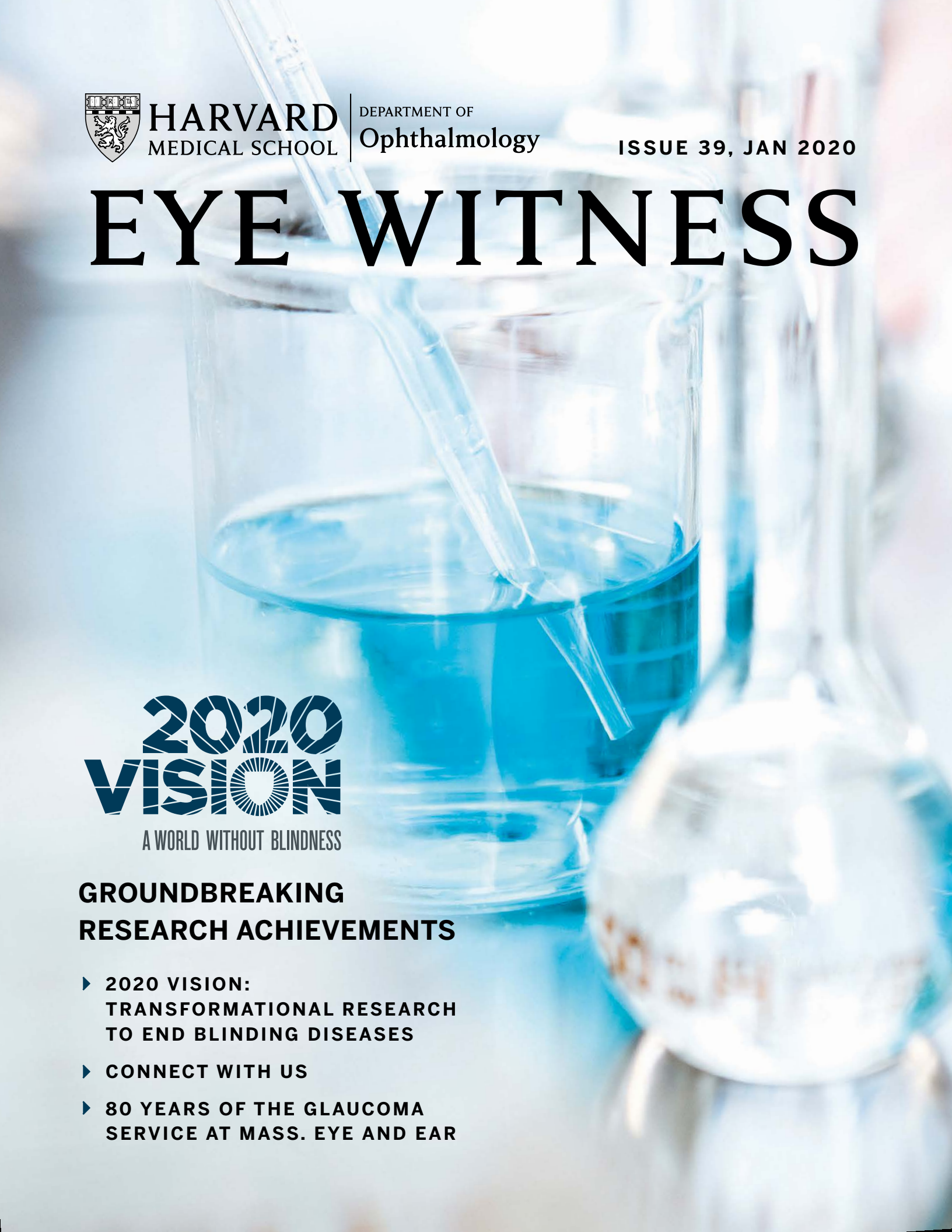
HARVARD MEDICAL SCHOOL | DEPARTMENT OF Ophthalmology

ISSUE 39, JAN 2020

EYE WITNESS



2020 VISION
A WORLD WITHOUT BLINDNESS

GROUNDBREAKING RESEARCH ACHIEVEMENTS

Groundbreaking Research Achievements

The year 2020 holds special significance for ophthalmologists. In honor of this momentous year, we are reflecting on our past accomplishments and celebrating our ongoing commitment to alleviate the burden of blindness—now and in the future.

In *Eye Witness*, this celebration will translate into three cover stories that highlight our three-fold mission to:

- Perform transformational research that eliminates blinding diseases
- Ensure world-class training of future leaders in ophthalmology
- Provide premier clinical care and attention to the patient experience

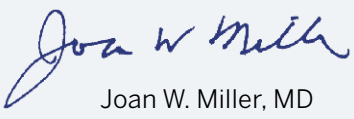
This issue focuses on our groundbreaking research achievements. We introduce you to our current research leadership and highlight major discoveries and milestones of the past 20 years. These include:

- Our Harvard-Vision Clinical Scientist Development Program (K12) that began in 2004
- Schepens Eye Research Institute joining Mass. Eye and Ear in 2011, creating the world's largest ophthalmology research enterprise
- Mass. Eye and Ear's initiative to increase capacity for research with big data, which began in 2018

We also provide a glimpse into what we look forward to achieving in the next 20 years.

Our diverse and innovative research is made possible by federal and foundation funding, industry collaborations, and the generosity of individuals. I am grateful for all of the support, especially for several key foundations, some of which have been our long-standing partners in vision research. These include Foundation Fighting Blindness, Research to Prevent Blindness, BrightFocus Foundation, and Massachusetts Lions Eye Research Fund.

As you read through this issue, I hope you will be inspired by the past 20 years and excited about the next 20 years of transformational research.



Joan W. Miller, MD
Chief and Chair

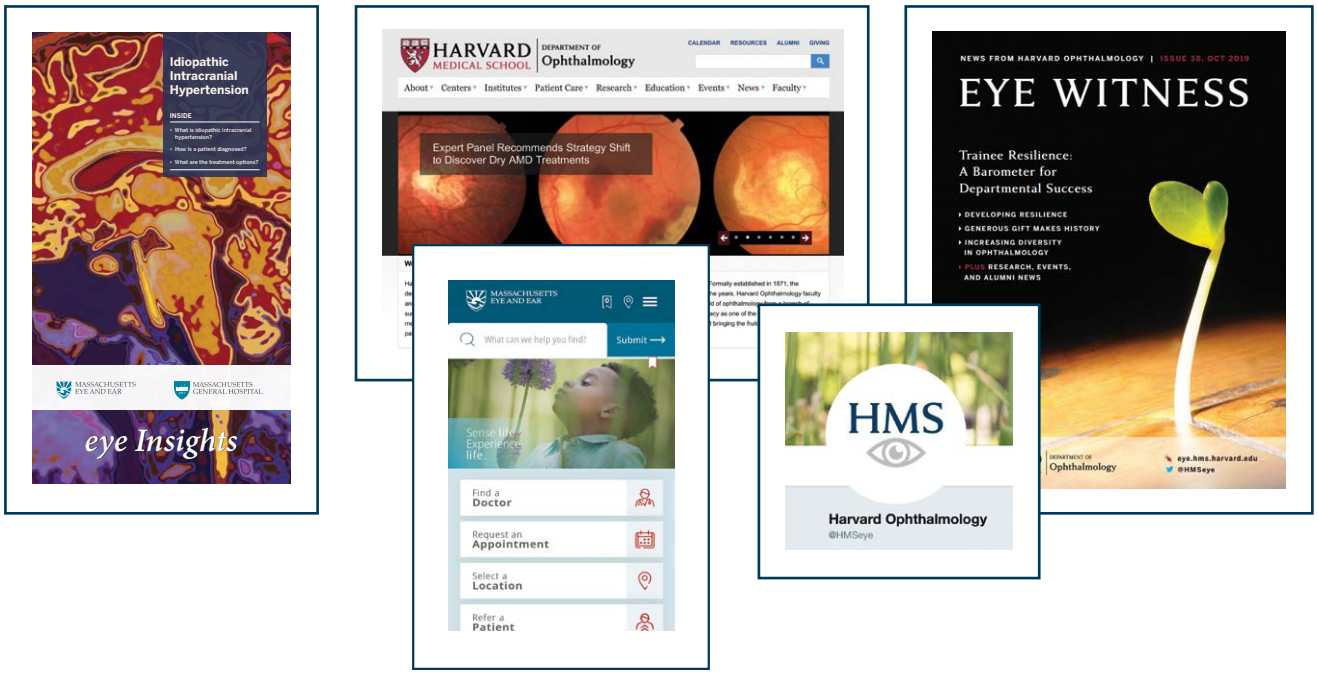
We are #1 in New England

Mass. Eye and Ear/Mass General Hospital Department of Ophthalmology is once again ranked among the best hospitals in the nation. In this year's *U.S. News and World Report* "Best Hospitals" survey, we are #1 in New England and #4 nationally—a position we have held since the survey began in 1990.

As you may know, ophthalmology is one of the few subspecialties ranked solely on reputation. We are working toward a day when data-driven quality and outcomes measures are considered in the ophthalmology rankings. Until then, thank you for your vote. The high visibility of these rankings does make a difference to patients, trainees, donors, and others—and your support is vital in helping to spread the word about the great work that we do.

Connect With Us

Get to know Harvard Ophthalmology. We'd love to connect with you.



EYE INSIGHTS CLINICAL NEWSLETTER

- Audience: 19,000 practicing American Academy of Ophthalmology members
- Frequency: Published twice a year
- Featured Content: Patient care issues of practical and immediate interest to physicians
- **How to Connect:** Visit eye.hms.harvard.edu/eye-insights

HARVARD OPHTHALMOLOGY WEBSITE

- Audience: Harvard Ophthalmology faculty, trainees, alumni, and staff
- Featured Content: News, profiles, events, research and education overviews, and resources/guidelines
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MASS. EYE AND EAR WEBSITE & FOCUS BLOG

- Audience: Patients, caregivers, donors, faculty and trainees
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- Featured Content: News and live tweeting at events like ARVO, AAO, and the Annual Meeting and Alumni Reunion
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EYE WITNESS NEWSLETTER

- Audience: Faculty, trainees, administrators, alumni, affiliates, partners, and friends
- Frequency: Published three times a year
- Featured Content: Updates on education, research, clinical care, philanthropy, events, faculty, and alumni
- **How to Connect:** Visit eye.hms.harvard.edu/eye-witness

*Go to **bit.ly/32o5cSD** to watch a video about the Tej Kohli Cornea Program at Mass. Eye and Ear.*

Mass. Eye and Ear Receives $2 Million for Corneal Research

The Tej Kohli Foundation has pledged $2 million over five years to establish the Tej Kohli Cornea Program at Mass. Eye and Ear, which will accelerate innovative and collaborative research to achieve unprecedented breakthroughs in corneal disease.

"We are really excited to embark on this partnership with the Tej Kohli Foundation in curing corneal blindness around the world," says Joan W. Miller, MD, Chief and Chair. "Corneal blindness is the third-leading cause of blindness worldwide, with 10 million people having bilateral corneal blindness."

The gift will enable James Chodosh, MD, MPH; Michael Gilmore, PhD; Paulo Bispo, PhD; and Reza Dana, MD, MSc, MPH, to pursue innovative solutions for corneal blindness.

Nanostring Project: Early Infection Detection

With support from the gift, Drs. Chodosh, Gilmore, and Bispo are leading the Nanostring Project to develop a rapid diagnostic technology that would allow for early detection of corneal infection before scarring or blindness occurs.

"This technology is a DNA-based molecular diagnostic tool that doesn't require the bacteria to grow. It can detect, in principle, as little as one DNA molecule," says Dr. Gilmore, who directs the Harvard Ophthalmology Infectious Disease Institute. His research focuses on the evolution and development of multidrug-resistant strains of bacteria and the development of new therapeutic approaches.

Developing a rapid, low-cost diagnostic tool would ultimately help speed access to care and prevent permanent blindness from infection, explains Dr. Chodosh. It could also be region-specific to reflect pathogens that are present in particular parts of the world. Dr. Chodosh is Associate Director of the Infectious Disease Institute and internationally known for his work on molecular virology, viral genomics, and viral epidemiology.

GelCORE Project: An Alternative to Surgery

The Tej Kohli Foundation gift will also support the GelCORE project. This exciting and innovative technology is an adhesive biomaterial that could one day reduce the need for surgery to repair injuries to the cornea, including those who would currently require corneal transplantation.

Led by Dr. Dana, Co-Director of the Harvard Ophthalmology Cornea Center of Excellence, the GelCORE project has the potential to preserve sight in patients around the world who do not have access to human-transplanted tissue.

The gift will also support pilot projects in corneal research. The Tej Kohli Foundation also supports the Tej Kohli Cornea Institute at LV Prasad Eye Institute in India.

Alumni Giving Society of Harvard Ophthalmology at Mass. Eye and Ear

We extend our grateful thanks to the 2019 fiscal year members:

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Julie Dutcher
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617-573-3350

Transformational Research to End Blinding Diseases

At Harvard Ophthalmology, our research is focused on eliminating blinding diseases and disorders of the eye and visual system. Tackling these conditions with a multifaceted, multidisciplinary approach has been the mainstay of our past success in translational medicine. This approach has led to several groundbreaking advancements in clinical care, such as proton beam irradiation, photodynamic therapy, antivascular endothelial growth factor therapies, and the Boston Keratoprosthesis, which have saved sight or improved vision for millions of people worldwide.

"Though diverse in our skillsets, we share a singular purpose: to deepen our understanding of blinding eye disease so that we can pioneer sight-saving treatments for patients around the world. Leading this research effort is a truly humbling experience," says Patricia A. D'Amore, PhD, MBA, Director of Research, Schepens Eye Research Institute of Mass. Eye and Ear.

Today, scientific collaboration and information—leveraged from modern genetics and genomics—are accelerating our understanding of blinding diseases and revealing new targets for therapy. Capitalizing on this momentum, the department's research strategy focuses on areas of greatest unmet medical need, including retinal degenerations, macular degeneration, and diabetic eye disease, as well as optic neuropathies, particularly glaucoma. Programs in other areas—cornea and ocular surface, oncology, immunology, infectious disease, and vision rehabilitation—are also an important focus. Most of these efforts are organized around multidisciplinary Centers of Excellence and Institutes, which provide platforms to advance important breakthroughs across the research spectrum, while emphasizing clinical care and training.

Going forward, we are pursuing a range of promising research areas, including artificial intelligence, big data, genetics and gene-based therapy, imaging, and other diagnostic technologies.

We have reached a number of exciting milestones over the past 20 years. Our experience, knowledge, and drive to succeed continue to propel our efforts, and we are excited and optimistic that treatment breakthroughs and cures are imminent for many blinding diseases.

Meet the Research Leadership Team


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1. Patricia A. D'Amore, PhD, MBA

Harvard Medical School: Vice Chair, Basic and Translational Research; Co-Director, AMD Center of Excellence
Mass. Eye and Ear: Associate Chief, Basic and Translational Research; Director of Research, Schepens Eye Research Institute of Mass. Eye and Ear; Director, Howe Laboratory

2. Reza Dana, MD, MSc, MPH

Harvard Medical School: Vice Chair, Academic Programs; Director, Harvard-Vision Clinical Scientist Development Program; Co-Director, Cornea Center of Excellence
Mass. Eye and Ear: Associate Chief, Academic Programs; Director, Corporate Alliance Program

3. Lucia Sobrin, MD, MPH

Mass. Eye and Ear: Associate Chief, Clinical Data Science

4. Janey L. Wiggs, MD, PhD

Harvard Medical School: Vice Chair, Clinical Research; Co-Director, Glaucoma Center of Excellence; Associate Director, Ocular Genomics Institute; Associate Director, Howe Laboratory
Mass. Eye and Ear: Associate Chief, Clinical Research

5. David S. Friedman, MD, PhD, MPH

Harvard Medical School: Co-Director, Glaucoma Center of Excellence
Mass. Eye and Ear: Medical Director for Clinical Research, Ophthalmology and Otolaryngology

20 YEARS OF MAJOR RESEARCH ADVANCES

2004

The Harvard-Vision Clinical Scientist Development Program (K12) established

2008

Harvard Ophthalmology Centers of Excellence (COE) are created

- Cornea Center of Excellence
- Diabetic Eye Disease Center of Excellence
- Glaucoma Center of Excellence
- Mobility Enhancement & Vision Rehabilitation Center of Excellence
- Ocular Oncology Center of Excellence
- Age-Related Macular Degeneration Center of Excellence

2011

Corporate Alliance Program, which builds strategic industry alliances with biotechnology and pharmaceutical companies, launches

Harvard Ophthalmology Ocular Genomics Institute founded

Ocular Genomics Institute

Schepens Eye Research Institute joins Mass. Eye and Ear, creating the world's largest ophthalmology research enterprise

2013

International Training and Research Program created

Ocular Regenerative Medicine Institute

Harvard Ophthalmology Ocular Regenerative Medicine Institute founded

2015

$231 million

Mass. Eye and Ear's Bold Science/Life-Changing Cures campaign kicks off with a goal of reaching $250 million by 2020 to fund research. To date, the campaign has reached $231 million.

2019

The Tej Kohli Foundation pledges $2 million over five years to establish the Tej Kohli Cornea Program at Mass. Eye and Ear

2014

Grousbeck Center for Gene Therapy founded

Harvard Ophthalmology Infectious Disease Institute founded

INFECTIOUS DISEASE INSTITUTE

2018

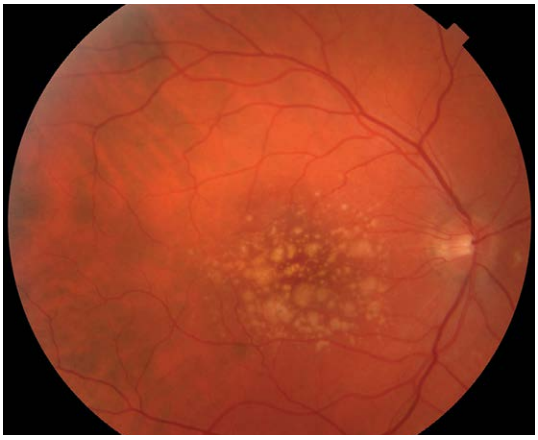
Mass. Eye and Ear joins Partners Healthcare Systems

A MEMBER OF PARTNERS® HEALTHCARE

Mass. Eye and Ear begins an initiative to increase capacity for research with big data, including enrolling patients into the Partners Biobank, and entering patients' electronic medical record data into the Partners Research Patient Data Registry

20 YEARS OF RESEARCH FUEL FUTURE BREAKTHROUGHS

Harvard Ophthalmology Age-Related Macular Degeneration Center of Excellence/Retina



- Developed photodynamic therapy with verteporfin, the first FDA-approved drug treatment for age-related macular degeneration (AMD)
- Performed foundational research demonstrating key role of vascular endothelial growth factor (VEGF), leading to the development of five anti-VEGF therapies: pegaptanib, ranibizumab, bevacizumab (used off label), aflibercept, and brolucizumab
- Developed optical coherence tomography for ocular imaging, which is the mainstay for management of patients with macular degeneration, diabetic retinopathy, and retinal vein occlusion
- Worked toward modeling photoreceptor cell loss in nonhuman primates and tested neuroprotection agents
- Generated pilot data that suggest the effectiveness of high-dose statins in the treatment of some dry AMD
- Pioneered plasma metabolomics in AMD

2020 Vision

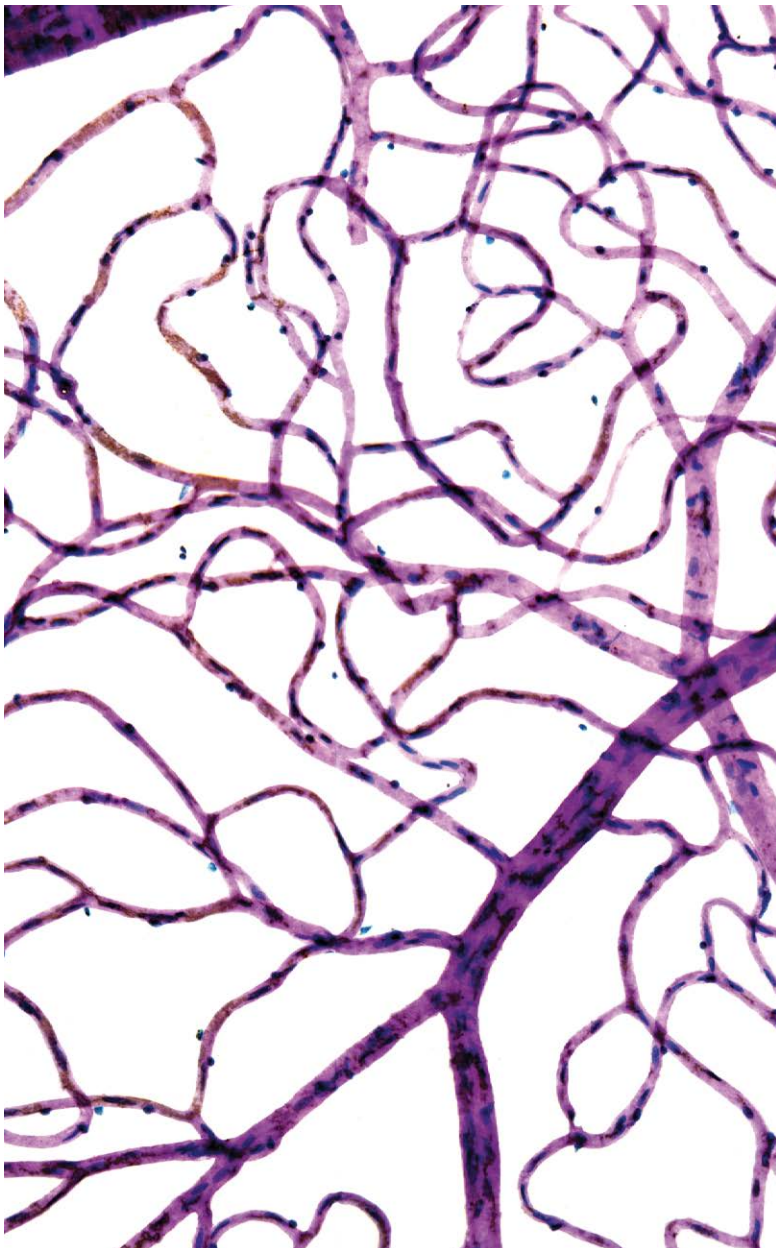
Clarify AMD subtypes and develop effective treatments for early/intermediate AMD and neuroprotection

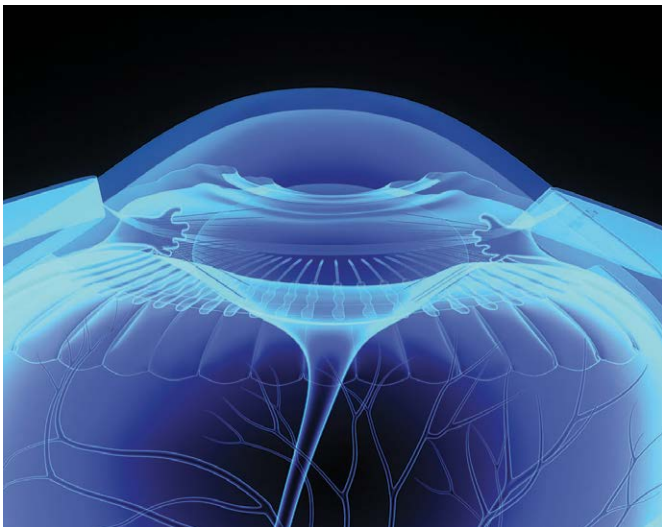
Harvard Ophthalmology
Diabetic Eye Disease Center of Excellence

- Helped to create and lead the Diabetic Retinopathy Clinical Research Retina Network, a National Institutes of Health-sponsored consortium of North American clinical sites performing research in diabetic eye disease and other retinal diseases
- Through multicenter studies, established intravitreal vascular endothelial growth factor (VEGF) inhibitors as first-line therapy for diabetic macular edema (DME) and demonstrated that VEGF inhibitors are a safe and efficacious alternative to panretinal photocoagulation for the treatment of proliferative diabetic retinopathy
- Investigated telemedicine for diabetic retinopathy as a means of improving patient access and compliance
- Discovered plasma kallikrein as a VEGF-independent key mediator of DME and developed injectable and oral compounds in current DME clinical trials
- Using data from the Joslin 50-Year Medalists, identified RBP3, a neural retinal secreted protein, as a protective factor against advanced diabetic retinopathy

2020 Vision

Using multimodal retinal imaging, develop artificial intelligence algorithms to predict diabetic eye disease progression and treatment response



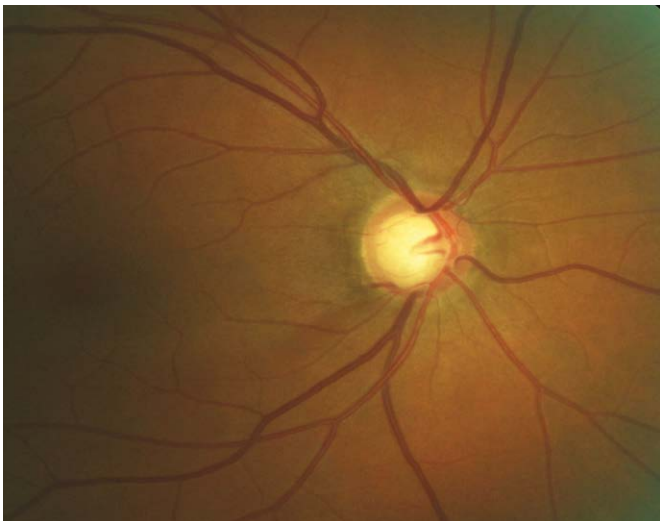


Harvard Ophthalmology Cornea Center of Excellence

- Identified molecular clues, including the role of oxidative stress, in the pathogenesis of Fuchs' endothelial corneal dystrophy
- Identified the molecular and cellular immune basis of dry eye disease, including the role of interleukin-17
- Developed and optimized drug-eluting contact lenses
- Developed the "Lucia," a novel corneal prosthesis, to help combat global corneal blindness
- Received FDA approval for novel method of cultivating corneal stem cells for ocular surface reconstruction

2020 Vision

Develop novel biomaterials for corneal replacement, regeneration, and management of corneal injuries

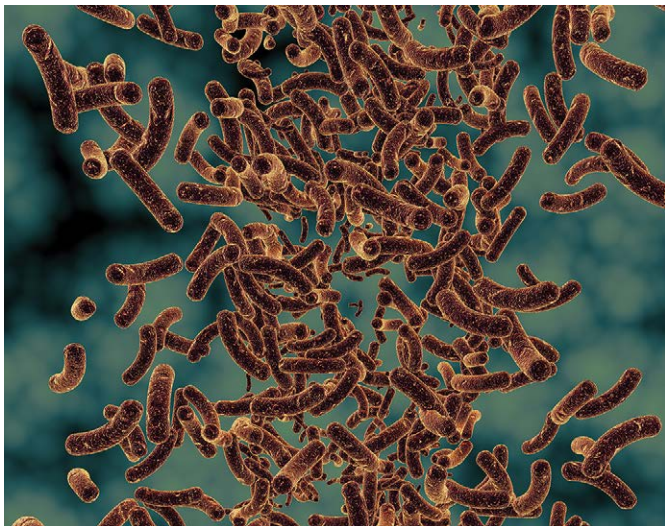


Harvard Ophthalmology Glaucoma Center of Excellence

- Demonstrated the use of spectral domain and 3D swept-source optical coherence tomography to detect retinal nerve fiber layer thinning, which can occur before clinically detectable, irreversible vision loss in glaucoma
- Identified structural remodeling of astrocytes as a potential new target for disease pathogenesis
- Identified over 100 novel genetic risk factors for glaucoma and related ocular traits
- Identified environmental risk factors for exfoliation glaucoma, including residence in northern latitudes
- Identified subtypes of glaucoma based on machine learning of visual field defects and specific optic nerve features

2020 Vision

Develop models for disease screening and risk prediction based on machine learning, fundus images, and genetic risk factors



Harvard Ophthalmology Infectious Disease Institute

- Established a 10,000-strain repository of clinical isolates and new molecular-based infection diagnostics to improve eye care
- Identified a mechanism for the evolution of novel adenoviruses that cause epidemic keratoconjunctivitis
- Pioneered new comparative and functional genomics technologies to discover how staphylococci and streptococci infect the ocular surface
- Traced the origins of antibiotic resistance in a leading multidrug-resistant hospital pathogen to the emergence of land animals, 450 million years ago
- Identified the molecule dynamin 2 as a key regulator of adenovirus trafficking, affecting both viral replication and inflammation, and identified a unique viral trafficking pathway in human corneal fibroblasts involving dynamin 2

2020 Vision

Develop promising new compounds to fight the leading causes of multidrug-resistant infections, including staph and other related bacteria; develop new technologies, such as the Nanostring Project, for rapid diagnosis of ocular infections

Harvard Ophthalmology Mobility Enhancement and Vision Rehabilitation Center of Excellence

- Spearheaded the Boston Retinal Implant Project, a retina prosthesis designed to restore useful vision to patients who are blind from age-related macular degeneration or retinitis pigmentosa
- Developed auditory-based video games for improving navigation and other cognitive skills in blind adolescents
- Developed a vision-assistive device that detects potential hazards in the environment and reduces risk of collision for those who are blind or have visual field loss
- Developed eyeglasses that use high-power prisms to optically expand the visual fields of patients with hemianopia
- Developed the Boston Blink-netic Project, which has successfully treated patients with eyelid paralysis using a nonsurgical approach of embedding a magnet in biocompatible material and adhering it to the eyelid skin

2020 Vision

Develop more advanced head-mounted displays that use improved computer and image processing software to assist patients with visual impairments

Harvard Ophthalmology Ocular Genomics Institute

- Created one of the leading centers for early phase clinical trials of therapies for inherited retinal degenerations, with seven gene-based and one stem cell trial currently in progress
- Developed and implemented a next-generation, sequencing-based diagnostic test for inherited eye diseases
- Helped define the genetic causes of inherited retinal degenerations and congenital cranial dysinnervation disorders
- Reconstructed a synthetic adeno-associated virus gene therapy vector that is highly effective at delivering therapeutic genes to the eye, ear, liver, and muscle tissue
- Deployed the tools of CRISPR-Cas9-mediated genome and base editing to facilitate research studies of and develop therapies for inherited eye disorders

2020 Vision

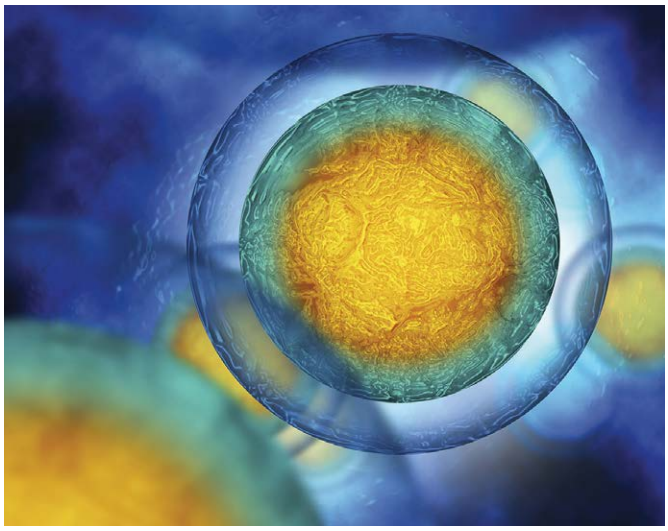
Use precision medicine broadly for inherited eye diseases to improve genetic diagnoses for patients, leading to the use of genetically informed therapies to preserve and/or restore vision

Harvard Ophthalmology Ocular Oncology Center of Excellence

- Conducted the first adjuvant trial investigating the role of interferon for reducing the risk of metastasis from uveal melanoma
- Contributed to the characterization of *BAP1* tumor predisposition syndrome and defined the prevalence of germline *BAP1* mutations in patients with uveal melanoma
- Evaluated the role of antivascular endothelial growth factor therapy in preventing vision loss due to radiation retinopathy in patients with choroidal melanoma
- Performed first in-human study of a novel targeted therapy for uveal melanoma
- Investigated inhibitory effect of verteporfin on various tumor cell lines

2020 Vision

Identify new biomarkers for earlier detection of metastatic ocular melanoma, develop adjuvant therapies, and improve visual outcomes after ocular melanoma treatment

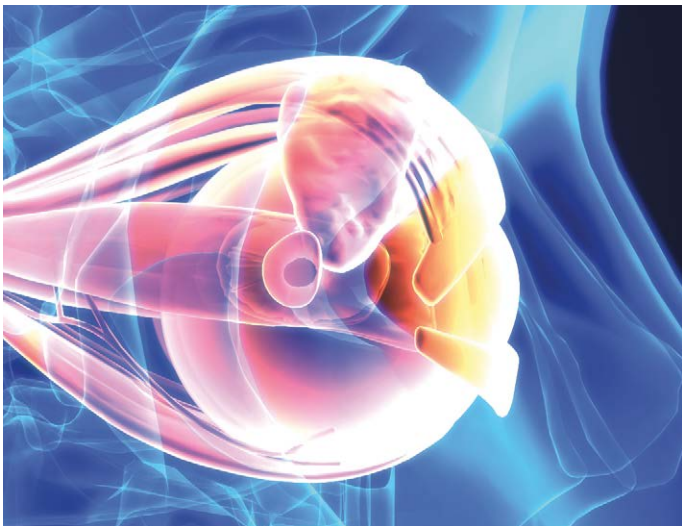


Harvard Ophthalmology
Ocular Regenerative Medicine Institute

- Performed early clinical trials of grafted embryonic stem cell-derived retinal pigment epithelial in patients with age-related macular degeneration (AMD)
- Developed a novel stem cell therapy for retinitis pigmentosa using retinal progenitor cells
- Developed a semi-automated approach for the scaled-up production of retinal neurons from pluripotent stem cells—a renewable source of cells—for the treatment of AMD and glaucoma
- Pioneered transplantation studies of stem cell-derived retinal ganglion cells in animal models of glaucoma
- Uncovered permanent neuroglial remodeling of the retina that occurs following infiltration of peripheral monocytes in cases of retinal injury

2020 Vision

Overcome immunologic and integration issues as we move from bench to bedside with sight-saving and restoring therapies that will change the lives of patients with blinding diseases



Harvard Ophthalmology
Pediatric Ophthalmology/Strabismus

- Identified immature photoreceptors as potential pharmacological targets for treating retinopathy of prematurity through omega-3 fatty acid and insulin-like growth factor supplementation, among others
- Discovered a series of mutations that cause rare forms of strabismus and provides clues to the complex genetic contributors of common strabismus
- Provided the first scientifically rigorous findings of visual disorders in children with dyslexia
- Advanced our understanding of the impact of traumatic brain injury on visual function
- Developed a noninvasive retinal scanner that automatically detects amblyopia and strabismus in children, novel computer-based tests of visual function in amblyopia, and new binocular therapies such as virtual reality

2020 Vision

Use gene therapy to treat and reverse vision loss; apply precision medicine for early diagnosis of pediatric eye disease; re-open brain plasticity to treat amblyopia in adults; and directly stimulate the visual brain to treat all forms of blindness

80 Years of the Glaucoma Service at Mass. Eye and Ear

Lucy Shen, MD, and David Sola-del-Valle, MD, provide care to patients with glaucoma.

Over the years, the Glaucoma Service at Mass. Eye and Ear has been led by world-class glaucoma experts who have made a lasting impact on generations of physicians and patients. David S. Friedman, MD, PhD, MPH, the current director of the service, is no exception. In his first few months at Mass. Eye and Ear, he has begun to transform the service with the goal of placing the patient at the center of every decision.

The Glaucoma Service Through the Years

Paul A. Chandler, MD, established the Glaucoma Service at Mass. Eye and Ear in 1940. A beloved mentor of generations of ophthalmologists, Dr. Chandler along with W. Morton Grant, MD, were pioneers in understanding the mechanisms and best treatments for glaucoma. From 1960 to 1982, Dr. Grant served as the first director of the Glaucoma Service.

From 1982 to 1991, David L. Epstein, MD, MMM, a globally recognized leader in the field, served as the director of the service. He went on to lead Duke's Ophthalmology Department. Among Dr. Epstein's many accomplishments were studies showing that rho kinase inhibitors are involved in intraocular pressure regulation, which eventually led to the development of a new class of therapies for glaucoma.

In the 1990s, Louis Pasquale, MD, and Cynthia Grosskreutz, MD, PhD, were named co-directors of the service. Dr. Pasquale, recognized as a leader in understanding the long-term impact of glaucoma on populations, was the sole director from 2010 to 2018.

The Glaucoma Service Today

Following a nationwide search, Dr. Friedman joined Mass. Eye and Ear in May 2019 to lead the efforts in glaucoma care. With a mission to provide patients with a positive experience that provides the highest quality of glaucoma care in the world, Dr. Friedman has begun to implement changes to the service, including:

- Creating a team approach to caring for patients among the glaucoma faculty and support staff
- Reorganizing and renovating the clinical space
- Purchasing new testing equipment
- Hiring highly trained glaucoma specialists and technicians
- Reviewing and responding to patient feedback
- Offering patients two of the newest minimally invasive glaucoma surgery devices on the market (iStent® inject, Glaukos; and Hydrus® Microstent, Ivantis)
- Assessing on a continual basis the quality of the care being provided
- Developing a system for implementing tele-ophthalmology for glaucoma patients
- Organizing a faculty retreat
- Holding weekly faculty meetings to review clinical and research progress, including a novel drug-delivery mechanism using a contact lens
- Expanding the glaucoma fellowship from two to three fellows

The Future of the Glaucoma Service

In the coming years, the Glaucoma Service will be at the forefront of efforts to translate findings from genetics and artificial intelligence to provide optimized care for every patient. The glaucoma team hopes to further elucidate the underlying molecular and environmental mechanisms of glaucoma. Already, Janey L. Wiggs, MD, PhD, has identified several genetic and environmental risk factors for the disease. "Personalized" glaucoma care is already starting and, under Dr. Friedman's guidance, will become increasingly possible.

"Imagine if a patient with stable glaucoma only had to be seen once every one or two years," says Dr. Friedman. "As we learn more about the disease mechanisms, we'll eventually be able to provide more precise treatment plans based on individualized risk assessments. And with the use of telemedicine, we will be able to monitor patients more closely than we do today to ensure that any early changes are detected and treated quickly."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Glaucoma Service Members

Twelve highly specialized surgeons provide care at outpatient offices located in Boston, Longwood, Stoneham, and Malden:
1 *David S. Friedman, MD, PhD, MPH* ***2*** *Teresa Chen, MD*
3 *Cynthia Lee Grosskreutz, MD, PhD* ***4*** *Michael Lin, MD*
5 *Milica Margeta, MD, PhD* ***6*** *Courtney Ondeck, MD, MPhil*
7 *Lucy Shen, MD* ***8*** *David Sola-del-Valle, MD* ***9*** *Allison Soneru, MD*
10 *Tave van Zyl, MD* ***11*** *Janey L. Wiggs, MD, PhD*
12 *Nazlee Zebardast, MD, MSc*

Highlights from the 2019 AAO Annual Meeting

Nearly 40 Harvard Ophthalmology faculty and trainees from our affiliates—including Beetham Eye Institute at Joslin Diabetes Center, Boston Children's Hospital, Mass. Eye and Ear, and VA Boston Healthcare System—participated in the American Academy of Ophthalmology Annual Meeting held October 11-15 in San Francisco.

A number of faculty participated in Subspecialty Day events as presenters, panelists, moderators, and course instructors. Notably, Joan W. Miller, MD, Chief and Chair, and Dean Eliott, MD, the Stelios Evangelos Gragoudas Professor of Ophthalmology, took part in the Retina Pro/Con debates, and successfully defended their respective debate topics.

Jennifer K. Sun, MD, MPH, Chief of the Center for Clinical Eye Research and Trials at Joslin Diabetes Center, shared data from the DRCR.net Protocol V clinical trial. The multicenter trial evaluated whether antivascular endothelial growth factor injections are the best strategy in patients with centrally involved diabetic macular edema and good vision.

Mary Elizabeth Hartnett, MD, Schepens Eye Research Institute of Mass. Eye and Ear alumna (class of '89) and the Calvin S. and JeNeal N. Hatch Presidential Endowed Chair at the University of Utah Department of Ophthalmology and Visual Sciences, presented the 2019 Arnall Patz Lecture and received the Arnall Patz Medal. Her talk focused on the safe and effective treatment of retinopathy of prematurity.

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

2019 Life Achievement Honor Awards
- Evangelos S. Gragoudas, MD, Mass. Eye and Ear
- John Kanellopoulos, MD, alumnus

2019 Charles L. Schepens, MD, Lecture and Award
- Jean Bennett, MD, PhD, alumna (with Albert Maguire, MD)

2019 Arnall Patz Lecture and Medal
- Mary Elizabeth Hartnett, MD, alumna

Senior Achievement Awards
- R. V. Paul Chan, MD, MSc, alumnus
- Pedram Hamrah, MD, alumnus
- Victor L. Perez Quinones, MD, alumnus
- Deborah K. VanderVeen, MD, Boston Children's Hospital

Achievement Awards
- Mary Elizabeth Aronow, MD, Mass. Eye and Ear
- Glenn Chung-Wing Yiu, MD, PhD, alumnus
- Deeba Husain, MD, Mass. Eye and Ear
- Ann-Marie Lobo, MD, alumna
- John T. H. Mandeville, MD, PhD, alumnus
- José-Alain Sahel, MD, alumnus
- Ilknur Tugal-Tutkun, MD, alumna

Secretariat Awards
- Neil M. Bressler, MD, alumnus
- Mary Lou Jackson, MD, alumna
- John Kanellopoulos, MD, alumnus
- Cynthia Mattox, MD, alumna
- Philip J. Rosenfeld, MD, PhD, alumnus
- Joel S. Schuman, MD, alumnus
- M. Bruce Shields, MD, alumnus
- Mitchell B. Strominger, MD, alumnus

International Education Awards
- Ghassan Joseph Cordahi, MD, alumnus
- Takeshi Kezuka, MD, PhD, alumnus

Best Paper Award

Shruti Sinha, MB, BS, Mass. Eye and Ear Research Fellow "Incidence of persistent epithelial defect in patients of ocular graft-versus-host-disease"

Best Original Paper, Cornea

Stephan Ong Tone, MDCM, PhD, FRCSC, Mass. Eye and Ear Cornea Fellow, "Increased corneal endothelial cell migration in Fuchs endothelial corneal dystrophy in a DSO model"

Women in Ophthalmology Educators Award
- Sherleen Chen, MD, Mass. Eye and Ear

SAVE THE DATE:

AAO 2020: NOV 14-17 IN LAS VEGAS

Claes H. Dohlman Receives Honorary Doctorate

Claes H. Dohlman, MD, PhD, Professor of Ophthalmology, Emeritus, and former Chair of Harvard Ophthalmology, 1974-1989, was awarded an honorary doctorate from the Université de Montréal for his pioneering work in ophthalmology. University President Guy Breton presented the award to Dr. Dohlman at the graduation ceremony of the Undergraduate Doctorate of the Faculty of Medicine on June 17, 2019.

Internationally recognized as the founder of modern corneal science and one of the most highly honored ophthalmologists in the world, Dr. Dohlman's work is considered classic literature on understanding corneal biology. His most notable achievement is the Boston Keratoprosthesis, an artificial cornea that is now the most successful artificial cornea in the world, with over 14,000 implantations to date.

Evangelos S. Gragoudas Receives Honorary Doctorate

Evangelos S. Gragoudas, MD, Charles Edward Whitten Professor of Ophthalmology at Harvard Medical School and Distinguished Service Director of the Retina Service at Mass. Eye and Ear, was awarded an honorary doctorate from the University of Crete. University Rector Odysseas-Ionnis Zoras presented the award to Dr. Gragoudas on November 1, 2019.

Dr. Gragoudas is considered a world authority on diagnosing and managing intraocular tumors, using photodynamic therapy for the treatment of age-related macular degeneration, and demonstrating the critical role of vascular endothelial growth factor (VEGF) in ocular neovascularization and later developing therapies targeting VEGF.

Faculty Updates

HMS APPOINTMENTS/PROMOTIONS

To Assistant Professor of Ophthalmology
- Kinga Bujakowska, PhD, Mass. Eye and Ear
- Zhongjie Fu, PhD, Boston Children's Hospital
- Ye Sun, MD, PhD, Boston Children's Hospital

DEPARTURES

Kameran Lashkari, MD (July 2019)
Dr. Lashkari, a researcher at Schepens Eye Research Institute of Mass. Eye and Ear, will continue to see patients at a private ophthalmology practice in Southeastern Massachusetts.

Francois Lebreton, PhD (July 2019)
Dr. Lebreton, who specialized in the bioinformatic analysis of bacterial genomes, has accepted a position at the Walter Reed Army Institute of Research in Maryland.

Andrew Baker, OD (September 2019)
Dr. Baker, who led the Vision Care for the Deaf program at Mass. Eye and Ear for nearly 35 years, will continue to see patients part-time at the Yarmouth practice of Ophthalmic Consultants of Boston.

David Wu, MD, PhD (September 2019)
Dr. Wu, a great teacher and clinician scientist focused on the molecular mechanisms of retinal degenerations, accepted a position at Johns Hopkins Wilmer Eye Institute.

Awards and Grants

FACULTY AWARDS/HONORS

American Glaucoma Society
Alliance for Eye and Vision Research
Emerging Physician Scientists
Kinga Bujakowska, PhD, Mass. Eye and Ear
Jia Yin, MD, PhD, Mass. Eye and Ear

2019 Program Award for a Culture of Excellence in Mentoring
Department of Ophthalmology Mentoring Program: Patricia D'Amore, PhD, MBA; David Hunter, MD, PhD; and Joan W. Miller, MD

Mass. Eye and Ear Distinguished Service Award
Gena Heidary, MD, PhD, Boston Children's Hospital and Mass. Eye and Ear

National Academy of Medicine
Anthony P. Adamis, MD, Mass. Eye and Ear
Elizabeth Engle, MD, Boston Children's Hospital

Retina Hall of Fame
Lloyd Paul Aiello, MD, PhD, Beetham Eye Institute at Joslin Diabetes Center

WiSTEM Mentor of the Year
Mami Iwamoto, MD, Mass. Eye and Ear

TRAINEE AWARDS

Claes H. Dohlman Fellowship Award
Stephan Ong Tone, MD, PhD, Cornea, External Disease, and Refractive Surgery Fellow

Gragoudas-Folkman Award
Noam Rudnick, MD, PhD, Harvard Ophthalmology second-year resident

Ronald G. Michels Fellowship Foundation Award
Tomasz Stryjewski, MD, Vitreoretinal Fellow

GRANTS

BrightFocus Foundation

$200,000 over one year
Kip Connor, PhD, Mass. Eye and Ear
Meredith Gregory-Ksander, PhD, Schepens Eye Research Institute of Mass. Eye and Ear
"Targeting the alternative complement pathway in glaucoma"

$200,000
Ye Sun, MD, PhD, Boston Children's Hospital
"Negative immune regulator controls wet AMD"

Johns Hopkins University

$50,000 over one year
David S. Friedman, MD, PhD, MPH, Mass. Eye and Ear
"ACCESS: African Centers of Excellence in Cataract Surgical Services"

$89,382 over one year
David S. Friedman, MD, PhD, MPH, Mass. Eye and Ear
"Optimizing approaches to identifying glaucoma among at-risk African Americans and Hispanics"

Mass General Hospital Executive Committee on Community Health

$30,000
Alice Lorch, MD, MPH, Mass. Eye and Ear
Funding for a community-based retinal screening program for diabetic retinopathy at the MGH Chelsea Health Center

The Massachusetts Lions Eye Research Fund

$700,000 to support research projects led by the following faculty:

Beetham Eye Institute at Joslin Diabetes Center
Paolo Silva, MD
Jennifer K. Sun, MD, MPH

Boston Children's Hospital
Ronald Hansen, PhD, with James Akula, PhD, and Lucia Ambrosio, MD, PhD
Jing Chen, PhD
Lois Smith, MD, PhD, with Zhongjie Fu, PhD
Mass. Eye and Ear
Paulo Bispo, PhD
Lotfi Merabet, OD, PhD, MPH
Jaya Rajaiya, PhD
Schepens Eye Research Institute of Mass. Eye and Ear
Corinna Bauer, PhD
Tatjana Jakobs, MD, and Meredith Gregory-Ksander, PhD
Eric Ng, PhD
Magali Saint-Geniez, PhD

National Eye Institute

$541,750 over two years
Meredith Gregory-Ksander, PhD, Schepens Eye Research Institute of Mass. Eye and Ear
"Uncoupling caspase 8-mediated-apotosis from caspase 8-mediated-inflammation in glaucoma"

$94,947
Gena Heidary, MD, PhD, Boston Children's Hospital and Mass. Eye and Ear
"Biomarkers of vision loss in children with optic pathway gliomas"

$750,000
Gabriel Kreiman, PhD, MSc, Boston Children's Hospital
"Neural dynamics underlying spatiotemporal cognitive integration"

$550,340 over two years
Shrinivas Pundlik, PhD, Schepens Eye Research Institute of Mass. Eye and Ear
"Dark adaptation measurement with a mobile device"

$2,212,500 over five years
Ye Sun, MD, PhD, Boston Children's Hospital
"Photoreceptor determination of retinal blood vessel growth in retinopathy"

National Institute of Allergy and Infectious Diseases

$467,000 over two years
Michael Gilmore, PhD, Mass. Eye and Ear
"New understanding of LTA as a determinant of daptomycin susceptibility in VRE E. faecium"

US Army Medical Research Acquisition Activity

$2,098,767 over three years
Joseph Ciolino, MD, Mass. Eye and Ear
"Steroid-eluting therapeutic contact lens to treat and prevent inflammation and scarring following ocular trauma"

Upcoming Events

16th Annual Harvard Medical School Intensive Cataract Surgical Training Course for Second-Year Residents

April 4-5, 2020
7:15am-5:40pm (April 4)
7:30am-12:00pm (April 5)
Meltzer Auditorium, Mass. Eye and Ear

Cornea Center of Excellence Visiting Professors Lectures

April 16, 2020 | 4:00-6:30pm
Meltzer Auditorium, Mass. Eye and Ear
Mark I. Rosenblatt, MD, PhD, University of Illinois

May 28, 2020 | 4:00-6:30pm
Meltzer Auditorium, Mass. Eye and Ear
Matilda Chan, MD, PhD, University of California, San Francisco

Alumni Reception at the Association for Research in Vision & Ophthalmology

May 3, 2020 | 7:30-10:00pm
The Center Club, Baltimore, Maryland

Harvard Ophthalmology Annual Meeting and Alumni Reunion

June 12-13, 2020
Starr Center and
Meltzer Auditorium, Mass. Eye and Ear

2020 FEATURED ALUMNI SPEAKERS

Mariana D. Mead Lecturer: Mark Kuperwaser, MD (1989)

"30 Years of Clinical Practice—An Ophthalmologist's Observations and Reflections, Inspired by Mariana Mead, MD"

Class Speaker: Robin Cook, MD (1975)

"Reflections 40 Years Hence"

Distinguished Clinical Achievement Award Lecturer: Hélène Boisjoly, MD, MPH (1983)

"Once a Clinician Scientist, Always a Clinician Scientist"

Distinguished Research Achievement Award Lecturer: Jean Bennett, MD, PhD (1986)

"Turning Genes Into Medicine—Gene Therapy for Genetic Disease"

Alumni News

Elected to the National Academy of Medicine:
Julia A. Haller, MD, Ophthalmologist-in-Chief, Wills Eye Hospital

Received the Inaugural Retina Hall of Fame Award:
Alice R. McPherson, MD, Professor of Ophthalmology, Baylor College of Medicine

In Memoriam

Philip M. Falcone, MD, an alumnus, passed away on August 13, 2019. Dr. Falcone earned his undergraduate degree from Fordham University and his medical degree from the State University of New York, Downstate Medical Center. He then completed his ophthalmology residency training at the St. Luke's Roosevelt Medical Center, Columbia University. In 1992, he completed a retina fellowship with Arnold Kroll, MD/Mass. Eye and Ear. He was a principal investigator in many national trials, including current therapies for macular degeneration and diabetic retinopathy. He practiced in Connecticut for 25 years and was an Assistant Clinical Professor at Yale University School of Medicine.

John W. Reed, MD, an alumnus, passed away on October 21, 2019. Dr. Reed earned his undergraduate degree from Wake Forest University and his medical degree from Bowman Gray School of Medicine at Wake Forest University. He then completed his residency training at Mass. Eye and Ear in 1969 and fellowship training at Mass. Eye and Ear in 1971. He joined the faculties of both Duke University and Bowman Gray School of Medicine. Dr. Reed combined his love of travel with his desire to serve others. He spent time teaching and improving and restoring the vision of thousands of patients in Afghanistan, Bangladesh, Nigeria, Jordan, Israel, Haiti, Bahrain, and Kenya.

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HARVARD MEDICAL SCHOOL
DEPARTMENT OF Ophthalmology

EYE WITNESS

NEWS FROM HARVARD OPHTHALMOLOGY

243 Charles Street, Boston, MA 02114

COMING UP...

MAY 3, 2020

Alumni Reception at the Association for Research in Vision & Ophthalmology

Baltimore, Maryland

JUNE 12-13, 2020

Harvard Ophthalmology Annual Meeting and Alumni Reunion

Boston, Massachusetts

AFFILIATES: Massachusetts 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)