a pioneer in identifying patients with inherited retinal degenerations (IRDs) and describing their clinical course and electrical findings. The laboratory was funded by Gordon Gund, Ben Berman, and Foundation Fighting Blindness (FFB).

In the 1990s, **Drs. Ted Drya and Eliot Berson discovered the first genes associated with retinitis pigmentosa (RP)**, and go on to discover over 20 genes associated with RP. In 2003, a pivotal moment in gene therapy occurs—the completion of the **Human Genome Project**—making developing gene therapies a distinct possibility.

In 2011, Joan W. Miller, MD, and Mass. Eye and Ear made a strategic decision to invest in gene therapy with the recruitment of Eric Pierce, MD, PhD, from the University of Pennsylvania (U. Penn) to establish and direct the **Ocular Genomics Institute (OGI)**. Dr. Pierce recruited Luk Vandenberghe, PhD (U. Penn), an expert in viral vectors for gene therapy. With a generous donation from Giving/Grousbeck Fazzalari, the **Grousbeck Center for Gene Therapy** at Mass. Eye and Ear was created in 2013 to further Mass. Eye and Ear's work in gene-based therapy. Dr. Pierce, with the help of Janey L. Wiggs, MD, PhD, recruited a dynamic team, including Qin Liu, MD, PhD; Kinga Bujakowska, PhD; Rosario Fernandez-Godino, PhD; Ayellet Segrè, PhD; Rachel Huckfeldt, MD, PhD; and Jason Comander, MD, PhD. With this team, Dr. Pierce is conducting basic research in IRDs and initiating clinical trials for therapies identified in the laboratory.

In March 2018, Mass. Eye and Ear made medical history with the **first FDA-approved Luxturna gene therapy procedure performed on a patient with Leber Congenital Amaurosis (RPE65)**. The underlying work was led by Jean Bennett, MD (U. Penn), and her team. The patient, Jack Hogan, has done well following the procedure. He is able to ride his bike at night and play basketball with his friends.

The OGI is involved in and poised to initiate first-in-man clinical trials, including gene editing using CRISPR. The OGI continues to be supported by the NIH, FFB, and other generous donors, and has formed strategic alliances with Spark and Editas, among others. This is an exciting new era in therapies for patients with blinding disorders.



Eric Pierce, MD, PhD
OGI Director



Janey L. Wiggs, MD, PhD
OGI Associate Director



Luk Vandenberghe, PhD
OGI Associate Director and
Grousbeck Center for
Gene Therapy Director



Elizabeth Engle, MD, PhD
OGI Associate Director

Active Clinical Trials

- Safety and dose escalation study of AAV-gene therapy for CHM-associated retinal degeneration
- Safety and tolerability of human retinal progenitor cells (hRPC) in retinitis pigmentosa
- Safety and efficacy of AAV gene therapy for RS1-associated retinal degeneration
- Safety and efficacy of AAV gene therapy in patients with CNGA3-associated Achromatopsia

Clinical Trial Pipeline

- Natural history study of CEP290-associated retinal degeneration
- Natural history study of USH2A-related retinal degeneration
- Natural history study of RPGR-associated retinal degeneration

Strategic Alliances/Startups

- | | |
|------------------------|-----------------------|
| • Casebia Therapeutics | • Odylia Therapeutics |
| • Editas Medicine | • Oxford Biomedical |
| • Lonza | • ReNeuron |
| • MeiraGTx | • Spark Therapeutics |
| • Merck | |



Dr. Joan Miller honored as 2018 Howe Medalist

Joan W. Miller, MD, the David Glendenning Cogan Professor and Chair of Ophthalmology at Harvard Medical School and the Chief of Ophthalmology at Mass. Eye and Ear, Mass General Hospital, and Brigham and Women's Hospital, was selected for the celebrated Lucien Howe Medal from the American Ophthalmological Society (AOS) for her distinguished contributions to the fields of retina and ophthalmology. She received the medal on May 19, 2018, at the AOS annual meeting held in Dana Point, California.

Dr. Miller is only the fifth woman to receive the Howe Medal in the award's nearly 100-year-old history. She is also the first ophthalmologist from the Boston area to receive the award since the 1960s, when it was given to the late Dr. W. Morton Grant (1968) and Dr. Paul A. Chandler (1967), both at Mass. Eye and Ear and widely considered the founding fathers of modern glaucoma care. First awarded in 1922, the Howe Medal is international in scope and has recognized some of the most influential ophthalmologists in the last century, among them Frederick H. Verhoeff, Jonas S. Friedenwald, Ida Mann, and David G. Cogan.

Awards

Brazilian Association of Cataract & Refractive Surgery

Ignácio Barraquer Award (2018)

Roberto Pineda II, MD, Mass. Eye and Ear

Claes Dohlman Foundation

Claes Dohlman Fellowship Award (2017)

Hajirah Saeed, MD, Mass. Eye and Ear and Boston Children's Hospital

Foundation Fighting Blindness

Career Development Award

Rachel Huckfeldt, MD, PhD, Mass. Eye and Ear

Harvard Ophthalmology

Surgical Teacher of the Year (2018)

Dean Cestari, MD, Mass. Eye and Ear

Clinical Teacher of the Year (2018)

Jane Schweitzer, MD, Mass. Eye and Ear

Juvenile Diabetes Research Foundation

Mary Tyler Moore and S. Robert Levine, M.D. Excellence in Clinical Research Award (2018)

Jennifer K. Sun, MD, MPH, Joslin Diabetes Center

Massachusetts Eye and Ear

Iraty Award for Research in Retinal Diseases (2018)

Magali Saint-Geniez, PhD, Schepens Eye Research Institute of Mass. Eye and Ear

Norman Knight Leadership Development Award (2017)

Han-Ying Peggy Chang, MD, Mass. Eye and Ear

2018–19 Scholars/Fellows

Alcon Research Scholar

Thomas Dohlman, MD, cornea fellow, Mass. Eye and Ear

Harvard Ophthalmology Cornea Center of Excellence Fellow

Jia Yin, MD, PhD, faculty member, Mass. Eye and Ear

Shire Scholar in Cornea and Anterior Segment Translational Research

Stephan Ong Tone, MDCM, PhD, cornea fellow, Mass. Eye and Ear

Special Scholar Award, Research to Prevent Blindness

Jing Chen, PhD, faculty member, Boston Children's Hospital

Thomas J. Madden Fellow in Retina

James Stefater, MD, PhD, vitreoretinal fellow, Mass. Eye and Ear

New members

Macula Society

John B. Miller, MD, Mass. Eye and Ear

Paolo Silva, MD, Joslin Diabetes Center

Grants

Fight for Sight

Grant-In-Aid Award (\$22,500/1 year)

Jae-Hyun Jung, PhD, Mass. Eye and Ear

"Field expansion for acquired monocular vision using multiplexing prism"

Gilbert Vision Restoration Initiative

NF1 (neurofibromatosis type I) Research Tools Grant (\$162K)

Michael Young, PhD, Schepens Eye Research Institute of Mass. Eye and Ear

"Rat Nf1 optic pathway glioma xenograft model"

Knights Templar Eye Foundation

Career Starter Grant (\$65K/1 year)

Zhongxiao (Iris) Wang, MD, PhD, Boston Children's Hospital

"The role of amino acid transporter SLC38A5 in retinopathy of prematurity"

NASA

\$12,000/3 months

James Akula, PhD, Boston Children's Hospital

"Optical system for monitoring net ocular blood flow"

National Eye Institute

\$30,000/3 months

James Akula, PhD, Boston Children's Hospital

"AO-based, high-resolution multimodal adaptive optics small-animal imager (MAOSI) for the rodent eye"

\$1.3 million/5 years

Petr Baranov, MD, PhD, Schepens Eye Research Institute of Mass. Eye and Ear

"Retinal ganglion cell replacement in clinically relevant models of optic neuropathy"

2018 graduation honors

Simmons Lessell Excellence in Education Award

Frederick Jakobiec, MD, DSc, Mass. Eye and Ear

Cornea Center of Excellence Best Resident Research Award in Cornea and Refractive Surgery (2017–18)

Yvonne Wang, MD, "Prosthetic replacement of the ocular surface ecosystem treatment for ocular surface disease in pediatric patients with Stevens-Johnson syndrome."

Robert Brockhurst Academic Development Award (2018–19)

Kareem Moussa, MD, second-year vitreoretinal fellow, Mass. Eye and Ear

Gragoudas Prize for Best Basic/Translational Paper by a Mass. Eye and Ear Trainee (2017–18)

Xiongao Huang, MD, PhD; Guohong Zhou, MD, PhD; and Wenyi Wu, MD, (co-first authors), "Genome editing abrogates angiogenesis in vivo," (*Nature Communications*)

Gragoudas Prize for Best Clinical Retina Research by a Mass. Eye and Ear Trainee (2017–18)

Inês Laíns, MD, "Human plasma metabolomics study across all states of age-related macular degeneration identifies potential lipid biomarkers," (*Ophthalmology*)



Dr. Reza Dana receives distinguished honors

An internationally recognized expert in the fields of corneal and transplantation immunology, **Reza Dana, MD, MSc, MPH**, the Claes H. Dohlman Professor of Ophthalmology at Harvard Medical School, was formally inducted into Academia Ophthalmologica Internationalis at the 2018 annual meeting, held in Barcelona this year. The top 100 ophthalmologists in the world comprise membership, and there is a competitive nominations process.

Dr. Dana also received a 2018 Research to Prevent Blindness (RPB) Stein Innovation Award. He is one of just 11 researchers within a department of ophthalmology, nationwide, to have received this award. Established in 2014, the award provides flexible funding to vision scientists pursuing innovative research. With RPB's support, Dr. Dana will develop and test the efficacy of novel, biocompatible adhesives to prevent and/or mitigate vision loss caused by corneal injuries and immune-mediated corneal damage. This research could revolutionize treatment for many patients with severe corneal injuries and corneal thinning as a result of infection and severe inflammation.



Dr. Shizuo Mukai named Aliski Distinguished Scholar in Ophthalmology

Shizuo Mukai, MD, Associate Professor of Ophthalmology at Harvard Medical School, is the first William and Carolyn Aliski Distinguished Scholar in Ophthalmology at Massachusetts Eye and Ear. Dr. Mukai specializes in pediatric retina surgery and retinoblastoma, taking on the most challenging cases and welcoming patients from both near and far. He was honored during a ceremony at Mass. Eye and Ear on May 7.

The Aliski Fund was created in 2017 when the Aliski family pledged \$1.5 million to Mass. Eye and Ear. Their son has been under Dr. Mukai's expert care for more than 20 years, and the Aliskis wanted to show their gratitude for Dr. Mukai's exceptional kindness, compassion, and dedication.

"The Aliski Scholar gift will enable Dr. Mukai and his successors to push the frontiers of innovation in the field of retina," says **Joan W. Miller, MD**, Chair of the Harvard Department of Ophthalmology and Chief of Ophthalmology at Mass. Eye and Ear, Mass General Hospital, and Brigham and Women's Hospital, "We can't thank William and Carolyn Aliski enough for their generosity."

2018 New England Ophthalmological Society poster contest winners

- First Place: **Alex Pisig, MD**, clinical fellow, Joslin Diabetes Center, "Regional vessel caliber, retinal oximetry and predominantly peripheral diabetic retinal lesions as surrogate markers of nonperfusion on ultrawide field angiography in diabetic eyes."
- Second Place: **Giannis Moustafa, MD**, research fellow, Mass. Eye and Ear, "Outcomes in resident-performed cataract surgeries with iris challenges: results from the PCIOL study."
- Third Place: **Michael Lin, MD**, resident, Harvard Ophthalmology, "Endocyclophotocoagulation outcomes for different glaucoma types and stages."
- Honorable Mention: **Marissa Lynn**, medical student, Harvard Medical School, "Direct-to-Consumer virtual visits: Feasibility of a next-generation healthcare delivery system in ophthalmology."

2018 Harvard Ophthalmology annual meeting and alumni reunion poster contest winners

BASIC AND TRANSLATIONAL RESEARCH

- First Place: **Ahmad Al-Moujahed, MD**, postdoctoral fellow, at Mass. Eye and Ear, "The role of cytosolic accumulation of nuclear DNA in retinal pigment epithelium dysfunction and age-related macular degeneration."
- Second Place: **Anitha Krishnan, PhD**, a research fellow at Schepens Eye Research Institute of Mass. Eye and Ear, "Glaucoma and vision loss is initiated by inflammasome-triggered neuroinflammation."

CLINICAL RESEARCH

- First Place: **Swapna Satish Shanbhag, MD**, a research fellow at Mass. Eye and Ear, "Long-term impact of a protocol for treatment of ocular involvement in the acute phase of Stevens-Johnson syndrome/toxic epidermal necrolysis."
- Second Place: **Inês Laíns, MD**, a research fellow at Mass. Eye and Ear, "Human plasma metabolomics in age-related macular degeneration—results of two distinct cohorts."

Faculty updates

RECRUITS



Lynette Johns, OD, joined the Optometry and Contact Lens Service, part-time, at Mass. Eye and Ear. In addition to her clinical responsibilities, she conducts research on limbal stem cell deficiency, severe ocular surface disease, and scleral lenses with **Ula Jurkunas, MD**. Dr. Johns has an OD from New England College of Optometry and completed a Cornea and Contact Lens residency at New England College of Optometry.



Harvard Ophthalmology/Mass. Eye and Ear alumna **Tavé van Zyl, MD**, joined the Glaucoma Service of Mass. Eye and Ear in late summer. As the department's next K12 scholar in the Harvard-Vision Clinical Scientist Development Program, she collaborates with researchers from the Broad Institute and Harvard Department of Molecular and Cellular Biology to investigate the molecular underpinnings of trabecular meshwork

dysfunction through a single-cell genomics approach. Her clinical interests include steroid-response and pseudoexfoliation glaucoma and the surgical management of glaucoma with minimally invasive glaucoma surgery—both in combination with cataract surgery and as a standalone procedure.



Harvard Ophthalmology/Mass. Eye and Ear alumna **Miin (Irene) Roh, MD, PhD, MSc**, joined the physician staff at Joslin Diabetes Center in September. In addition to her clinical responsibilities, she conducts clinical research to identify biomarkers for AMD and diabetic retinopathy and plans to study the association between diet and AMD and diabetic retinopathy.

PERSONNEL CHANGES

Nicholas Butler, MD, Boston VA Healthcare System, joined the part-time Uveitis staff at Mass. Eye and Ear, Longwood.

APPOINTMENTS/PROMOTIONS

To Professor of Ophthalmology

- **Gabriel Kreiman, PhD**, Boston Children's Hospital
- **George King, MD**, Joslin Diabetes Center (secondary appointment)

To Associate Professor of Ophthalmology

- **Dean Cestari, MD**, Mass. Eye and Ear
- **Jing Chen, PhD**, Boston Children's Hospital (research)
- **Kip Connor, PhD**, Mass. Eye and Ear
- **Jack Greiner, DO, PhD**, Schepens Eye Research Institute of Mass. Eye and Ear (research, part-time)
- **Michael Yoon, MD**, Mass. Eye and Ear

To Assistant Professor of Ophthalmology

- **Richard M. Calderon, OD**, Joslin Diabetes Center
- **Charles D. Leahy, OD, MS**, Part-time, Mass. Eye and Ear
- **Eleftherios Paschalis, PhD**, Schepens Eye Research Institute of Mass. Eye and Ear (research)

To Instructor in Ophthalmology

- **Lucia Ambrosio, MD, PhD**, Boston Children's Hospital (research)
- **Paulo Bispo, PhD**, Mass. Eye and Ear (research)
- **Eric Moulton, OD, PhD**, Boston Children's Hospital



Dr. Janey L. Wiggs elected to the National Academy of Medicine

Janey L. Wiggs, MD, PhD, the Paul A. Chandler Professor of Ophthalmology and Associate Director of the Ocular Genomics Institute at Harvard Medical School, and the Associate Chief for Clinical Research in Ophthalmology and Interim Glaucoma Service Director at Mass. Eye and Ear, has been elected to the prestigious National Academy of Medicine (NAM). An internationally recognized medical geneticist and ophthalmologist specializing in glaucoma, Dr. Wiggs has been elected to the NAM for her research and achievements in the field of ocular genetics, including the discovery of multiple genetic and environmental risk factors for glaucoma, and for developing and implementing genetic testing for inherited eye disease.

Established in 1970 by the National Academy of Sciences, the NAM is a national resource for independent, scientifically informed analysis and recommendations on health issues. It serves alongside the National Academy of Sciences and the National Academy of Engineering to address critical issues in health, medicine and related policy and to inspire positive action across sectors.

"Dr. Wiggs is a superb clinician scientist, and her pioneering research has provided important insights into retinoblastoma, glaucoma, and other inherited eye diseases," said Chair of Harvard Ophthalmology Joan W. Miller, MD, who is also a member of the academy.

DEPARTURES

Louis Pasquale, MD, left the department in September 2018 to become Site Chair of Ophthalmology at Mt. Sinai Hospital in New York City and Vice Chair of Translational Ophthalmology Research in the Mt. Sinai Healthcare System. A Harvard Ophthalmology faculty member for more than 25 years, Dr. Pasquale has garnered international recognition for his contributions to glaucoma research. In 1992, he was appointed the Director of the Glaucoma Service at Brigham and Women's Hospital. Shortly thereafter, he was named Co-Director, and later sole Director, of the Mass. Eye and Ear Glaucoma Service. Along the way, he also participated in patient care at Joslin, Boston Children's, Beth Israel, Schepens Retina Associates, Wrentham Developmental Center, and the VA. Janey L. Wiggs, MD, PhD, will serve as interim Director of the Glaucoma Service until May 2019 when David S. Friedman, MD, MPH, PhD, will join the faculty as Director of the Glaucoma Service at Mass. Eye and Ear.

Carolyn Kloek, MD, a 12-year member of the faculty and a comprehensive ophthalmologist at Mass. Eye and Ear, relocated to Oklahoma with her family in December 2018. Among her many roles, Dr. Kloek was Director of the Harvard Ophthalmology Residency Training Program, Chief of the Division of Ophthalmology, Department of Surgery, for Brigham and Women's Hospital, and Clinical Director for Mass. Eye and Ear, Longwood. A consummate leader, Dr. Kloek will serve as Vice President of Clinical Strategy and Integration for the University of Oklahoma Medicine, and as Associate Professor at the Dean McGee Eye Institute in Oklahoma City. She will also continue in practice as a comprehensive ophthalmologist. The role of residency program director transitioned to **Alice Lorch, MD, MPH**, in January 2019.

LEADERSHIP APPOINTMENTS/TRANSITIONS

As of July 2018, **Dean Cestari, MD**, Mass. Eye and Ear Ophthalmology, assumed the role of Director of the Neuro-Ophthalmology Fellowship Training Program at Mass. Eye and Ear/Brigham and Women's Hospital; and Sashank Prasad, Brigham and Women's Neurology, assumed the role of Associate Director of the Neuro-Ophthalmology Fellowship Training Program at Mass. Eye and Ear/Brigham and Women's Hospital. **Joseph Rizzo III, MD**, has led this fellowship for the past 12 years, succeeding Dr. Simmons Lessell in 2014 as Program Director.

Rachel Huckfeldt, MD, PhD, was appointed to Director of the Inherited Retinal Degenerations Fellowship at Mass. Eye and Ear. She succeeds **Eric Pierce, MD, PhD**, who created the training program in 2012 and has served as director for the past six years.

Lucy Shen, MD, Mass. Eye and Ear, was appointed to Director of the Mass. Eye and Ear Glaucoma Fellowship.

James Chodosh, MD, MPH, Mass. Eye and Ear, was appointed as the departmental representative for the Minority

Ophthalmology Mentoring Program, a partnership between the American Academy of Ophthalmology (AAO) and Association of University Professors of Ophthalmology (AUPO).

Eric Pierce, MD, PhD, Mass. Eye and Ear, accepted an invitation to serve a four-year term on the Diseases and Pathophysiology of the Visual System Study Section at the Center for Scientific Review of the National Institutes of Health.

Upcoming events

OPHTHALMOLOGY GRAND ROUNDS CME

Thursdays, 8:00–9:00 am | Meltzer Auditorium, Mass. Eye and Ear, and videoconferenced to Joslin Diabetes Center and Mass. Eye and Ear, Longwood. Visit the Harvard Ophthalmology calendar for a full list: eye.hms.harvard.edu/calendar

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY MEETINGS CME

Select Fridays, am/pm Sessions | Back Bay Event Center, Boston, MA

- April 12: Anterior Segment Case Presentations / Glaucoma
- May 31: Uveitis / Macular Degeneration

VISITING PROFESSOR LECTURES

Cornea Center of Excellence Visiting Professor Lecture

- April 11, 5:30–6:30pm:
Peter McDonnell, MD, Director of the Wilmer Eye Institute; Professor of Ophthalmology, Johns Hopkins Medicine
- June 13, 4:00–5:00pm:
Cintia S. De Paiva, MD, PhD, Assistant Professor of Ophthalmology, Baylor College of Medicine

ASSOCIATION FOR RESEARCH IN VISION AND OPHTHALMOLOGY

April 28–May 2, 2019 | Vancouver, Canada

Join faculty, trainees and alumni at ARVO's annual Eye Imaging Conference and Annual Meeting. Harvard Ophthalmology/Mass. Eye and Ear is also hosting an alumni reception on April 28.

HARVARD OPHTHALMOLOGY ANNUAL MEETING AND ALUMNI RECEPTION

June 7–8, 2019 | Boston, MA

All current and former residents, fellows, and faculty members are invited to attend this important event of scientific exchange and networking. **Daniel Lefebvre, MD**, joins **Gena Heidary, MD, PhD**, as co-organizer for the 2019 program, which will run all day Friday and end at noon on Saturday. The event kicks off Friday morning in the Starr Center, where faculty will present updates on clinical and scientific topics, and **Joan W. Miller, MD**, will present the department update. Alumni presentations begin after lunch and the afternoon concludes with the 2019 Mariana D. Mead Lecture. The evening cocktail reception, Trainee Poster Contest, and Gala Dinner will be held at the Boston Harbor Hotel. The Alumni Reunion continues on Saturday morning, featuring alumni presentations and the Distinguished Clinical/Research Achievement Award Lectures.

In memoriam

Adelbert Ames III, MD, a leader in retina research and friend and counselor to many scientists at Mass. Eye and Ear, passed away on May 31, 2018 at the age of 97. Dr. Ames was the first to demonstrate that an isolated mammalian retina could function after isolation from the eye, allowing the *in vitro* methods now universal for study of retinal function. In the early 1970s, he was a member of the Scientific Advisory Committee that planned and staffed the Berman-Gund Laboratory for the Study of Retinal Degenerations and Electrophysiology Service (renamed the Inherited Retinal Disorder Service in 2016) at Mass. Eye and Ear. He retired as the Charles Anthony Pappas Professor of Neuroscience at Mass General Hospital.

Perry Rosenthal, MD, a pioneer and innovator in the field of contact lens and the treatment of eye disease, passed away on March 3, 2018 at the age of 84. Dr. Rosenthal completed his ophthalmology residency training at Mass. Eye and Ear (class of '63), where he founded the Mass. Eye and Ear contact lens service. He was a part of Harvard Medical School Department of Ophthalmology since 1964, most recently as Assistant Professor of Ophthalmology, Part-time. Dr. Rosenthal invented the gas permeable contact lens and developed the first fluid-ventilated gas permeable scleral contact lens.

Robert H. Webb, PhD, ScD, a former faculty member and part of Schepens Eye Research Institute of Mass. Eye and Ear for more than 35 years, passed away on August 23, 2018 at the age of 83. Dr. Webb was trained in Physics and was a Harvard Medical School Associate Professor of Ophthalmology (1999–2015). Most of Dr. Webb's career was spent affiliated with The Wellman Center for Photomedicine at Mass General Hospital and Schepens Eye Research Institute of Mass. Eye and Ear, where he invented diagnostic medical instrumentation, such as the scanning laser ophthalmoscope and the pneumotonometer.

Alumni corner

Two Mass. Eye and Ear alumni—

Anthony Brent Daniels, MD, Vanderbilt Eye Institute; and **Edward Chaum, MD, PhD**, University of Tennessee, were accepted into the 2018 membership of the Macula Society.

EYE WITNESS

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Eye Witness is published three times per year by the Harvard Department of Ophthalmology and is intended for faculty, trainees, staff, alumni, affiliates, partners, and friends. Harvard Ophthalmology strives to provide:

- Best practices in clinical care and attention to the patient experience
- Transformational research that eliminates blinding diseases of the eye, orbit, and brain
- World-class training of future leaders

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Vancouver Convention Centre

Coming up...

**Association for Research in Vision
and Ophthalmology (ARVO)
1055 Canada Place, Vancouver, BC**

**April 28–May 2, 2019
Alumni Reception: April 28**

