Ophthalmology research faculty

Johns Hopkins University

Adam Wenick

- CMV Retinitis, Diabetic Retinopathy, Macular Degeneration, Medical Diseases of the Retina, Ophthalmology, Retinal Detachment, Retinal Vein Occlusion, Surgical Diseases of the Retina, Vitreoretinal Diseases and Surgery Service.
- Adam S. Wenick, M.D., Ph.D., is an assistant professor of ophthalmology in the retina division at the Wilmer Eye Institute.
- Dr. Wenick has subspecialty training in vitreoretinal diseases and surgery. His expertise includes medical and surgical treatment of age-related macular degeneration, diabetic retinopathy, retinal vascular occlusions, epiretinal membranes, macular holes, trauma, and retinal tears and detachment.
- Dr. Wenick's research interests include the study of the molecular components of the vitreoretinal interface and their role in normal development as well as in the pathogenesis of vitreoretinal disease.

Faculty webpage

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Alan Baer

- Gout, Rheumatology, Rheumatology Consultation, Sjogren's Syndrome.
- Professor of Medicine and Director of the Jerome L. Greene Sjogren's Syndrome Center.
- His research has involved cross-sectional and longitudinal analyses of the Hopkins, SICCA, and NIH Sjögren's cohorts, conduct of clinical trials, and collaborating with basic research groups on novel biomarker development.

Faculty webpage

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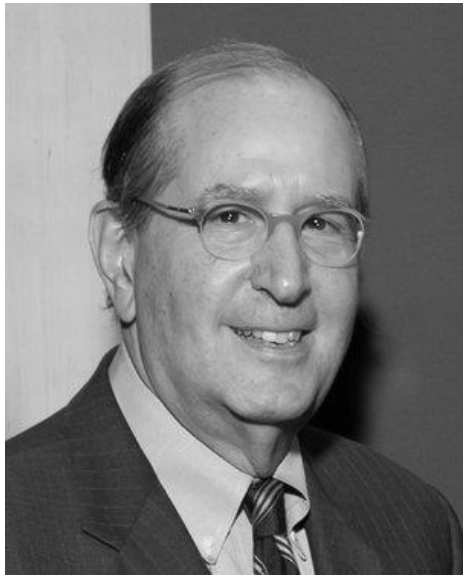
Alfred Sommer



- Blindness prevention, Vitamin A deficiency Alfred Sommer, M.D., M.H.S., is a professor of ophthalmology at the Wilmer Eye Institute and Dean Emeritus and professor of epidemiology and international health at the Johns Hopkins Bloomberg School of Public Health.

- Dr. Sommer''s current research interests include outcomes assessment; clinical guidelines; the screening, diagnosis and management of glaucoma and other blindness prevention strategies; and cost containment. He demonstrated the impact of vitamin A deficiency on childhood blindness and mortality in developing countries. His newest efforts concern the growing interface between medicine and public health.

- His current research interests include child survival and blindness prevention strategies, micronutrient interventions and the interface between public health and clinical medicine. Blindness prevention, Vitamin A deficiency

Faculty webpage

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- Neonatal mortality risk of vulnerable newborns: A descriptive analysis of subnational, population-based birth cohorts for 238 143 live births in low-and middle-income settings …
- Vulnerable newborn types: analysis of subnational, population-based birth cohorts for 541 285 live births in 23 countries, 2000–2021
- Small babies, big risks: global estimates of prevalence and mortality for vulnerable newborns to accelerate change and improve counting
- The Impact of Social Determinants of Health on Vision Loss from Cataracts and Cataract Surgery Utilization in the United States: Analysis of Three National Health Interview …
- Screening for Primary Open-Angle Glaucoma

Adrienne W Scott

[Faculty Webpage]

[Publications]

Associate Professor, Ophthalmology

Chief, Wilmer Eye Institute - Bel Air

- Age-related macular degeneration
- Diabetic retinopathy
- Pathologic myopia
- Optical coherence tomography
- Deep learning: an algorithm that recognizes the retinal signs of sight-threatening sickle cell retinopathy

- Correlation of Ultra-Widefield Fluorescein Angiography and OCT Angiography in Sickle Cell Retinopathy.
- Evolution of Leukemic Retinal Hemorrhages Documented by Spectral-Domain OCT and Color Fundus Photography.
- Progressive Retinal Thinning in Sickle Cell Retinopathy.
- Loss of Peak Vision in Retinal Vein Occlusion Patients Treated for Macular Edema.

Alexander Christoff

- Pediatric Ophthalmology, Strabismus, Double vision.
- Alex Christoff is an Assistant Professor of Ophthalmology in the Wilmer Department of Pediatric Ophthalmology and Adult Strabismus, East Baltimore Campus.
- Complex prism evaluation, fitting, and prescription.

Faculty webpage

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Ali Saber Tehrani

- Dr. Saber Tehrani is an Assistant Professor of Neurology at Johns Hopkins University School of Medicine.
- Dr. Saber Tehrani has unique subspecialty training in vascular neurology, neuro-ophthalmology, and vestibular neurology. He is available for consultation for patients with strokes affecting vision or balance.
- Dr. Saber Tehrani's research efforts are focused on posterior circulation stroke diagnosis and outcomes, and how such strokes can affect vision and balance. He is using novel ways to objectively measure abnormal eye movements indicative of stroke.
- Impact of clinician training background and stroke location on bedside diagnostic accuracy in the acute vestibular syndrome–a meta-analysis
- Sudden unilateral hearing loss and vertigo following isolated cerebellar hypoperfusion without infarction due to vertebral artery dissection
- Eye and head movement recordings using smartphone: measurements of accuracy and precision
- Remote Expert Diagnosis by Video-Oculography is More Accurate Than In-Person ED Diagnosis in Acute Vertigo and Dizziness-Preliminary Results of the AVERT Trial
- Eye and Head Movement Recordings Using Smartphones for Telemedicine Applications: Measurements of Accuracy and Precision

Faculty webpage

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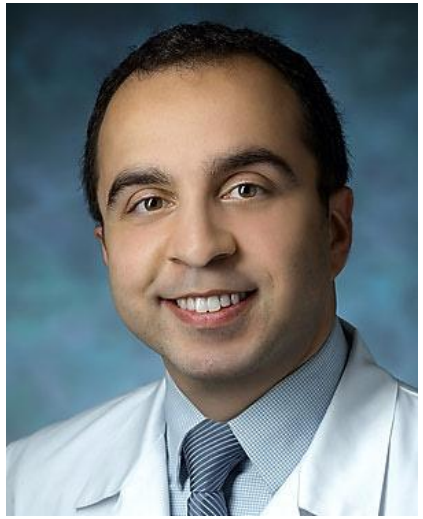
Allen Eghrari



- Cataracts, Cornea Transplant, Cornea/Anterior Segment Disease, Corneal Diseases, Corneal Dystrophies, Ebola-Associated Eye Disease, External Diseases of the Eye, Fuchs Endothelial Corneal Dystrophy, Ophthalmology, Refractive Surgery Cataract Surgery, Corneal Dystrophies, Ebola Virus Disease, Fuchs Corneal Dystrophy

- Allen O. Eghrari, M.D., M.P.H., is an ophthalmologist specializing in cornea, cataract and external eye diseases at the Wilmer Eye Institute's locations in Baltimore and Bel Air, Maryland. He treats a wide range of eye conditions, with special interest in Ebola-associated eye disease, Fuchs' dystrophy, cataract surgery, and corneal transplantation.

- Long-Term Decrease in Intraocular Pressure in Survivors of Ebola Virus Disease in the Partnership for Research on Vaccines and Infectious Diseases in Liberia (PREVAIL) III Study
- Predictors of Receiving Keratoplasty for Fuchs' Endothelial Corneal Dystrophy among Medicare Beneficiaries
- Tenon Patch Graft With Vascularized Conjunctival Flap for Management of Corneal Perforation
- Outcomes of Femtosecond Laser-Assisted Cataract Surgery Compared to Conventional Phacoemulsification in Eyes with Pseudoexfoliation Syndrome
- Scheimpflug Corneal Densitometry Values and Severity of Guttae in Relation to Visual Acuity in Fuchs Endothelial Corneal Dystrophy

Faculty webpage

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Amir Kashani

- Diabetic Retinopathy, High Blood Pressure (Hypertension), Macular Degeneration, Macular Puckers, Ophthalmology, Retinal Artery Occlusion, Retinal Detachment, Retinal Vein Occlusion Diabetic Retinopathy, OCT Angiography, Retinal Vascular Disease, Stem Cell Therapy of Retinal Disease, Vascular Cognitive Impairment and Dementia

- Amir H. Kashani, M.D., Ph.D. is a retina specialist and surgeon and the Boone Pickens Professor in Ophthalmology, treating patients at Wilmer Eye Institute's East Baltimore and Columbia locations.

- Dr. Kashani specializes in the diagnosis and treatment of medical and surgical retinal diseases including diabetic retinopathy, retinal vein occlusions, age-related macular degeneration, epiretinal membranes and retinal detachments as well as other common retinal diseases.

- Retinal vascular diseases are among the leading cause of vision loss in the working age and older population. Over decades of life, diseases such as diabetic retinopathy and age-related macular degeneration can lead to dysfunction and abnormal growth of blood vessels. The earliest pathologic changes in these diseases occur at the level capillaries within and around the retina, but they are undetectable to the naked eye or to the doctor in the clinic until significant damage has been done.

- Optical Coherence Tomography Angiography, Artificial Intelligence, and the Missing Capillaries

Faculty webpage

- Retinotopic degeneration of the retina and optic tracts in autosomal dominant Alzheimer's disease

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- Ocular and systemic determinants of perifoveal and macular vessel parameters in healthy African Americans

- Variability of Vascular Reactivity in the Retina and Choriocapillaris to Oxygen and Carbon Dioxide Using Optical Coherence Tomography Angiography

- Characterization of spastic paraplegia in a family with a novel PSEN1 mutation

Andrew Rising Carey

- Diabetic Macular Edema, Diabetic Retinopathy, Giant Cell Arteritis, Macular Degeneration, Myasthenia Gravis, Neuro-Ophthalmology, Ophthalmology, Optic Neuritis, Retinal Vein Occlusion, Retinitis Pigmentosa, Stargardt Disease, Vision Impairment.
- Comparative effectiveness and cost-benefit of intravitreal medications, Long term visual outcomes of choroidal neovascularization, Medical student and resident education, Novel retinal and optic nerve imaging modalities, Novel treatments for optic neuropathies.
- Andrew R. Carey, MD is an Assistant Professor of Ophthalmology in the division of Neuro-Ophthalmology at the Wilmer Eye Institute.
- He specializes in neuro-ophthalmic disorders such as optic neuritis, uveitis related papillitis, ischemic & hereditary optic neuropathies as well as diseases of the retina, including age-related macular degeneration, diabetic retinopathy, toxic retinopathies and inherited disorders of the retina such as retinitis pigmentosa.

Faculty webpage

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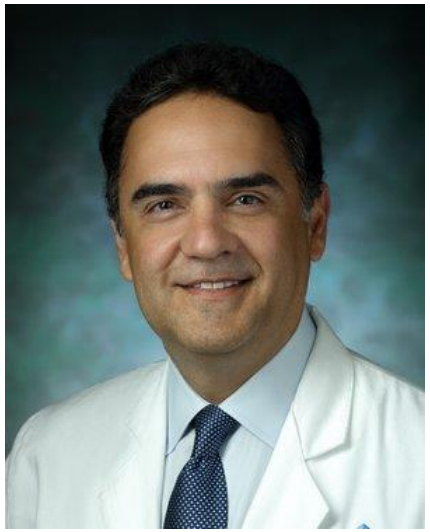
- Radiation-induced optic neuropathy: a review
- Outcomes of systemic bevacizumab in radiation-induced optic neuropathy, case series
- Case Report: Successful treatment of external beam radiation-induced optic papillopathy with intravitreal anti-VEGFAR
- A Diagnostic Conundrum of Bilateral Optic Disc Edema
- Presenting Features of Giant Cell Arteritis with Active Versus Healed Arteritis on Biopsy

Ashley Behrens



- Cataracts, Cornea/Anterior Segment Disease, Corneal Diseases, Corneal Dystrophies, External Diseases of the Eye, Fuchs Dystrophy of the Cornea, Laser Surgery, Ophthalmology, Refractive Surgery.

- Ashley Behrens, M.D., is an associate professor of ophthalmology and chief of the comprehensive ophthalmology division at the Wilmer Eye Institute.

- He specializes in the medical and surgical management of cataracts and corneal diseases, including corneal transplantation techniques for Fuchs' dystrophy and keratoconus, as well as LASIK, PRK and refractive lens exchange.

- Bilateral Presumed Herpetic Keratitis after Cataract Surgery
- Pseudo second anterior lens capsule during post-vitrectomy cataract surgery: A case report
- Bactericidal Efficacy of High Irradiance Ultraviolet A Photoactivation of Riboflavin Versus Standard Corneal Cross-Linking Protocol In Vitro
- Effect of topical bovine colostrum in wound healing of corneal surface after acute ocular alkali burn in mice
- Sustained delivery of therapeutic agents to an eye compartment

Faculty webpage

JH licensable technologies

Akrit Sodhi

Faculty Webpage

Publications

Grant Information

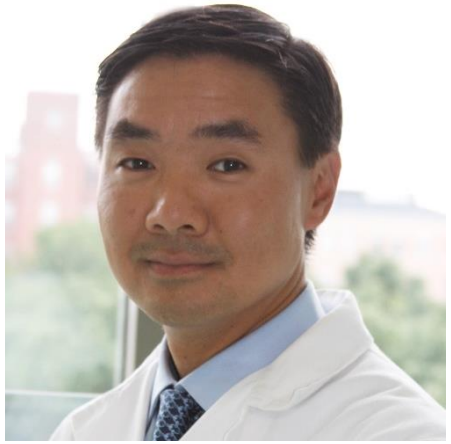
JH licensable technologies

Associate Professor, Ophthalmology

- Diabetic Macular Edema, Diabetic Retinopathy, Epiretinal Membranes, Macular Degeneration, Macular Holes, Macular Puckers, Medical Diseases of the Retina, Ophthalmology, Proliferative Vitreoretinopathy, Retinal Detachment, Retinal Vein Occlusion, Surgical Diseases of the Retina, Vitreoretinal Diseases and Surgery Service ocular tumors, pathological angiogenesis, Identification of novel diagnostic markers and therapeutic targets for retinal and choroidal vascular diseases

- Muller Cells Upregulate Angiopoietin-like 4 To Promote Vascular Permeability in Ischemic Retinal Disease
- Hypoxia-Inducible Factor-Dependent Expression of Angiopoietin-Like 4 by Conjunctival Epithelial Cells Promotes the Angiogenic Phenotype of Pterygia.
- Expression of the angiogenic mediator, angiopoietin-like 4, in the eyes of patients with proliferative sickle retinopathy.
- Expression Pattern of HIF-1α and VEGF Supports Circumferential Application of Scatter Laser for Proliferative Sickle Retinopathy.

Albert Jun



[Faculty Webpage]

[Publications]

[Grant Information]

[JH licensable technologies]

Professor, Ophthalmology

Chief, Division of Cornea, Cataract and External Eye Diseases

- Human corneal endothelial cells for keratoplasty
- Drug therapies for Fuchs corneal dystrophy
- Intraocular lens calculation
- Cataract Surgery
- Corneal Genetics
- Endothelial Keratoplasty
- Fuchs Endothelial Corneal Dystrophy
- Granular Corneal Dystrophy
- Keratoconus
- Lamellar Keratoplasty
- Refractive Surgery

- Alpha 2 Collagen VIII (Col8a2) L450W Knock-in Mouse Model of Fuchs Endothelial Corneal Dystrophy
- MicroRNA-29b Overexpression Decreases Extracellular Matrix mRNA and Protein Production in Human Corneal Endothelial Cells.
- Comparison of 20% sulfur hexafluoride with air for intraocular tamponade in Descemet membrane endothelial keratoplasty (DMEK).

Amanda Henderson

- Neuro-Ophthalmology, Ophthalmology Non-arteritic anterior ischemic optic neuropathy, Visual loss due to optic nerve conditions

- Dr. Henderson specializes in neuro-ophthalmology at the Wilmer Eye Institute and is the chief of its neuro-ophthalmology division.

- Her research interests include optic neuropathies, specifically non-arteritic anterior ischemic optic neuropathy. She also has a particular interest in resident and medical student education and serves as the education champion for the division of neuro-ophthalmology at Wilmer.

- Visual outcomes following plasma exchange for optic neuritis: an international multicenter retrospective analysis of 395 optic neuritis attacks

- Outcomes of systemic bevacizumab in radiation-induced optic neuropathy, case series

- Gastro-Entero-Pancreatic Tumors: FDG Positron Emission Tomography/Computed Tomography

- Presenting Features of Giant Cell Arteritis with Active Versus Healed Arteritis on Biopsy

- Details and outcomes of a large cohort of MOG-IgG associated optic neuritis

Faculty webpage

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Amanda Renae Crum

Faculty Webpage

Publications

Assistant Professor, Ophthalmology

- General eye care
- Diabetic retinopathy and contact lenses
- Special interest in keratoconus and post-surgical fits

- Bitot's Spots following Bariatric Surgery: An Ocular Manifestation of a Systemic Disease.

Ann-Margret Ervin

Faculty Webpage

Publications

Grant Information

Assistant Scientist, Epidemiology

Joint Appointment, Ophthalmology

- Clinical trials to treat and prevent ocular disease and visual impairment
- Ocular and oculocutaneous albinism

- A Measure of Effectiveness Is Key to the Success of sIRB Policy.
- Visual Acuity Change over 12 Months in the Prospective Progression of Atrophy Secondary to Stargardt Disease (ProgStar) Study: ProgStar Report Number 6.
- Treatment for Glaucoma: Comparative Effectiveness [Internet].

Ashley Campbell

- Assistant professor in the division of oculoplastics at the Johns Hopkins Wilmer Eye Institute.
- Aesthetic Plastic Surgery, Eye and Eyelid Tumors, Eyelid and Orbital Trauma, Eyelid Reconstruction, Eyelid Surgery, Facial and Plastics Reconstructive Surgery, Ocular Plastics, Ophthalmology, Orbital Disease, Orbital Trauma, Orbital Tumors, Thyroid Eye Disease

Faculty webpage

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Anisa Gire

- Corneal Diseases, Dry Eyes, Optometry, Primary Eye Care, Sjogren's Syndrome
- Anisa Gire, O.D., is an assistant professor of ophthalmology at the Wilmer Eye Institute.
- Her specialties include contact lens fits for patients with corneal disorders, such as post-graft corneas and keratoconus; cosmetic contact lenses and scleral lenses, including PROSE. She also provides comprehensive eye examinations and is a member of Wilmer's Ocular Surface Disease and Dry Eye Team, treating patients with dry eye and ocular surface diseases, including Sjogren's Syndrome.

Faculty webpage

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Benjamin Chaon

- Cataract Surgery, Diabetic Retinopathy, Macular Degeneration, Ocular Inflammation Disease, Ophthalmology, Retinal Vascular Disease, Uveitis Retinal Diseases, Uveitis, Vision Loss from Ocular Inflammatory Disease and Uveitis

- Uveitis and medical retina specialist at the Wilmer Eye Institute's locations in Odenton, Bethesda, and Baltimore, Maryland.

- His research is focused on understanding the fundamental immune mechanisms which underlie the development of inflammation in the eye. Advances in our understanding of the pathogenesis of uveitis are likely to lead to new diagnostic and therapeutic options for patients with vision loss due to ocular inflammatory diseases.

Faculty webpage

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Bonnielin Swenor

- Epidemiology, Ophthalmology Aging, Disability, Epidemiology, Low Vision, Ophthalmology, Visual impairment Bonnielin Swenor is an associate professor at The Johns Hopkins School of Nursing, the Johns Hopkins School of Medicine Wilmer Eye Institute and in the Department of Epidemiology at the Johns Hopkins Bloomberg School of Public Health.

- Dr. Swenor's research is motivated by her personal experience with low vision. Her work takes a data-driven approach to advancing health equity for people with disabilities. To achieve this, she focuses on three areas: (1) developing novel methods to assess and track health and healthcare inequities for people with disabilities; (2) testing innovative strategies to reduce these inequities, and (3) building approaches that promote disability inclusion in research and higher education.

- Prevalence and impact of combined vision and hearing (dual sensory) impairment: A scoping review

- Structural Ableism-Essential Steps for Abolishing Disability Injustice

- Disparities in influenza vaccination for US adults with disabilities living in community settings by race/ethnicity, 2016–2021

- Sensory impairment and algorithmic classification of early cognitive impairment

- COVID-19 clinical outcomes by patient disability status: A retrospective cohort study

Faculty webpage

JH licensable technologies

Boris Gramatikov

[Faculty webpage]

[JH licensable technologies]

- Pediatric Ophthalmology, Strabismus Determination of ocular defocus using the double-pass blur image of a point source of light, Optical coherence tomography, Pediatric vision screening, Retinal birefringence scanning

- Dr. Gramatikov is an associate professor in the Division of Pediatric Ophthalmology and Adult Strabismus at the Wilmer Eye Institute.

- He is a biomedical engineer with expertise in medical instrumentation, electronic hardware, optoelectronics, medical optics, computer software, signal processing, computer modeling and data analysis.

- His current research interests are detection of central fixation via retinal birefringence scanning in clinical settings. The main goal of his research is to identify and treat children with strabismus (misaligned eyes) or anisometropia (unequal refractive error) before irreversible amblyopia (functional monocular blindness) results.

- Dr. Gramatikov has participated in many instrumentation development projects, and has been the principal investigator on two major projects resulting in the development of prototypes of diagnostic devices for pediatric ophthalmology.

- Determination of ocular defocus using the double-pass blur image of a point source of light, Optical coherence tomography, Pediatric vision screening, Retinal birefringence scanning

- Current research focuses on developing diagnostic instrumentation for detecting vision abnormalities, mainly in pediatric patients. Of particular interest is the detection of fixation, eye alignment, fixation stability, focus detection etc. Methods include retinal birefringence scanning, eye tracking, acoustic attention attraction and others.

Brent Petty

- General Internal Medicine, Internal Medicine Antimicrobial Chemotherapy, Hospital-based Medical Practices, Internal Medicine with Ophthalmologic Clinical Trials, Phase I Clinical Trials, Phase II and Phase III Clinical Trials, Quality Improvement

- Dr. Brent Petty is a Professor of Medicine at the Johns Hopkins University School of Medicine. He holds a secondary appointment in Pharmacology and Molecular Sciences.

Faculty webpage

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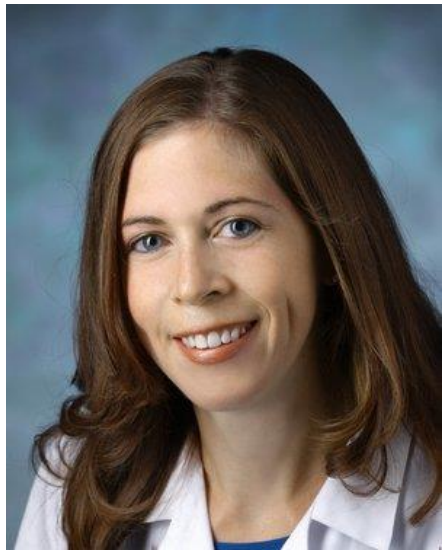
Bryn Burkholder



- Cataracts, Ophthalmology, Uveitis
- Assistant professor of ophthalmology at the Wilmer Eye Institute, specializing in ocular inflammatory and infectious diseases, cataract surgery and comprehensive ophthalmology. s, Ophthalmology, Uveitis

- Long-Term Decrease in Intraocular Pressure in Survivors of Ebola Virus Disease in the Partnership for Research on Vaccines and Infectious Diseases in Liberia (PREVAIL) III Study
- Tacrolimus for immunosuppression in patients with non-infectious intermediate, posterior, or panuveitides.
- Characterization of autoimmune eye disease in association with Down's Syndrome
- Using the Electronic Medical Record to Increase Laboratory Test Monitoring in Ocular Inflammation Patients: A Quality Improvement Study
- Long-term decrease in intraocular pressure in survivors of Ebola virus disease in the PREVAIL III StudyS Mudalegundi

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Cody Richardson

- Pediatric Ophthalmology
- Assistant Professor of Ophthalmology at the Wilmer Eye Institute.
- He specializes in pediatric ophthalmology and adult strabismus, including treatment of amblyopia (lazy eye), strabismus, infant and childhood cataracts, and pediatric ocular trauma.

Faculty webpage

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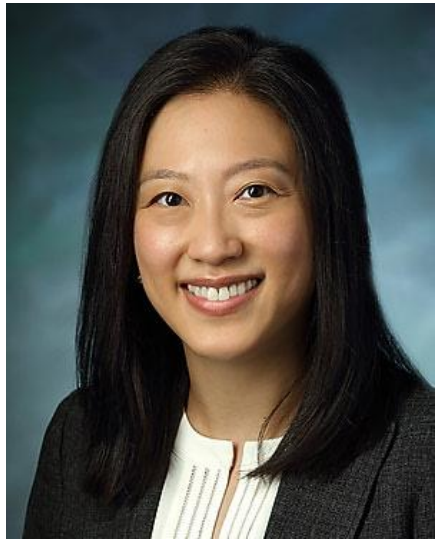
Cindy Cai



- Diabetic Eye Related Issues, Epiretinal Membranes, Macular Degeneration, Macular Holes, Ophthalmology, Retinal Detachment, Retinal Surgery, Retinal Vein Occlusion

- Cindy X. Cai, M.D., is the Jonathan and Marcia Javitt Rising Professor of Ophthalmology and a retina specialist seeing patients at the Wilmer Eye Institute's locations in the Baltimore, Maryland area.

- Dr. Cai's research focuses on utilizing medical informatics to leverage social, clinical, and retinal imaging data to develop approaches for personalized medicine that take into account both medical and social aspects of patient care.

Faculty webpage

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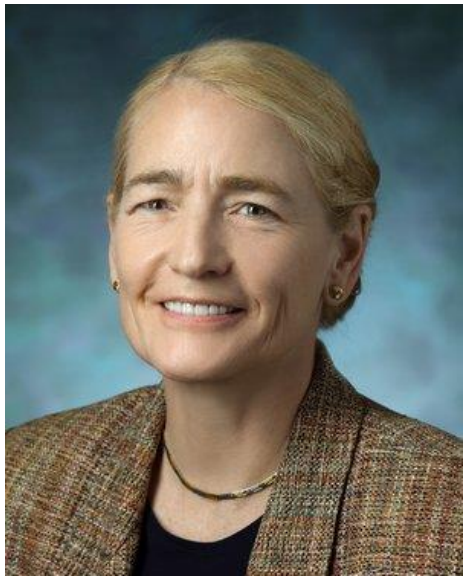
- Health Disparities in Lapses in Diabetic Retinopathy Care
- National trends in surgical subspecialisation in ophthalmology in the USA
- National Physician-Level Endophthalmitis Rates for Cataract Surgery among Medicare Beneficiaries in the United States: 2011-2019
- The Impact of Social Determinants of Health on Vision Loss from Cataracts and Cataract Surgery Utilization in the United States: Analysis of Three National Health Interview …
- Anti-Vascular Endothelial Growth Factor for Neovascular Glaucoma

Cory Brayton



- Pathology and Laboratory Medicine Cancer, Drug Discovery and Development, Experimental Pathology, Genetically Engineered Mice, GLP, Infectious Disease, Phenotyping, Toxicologic Pathology

- Cory Brayton, DVM, Diplomate ACLAM, Diplomate ACVP, is an associate professor of molecular and comparative pathobiology at the Johns Hopkins University School of Medicine.

- Her research focuses on phenotyping and pathology in diverse translational research areas, including cancer, aging, immunology. Dr. Brayton's expertise includes the spontaneous pathology and genetics of research mice, experimental pathology, and the impacts of infectious and other environmental factors on pathology, disease expression, and other phenotypes in diverse research models. Cancer, Drug Discovery and Development, Experimental Pathology, Genetically Engineered Mice, GLP, Infectious Disease, Phenotyping, Toxicologic Pathology

- The Phenotyping Core facilitates interdisciplinary phenotyping and translational research collaborations, and offers preclinical research pathology support and collaboration. Dr. Brayton works with JHU faculty and cores in multidisciplinary research in diverse research areas. Dr. Brayton's primary research role, as collaborator and phenotyping core director, is in model selection, study design, data analysis, and pathology to achieve valid and predictive translational biomedical research. Research outcomes (phenotypes) represent the intended and unintended consequences of experimental interventions, as well as often under-recognized nature (genetic) and nurture (environmental) influences on the model system.

Faculty webpage

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Courtney Kraus

- Comprehensive Medical and Surgical Ophthalmology, Glaucoma, Glaucoma Surgery, Ophthalmology, Pediatric Eye Diseases, Pediatric Glaucoma, Pediatric Ophthalmology, Strabismus Pediatric glaucoma
- Courtney L. Kraus, M.D., is an assistant professor of ophthalmology at the Wilmer Eye Institute.
- She specializes in pediatric ophthalmology and adult strabismus, including amblyopia (lazy eye), with a particular interest in pediatric cataract and corneal diseases.

Faculty webpage

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- Maternity and family leave experiences among female ophthalmologists in the United States
- Incidence of glaucoma-related adverse events in the first 5 years after pediatric lensectomy
- What Is Strabismus?
- The Ophthalmic Manifestations of Down Syndrome
- Baltimore pediatric ocular trauma study: Health disparities and outcomes in pediatric and adolescent open globe trauma

Carlo Iomini, Ph.D.

Faculty Webpage

Publications

Grant Information

Assistant Professor, Ophthalmology

Assistant Professor, Cell Biology

- The role of primary cilia in corneal development and polycystic kidney disease

- Kinesin-2 and IFT-A act as a complex promoting nuclear localization of β-catenin during Wnt signalling.
- The Joubert syndrome protein ARL13B binds tubulin to maintain uniform distribution of proteins along the ciliary membrane.
- Autophagy and Mitochondrial Dysfunction in Tenon Fibroblasts from Exfoliation Glaucoma Patients.
- Primary cilia maintain corneal epithelial homeostasis by regulation of the Notch signaling pathway.

Charles Eberhart

Professor, Pathology

Director, Neuropathology and Ophthalmic Pathology

- Molecular genetics of treatment of tumors of the brain and eye
- Development of new tumor models
- His research primarily focuses on molecular genetics and treatment of medulloblastoma, glioblastoma, uveal melanoma and other tumors of the brain and eye.

Faculty Webpage

Publications

Grant Information

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- Using human neural stem cells to model brain tumors
- Identifying Corneal Infections in Formalin-Fixed Specimens Using Next Generation Sequencing.
- Targeting Notch signaling as a novel therapy for retinoblastoma.
- EMT-associated factors promote invasive properties of uveal melanoma cells.

Douglas Jabs

- Ocular Immunology, Ophthalmology, Uveitis Ocular Oncology, Uveitis

- Douglas A. Jabs, M.D., M.B.A. is an internationally-recognized expert in the evaluation and management of patients with uveitis and related immune-mediated ocular disorders, particularly on the use of immunosuppression to treat severe ocular inflammatory diseases.

- Founder of the Division of Ocular Immunology and Uveitis at Wilmer, he now is the Director of the Center for Clinical Trials and Evidence Synthesis at the Johns Hopkins University Bloomberg School of Public Health.

Faculty webpage

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Divya Srikumaran

- Cornea/Anterior Segment Disease, Corneal Diseases, External Diseases of the Eye, Ophthalmology, Refractive Surgery Corneal Transplants, Real World Data, Residency Education
- Divya Srikumaran, M.D., is a cornea and cataract specialist at the Wilmer Eye Institute's East Baltimore and Odenton, Maryland locations.
- She specializes in diagnosing and treating diseases of the cornea, cataracts both medically and surgically and performing refractive surgery (LASIK).
- She is an investigator for several clinical trials at Wilmer offering her patients the latest treatment options.

Faculty webpage

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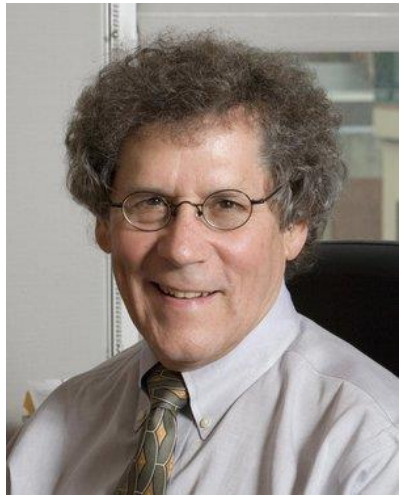
- Assessing resident cataract surgical outcomes using electronic health record data
- National trends in surgical subspecialisation in ophthalmology in the USA
- DMEK
- Fate of Research Articles Reported by Ophthalmology Residency Applicants: What Happens to “Submitted” and “In Preparation” Articles?
- Histological Comparative Analysis of Bowman's Layer Grafts Procured Using 3 Different Techniques.

David Valle



- Medical Genetics Clinical, biochemical, and molecular bases of disease, Genetic factors in neuropsychiatric disease, Inborn errors of metabolism, Medical sequencing, genome sequencing and comparative genomics

- Dr. David Valle is the director of the Institute of Genetic Medicine and professor of pediatrics and ophthalmology at the Johns Hopkins School of Medicine. He also serves as a geneticist for the Johns Hopkins Children's Center.

- Detection of anti-SARS-CoV-2 antibodies in tears: Ocular surface immunity to COVID-19

- Changes in the total corneal refractive power after insertion of intrastromal rings in patients with keratoconus in short, medium and long term

- Mudanças no poder refrativo total da córnea após a inserção de anéis intrastromais em pacientes com ceratocone a curto, médio e longo prazo

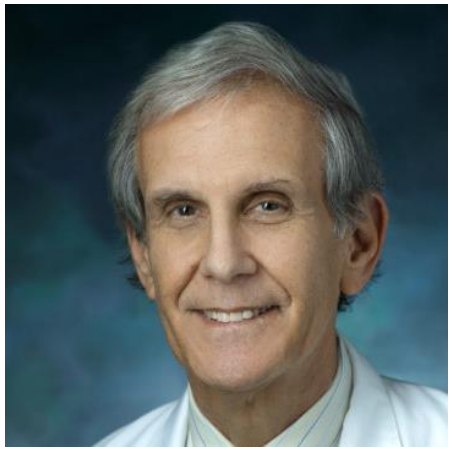
- Outcomes of Corneal Transplant in Childhood Glaucoma

- Detección de anticuerpos anti-SARS-CoV-2 en lágrimas: inmunidad de la superficie ocular frente a COVID-19

Faculty webpage

JH licensable technologies

David S. Zee



[Faculty Webpage]

[Publications]

[Grant Information]

[JH licensable technologies]

Professor, Neurology

Joint Appointments, Neuroscience; Ophthalmology; Otolaryngology - Head and Neck Surgery

Ataxia, Neurology, Nystagmus, Vertigo ataxia and imbalance, dizziness, eye movement disorders including nystagmus, strabismus, vestibular disorders ,

- Relationship between jerky and sinusoidal oscillations in cervical dystonia.
- Eye position-dependent opsoclonus in mild traumatic brain injury.
- Rebound nystagmus, a window into the oculomotor integrator.
- Classification of Vestibular Signs and Examination Techniques: Nystagmus and Nystagmus-like Movements.

Daniel R. Gold

Faculty Webpage

Publications

JH licensable technologies

Assistant Professor, Neurology

Joint Appointments, Emergency Medicine; Neurosurgery; Ophthalmology; Otolaryngology - Head and Neck Surgery

- Balance Disorders, Dizziness, Idiopathic Intracranial Hypertension, Neurology, Neuro-Ophthalmology, Pseudotumor Cerebri, Vertigo, Vestibular Disorders

- Ocular Misalignment in Dizzy Patients-Something's A-Skew.
- Acute Visual Disorders-What Should the Neurologist Know?
- Multidisciplinary care for people with Parkinson's disease: the new kids on the block!
- Quality improvement in neurology: Neuro-otology quality measurement set.

David L. Guyton

[Faculty Lab Webpage]

[Publications]

[Research Grants]

[Disclosed Technologies]

Professor, Ophthalmology

Zanvyl Krieger Professor, Pediatric Ophthalmology

- Novel instruments for screening for strabismus, amblyopia, and refractive errors
- Strabismus surgical techniques, especially adjustable sutures in children and adults
- Novel instruments for screening of neurological dysfunction
- Automated instruments for the vision screening of infants and children
- Causes and mechanisms of changes of strabismus over time, especially cyclovertical strabismus, Feedback techniques to treat blink deficiency, amblyopia, and refractive errors, Novel techniques for the treatment of amblyopia and defects of binocular function, Ophthalmic instrumentation, Ophthalmic optics

- Novel retinal-based eye tracking technology
- Improved Device and Method to Detect Strabismus and Lazy Eye in Children
- Attention attraction in an ophthalmic diagnostic device using sound-modulated fixation targets.
- A no-moving-parts sensor for the detection of eye fixation using polarised light and retinal birefringence information.

David Newman-Toker

[Faculty Webpage]

[Publications]

[Grant Information]

Professor of Neurology

Joint Appointments in Ophthalmology, Emergency Medicine, Otolaryngology - Head and Neck Surgery

Director, Division of Neuro-Visual & Vestibular Disorders, Department of Neurology

Director, Armstrong Institute Center for Diagnostic Excellence

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- Preventing missed strokes in the emergency department and primary care, especially among patients presenting with acute, severe vertigo or dizziness
- Diagnostic decision support., dizziness and vertigo, eye movement analysis, informatics tools and devices at the point of care, Recognition and prevention of diagnostic errors in frontline healthcare settings, stroke misdiagnosis in the emergency department

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- Reader response: Teaching Video NeuroImages: Vestibulo-ocular reflex defect in cerebellar stroke
- Capturing diagnostic errors in incident reporting systems: value of a specific “DX Tile” for diagnosis-related concerns
- The Diagnostic Performance Feedback “Calibration Gap”: Why Clinical Experience Alone Is Not Enough to Prevent Serious Diagnostic Errors

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Donald Zack

Professor, Ophthalmology

Co-Director, Johns Hopkins Center for Stem Cells and Ocular Regenerative Medicine

- Gene expression in retinal ganglion cells
- Mechanisms of ganglion cell injury and death
- Cell-based retinal therapies
- Glaucoma

Faculty Webpage

Publications

Grant Information

JH licensable technologies

- Novel Screen Identifies Neuroprotective Drug Targets and Biomarkers in Glaucoma and other Forms of Neurodegeneration
- The Role of c-Jun N-Terminal Kinase (JNK) in Retinal Degeneration and Vision Loss.
- Enhanced Stem Cell Differentiation and Immunopurification of Genome Engineered Human Retinal Ganglion Cells.
- De novo assembly and annotation of the retinal transcriptome for the Nile grass rat (Arvicanthis ansorgei).

Dean Glaros

- Cataracts, Corneal Diseases, Dry Eyes, Glaucoma, Ophthalmology
- Dean S. Glaros, M.D., is an assistant professor of ophthalmology at the Wilmer Eye Institute, Johns Hopkins University School of Medicine.

Faculty webpage

JH licensable technologies

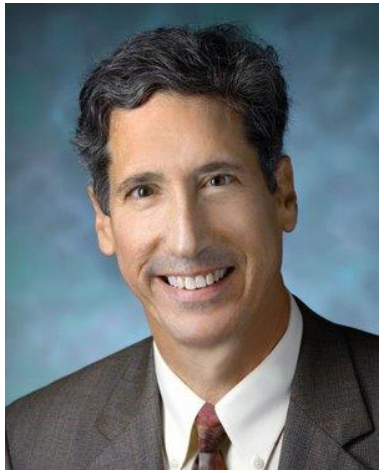
Edward Kuwera

- Amblyopia, Nystagmus, Pediatric Ophthalmology, Pediatric Ophthalmology and Strabismus Service, Strabismus
- Edward Kuwera, M.D. is an ophthalmologist specializing in pediatric conditions and adult strabismus at the Wilmer Eye Institute's locations in Bel Air and Baltimore, Maryland

Faculty webpage

JH licensable technologies

Elliott Myrowitz



- Optometry, Primary Eye Care
- Elliott Myrowitz, O.D., M.P.H., is an assistant professor of ophthalmology and chief of optometric services at the Wilmer Eye Institute

Faculty webpage

JH licensable technologies

Esen Karamursel Akpek

- Cataract Surgery, Cataracts, Cornea Transplant, Cornea/Anterior Segment Disease, Corneal Ulcer, Dry Eyes, Ophthalmology, Sjogren's Syndrome Artificial Cornea, Cataracts, Corneal Transplantation, Dry Eye
- Esen K. Akpek, M.D., is an internationally renowned leader in the fields of corneal transplantation and surface reconstruction.
- She is an expert in all forms of cataract surgeries, as well as combined cataract and cornea surgery procedures.

Faculty webpage

JH licensable technologies

- Efficiency of a water-free topical cyclosporine in the treatment of dry eye disease (DED) in patients with or without cataract
- Prospective, Randomized, Multicenter, Double-Masked, Clinical Trial of Corneal Cross-Linking for Boston Keratoprosthesis Carrier Tissue
- Efficacy and safety of a water-free topical cyclosporine, 0.1%, solution for the treatment of moderate to severe dry eye disease: the ESSENCE-2 randomized clinical trial
- Method and system for monitoring corneal tissue health
- Pseudobleb of silicone oil-related progressive staphylomatous scleral ectasia

Everardo Hernandez-Quintela

- Cataract Surgery, Cataracts, Cornea Transplant, Cornea/Anterior Segment Disease, Corneal Dystrophies, Corneal Ulcer, External Diseases of the Eye, Fuchs Dystrophy of the Cornea, Fuchs Endothelial Corneal Dystrophy, Keratoconus, Laser Surgery, Ophthalmology, Refractive Surgery Development of Medical Devices and Confocal Microscopy, Keratoconus, Ocular Surface Disease, Refractive Surgery

- Dr. Hernández-Quintela is the medical director for Wilmer's Patient Access Center for the Eye (PACE). Development of Medical Devices and Confocal Microscopy, Keratoconus, Ocular Surface Disease, Refractive Surgery

- Dr. Hernández-Quintela's research interests include the design and validation of ophthalmic diagnostic devices, analysis on electrical signals of biological tissue, ocular surface disease diagnosis, and in-vivo confocal microscopy.

Faculty webpage

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- Correlation and Level of Agreement Between the Ocular Surface Disease Index and the Symptom Assessment iN Dry Eye Questionnaires: A Survey-Based Study.
- Surgical interventions for presbyopia
- Solid Platelet-rich Plasma Combined with Silicone-hydrogel Soft Contact Lens for Non-healing Corneal Ulcers: A Case Series
- Intravascular papillary endothelial hyperplasia (Masson's tumor) of the conjunctiva. Unusual location of a rare vascular tumor
- Hiperplasia endotelial papilar intravascular (tumor de Masson) de la conjuntiva. Ubicación inusual de un tumor vascular endotelial raro

Emily Li

- Aesthetic Plastic Surgery, Endoscopy, Ocular Plastics, Orbital Trauma, Orbital Tumors, Pediatric Oculoplastic Surgery Curriculum Development, Orbital Trauma, Surgical Techniques in Oculoplastics

- Emily Li, M.D., is an oculoplastic and reconstructive surgeon at the Wilmer Eye Institute's locations in Bel Air and Baltimore, Maryland.

- Dr. Li specializes in functional and cosmetic surgeries of the eyelids, forehead and face. She also performs surgeries of the tear drainage system, surgeries in the eye socket and endoscopic procedures. She has experience treating patients of all ages, ranging from children to adult patients having oculoplastic surgery

Faculty webpage

JH licensable technologies

Elyse McGlumphy

[Faculty webpage]

[JH licensable technologies]

- Cataracts, Glaucoma, Ophthalmology iCare Home Tonometry for glaucoma patients, Intraocular pressure variation and factors that influence intraocular pressure, Minimally invasive glaucoma surgery outcomes, Role of complementary medicine in glaucoma

- Elyse J. McGlumphy, M.D., is a glaucoma specialist seeing patients at the Wilmer Eye Institute's locations in Baltimore, Frederick and Lutherville, Maryland.

- Glaucoma disease including the influence of mindfulness-based stress reduction in lowering of intraocular pressure in glaucoma patients and the determinants of visual field loss in clinically controlled glaucoma patients.

- She is also examining the outcomes of newer minimally invasive glaucoma procedures. She is collaborating with other researchers in better understanding intraocular pressure variation and the role for home IOP monitoring.

- Maternity and family leave experiences among female ophthalmologists in the United States

- The utility of home tonometry for peri-interventional decision-making in glaucoma surgery: Case series

- Electronically Monitored Corticosteroid Eye Drop Adherence after Trabeculectomy Compared to Surgical Success

- Maternity and family leave experiences among female ophthalmologists

- Home self-tonometry trials compared with clinic tonometry in patients with glaucoma

Elham Hatef Naimi

- As a preventive medicine-public health physician and clinical informatician, Dr. Hatef focuses on population health, social and behavioral determinants of health, and health disparities using health IT and informatics.
- She also led the project to evaluate the health outcomes such as hospitalization rate at the primary care level at the Veterans Health Administration while taking into account social and behavioral risk factors of veterans.
- Also, in collaboration with other faculty across Johns Hopkins University, she works on new methods of data mining and natural language processing to address social and behavioral determinants of health by using structured and unstructured data in electronic health records.

Faculty webpage

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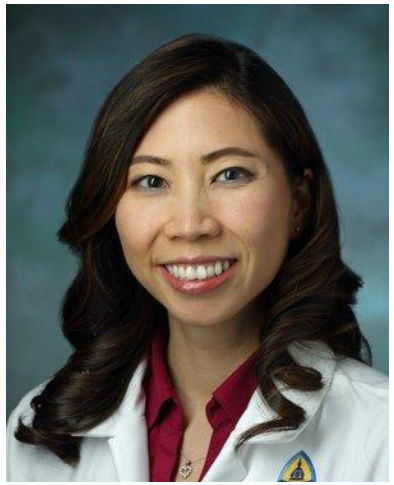
Eleanor Min



- Optometry, Pediatric Eye Diseases, Refractive Errors, Strabismus, Vision Impairment Amblyopia, Correlation of visual processing disorders and learning disabilities, Developmental visual anomalies

- Eleanor K. Min, O.D., is an assistant professor of ophthalmology at the Johns Hopkins Wilmer Eye Institute. She specializes in routine eye exams for children, with particular expertise in refractive errors, amblyopia, and strabismus.

Faculty webpage

JH licensable technologies

Eric Raabe

[Faculty webpage]

[JH licensable technologies]

- Brain Cancer, Medical Oncology, Pediatric Oncology developing novel metabolic-based therapies to disrupt MYC-driven tumors, disrupting the LIN28 pathway in brain tumors, Targeting stem cell factors and their downstream effectors in malignancy, specifically in brain tumors, using human neural stem cells to create genetically accurate models of aggressive brain tumors

- Eric Raabe, M.D., Ph.D., is an assistant professor of oncology and an instructor of pathology at Johns Hopkins School of Medicine

- Dr. Raabe's research focuses on translational neuro-oncology, with the overall goal being to develop new therapeutics for poor prognosis brain tumors.

- Dr. Raabe's expertise is in stem cell biology, developmental biology and pre-clinical therapeutics. He has generated one of a handful of human diffuse intrinsic pontine glioma cell lines that form xenografts with high fidelity to the primary tumor and retain the H3F3A K27M mutation. He has expertise in targeting stem cell factors in aggressive brain tumors in vivo and in vitro.

- Dr. Raabe has developed normal human and mouse neural stem cells for use as genetically accurate gain-of-function models for high-risk brain tumors.

Elia J. Duh

[Faculty Webpage]

[Publications]

[Grant Information]

Professor, Ophthalmology

- Understanding mechanisms underlying diabetic retinopathy and macular degeneration
- Nrf2 as a neuroprotective agent for retinopathies
- Dr. Duh actively researches the molecular mechanisms underlying diabetic retinopathy and macular degeneration, particularly the process of ocular neovascularization and excessive retinal vascular permeability. His research has helped determine the role of the major antioxidant regulator, Nrf2, in retinal diseases, and also connected Nrf2 to lifespan.

- Nrf2 protects photoreceptor cells from photo-oxidative stress induced by blue light.
- A Mouse Model of Retinal Ischemia-Reperfusion Injury Through Elevation of Intraocular Pressure.
- Induction of endothelial RAGE expression in pterygium.
- Transcription factor MEF2C suppresses endothelial cell inflammation via regulation of NF-κB and KLF2.

Fatemeh Rajaii

JOHNS HOPKINS TECHNOLOGY VENTURES

- Blepharoplasty, Botulinum Toxin Injections, Brow Lift, Endoscopic Dacryocystorhinostomy, Endoscopic Tear Duct Surgery, Eye and Eyelid Tumors, Eyelid and Orbital Trauma, Eyelid Cancer, Eyelid Reconstruction, Eyelid Surgery, Ophthalmology, Orbital Tumors, Ptosis, Thyroid Eye Disease

- Assistant professor of ophthalmology at the Wilmer Eye Institute

Faculty webpage

JH licensable technologies

- Cost and Prescriber and Patient Characteristics of Cenegermin Use in the Medicare Population

- Incidence, characteristics, and cost of eyelid lacerations in the United States from 2006 to 2014

- Rapid Involution of Presumed Pyogenic Granuloma with Topical Timolol

- Cell-specific regulation of gene expression using splicing-dependent frameshifting

- Epidemiology of eyelid lacerations presenting to a level I trauma center in the United States: 2018-2020

Fasika Woreta

[Faculty webpage]

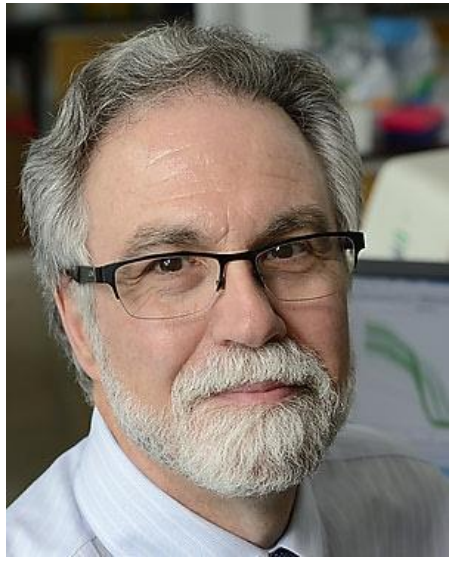
[JH licensable technologies]

- Cataracts, Cornea/Anterior Segment Disease, Corneal Diseases, Ophthalmology

- Fasika A. Woreta, M.D., M.P.H. is a cornea and cataract specialist and the Eugene de Juan, M.D. Professor of Ophthalmic Education at Wilmer Eye Institute's Baltimore and Columbia locations

- Opportunity Cost to Attending Surgeons of Intraoperative Training for Residents in Cataract Surgery
- Early Lifetime Substance Use and Development of Visual Impairment: Analysis of the National Survey on Drug Use and Health Data
- Implementing real-time prescription benefit tools: Early experiences from 5 academic medical centers
- National trends in surgical subspecialisation in ophthalmology in the USA
- Cost and Prescriber and Patient Characteristics of Cenegermin Use in the Medicare Population

Gregg Semenza



- Molecular Mechanisms of Oxygen Homeostasis, Role of Hypoxia-Inducible Factors in Cancer Progression

- Dr. Gregg L. Semenza is a professor of genetic medicine, pediatrics, radiation oncology, and molecular radiation sciences, biological chemistry, medicine, and oncology at the Johns Hopkins University School of Medicine.

- They are presently investigating the molecular mechanisms by which HIF-1 activates transcription of target genes using chromatin immunoprecipitation-mass spectrometry, RNA interference, RNA sequencing and other techniques to identify proteins that are recruited by HIF-1 to hypoxia response elements to activate gene transcription. Role of HIF-1 in cancer. The Semenza lab is investigating the effects of altered HIF-1 activity on tumor growth, metabolism, vascularization, invasion/metastasis, cancer stem cell specification and immune evasion in preclinical models. These studies are providing proof-of-principle that inhibition of HIF-1 activity represents a novel strategy of cancer therapy. The lab identified several drugs that potently inhibit HIF-1 and block cancer progression in mouse models. The lab is utilizing multiple drug discovery strategies to identify novel HIF inhibitors and testing their efficacy in various cancer types. Role of HIF-1 in ocular neovascularization.

Faculty webpage

JH licensable technologies

Gislin Dagnelie

[Faculty Webpage]

[Publications]

[Grant Information]

[JH licensable technologies]

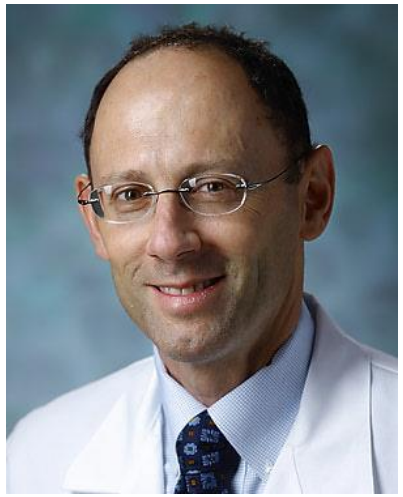
Associate Director, Lions Vision Research and Rehabilitation Center

Associate Professor, Ophthalmology

- Study of signals in the retina in patients receiving retinal prosthesis implants
- Development of prevision tools for measuring visual function
- Electronic vision restoration
- Retinitis Pigmentosa
- Visual functioning questionnaires
- Visual performance assessment

- Self-report Questionnaire and Performance Tests to Assess Visual Abilities in Ultra-low Vision
- Analysis software for Goldmann Visual Fields

Henry Jampel



- Comprehensive Medical and Surgical Ophthalmology, Glaucoma, Glaucoma Surgery, Ophthalmology clinical research, glaucoma surgical outcomes, glaucoma treatment

- Henry D. Jampel, M.D., M.H.S., is the Odd Fellows Professor of Ophthalmology at the Wilmer Eye Institute. He specializes in glaucoma and serves as the medical director of Wilmer's Green Spring Station location.

- His research interests include evaluation of medical vs. surgical treatment of glaucoma in newly diagnosed patients and on imaging devices for the detection of glaucoma and its progression.

- Outcomes of Glaucoma Reoperations in the Primary Tube Versus Trabeculectomy Study

- Effectiveness of Netarsudil versus Brimonidine in Eyes already Being Treated with Glaucoma Medications at a Single Academic Tertiary Care Practice: A Comparative Study

- Postoperative complications in the primary tube versus trabeculectomy study during 5 years of follow-up

- Screening for Glaucoma

Faculty webpage

JH licensable technologies

Harry Quigley

[Faculty Webpage]

[Publications]

[Grant Information]

[JH licensable technologies]

Professor, Ophthalmology

A. Edward Maumenee Professor of Ophthalmology

- New imaging technologies for diagnosis of angle closure glaucoma
- Neuroprotective treatments for glaucoma
- Causes of vision loss in glaucoma
- Evaluation of surgical operations for glaucoma
- Research into solutions to glaucoma treatment worldwide

- Compositions for Sustained Release of a Carbonic Anhydrase Inhibitor (CAI) from Biodegradable Polymeric Microparticles
- The effects of age on mitochondria, axonal transport, and axonal degeneration after chronic IOP elevation using a murine ocular explant model.
- Sustained Dorzolamide Release Prevents Axonal and Retinal Ganglion Cell Loss in a Rat Model of IOP-Glaucoma.
- A Protective Eye Shield Reduces Limbal Strain and Its Variability During Simulated Sleep in Adults With Glaucoma.

Henry Brem

[Faculty Webpage]

[Publications]

[Grant Information]

[JH licensable technologies]

Professor, Neurosurgery

Joint Appointments, Ophthalmology, Biomedical Engineering, Oncology

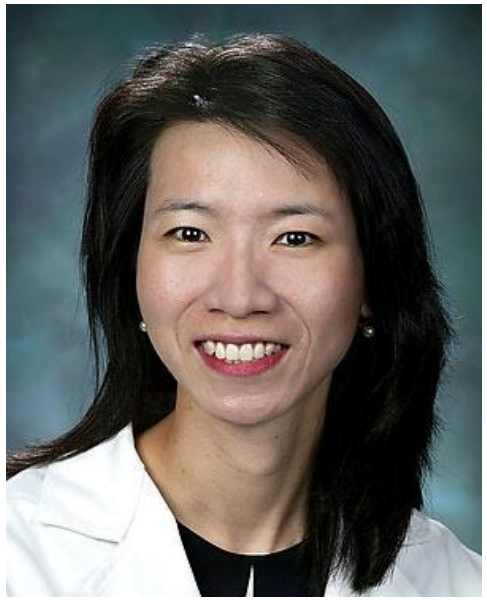
Director, Department of Neurosurgery, Hunterian Neurosurgical Research Laboratory

Co-Director, Brain Cancer Program, Sidney Kimmel Cancer Center

- Delivery of chemotherapy directly to the brain
- Anti-angiogenesis therapies
- Computer navigation systems used during surgery
- Brain tumor vaccines
- Delivery of chemotherapy directly to the brain
- New clinical treatments for brain tumors

- Combination anti-CXCR4 and anti-PD-1 immunotherapy provides survival benefit in glioblastoma through immune cell modulation of tumor microenvironment
- Sonolucent Cranial Implants: Cadaveric Study and Clinical Findings Supporting Diagnostic and Therapeutic Transcranioplasty Ultrasound.
- Biodegradable wafers releasing Temozolomide and Carmustine for the treatment of brain cancer
- First-in-Human Experience With Integration of a Hydrocephalus Shunt Device Within a Customized Cranial Implant

Irene Kuo



- Medical Director, Wilmer Eye Institute - White Marsh. Associate Professor of Ophthalmology
- Cornea/Anterior Segment Disease, Corneal Diseases, Ophthalmology, Refractive Surgery antibiotics in corneal storage medium, clinical outcomes after refractive surgery, corneal wound-healing after laser refractive surgery, wound-healing after infectious keratitis
- Irene C. Kuo, M.D., is a corneal specialist and ophthalmologist at the Wilmer Eye Institute. She is the medical director of Wilmer's location in White Marsh, Maryland. Dr. Kuo has clinical expertise in laser refractive surgery (LASIK PRK, femtosecond laser surgery), corneal disease and surgery, corneal transplant, cataract surgery, and uveitis.
- Population-level health effects of involuntary displacement of people experiencing unsheltered homelessness who inject drugs in US cities
- Satellite Faculty in an Academic Ophthalmology Department: Junior, Clinical, and Female
- Treatment Trials for Viral Conjunctivitis: What We Have Learned and How We can Improve
- HIV Risk Perception, Willingness to Use PrEP, and PrEP Uptake Among Young Men who have Sex with Men in Washington, DC
- Medical and surgical interventions for neurotrophic keratopathy

Faculty webpage

JH licensable technologies

Ian Pitha

Faculty Webpage

Publications

Grant Information

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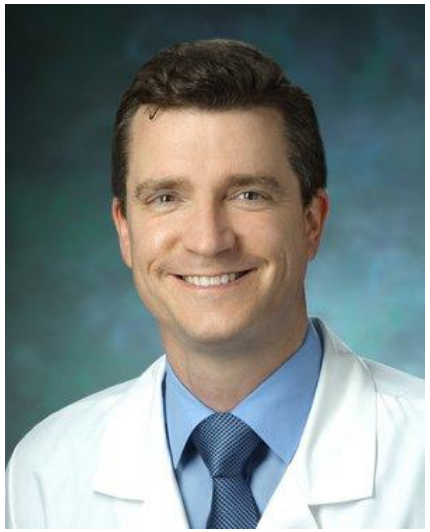
Assistant Professor, Ophthalmology

- Glaucoma medicines that eliminate the need for daily eye drops

- Partially degradable glaucoma stent for controlled intraocular pressure reduction
- The effects of age on mitochondria, axonal transport, and axonal degeneration after chronic IOP elevation using a murine ocular explant model.
- Subconjunctival Delivery of Dorzolamide-Loaded Poly(ether-anhydride) Microparticles Produces Sustained Lowering of Intraocular Pressure in Rabbits.

Jefferson Doyle



[Faculty webpage]

[JH licensable technologies]

- Genetic Eye Disease, Pediatric Ophthalmology, Pediatric Ophthalmology and Strabismus Service

- Jefferson Doyle, M.D., Ph.D., M.H.S. specializes in pediatric ophthalmology and genetic eye diseases. His main focus is pediatric and juvenile forms of cataracts, glaucoma, anterior segment dysgenesis, and ectopia lentis.

- His genetics interests include Marfan syndrome and related connective tissue disorders, complex inherited forms of strabismus in both children and adults (e.g. CFEOM, Duane syndrome), and pediatric retinal dystrophies. Dr. Doyle has published extensively on a number of genetic disorders over the past decade, holds several patents for novel therapeutic approaches to treat them, and has given many national and international talks about them.

- Dr. Doyle's main research focus is understanding the genetic causes and molecular mechanisms driving genetic diseases, and utilizing that knowledge to develop new therapeutic strategies for them. Over the past decade, he has played a significant role in advancing our understanding of Marfan syndrome and related connective tissue disorders.

- His work and that of collaborators has led to the discovery of the genetic causes of Shprintzen-Goldberg syndrome and Loeys-Dietz like syndrome. His work has also led to a much better understanding of the molecular mechanisms driving Marfan syndrome, and he holds two patents for novel therapeutic strategies to treat it.

- Part of his current work focuses on the identification of genes that protect people from developing a number of genetic disorders, and leveraging that knowledge to develop new therapies for those diseases. He also has an interest in pediatric myopia, and has ongoing pre-clinical studies seeking to understand the mechanisms that may drive it and the development of novel therapeutic strategies to treat it.

Jella Angela An

- Cataract Surgery, Cataracts, Glaucoma, Minimally Invasive Glaucoma Surgery (MIGS) Medical student and resident mentorship, Micro-invasive glaucoma surgery (MIGS), Novel surgical interventions and drug delivery in glaucoma, Post-operative wound healing modulation

- Jella An, M.D., M.B.A, is the Vice Chair for the Wilmer Eye Care Network at the Wilmer Eye Institute. Dr. An is an ophthalmologist and a fellowship-trained glaucoma specialist and eye surgeon at the Wilmer Eye Institute's locations in Baltimore and Bethesda, Maryland.

Faculty webpage

JH licensable technologies

J. Fernando Arevalo

[Faculty webpage]

[JH licensable technologies]

- Diabetic Macular Edema, Diabetic Retinopathy, Macular Degeneration, Macular Disorders, Macular Holes, Macular Puckers, Medical Diseases of the Retina, Ocular Oncology, Ocular Trauma, Ophthalmology, Retinal Detachment, Retinal Surgery, Retinal Vein Occlusion, Surgical Diseases of the Retina, Uveitis Age-related macular degeneration, Retinal detachments, Vitreoretinal complications of refractive surgery, Vitreoretinal surgery

- J. Fernando Arevalo, M.D., Ph.D, F.A.C.S., is chairman of ophthalmology at Johns Hopkins Bayview Medical Center, and the Edmund F. and Virginia Ball Professor of Ophthalmology, specializing in vitreoretinal diseases.

- Pre-operative intravitreal bevacizumab for tractional retinal detachment secondary to proliferative diabetic retinopathy: the Alvaro Rodriguez lecture 2023
- Oxidative Stress, Inflammatory, Angiogenic, and Apoptotic molecules in Proliferative Diabetic Retinopathy and Diabetic Macular Edema Patients
- Artificial intelligence in retinal image analysis: Development, advances, and challenges
- Surgical Management of Diabetic Macular Edema
- Direct Macular Hole Manipulation Results in High Success Rate in Secondary Macular Hole Repair

Joshua Doloff

- Regenerative Medicine and Immunoengineering.
- Assistant Professor in Biomedical Engineering and Materials Science at the Johns Hopkins School of Medicine
- Dr. Doloff's Lab in Immunoengineering and Regenerative Medicine is interested in utilizing systems and synthetic biology approaches to understand complex tissue dynamics and generate improved therapeutic platforms for multiple applications including autoimmunity and transplantation medicine (e.g., type 1 diabetes), ophthalmology, and cancer.
- Our mission is to explore the intersection between therapeutics, whether biologic or synthetic in origin, and living systems to better understand what happens when deliverables are introduced into the body, as well as how the host immune system perceives and behaves towards them.

Faculty webpage

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- Improvement of Islet Engrafts via Treg Induction Using Immunomodulating Polymeric Tolerogenic Microparticles
- Ultrasonographic Identification of Shell Surface Types in Commercially Available Silicone Gel-Filled Breast Implants.
- Disruption of the Blood-Spinal Cord Barrier using Low-Intensity Focused Ultrasound in a Rat Model
- Biodegradable Polyester Nanoparticle Vaccines Deliver Self-Amplifying mRNA in Mice at Low Doses
- Large-gap peripheral nerve repair using xenogeneic transplants in rhesus macaques

Joanne Katz

[Faculty webpage]

[JH licensable technologies]

- Associate Chair, Department of International Health, Bloomberg School of Public Health
- Joint Appointment in Ophthalmology

- Harmonization of maternal balanced energy-protein supplementation studies for individual participant data (IPD) meta-analyses–finding and creating similarities in variables and …
- Vulnerable newborn types: Analysis of population-based registries for 165 million births in 23 countries, 2000–2021
- Neonatal mortality risk for vulnerable newborn types in 15 countries using 125.5 million nationwide birth outcome records, 2000–2020
- Neonatal mortality risk of vulnerable newborns: A descriptive analysis of subnational, population-based birth cohorts for 238 143 live births in low-and middle-income settings …
- Small babies, big risks: global estimates of prevalence and mortality for vulnerable newborns to accelerate change and improve counting

Jennifer Elisseeff

[Faculty webpage]

[JH licensable technologies]

- Biomaterials, Biomaterials and stem cells for tissue engineering, Cartilage regeneration, Cornea repair, Regenerating tissue, Regenerative medicine, Stem cell research, Stem cells

- Dr. Jennifer Elisseeff is the Morton F. Goldberg Endowed Professor of ophthalmology and a professor orthopaedic surgery at the Johns Hopkins School of Medicine. She also holds appointments in the Johns Hopkins Department of Chemical and Biological Engineering and Department of Materials Science and Engineering. Her research focuses on tissue regeneration.

- Dr. Elisseeff is the Jules Stein Professor of Ophthalmology and director of the Translational Tissue Engineering Center. Her team is engaged in engineering technologies to repair lost tissues. Specifically, she is examining hydrogels as a scaffold for tissue engineering and is working to develop an artificial cornea.

- Dr. Elisseeff is the director of the Translational Tissue Engineering Center, a collaboration between the Department of Biomedical Engineering and Wilmer Eye Institute. The lab comprises surgical fellows, biologists, chemists and engineers who work together to develop new biomaterials, study stem cells and design new technologies for regenerative medicine. The goal of her lab is to engineer technologies to repair lost tissues.

- Her lab is examining hydrogels as a scaffold for tissue engineering. Hydrogels are ideal due to their high water content for nutrient and waste transport, and their ability to encapsulate cells and to implant in a minimally invasive manner. The lab is currently focused on developing synthetic-biological hydrogels with highly controlled physical properties and biological function. The discovery of human embryonic stem cells has created the possibility to regenerate any tissue from a single, totipotent cell population. Her lab is examining the potential of using biomaterials for stem cell differentiation and engineering mesenchymal tissues.

Judith Goldstein

- Optometry, Vision Impairment Implementation science, Low vision epidemiology, Measurement of patient-reported outcomes Judith Goldstein, O.D., F.A.A.O., is an optometrist specializing in vision loss in older adults and a leader in research and education at the Johns Hopkins Wilmer Eye Institute.
- Dr. Goldstein's current work focuses on issues of caring for older adults with vision loss and on improving health systems and services delivery to the growing population in need.

Faculty webpage

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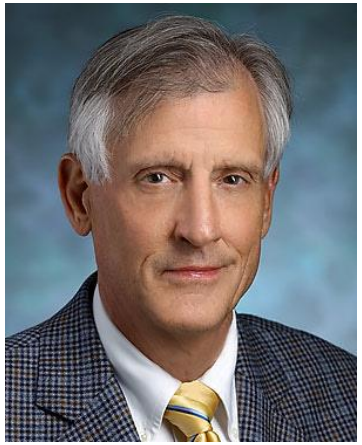
- Visual Acuity: Assessment of Data Quality and Usability in an Electronic Health Record System
- Low vision rehabilitation service utilization before and after implementation of a clinical decision support system in ophthalmology
- Approaching rehabilitation in patients with advanced glaucoma
- Using Electronic Clinical Decision Support to Examine Vision Rehabilitation Referrals and Practice Guidelines in Ophthalmology
- Agreement Between Functional History and Plan of Care in Low Vision Rehabilitation

John Gottsch



- Cornea/Anterior Segment Disease, Corneal Diseases, Corneal Ulcer, Ophthalmology Fuchs Dystrophy, Inherited Ophthalmic Diseases
- D. Gottsch, M.D., is the Margaret C. Mosher Professor of Ophthalmology at the Wilmer Eye Institute.
- His research interests include determining the gene expression of the cornea and the genetic basis for hereditary corneal diseases such as Fuchs' dystrophy

Faculty webpage

JH licensable technologies

Jordan Green

[Faculty webpage]

[JH licensable technologies]

- Cancer, Developing biomaterials, nanobiotechnology to meet challenges in regenerative medicine, ophthalmology, stem cells
- Dr. Jordan J. Green is a Professor of Biomedical Engineering, Ophthalmology, Oncology, Neurosurgery, and Materials Science & Engineering at the Johns Hopkins University School of Medicine. He is also an executive committee member of the Institute for NanoBioTechnology and co-founder of the Translational Tissue Engineering Center.
- Dr. Green's Biomaterials and Drug Delivery Laboratory ("Green Group") focuses on the study of cellular engineering and in nanobiotechnology—particularly biomaterials, controlled drug delivery, stem cells, gene therapy and immunobioengineering.
- The goal is to better understand and control the therapeutic delivery of genetic material and drugs to cells. His team is working to engineer biodegradable nanoparticles – often superior to viral delivery methods – that are efficiently delivered to be useful in drug release, gene therapy and new targeted treatments for cancer and eye diseases.
- Current projects include: developing safe and effective biodegradable nanoparticles for DNA and siRNA delivery to treat cancer; developing polymeric microparticle-based biological treatments for age-related macular degeneration; designing biomimetic artificial antigen presenting cells for immunobioengineering; and enabling technologies for tissue engineering and regenerative medicine.

Justin Hanes

[Faculty webpage]

[JH licensable technologies]

- Drug delivery, Nanomedicine, Nanotechnology for Drug and Nucleic Acid Delivery

- Justin Hanes, Ph.D., is the Lewis J. Ort Professor of Ophthalmology at the Wilmer Eye Institute at Johns Hopkins, with secondary appointments in biomedical engineering, chemical & biomolecular engineering, environmental health sciences, neurosurgery and oncology. He is a leader of research at the interface of nanotechnology and medicine and is the director of the Center for Nanomedicine.

- Dr. Hanes is internationally recognized for designing and synthesizing new biodegradable plastics to create nanoscopic, drug/gene-filled particles, capable of targeted delivery to specific sites in the body. His lab recently discovered methods to make drug and gene-loaded particles that efficiently penetrate mucus barriers, which may allow for more effective therapies for eye diseases. The Center for Nanomedicine has pioneered the use of high-resolution particle tracking; this technique provides insight into the barriers faced by nanoscopic drug and gene carrier particles.

- Research goals include characterizing the barrier properties of the mucus layer coating the eyes, designing new nanomedicines that bypass the mucus barrier of the eyes, producing safe, synthetic nanoparticles that efficiently deliver therapeutic genes to various cell types within the eye, including the back of the eye and the surface, and testing these various new systems in animal models of eye disease with collaborators from Wilmer Eye Institute and elsewhere.

- The Hanes lab is focused on the development of advanced delivery systems to make drugs, vaccines, and nucleic acid based therapies more effective. A focus of our research is to develop the fundamental and applied knowledge needed to create biomaterial-based nanoparticles that overcome long-standing biological barriers and, thereby, enhance the efficiency of drug and nucleic acid delivery to specific sites in the body. To guide our development of improved drug carrier systems, we use state-of-the-art biophysical tools, including high-resolution particle tracking techniques, to quantify the nanoscopic movements of thousands of individual polymeric drug and gene nanocarriers in complex biological environments, especially in tissues such as the brain, extracellular barriers such as mucus gels, and inside live cells.

Jeremy Nathans

[Faculty webpage]

[JH licensable technologies]

- Molecular mechanisms of visual system development, function and disease. Dr. Jeremy Nathans is a professor of molecular biology and genetics, neuroscience and ophthalmology at the Johns Hopkins University School of Medicine. His research focuses on molecular mechanisms of visual system development, function, and disease.

- Dr. Nathans is responsible for landmark discoveries that have changed our understanding of how humans see the world. His investigations into the mechanisms that allow us to see colors led him to identify the genes that code for color-vision receptors in the light-sensing cones of the retina. This breakthrough finding allowed him to show that variations in these genes cause color blindness. His work has also led to new understandings of the development, function and survival of the retina.

- Dr. Nathans and his laboratory are interested in the mammalian visual system and, in particular, the retina, the light-absorbing sheet of cells that lines the back of the eye. Their general approach is to use the tools of molecular genetics to identify and study genes involved in development, function, and disease. A second interest is in elucidating the mechanisms of pattern formation during animal development and, in particular, the role of the Frizzled family of cell-surface receptors. These two interests have converged with our discovery of a Frizzled-based system for controlling the development and integrity of retinal blood vessels. Currently, they are working on defining the roles of Frizzled receptors in mammalian development. The foundation of our approach is the production and analysis of mice carrying targeted null or conditional null mutations in one or more Frizzled genes. They have constructed such lines for each of the ten Frizzleds, as well as for other genes that act in the same signaling pathways. This genetic analysis has revealed both diversity and unity in the functions of different Frizzled receptors, and has revealed the requirement for Frizzled signaling in a wide variety of developmental contexts, including axon guidance, vascular growth and differentiation, inner ear development, neural tube and palate closure, kidney development, and hair orientation on the body surface.

- The Nathans laboratory is focused on several broad and related areas of research: (1) neural and vascular development, and (2) the role of Frizzled receptors in mammalian development. They use gene manipulation in the mouse, cell culture models, and biochemical reconstitution to investigate the relevant molecular events underlying these processes, and to genetically mark and manipulate cells and tissues.

Jung Soo Suk

- Mucus biophysics, Nanomedicine, Viral and non-viral nucleic acid delivery
- Jung Soo Suk is an Assistant Professor of Ophthalmology at the Johns Hopkins University School of Medicine.
- His research interests lie in therapeutic nanomedicine for the treatment of numerous diseases occurring in brain, lung, bladder and eyes. Nanomedicine, due to its nano-scale dimension, provides unique opportunities to overcome challenging physiological barriers that hamper efficient delivery of therapeutics to the target tissues.
- His research group focuses on developing nanotechnology-based drug and nucleic acid delivery platforms and

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- Association of Mucus Hydration and Indoor Air Pollution With Mucociliary Clearance in Individuals With COPD
- Development of nintedanib nanosuspension for inhaled treatment of experimental silicosis
- A Highly Translatable Dual-arm Local Delivery Strategy To Achieve Widespread Therapeutic Coverage in Healthy and Tumor-bearing Brain Tissues
- Formulation and Evaluation of Polymer-Based Nanoparticles for Intravitreal Gene-Delivery Applications
- Telmisartan Nanosuspension for Inhaled Therapy of COVID-19 Lung Disease and Other Respiratory Infections

Jennifer Thorne

- Iritis, Ophthalmology, Uveitis birdshot chorioretinitis, JIA uveitis, ocular inflammatory disease, pediatric uveitis, uveitic macular edema

- Jennifer Thorne, M.D., Ph.D., is the Cross Family Professor of Ophthalmology at the Wilmer Eye Institute, where she is also chief of the Division of Ocular Immunology.

- Dr. Thorne's research interests include white dot syndromes including birdshot chorioretinitis, multifocal choroiditis and punctate inner choroiditis. She also studies juvenile idiopathic arthritis-related uveitis and treatment outcomes of immunosuppressive drug therapy.

Faculty webpage

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- Birdshot chorioretinitis in patients aged 80 and older
- Tacrolimus for immunosuppression in patients with non-infectious intermediate, posterior, or panuveitides.
- Mooren’s Ulcer
- Clinical Outcomes in Vitrectomized versus Non-vitrectomized Eyes in Patients with Primary Vitreoretinal Lymphoma
- Swept Source Optical Coherence Tomography Angiography Findings in Birdshot Chorioretinitis: A Cross Sectional Study of 21 Patients

Ji Yi

[Faculty webpage]

[JH licensable technologies]

- Biophotonics, Early Detection and Monitoring of Cancer and Other Chronic Diseases, Fiber Optics and Endoscopy, Imaging Biomarkers, Structural and Functional Relation in Biological Systems, Volumetric and Multimodal Imaging

- Ji Yi, Ph.D., is an assistant professor of ophthalmology and biomedical engineering at the Wilmer Eye Institute. His research is focused on novel optical techniques for understanding biological systems and pathologies.

- Dr. Yi's research is at the interface of biophotonics, physics, engineering, biology and medicine. By imaging biological systems in various spatial and temporal dimensions with multiple contrasts, he aims to directly visualize their fundamental biological structures and functions.

- He is also interested in computational tools and data science approaches to build and synthesize biological systems, and reveal unseen phenotypes that can otherwise be difficult to perceive using conventional analysis. His goal is to apply these new understandings enabled by imaging and computation in improving ophthalmological health care, as well as other major diseases such as cancer and vascular diseases.

James T. Handa

Robert Bond Welch Professor

Professor, Ophthalmology

- Surgical innovation using an integrated robotic surgical system, Diabetic Retinopathy, Macular Degeneration, Ocular Melanoma, Ophthalmology, Retinal Detachment, Retinoblastoma, Vitreoretinal Diseases and Surgery Service Development of Robotic Surgical System, Mechanisms of Age-Related Macular Degeneration

Faculty Webpage

Publications

Grant Information

JH licensable technologies

- A Miniaturized Triaxial Force Sensor with Independent Axial and Transverse Force Sensing
- Oxidative Stress Induces an Interactive Decline in Wnt and Nrf2 Signaling in Degenerating Retinal Pigment Epithelium.
- Quantifying the Rate of Ellipsoid Zone Loss in Stargardt Disease.
- Pentraxin 3 recruits complement factor H to protect against oxidative stress-induced complement and inflammasome overactivation.

Jeff Mumm

[Faculty Webpage]

[Publications]

[Grant Information]

Associate Professor, Ophthalmology

Helen Larson & Charles Glenn Grover Professor, Ophthalmology

- Zebrafish to study neural circuits in the retina and retinal regeneration
- Development of new treatments for retinal diseases
- Genetic mechanisms governing retinal regeneration
- Drug delivery
- Retinal circuitry
- Retinal regeneration
- Developing better drugs to treat retinal diseases.

- Immunomodulation-accelerated neuronal regeneration following selective rod photoreceptor cell ablation in the zebrafish retina.
- Silencer-delimited transgenesis: NRSE/RE1 sequences promote neural-specific transgene expression in a NRSF/REST-dependent manner.

Jiang Qian

[Faculty Webpage]

[Publications]

[Grant Information]

[JH licensable technologies]

- Retinal gene regulation

- Jiang Qian, Ph.D., is the Karl H. Hagen professor of ophthalmology at the Wilmer Eye Institute. His research focuses on retinal gene regulation and the application of bioinformatics to the study of gene expression and regulation.

- The Wilmer bioinformatics lab develops and applies bioinformatics approaches to the study of gene regulation, with particular, but not exclusive, attention to the regulation of retinal gene expression. In particular, the lab is interested in understanding transcriptional networks and protein/DNA interactions.

- We integrate large biological datasets and develop computational algorithms to predict regulatory mechanisms controlling coordinated gene expression in specific tissues and cell types in both development and disease.

- Recently, we have been interested in analyzing gene expression, epigenetic regulation, and single-cell datasets to construct regulatory networks and cell-cell communication pathways.

- ATAC-Seq analysis reveals a widespread decrease of chromatin accessibility in age-related macular degeneration.
- Identification and functional analysis of differentially expressed genes in poorly differentiated hepatocellular carcinoma using RNA-seq.

Jithin Yohannan

Faculty Webpage

Publications

JH licensable technologies

Assistant Professor, Ophthalmology

- His research focuses on using artificial intelligence algorithms to improve the tests that are used to diagnose and monitor glaucoma. He has a background in biostatistics, epidemiology, and mathematics which enables this effort. The ultimate goal of this research is to detect glaucoma and determine when it is worsening more accurately. The results of this work will ultimately help guide doctors who are managing glaucoma to make better treatment decisions. Dr. Yohannan also has a clinical and research interest in novel surgical devices used to treat glaucoma. These devices hold the promise of making glaucoma surgery safer and easier to recover from.

- The Evolving Role of the Relationship between Optic Nerve Structure and Function in Glaucoma.
- Evidence-based Criteria for Assessment of Visual Field Reliability.
- Acute Posterior Multifocal Placoid Pigment Epitheliopathy Associated With Drug Reaction With Eosinophilia and Systemic Symptoms Syndrome.
- Progressing Scintillating Scotoma Captured on Automated Visual Field Testing.

Justin S. Hanes

Professor, Ophthalmology

Joint Appointments, Neurosurgery, Oncology, Pharmacology and Molecular Sciences

Director, Center for Nanomedicine

- Development of advanced delivery systems to make drugs, vaccines, and nucleic acid based therapies more effective
- Biomaterial-based nanoparticles

Faculty Webpage

Publications

Grant Information

JH licensable technologies

- Nanoparticle diffusion in spontaneously expectorated sputum as a biophysical tool to probe disease severity in COPD.
- A glycopolymer improves vascoelasticity and mucociliary transport of abnormal cystic fibrosis mucus.
- Molecularly defined cortical astroglia subpopulation modulates neurons via secretion of Norrin.
- Controlled release of dexamethasone sodium phosphate with biodegradable nanoparticles for preventing experimental corneal neovascularization.

Kemar Green

[Faculty webpage]

[JH licensable technologies]

- Balance Disorders, Dizziness, Double Vision, Eye Movement Disorders, Neurological Eye Disease, Vestibular Disorders

- Dr. Green's research interests include using smartphone and virtual reality eye-tracking solutions in the diagnosis and treatment of vestibular and eye movement disorders, as well as the education of medical trainees through various telemedicine platforms

- Neuro-ophthalmological manifestations in a case of Garcin syndrome secondary to head and neck squamous cell carcinoma
- Deep learning model for static ocular torsion detection using synthetically generated fundus images. Transl Vis Sci Technol. 2023; 12 (1): 17
- Deep Learning Model for Static Ocular Torsion Detection Using Synthetically Generated Fundus Images

- Deep learning in acute vertigo diagnosis
- Pearls & Oy-sters: Deep Phenotyping of Abnormal Eye Movements Advances the Detection of Gerstmann-Sträussler-Scheinker Syndrome

Karen Bandeen-Roche

- Biostatistics, Classification and variance structure, Epidemiologic and psychosocial research, Gerontological statistical methods and analysis, Latent variable models, Longitudinal data analysis, Model development, implementation and application, Multivariate data analysis, Multivariate survival analysis, Psychological statistical methods and analysis, Psychometrics, Statistical methods and analysis for psychology gerontology and aging, Underlying-variable methods

- Dr. Karen J. Bandeen-Roche is a professor of biostatistics at the Johns Hopkins Bloomberg School of Public Health.

- Her current research projects include determining causes and treatments for frailty in older adults; providing data management support and consultation for the Johns Hopkins Alzheimer's Disease Research Center; and investigating the pathogenesis of physical disability in older women.

Faculty webpage

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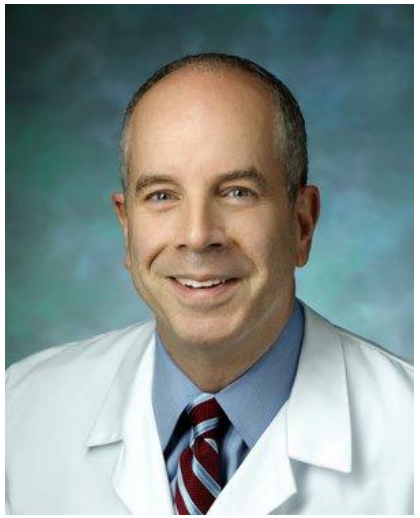
Kraig Bower

- Cornea/Anterior Segment Disease, Ophthalmology, Refractive Surgery ocular microbiology, ocular trauma, refractive surgery, teleophthalmology
- Dr. Kraig Scot Bower is an associate professor of ophthalmology and the director of refractive surgery at the Wilmer Eye Institute.
- He specializes in refractive surgery (LASIK), cornea and external diseases of the eye and anterior segment surgery. ocular microbiology, ocular trauma, refractive surgery, teleophthalmology

Faculty webpage

JH licensable technologies

Kenneth Cohen



- Pediatric Brain Cancer, Pediatric Brain Tumors, Pediatric Neuro-Oncology, Pediatric Oncology, Pediatric Spinal Cord Tumors Early-phase drug development for high-risk pediatric brain tumors
- Dr. Cohen is Director of Pediatric Neuro-Oncology and Clinical Director of the Division of Pediatric Oncology at the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins.
- Early-phase drug development for high-risk pediatric brain tumors

Faculty webpage

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Katharine Funari

- Amblyopia, Comprehensive Eye Care, Ophthalmology, Optometry, Pediatric Eye Diseases, Pediatric Ophthalmology and Strabismus Service Pediatric Eye Diseases
- Katharine Funari, O.D., M.P.H., is a pediatric optometrist caring for patients in Bethesda, Maryland. She specializes in vision care for disorders of strabismus, amblyopia (lazy eye) and convergence insufficiency. She has particular interest in myopia control methods of orthokeratology, atropine therapy and multifocal contact lenses.
- Dr. Funari's research interests include the management of pediatric eye conditions, binocular vision disorders, amblyopia and strabismus.
- She is active in research related to early intervention and diagnosis of eye conditions affecting infants and children, and its impact on children's development and school performance

Faculty webpage

JH licensable technologies

Kunal Parikh

- Bio-design, Drug delivery, Global Health, Medical Devices, Nanomedicine, Ophthalmology

- Dr. Kunal Parikh is a faculty member in the Center for Nanomedicine at the Wilmer Eye Institute and Center for Bioengineering Innovation & Design in the Biomedical Engineering Department at the Johns Hopkins University School of Medicine (JHU) where he leads a multidisciplinary team of engineers, scientists, and clinicians working to develop biomedical solutions for significant and unmet clinical needs, with a particular focus in ophthalmology.

- For more than a decade, Dr. Parikh has worked at the intersection of nanomaterials, drug delivery, and medicine to develop advanced, multi-functional biomaterials and medical devices with the ability to safely integrate with human tissue and modulate the post-operative biological response to surgery (e.g., infection, inflammation, scarring) in order to reduce post-operative complications and improve surgical efficacy.

Faculty webpage

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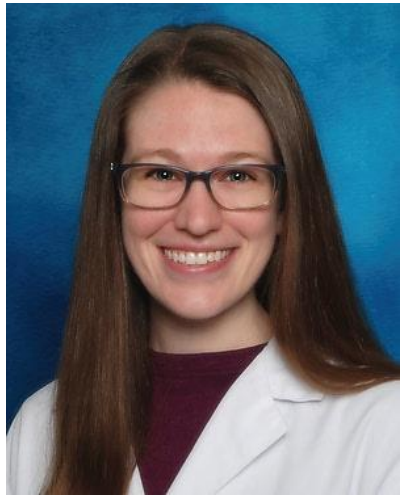
Kelly Seidler



- Comprehensive Eye Care, Neuro-Ophthalmology, Optometry Neuro-ophthalmic disease
- Kelly M. Seidler, O.D. is an optometrist seeing patients at the Wilmer Eye Institute's location in Frederick, Maryland.
- Her primary focus is in ocular disease with additional interest in neuro-ophthalmic diseases, including ocular manifestations of neurologic conditions such as multiple sclerosis and Parkinson's disease. She provides comprehensive eye care including routine eye examinations, ocular emergencies and co-management of surgical patients.

Faculty webpage

JH licensable technologies

King-Wai Yau

[Faculty webpage]

[JH licensable technologies]

- Cellular neuroscience, light-signal transduction, Molecular neuroscience, Olfaction, Photoreceptors, Pupil constriction, Retinal ganglion cells, Retinal rod and cone cells, Vision. Dr. King-Wai Yau is a professor of neuroscience and ophthalmology at the Johns Hopkins University School of Medicine.

- Dr. Yau's research focuses on the flow of molecular signals that are important to sight and smell. His discoveries have helped advance the understanding of many hereditary blinding diseases that affect these rod and cone cells. Those discoveries include identifying the key roles of two key signaling molecules—calcium and cyclic GMP—in visual transduction, the process of how light is converted into electrical signals by the retina's rod and cone photoreceptor cells. In addition to helping to find the cause of a form of central vision loss, Dr. Yau also characterized the light-response behaviors of a newly discovered photoreceptor cell that responds to light and affects circadian rhythms and other non-image-forming visual functions.

- The Yau Laboratory focuses on the study of sensory transduction – specifically, visual and olfactory transductions, which are the processes by which the senses of vision and olfaction (smell) are initiated. Investigators are examining topics that include: The cellular and molecular details that underlie rod and cone phototransduction, with a focus on cones, which have a similar phototransduction mechanism but different quantitative details The connectivity and physiology of these cells in several mammalian species— including mice and primates—as well as the phototransduction mechanism in newly discovered photoreceptors The steps in the olfactory transduction process

- Dr. Yau and his laboratory study visual and olfactory sensory transduction, which have interesting similarities but also striking differences. Visual transduction in retinal photoreceptors (the rods and cones) is known to involve a cGMP signaling pathway. Recording from single, dissociated photoreceptors isolated from genetically modified mice and frogs is one assay they use to address specific questions about the details of phototransduction. Unlike vision, which involves only a few visual pigments in rods and cones, olfaction apparently involves of the order of a thousand distinct odorant receptor proteins. A key, still largely unknown question about olfactory transduction is how a given odorant receptor protein recognizes a specific set of chemicals (odorants). Yau Lab investigators are addressing this question by stimulating cloned odorant receptor proteins various odorants, using calcium imaging as an assay.

Kannan Rangaramanujam

[Faculty Webpage]

[Publications]

[Grant Information]

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Co-Director, Center for Nanomedicine

Professor, Ophthalmology

- Drug delivery for ocular and neurodegenerative diseases
- wide range of nanomaterial applications
- Nanomedicine
- His research spans a wide range of nanomaterial applications, including nanomedicine and nanocomposites. He has initiated an interdisciplinary translational research program based on dendrimers, with a specific focus on targeted drug delivery for ocular and neurodegenerative diseases such as cerebral palsy and age-related macular degeneration.

- Accumulation and cellular localization of nanoparticles in an ex vivo model of acute lung injury.
- Maternal Inflammation Results in Altered Tryptophan Metabolism in Rabbit Placenta and Fetal Brain.
- Dendrimer-Hyaluronic acid nanoglues and hydrogels for corneal applications, and treating ocular disorders

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Lee Guo

[Faculty webpage]

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- Cornea/Anterior Segment Disease, Corneal Diseases, Dry Eyes, Glaucoma, Ophthalmology, Optometry, Primary Eye Care, Sjogren's Syndrome Dry eye, ocular surface disease, Sjögren’s Syndrome

- Lee Guo, O.D., F.A.A.O. is an Assistant Professor of Ophthalmology at the Wilmer Eye Institute locations in Baltimore Maryland. He provides comprehensive primary eye care with emphasis on dry eye, Sjögren’s Syndrome, and glaucoma. His specialty and research revolve around dry eye disease and rehabilitation of the ocular surface.

- Dr. Guo is particularly interested in dry eye procedural treatments including microblepharoexfoliation, intense pulsed light, and both thermal and mechanical expression therapies for Meibomian Gland Dysfunction. In addition, he also specializes in a broad range of conventional and therapeutic contact lenses including gas permeable (GP), scleral, and corneal refractive therapy (CRT).

Laura Ensign-Hodges

Faculty Lab Webpage

Publications

Research Grants

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Associate Professor, Ophthalmology

Associate Professor, joint in Pharmacology and Molecular Sciences, Chemical & Biomolecular Engineering, Biomedical Engineering, Gynecology & Obstetrics, and Infectious Diseases

- Development of novel drug delivery systems through the use of nanoparticles and bioabsorbable sutures
- Dr. Ensign has secondary appointments in Chemical and Biomolecular Engineering, Biomedical Engineering, Pharmacology and Molecular Sciences, Gynecology and Obstetrics, Infectious Diseases, and Oncology.
- Her research interests are in the area of nanomedicine. Her laboratory focuses on the characterization of biological barriers in health and disease in order to design more effective formulations for prophylactic and therapeutic drug delivery.

- Method for Improved Distribution of in situ Gelling Agents on Mucosal Epithelia
- Ultra-thin, High Strength, Absorbable Sutures Capable of Controlled Drug Release
- Method for Cervicovaginal Secretion Transplants to Restore Healthy Vaginal Microbiota
- Methods to achieve enhanced delivery to the bladder
- Development of rectal enema as microbicide (DREAM): Preclinical progressive selection of a tenofovir prodrug enema.
- Nanoparticles for oral delivery: Design, evaluation and state-of-the-art.
- Nanoparticles coated with high molecular weight PEG penetrate mucus and provide uniform vaginal and colorectal distribution in vivo.

Meghan Berkenstock

- Ocular Immunology, Ocular Inflammation Disease, Ophthalmology, Uveitis Ocular Complications of Cancer Immune Therapy, Quality improvement, Syphilis

- Meghan Berkenstock, M.D., is an associate professor of ophthalmology at the Johns Hopkins Wilmer Eye Institute. She specializes in ocular inflammatory and infectious diseases, cataract surgery, and comprehensive ophthalmology.

- Tacrolimus for immunosuppression in patients with non-infectious intermediate, posterior, or panuveitides.

Faculty webpage

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- A Geodemographic Analysis of Travel Time to Uveitis Specialists in the United States
- Therapeutic Outcomes of Non-Infectious Scleritis Treated with Tumor Necrosis Factor-Alpha Inhibitors
- Analyzing the demographics of patients with uveitis in an indigent, urban population
- Using the Electronic Medical Record to Increase Laboratory Test Monitoring in Ocular Inflammation Patients: A Quality Improvement Study

Megan Elizabeth Collins

[Faculty webpage]

[JH licensable technologies]

- Amblyopia, Ophthalmology, Pediatric Ophthalmology, Strabismus
- Dr. Collins' research interests include the doctor-patient relationship, public health ethics, and barriers in access to pediatric eye care.

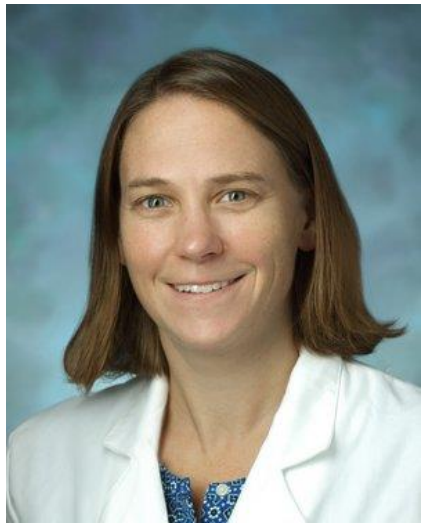
Mathias Unberath

[Faculty webpage]

[JH licensable technologies]

- Mathias Unberath is an assistant professor in the Department of Computer Science, core faculty in the Laboratory for Computational Sensing and Robotics and the Malone Center for Engineering in Healthcare
- With his group the Advanced Robotics and Computationally Augmented Environments (ARCADE) he advances healthcare by creating collaborative intelligent systems that support clinical workflows. Through synergistic research on imaging, computer vision, machine learning, and interaction design, he builds human-centered solutions that are embodied in emerging technology such as mixed reality and robotics.
- Previously, Mathias was an assistant research professor in computer science and a postdoctoral fellow in the Laboratory for Computational Sensing and Robotics at Hopkins.
- Nail it! vision-based drift correction for accurate mixed reality surgical guidance
- An autonomous X-ray image acquisition and interpretation system for assisting percutaneous pelvic fracture fixation
- Investigating keypoint descriptors for camera relocalization in endoscopy surgery
- Twin-S: a digital twin for skull base surgery
- A vendor-agnostic, PACS integrated, and DICOM-compatible software-server pipeline for testing segmentation algorithms within the clinical radiology workflow.

Malia Edwards



[Faculty webpage]

[JH licensable technologies]

- Retinal glia, particularly their role in vascular development and disease. Dr. Malia Edwards is a researcher at the Wilmer Eye Institute with a particular focus on retinal gila and their roles in vascular development and disease.

- Dr. Edwards and her lab are currently investigating how early in the disease process Müller cell changes occur, and how their activation and remodeling affects AMD disease progression by influencing blood vessels, neurons and retinal pigment epithelial cells. As an independent investigator, Dr. Edwards plans to continue investigating the role astrocytes and Müller cells play in retinal vascular development and also how these interactions affect retinal disease.

- Her most recent work has been investigating glial changes in aged human retinas with and without age-related macular degeneration (AMD). She has observed glial membranes on both the vitreoretinal surface and external to the ELM in eyes with advanced stages of AMD. Furthermore, Müller cells are activated and disorganized within AMD retinas. Together, these findings suggest that Müller cells are remodeling in AMD. Such remodeling could affect the normal function of these glial cells, having detrimental consequences for other retinal cells.

Marie Diener-West

[Faculty webpage]

[JH licensable technologies]

- Design, conduct and analysis of multicenter clinical trials; biostatistics; epidemiology;
- Oncology; ophthalmology; ocular melanoma
- Dr. Marie Diener-West holds a primary appointment in the Department of Biostatistics at the Johns Hopkins Bloomberg School of Public Health, with joint appointments in both Epidemiology and Ophthalmology
- Incidence of glaucoma-related adverse events in the first 5 years after pediatric lensectomy
- Are There Differences between the Stress Responses of Philippine Men and Women to the COVID-19 Pandemic?D
- Vergence/accommodative therapy for symptomatic convergence insufficiency in children: Time course of improvements in convergence function
- Low-and very low-dose bevacizumab for retinopathy of prematurity: reactivations, additional treatments, and 12-month outcomes
- Dynamic Remodeling of Human Arteriovenous Fistula Wall Obtained From Magnetic Resonance Imaging During the First 6 Months After Creation

Morton Goldberg

[Faculty webpage]

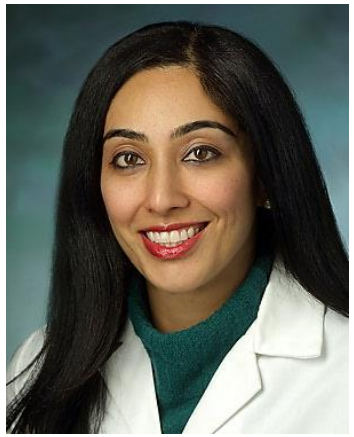
[JH licensable technologies]

- Diabetic Retinopathy, Genetic Eye Disease, Incontinentia Pigmenti, Macular Degeneration, Ocular Trauma, Ophthalmologic Genetics, Ophthalmology, Persistent Fetal Vasculature, Retinal Vascular Disease, Sickle Cell Disease, Sickle Cell Eye Disease, Trauma diabetic and vascular retinopathies

- Morton F. Goldberg, M.D., is the Joseph E. Green Professor of Ophthalmology and Director Emeritus at the Wilmer Eye Institute at Johns Hopkins University School of Medicine. From 1989 to 2003 he served as the Director and William Holland Wilmer Professor of Ophthalmology at the Wilmer Eye Institute.

- Medical interventions for traumatic hyphema
- Nonmydriatic ultra-widefield fundus photography in a hematology clinic shows utility for screening of sickle cell retinopathy
- Purtscher-like retinopathy in a patient with COVID-19 and disseminated intravascular coagulation
- Torpedo-like lesions in the ocular fundi of Gardner syndrome: hiding in plain view
- Tele-Ophthalmology Screening for Sickle Cell Retinopathy Using Ultra-Widefield Fundus PhotographyI

Mona Kaleem



- Cataract Surgery, Cataracts, Glaucoma, Glaucoma Surgery, Ophthalmology Education, Health Care Policy, Quality of Life Improvement for Those with Glaucoma
- Mona Kaleem, M.D. is an Associate Professor of Ophthalmology at the Wilmer Eye Institute. She is a fellowship trained glaucoma and cataract surgeon in Bethesda, Maryland.

Faculty webpage

JH licensable technologies

Mira Sachdeva

- Diabetic Neuropathy, Diabetic Retinopathy, Epiretinal Membranes, Macular Degeneration, Macular Holes, Retinal Detachment, Retinal Dystrophies, Retinal Vascular Disease, Retinal Vein Occlusion, Vitreoretinal Diseases and Surgery Service Diabetic Retinopathy and Edema, Retinal Neurodegeneration

- Mira M. Sachdeva, M.D., Ph.D. specializes in the medical and surgical management of diseases of the retina, including diabetic retinopathy, macular degeneration, retinal vascular occlusions, retinal detachments, macular holes, and epiretinal membranes.

- Her research efforts are directed towards developing new treatments to prevent or reverse the retinal neurodegeneration and vision loss that occurs in patients with diabetes. Dr. Sachdeva's ultimate goal is to identify strategies for neuroprotection that are broadly applicable to other conditions in which the retina is irreversibly damaged, including macular degeneration and retinal detachment.

Faculty webpage

JH licensable technologies

Michelle Hessen

[Faculty webpage]

[JH licensable technologies]

- Cornea/Anterior Segment Disease, Dry Eyes, Optometry

- Michelle M. Hessen, O.D., is an assistant professor of ophthalmology at the Wilmer Eye Institute and is a member of the Ocular Surface Disease and Dry Eye Team.

- Dr. Hessen specializes in ocular surface diseases. In addition to providing general ophthalmic care and managing pre- and post-operative care of cataract surgery patients, she treats patients with dry eye associated with various conditions, including Sjogren's Syndrome, Graft vs. Host Disease and other autoimmune conditions. She also evaluates patients with blepharitis and allergic conjunctivitis

Michael Sulewski

- Cataract Surgery, Cataracts, Cornea Transplant, Cornea/Anterior Segment Disease, Corneal Diseases, Ophthalmology, Refractive Surgery corneal and anterior segment surgical outcomes, Dry eye, epithelial healing

- Michael Sulewski, M.D. is a cornea and cataract specialist at the Wilmer Eye Institute's Baltimore locations at Bayview Medical Center and the Patient Access Center for the Eye at The Johns Hopkins Hospital, as well as in White Marsh, Maryland.

Faculty webpage

JH licensable technologies

Mandeep Singh

[Faculty Webpage]

[Publications]

[JH licensable technologies]

Assistant Professor, Ophthalmology

- Retinal stem cell and photoreceptor transplantation
- Gene therapy for treatment of genetic retinal diseases
- Clinical trials in retinal gene therapy
- Photoreceptor transplantation
- Retinal stem cell transplantation
- Retinal surgery technology and device development
- The goal of the Singh lab is to cure retinal degeneration due to genetic disease in patients. There are many retinal diseases such as Stargardts, Macular Degeneration, and Retinitis Pigmentosa, that are currently incurable. These diseases damage and eventually eliminate photoreceptors in the retina. Our aim is to take healthy photoreceptors derived from stem cells and transplant them into the patient's retina to replace the lost photoreceptors.

- Characteristics and long term outcomes of patients with acute coronary syndromes due to culprit left main coronary artery disease treated with percutaneous coronary intervention.
- High-performance flexible supercapacitors based on electrochemically tailored three-dimensional reduced graphene oxide networks.

Michael X. Repka

[Faculty Webpage]

[Publications]

[Grant Information]

[JH licensable technologies]

Professor of Ophthalmology

Joint Appointment, Pediatrics

Vice Chair for Clinical Practice, Wilmer Eye Institute

Chief, Division of Pediatric Ophthalmology and Adult Strabismus

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- Pediatric ophthalmology, strabismus, retinopathy of prematurity and pediatric neuro-ophthalmology
- Management of strabismus and amblyopia
- Amblyopia
- Cataract in infants and children
- Neuro-ophthalmology in children
- Strabismus

- Choosing Core Outcomes for Use in Clinical Trials in Ophthalmology: Perspectives from Three Ophthalmology Outcomes Working Groups.
- Strabismus, Strabismus Surgery, and Reoperation Rate in the United States: Analysis from the IRIS Registry.
- Esotropia and Exotropia Preferred Practice Pattern®.
- The Talking Eye

Noriko Esumi

- Macular Degeneration Age-related macular degeneration, Molecular mechanisms of retinal pigment epithelium (RPE)
- Noriko Esumi, M.D., Ph.D., is an assistant professor of ophthalmology at the Wilmer Eye Institute. She started her career as a pediatric oncologist in Japan.
- After working in the field of cancer biology, Dr. Esumi decided to become a molecular biologist in eye research.
- Her focus is on gene regulation in the retinal pigment epithelium (RPE), with the goal of learning more about the causes and progression of age-related macular degeneration.

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Nakul Shekhawat

- Cataract Surgery, Cataracts, Cornea Transplant, Cornea/Anterior Segment Disease, Corneal Diseases, Corneal Dystrophies, Ophthalmology Cataract Surgery, Corneal Infections, Corneal Surgery, International Ophthalmology, Public Health Ophthalmology

- Nakul Shekhawat, M.D., M.P.H. is an ophthalmologist and eye surgeon at the Johns Hopkins Wilmer Eye Institute. He specializes in cataract surgery, complex cataract and anterior segment surgery, corneal and external diseases, and corneal surgery including both full- and partial-thickness corneal transplantation (DMEK, DSAEK, DALK, PKP).

Faculty webpage

JH licensable technologies

- YES-STL1: Phaco Lab
- Comparison of simultaneous vs sequential pars plana vitrectomy and cataract surgery
- Tenon Patch Graft With Vascularized Conjunctival Flap for Management of Corneal Perforation
- Pythiuminsidiosum Keratitis: Past, Present, and Future
- Acanthamoeba epitheliopathy: Importance of early diagnosis

Neil M. Bressler

James P. Gills Professor of Ophthalmology

Professor, Ophthalmology

- Retinal Diseases
- Age-Related Macular Degeneration
- Diabetic Retinopathy
- Algorithms to classify the advancement of age-related macular degeneration

Faculty Webpage

Publications

Grant Information

JH licensable technologies

- Assessment of Deep Generative Models for High-Resolution Synthetic Retinal Image Generation of Age-Related Macular Degeneration.
- Early Response to Anti-Vascular Endothelial Growth Factor and Two-Year Outcomes Among Eyes With Diabetic Macular Edema in Protocol T.
- Color Fundus Photography, Optical Coherence Tomography, and Fluorescein Angiography in Diagnosing Polypoidal Choroidal Vasculopathy.
- A Highly Accurate Fundus Classification Method and Apparatus for Grading of the Advance of Age Related Macular Degeneration

Neil R. Miller

Professor, Ophthalmology

Frank B. Walsh Professor of Neuro-Ophthalmology

Professor, Neurology

- Neuro-Ophthalmology, Ophthalmology, Orbital Tumors, Thyroid Eye Disease, Von Hippel-Lindau (VHL), Understanding genetic basis of neuro-ophthalmic diseases

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Faculty Webpage

Publications

JH licensable technologies

- Tumors of the Optic Nerve and its Sheath.
- Gorham-Stout Disease Presenting as Acute Unilateral Proptosis.

Nicholas Mahoney

[Faculty webpage]

[JH licensable technologies]

- Ocular Plastics, Ophthalmology, Orbital Trauma, Orbital Tumors, Thyroid Eye Disease
- Nicholas R. Mahoney, M.D., is an ophthalmic surgeon at the Wilmer Eye Institute's locations in Bethesda and Baltimore, Maryland, and the chief of Wilmer's oculoplastics division
- Dr. Mahoney specializes in surgery of the tissue surrounding the eyes, including the eyelids, eye socket and tear drainage system. This includes removal of benign and malignant lesions of the eyelid and eye socket, repair of eyelid and eye socket trauma, reconstruction of the tear ducts and both functionally reconstructive and cosmetic surgery on the eyelids and face.

Oliver Schein

[Faculty Webpage]

[Publications]

[Grant Information]

[JH licensable technologies]

Professor, Ophthalmology

Burton and Miriam Grossman Professor of Ophthalmology

- Evidence-based improvement in quality and safety of ophthalmic care and surgery
- Bioengineering of human corneal substitutes
- Assessment of ocular technology
- Assessment of outcomes and complications of ocular surgery
- Bioengineering of human corneal substitutes
- Epidemiology of major eye diseases

- Evaluation of the biocompatibility of regenerated cellulose hydrogels with high strength and transparency for ocular applications.
- Characteristics of Endophthalmitis after Cataract Surgery in the United States Medicare Population.

Peter McDonnell

- Ophthalmology cornea/anterior segment disease, corneal disease, corneal disorders, corneal dystrophies, external diseases of the eye, laser surgery, microbial keratitis, nanotechnology, ophthalmology, refractive surgery

- Peter J. McDonnell, M.D. is the director and William Holland Wilmer Professor of Ophthalmology at the Wilmer Eye Institute at the Johns Hopkins University School of Medicine. An ophthalmologist and specialist in corneal disease and surgery

Faculty webpage

JH licensable technologies

Peter A. Campochiaro

[Faculty Webpage]

[Publications]

[Grant Information]

[JH licensable technologies]

Professor, Ophthalmology

Professor, Neuroscience

Director, Retinal Cell and Molecular Laboratory

- Understanding roles of peptide growth and trophic factors in the retina and retinal pigmented-epithelium
- Proliferative retinopathies, choroidal neovascularization and retinal degenerations
- Clinical trials of ocular neovascularization and macular edema, Development of new treatments for ocular neovascularization, Development of new treatments for retinal degenerations, Mechanisms involved in ocular neovascularization, Mechanisms involved in retinal degenerations, Ocular Gene Therapy

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- Metipranolol for Treatment of Retinitis Pigmentosa
- Shortest Distance From Fovea to Subfoveal Hemorrhage Border Is Important in Patients With Neovascular Age-related Macular Degeneration.
- Changes in Retinal Nonperfusion Associated with Suppression of Vascular Endothelial Growth Factor in Retinal Vein Occlusion.

Peter Gehlbach

[Faculty Webpage]

[Publications]

[Grant Information]

[JH licensable technologies]

Associate Professor, Ophthalmology

Director of Wilmer Echography Center

- Development of robot-assisted surgical devices for intraocular surgery
- Discovering new treatments for blinding eye disease
- Angiogenesis, Diabetic Retinopathy, Gene Therapy, Macular Degeneration, Microsurgical Instrument Development, Novel surgical tool development, Robotic Surgery

- A Miniaturized Triaxial Force Sensor with Independent Axial and Transverse Force Sensing
- Miniature Dexterous Manipulator for Therapeutic and Diagnostic Procedures in the Clinical Setting where Tool Access is Limited
- The Talking Eye

Pradeep Y. Ramulu

Chief, Glaucoma Division

Associate Professor, Ophthalmology

- Glaucoma challenges with reading, walking, falling, driving, and travelling outside the home
- Developing rehabilitative strategies for individuals with severe vision loss
- Dry Eye and Aging and Vision

Faculty Webpage

Publications

Grant Information

- Application of Optical Coherence Tomography in the Detection and Classification of Cognitive Decline.
- Evaluation of the Home Environment Assessment for the Visually Impaired (HEAVI): an instrument designed to quantify fall-related hazards in the visually impaired.

Rachel Bishop

- Cataracts, Comprehensive Eye Care, Dry Eyes, Glaucoma, Ophthalmology Cystinosis, Dry Eye Conditions Including Graft-Versus-Host Disease, Ebola Virus Disease

- Rachel Bishop, M.D., M.P.H., is an ophthalmologist specializing in comprehensive eye care at the Wilmer Eye Institute's locations in Frederick and Bethesda, Maryland.

Faculty webpage

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Richard Rivers

[Faculty webpage]

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- Anesthesiology. Dr. Richard J. Rivers is an associate professor of anesthesiology and critical care medicine and ophthalmology at the Johns Hopkins University School of Medicine. His area of clinical expertise is ophthalmological anesthesia. He serves as chief of anesthesia at the Wilmer Eye Institute at Johns Hopkins. Dr. Rivers' primary research interest is vascular communication and the regulation of blood flow. Regulation of blood flow, Vascular communication

- Dr. Rivers' primary interest is vascular communication. He is studying microcirculation physiology to determine how metabolic demands are signaled between the tissue and the vascular network and along the vascular network itself. To conduct his work, Dr. Rivers uses a technique called intravital fluorescence microscopy, which enables him to measure the blood flow within a single artery, vein or capillary. Also, with micropipettes, specific agonists and antagonists can be applied directly to the blood vessel to determine the effect on blood flow in real time. Dr. Rivers is also working to determine the role for inwardly rectifying potassium channels (Kir) 2.1 and 6.1 in signaling along the vessel wall, as well as the role of gap junctions.

- One of his initiatives is to develop viral vectors to use as tools to study the promoters that are specific for cell types in the vessel wall. The vectors are used to downregulate proteins such as the potassium channels and gap junctions to determine the effect on vascular function. Dr. Rivers discovered that using hyaluronidase to break down the extracellular matrix enhances viral expression.

- In the future, Dr. Rivers may use RNA interference (RNAi) as another method for downregulating the proteins. He is also testing mice with specific gene deletions in his experimental models. Ultimately, Dr. Rivers hopes that a better basic understanding of the microcirculation will lead to a better comprehension of disease processes, such as the angiogenesis that occurs in cancer and circulatory dysfunction associated with diabetes. This knowledge at the molecular level could enable the development of specific drugs that can target these processes and limit disease progression

Richard Semba

- Ophthalmology Age-related Macular Degeneration, Aging, Food Systems, Nutrition, Sustainable Diets, Vitamin A Deficiency

- Richard D. Semba, M.D., M.A., M.P.H., is the W. Richard Green Professor of Ophthalmology at the Wilmer Eye Institute. He is also Affiliated Faculty with the Center for a Livable Future in the Johns Hopkins Bloomberg School of Public Health.

https://clf.jhsph.edu/about-us/staff/richard-semba

Robert Weinberg

- Cataracts, Cornea/Anterior Segment Disease, External Diseases of the Eye, Iritis, Ophthalmology, Refractive Surgery, Uveitis Cataract surgery complications, Ocular manifestations of systemic disease
- Robert S. Weinberg, M.D., is an associate professor of ophthalmology at the Wilmer Eye Institute.
- He specializes in corneal and external eye diseases, cornea surgery, uveitis and refractive surgery (LASIK). His special interests are in consultative ophthalmology, infectious diseases of the eye and ocular manifestations of systemic diseases.

Faculty webpage

JH licensable technologies

Samuel Yiu

[Faculty Webpage]

[Publications]

[Grant Information]

[JH licensable technologies]

Associate Professor, Ophthalmology

- Bioartificial lacrimal gland
- Ocular gene therapy
- Methods for improved ocular surface reconstruction surgery
- Deep learning
- Basic Research
- Dry Eye
- Lacrimal Gland Physiolog
- Nanodrug delivery

- Subconjunctival dendrimer-drug therapy for the treatment of dry eye in rabbits with induced autoimmune dacryoadenitis.
- Three-Dimensional Culture of Functional Adult Rabbit Lacrimal Gland Epithelial Cells on Decellularized Scaffold.

Shameema Sikder

Faculty Webpage

Publications

JH licensable technologies

Assistant Professor, Ophthalmology

Director, Center of Excellence for Ophthalmic Surgical Education and Training

- Surgical education - technologies that could be implemented at the international level to improve the level of ophthalmic surgical care
- Keratoconus; Thyroid Eye Disease; Cataract Surgery; Granular Corneal Dystrophy
- Surgical Treatment of Corneal Disease

- Resident and program characteristics that impact performance on the Ophthalmic Knowledge Assessment Program (OKAP).
- National survey and outcomes of resident-performed cataract surgery in monocular patients in the United States.
- Objective assessment of intraoperative technical skill in capsulorhexis using videos of cataract surgery.
- Assessment of Automated Identification of Phases in Videos of Cataract Surgery Using Machine Learning and Deep Learning Techniques.

Sharon Solomon

[Faculty webpage]

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- Diabetic Macular Edema, Diabetic Retinopathy, Epiretinal Membranes, Macular Degeneration, Macular Disorders, Macular Holes, Macular Puckers, Medical Diseases of the Retina, Ophthalmology, Retinal Detachment, Retinal Specialist, Retinal Surgery, Retinal Vein Occlusion, Retinal Vessel Occlusion, Surgical Diseases of the Retina, Vitreoretinal Diseases and Surgery Service Age-Related Macular Degeneration

- Sharon D. Solomon, M.D., is the Katharine M. Graham Professor of Ophthalmology at the Wilmer Eye Institute. A retina specialist and ophthalmologist, Dr. Solomon's clinical expertise includes medical and surgical treatment of age-related macular degeneration, diabetic retinopathy, epiretinal membranes, macular holes, and retinal tears and detachment.

- Dr. Solomon’s research is aimed at better understanding the pathophysiology of how idiopathic macular holes develop and to potentially develop targeted non-surgical therapy for this blinding condition. The current treatment for idiopathic macular holes, which occur more commonly in women, involves surgery very often with prolonged face-down positioning. While successful, surgery can be associated with significant complications such as cataract formation, increased eye pressure, retinal tears, and retinal detachment. Because a gas bubble is placed in the eye during surgery to close the macular hole, patients have decreased vision for days after surgery and lose time from work because of the need for prolonged face-down positioning.

- Dr. Solomon’s work is implementing proteomics analyses to understand the pathogenesis of macular hole formation. If successful, this research may elucidate the pathophysiology of other surgical retinal diseases, such as vitreomacular traction, lamellar holes, and epiretinal membranes, all of which can cause decreased reading vision that requires surgical intervention.

Seth Blackshaw

[Faculty webpage]

[JH licensable technologies]

- Neurodevelopmental Disorders, Neurogenetics, Obesity Functional analysis of candidate regulators of cell specification and survival in retina, High throughput screening, Molecular basis of neuronal and glial cell fate specification and survival, Regulation of hypothalamic cell fate specification and function

- Dr. Seth Blackshaw is a professor of neuroscience, neurology and ophthalmology at the Johns Hopkins University School of Medicine. Additionally, he serves as an investigator in both the High Throughput Biology Center and the Institute for Cell Engineering at Johns Hopkins.

- His work examines the molecular basis of neuronal and glial cell fate specification and survival. His research focuses on characterizing the network of genes that control specification of different cell types within the retina and hypothalamus, two structures that arise from the embryonic forebrain. The ultimate goal is to use insights gained from learning how individual cell Functional analysis of candidate regulators of cell specification and survival in retina, High throughput screening, Molecular basis of neuronal and glial cell fate specification and survival, Regulation of hypothalamic cell fate specification and function

- The vertebrate central nervous system (CNS) is an amazingly complex structure composed of distinct subtypes of neurons and glia. To identify the molecular mechanisms that regulate cell specification in the CNS, we use the mouse retina and hypothalamus, both of which arise from the ventral embryonic forebrain. The relatively simple anatomy of the retina provides an excellent system to identify molecular mechanisms that regulate neuronal cell fate. The hypothalamus, which is a central regulator of behaviors ranging from sleep to feeding to reproduction, offers an opportunity to bring the power of developmental genetics to help unravel the neural circuitry controlling a huge range of experimentally tractable and medically important behaviors.

- In recent years, we have worked to map out the transcriptional regulatory networks controlling the developmental competence of retinal progenitor cells, photoreceptor specification and survival, as well how retinal glia are specified and help promote photoreceptor survival. In the hypothalamus, we have identified transcription factors that are essential for specification of neural circuitry controlling circadian rhythms and sleep. We also discovered that tanycytes of the hypothalamic median eminence are a diet-responsive neural progenitor cell population. Future work will investigate the function of novel candidate regulators of retinal and hypothalamic cell identity, the role of previously uncharacterized hypothalamic cell subtypes in regulating motivated behaviors, and the contribution of tanycyte-derived neurogenesis to the regulation of feeding and body weight.

Sujatha Kannan

[Faculty webpage]

[JH licensable technologies]

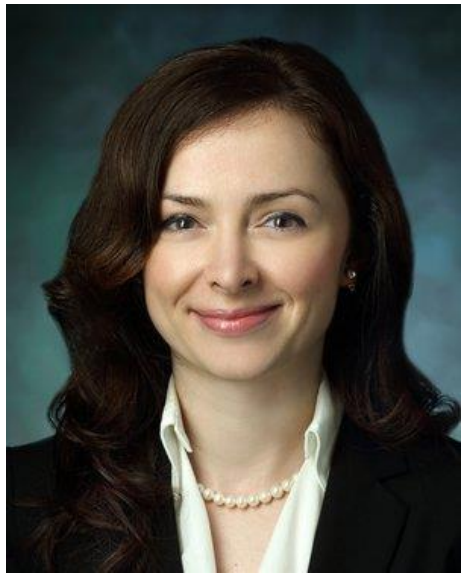
- Critical Care, Critical Care Medicine, Pediatric Critical Care Medicine, Pediatrics Autism, Cerebral Palsy, Imaging and targeted therapy for perinatal brain injury, Nanotechnology

- Dr. Sujatha Kannan is professor of anesthesiology and critical care medicine and pediatrics at the Johns Hopkins University School of Medicine. She is also the Richard J. Traystman Endowed Chair and the Vice Chair for Research for ACCM.

- Dr. Kannan's research focuses on understanding the mechanism and progression of the cellular and metabolic derangements leading to brain injury during development, and to use this information to design specific targeted therapy using nanotechnology.

- She and her team use a unique combination of animal model development, nanotechnology, and in vivo imaging to create these therapeutic strategies, with a special emphasis on cerebral palsy and autism

Sezen Karakus



- Blepharitis, Cataract Surgery, Cataracts, Comprehensive Eye Care, Comprehensive Medical and Surgical Ophthalmology, Cornea Transplant, Cornea/Anterior Segment Disease, Dry Eyes, External Diseases of the Eye, Ophthalmology, Refractive Surgery, Rosacea, Sjogren's Syndrome dry eye, meibomian gland dysfunction, ocular rosacea, Ocular surface diseases, ocular surface inflammation, ocular surface microbiome, serological markers, Sjogren's syndrome, tear film

- Sezen Karakus, M.D., is an assistant professor of ophthalmology at the Wilmer Eye Institute, Johns Hopkins University School of Medicine.

- Her research interest is ocular surface inflammation and dry eye. She has been involved in many research studies and published several research papers in this field. With her continuing research, she aims to address the impact of dry eye and ocular surface diseases on quality of life, study their associations with systemic diseases, and discover the unknown underlying mechanisms to find more effective treatments or even cure.

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- She has been investigating the role of the novel autoantibodies in the early diagnosis of Sjögren’s syndrome. Her recent project is focusing on the role of the ocular surface microbiome in the pathogenesis of meibomian gland dysfunction, particularly in ocular rosacea

Susan B. Bressler

Professor, Ophthalmology

- Clinical trials
- Age-Related Macular Degeneration
- Diabetic Retinopathy
- Venous Occlusive Disease
- Ocular Imaging

Faculty Webpage

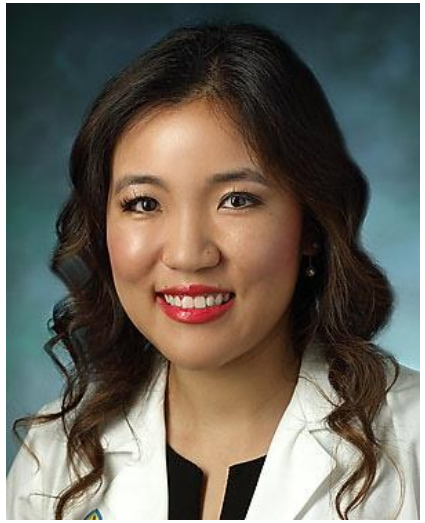
Publications

Grant Information

JH licensable technologies

- Factors Associated With Visual Acuity and Central Subfield Thickness Changes When Treating Diabetic Macular Edema With Anti-Vascular Endothelial Growth Factor Therapy: An Exploratory Analysis of the Protocol T Randomized Clinical Trial.
- Progression of Geographic Atrophy in Age-related Macular Degeneration: AREDS2 Report Number 16.

Suzy Chen



[Faculty webpage]

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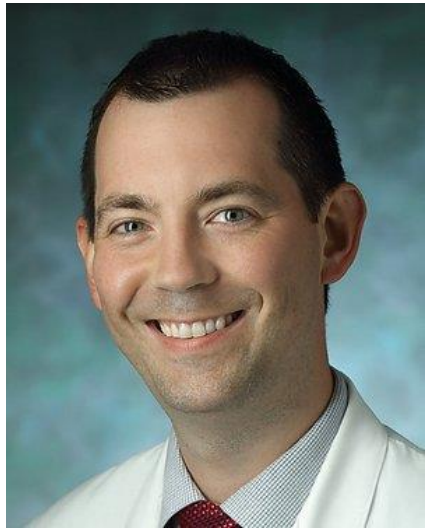
- Dr. Chen has a special research and clinical interest in glaucoma and post-operative surgical care.
- Dr. Suzy Chen is an assistant professor of ophthalmology at the Wilmer Eye Institute.
- She is a member of the glaucoma team and sees patients at their locations in Bethesda and Columbia, Maryland. In addition to providing comprehensive eye care
- She enjoys customizing treatment modalities for each patient and collaborating with specialists to improve clinical outcomes.
- Ophthalmology, Optometry

Thomas Johnson



Faculty webpage

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- Cataract Surgery, Cataracts, Glaucoma, Ophthalmology Glaucoma, Optic Nerve Neurodegeneration and Neuroprotection, Retinal Ganglion Cell Regeneration, Stem Cell Transplantation

- Thomas V. Johnson III, M.D., Ph.D. is a glaucoma specialist and the Shelley and Allan Holt Rising Professor of Ophthalmology at Wilmer Eye Institute.

- Presently, he is interested in the neurobiological processes that lead to retinal ganglion cell death and dysfunction in glaucoma and other optic neuropathies. In particular, he seeks to better understand the molecular mechanisms underlying axonal degeneration, dendrite retraction and afferent synapse loss, and cell body death in glaucoma. His goal is to utilize knowledge of these processes to develop targeted neuroprotective strategies to slow or halt RGC death and preserve vision for patients with glaucoma.

- He is also leading new investigations into the use of stem cell transplantation to achieve retinal ganglion cell placement, as a potential regenerative treatment for optic nerve disease, with a focus on anatomic incorporation of cell grafts, neurite growth and synapse formation, and electrophysiological retinal circuit integration.

Thao (Vicky) Nguyen

[Faculty webpage]

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- Biomechanics, Polymers, Soft Active Material, Fracture Mechanics

- Her lab uses an integrated experimental and modeling approach to study adaptive materials that can exhibit dramatic changes in microstructure, mechanical properties, and macroscopic shape in response to an environmental stimulus. Her research focuses on the biomechanics of fibrous soft tissues, constitutive modeling of shape memory polymers and polymer composites, and the fracture and failure of rate-dependent materials work has contributed to the development of innovative experimental tools and models to investigate the fundamental microscale mechanisms and microstructural origins of the behavior of soft adaptive materials.

- Her research has provided design tools and guidelines for the creation of shape-shifting biomedical devices, including materials that expand in the body to secure tendons to bone medical devices that function without wires or batteries. Also is an expert on the complex mechanics of the eye. Nguyen has worked collaboratively to investigate the role of the sclera and cornea in the development of glaucoma, and to develop a biomechanical model of the sclera and its effects on glaucoma.

Tin Yan Alvin Liu

Faculty Webpage

Publications

JH licensable technologies

Assistant Professor, Ophthalmology

- The pathogenesis of and treatment for pathologic myopia and the management of severe ocular trauma
- Application of artificial intelligence in the screening, diagnosis, prognostication and treatment of ophthalmic diseases, with a specific focus on vitreoretinal diseases such as age-related macular degeneration and diabetic retinopathy.

- Correlation of Ultra-Widefield Fluorescein Angiography and OCT Angiography in Sickle Cell Retinopathy.
- Evolution of Leukemic Retinal Hemorrhages Documented by Spectral-Domain OCT and Color Fundus Photography.
- Association of Ultrawide-Field Findings in Proliferative Retinopathy With Systemic Lupus Erythematosus.
- Multimodal Retinal Imaging in Incontinentia Pigmenti Including Optical Coherence Tomography Angiography: Findings From an Older Cohort With Mild Phenotype.

Uri Soiberman

Faculty Webpage

Publications

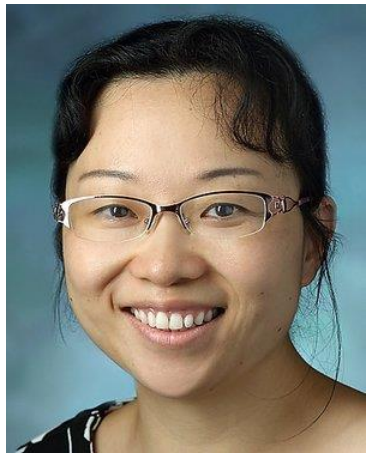
JH licensable technologies

Assistant Professor, Ophthalmology

- Nanomedicine for treatment of corneal diseases
- Novel treatments for keratoconus
- Corneal collagen cross-linking
- Corneal transplants
- Intraocular lenses
- Keratoconus

- Dendrimer-Hyaluronic acid nanoglues and hydrogels for corneal applications, and treating ocular disorders
- Subconjunctival injectable dendrimer-dexamethasone gel for the treatment of corneal inflammation.

Xiangrong Kong



[Faculty webpage]

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- Associate Professor of Ophthalmology. Dr. Xiangrong Kong is on faculty at the Dana Center for Preventive Ophthalmology, and holds joint appointments in the Departments of Biostatistics, Epidemiology, and Health, Behavior and Society in the Bloomberg School of Public Health. Dr. Kong is director and biostatistician of the Data Coordinating Center of the international multi-center natural history study on the Progression of Atrophy Secondary to Stargardt Disease (ProgStar).

- She conducts research at the interface of biostatistics and ophthalmology, and has worked on a broad range of clinical ophthalmic studies, including genetic retinal degeneration, ocular neuroretinal measurements, and low vision rehabilitation.

- A main theme of Dr. Kong's current work concerns statistical and quantitative approaches for understanding how imperfectly measured ocular parameters using modern imaging technologies (e.g. OCT, fundus autofluorescence) will impact on inference of disease progression and of structural and functional relationships. The better understanding is necessary for determining appropriate structural parameters for future clinical trials, especially for diseases with slow functional decline, facilitating bench-to-bedside translations.

- Dr. Kong's research interests in biostatistical methodology include correlated data analysis, longitudinal data analysis, survival analysis, measurement error models, and power and sample size calculations.

Yassine Daoud

[Faculty Webpage]

[Publications]

[JH licensable technologies]

Assistant Professor, Ophthalmology

- Femtosecond laser-assisted cataract surgery
- Refractive surgery (LASIK)
- Diagnosis and treatment of corneal disorders
- Cataract surgery and uveitis
- DSAEK corneal transplant
- Secondary intraocular lens implant

- Application of femtosecond laser-assisted cataract surgery in patients with corneal pathologies.
- Factors Associated With Graft Rejection in the Cornea Preservation Time Study.
- Removal of Retained Descemets Membrane Using Femtosecond Laser.
- Ophthalmic features of systemic diseases.