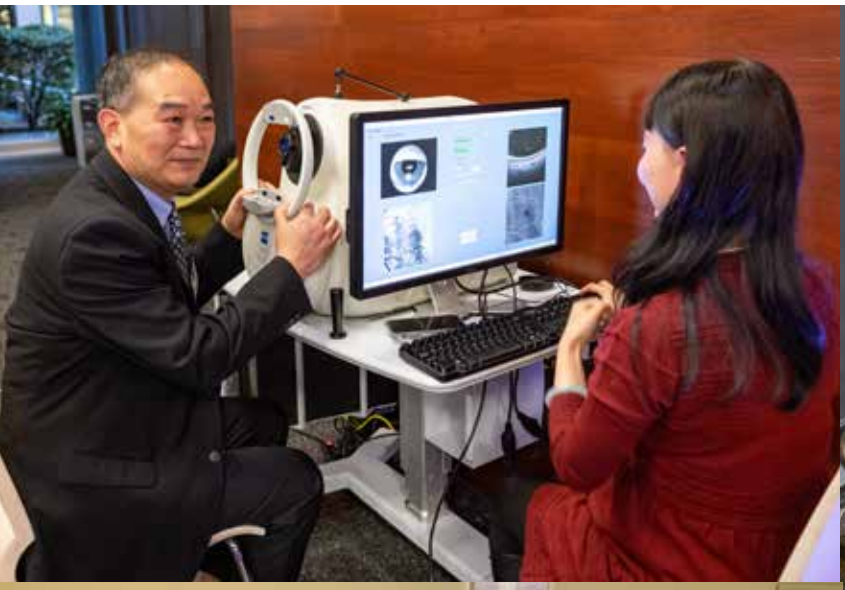
InSight 2023

Community Report



UW Medicine

DEPARTMENT OF OPHTHALMOLOGY

UW OPHTHALMOLOGY FAST FACTS

UW Medicine Department of Ophthalmology faculty at their December 2023 annual retreat.

PATIENT CARE

>112,000
Patient visits per year

>5,000
Surgical procedures

>1,500
Emergency visits

EDUCATION

20 residents

5 fellows

10,000 hours of training per resident

The UW Medicine Department of Ophthalmology is the only full-service ophthalmology training program and trauma service in the states of Washington, Wyoming, Alaska, Montana and Idaho.

FACULTY

51 faculty members

42 attending physicians

100+ patient care staff

8 patient care locations

RESEARCH

22,000 square feet of dedicated lab space

139 papers published during the 2022-23 academic year

$15 million average annual total grant funding during the last three years

Message from the Chair, Russ Van Gelder, MD, PhD

On behalf of the Department of Ophthalmology at UW Medicine, it is my pleasure to present our Community Report for 2023.

The department has continued to pursue our singular mission: to alleviate suffering from eye disease. We continue to do this through our robust research programs, outstanding patient care and educational programs to train the next generation of physicians. We have had a remarkable year in the department in each of these areas and are delighted to share our progress with you in this report.

Our research has grown to its all-time greatest extent and is among the most vibrant in the nation. Our vision scientists are committed to improving diagnosis, treatment, and ultimately finding cures for diseases of the eye and visual system. Collectively, the department published nearly 140 papers during the 2022-23 academic year. Our department is third in the nation in NIH funding among ophthalmology departments, and the University of Washington as a whole is second for National Eye Institute funding.

Learn more in this report about how our South Lake Union campus and the Karalis Johnson Retina Center support four pillars of research in its mission to eradicate retinal blindness: advanced optics imaging, computational ophthalmology, accelerating the therapeutic pipeline, and vision restoration research. 2024 marks the fifth anniversary of the Karalis Johnson Retina Center and it has been a remarkable success in advancing research and serving patients from throughout the region.

We are providing more care to the community than ever before, and our patients remain highly satisfied with their care.

The department has eight major sites of practice: the UW Medicine Eye Institute at Harborview; the Karalis Johnson Retina Center at South Lake Union, the Harborview Medical Center 4W Clinic (which includes our consult and trauma services); UW Medical Center-Montlake Eye Center; VA Puget Sound Health Care System (Seattle and American Lake); Seattle Children's; UW Medicine Primary Care clinics in Ravenna and Shoreline and the Eyes on James optical shop. Our faculty and trainees provided over 112,000 patient visits and performed over 4,000 surgeries.

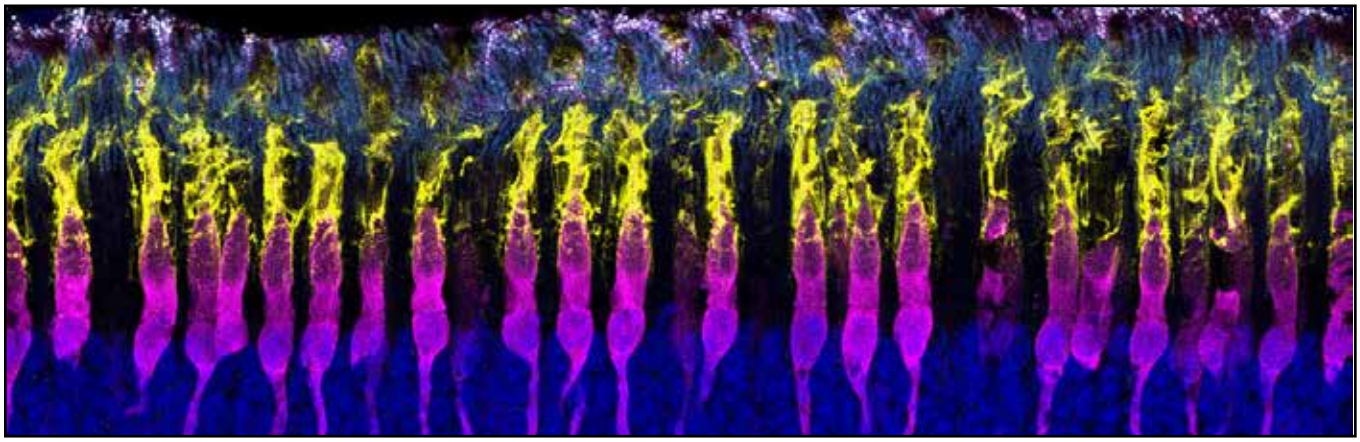
We serve as a major referral center, seeing patients from the five-state WWAMI (Washington, Wyoming, Alaska, Montana, Idaho) region. We continue to provide many services rare in the community, including managing eye cancer (ocular oncology), uveitis, and medical and hereditary retinal disease.

We are training the best young ophthalmologists in the nation. We currently train 20 residents, five fellows, and scores of medical students annually. Our residency training program remains one of the most competitive in the country.

We thrive in partnership with our generous community. Our philanthropic partners' generosity accelerates our ability to conduct cutting-edge research, provide excellent patient care, and train the next generation of ophthalmologists. Endowments and individual gifts are gratefully acknowledged in this report.

Russell N. Van Gelder, MD, PhD
Boyd K. Bucey Memorial Professor and Chair
Department of Ophthalmology, University of Washington
Director, UW Medicine Eye Institute
Director, UW Vision Science Center

RESEARCH



The Vision Science Center and the Karalis Johnson Retina Center support four pillars of research in its mission to eradicate retinal blindness: advanced optics imaging, computational ophthalmology, accelerating the therapeutic pipeline, and vision restoration research.

Advanced Imaging. The retina is the only visible component of the central nervous system outside of the human brain. This tissue-paper thin structure is essential to normal vision. Visualization of the retina has been central to diagnosis of retinal disease for over a century, but advances in digital optics and imaging allow unprecedented ability to detect and characterize retinal disease.

George and Martina Kren Associate Professor Ram Sabesan, PhD and his lab use adaptive optics imaging borrowed from astronomy to fully correct the optics of the eye, and image the retina at the level of single cells. **George and Martina Kren Endowed Chair of Ophthalmology Ricky Wang, PhD** and his lab developed the now widely-used technique of optical coherence tomography angiography. These two technologies are together advancing our ability to image the retina to single-cell resolution.

Computational Ophthalmology. The availability of huge datasets such as the American Academy of Ophthalmology's IRIS registry allows **C. Dan and Irene Hunter Endowed Professor Aaron Lee, MD and Klorfine Family Endowed Chair Cecilia Lee, MD** to determine real-world outcomes of treatments and identify risk factors and trends in disease on an unparalleled scale. Combined with machine learning approaches, we anticipate that personalized precision retinal medicine will become a reality – finding the best possible treatment options for patients based on analysis of millions of similar cases.

Accelerating the therapeutic pipeline includes the work of **Gordon and Joan Bergy Professor Jennifer Chao, MD, PhD.** Dr. Chao's lab is able to take blood samples from patients affected by retinal diseases to create patient-specific stem cells, which they can then grow into small copies of the retina in the laboratory. These cells can then be tested with available drugs, or even nutritional supplements, to look for agents that might slow or stop degeneration. This technique also has potential for transplantation – repairing damaged tissues with the patient's own cells.

The work of **Dr. Kathryn Pepple, Associate Professor of Ophthalmology**, also accelerates the therapeutic pipeline, by characterizing animal models of ocular inflammatory disease which can be used for drug development.

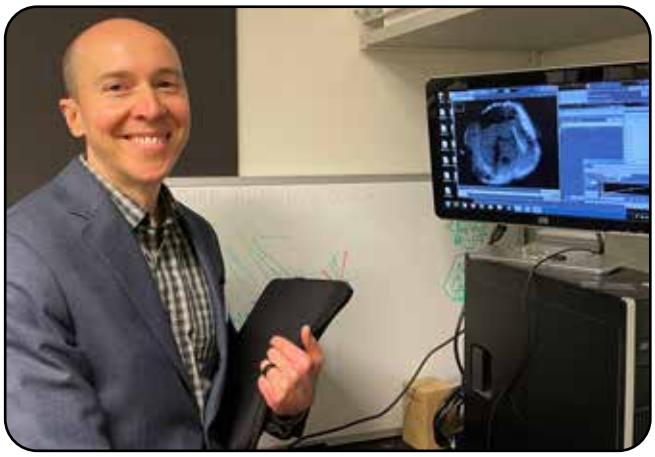
Vision restoration describes methods to reintroduce light sensitivity to retinas blind from degeneration. Gene therapy approaches pioneered by **Bishop Professor Jay Neitz, PhD and Ray Hill Chair Maureen Neitz, PhD** have been shown to correct color blindness in animals and have potential for correcting other forms of blindness. Research from the laboratory of **Bucey Chair Russell Van Gelder, MD, PhD's** laboratory is using small molecules to 'reanimate' the remaining cells in the degenerated retina to restore light responsiveness.

The Buhr Lab

Ethan Buhr, PhD
Research Associate Professor

Our behavior and cellular biology synchronize to the 24-hour light cycles produced by the daily rising and setting of the sun. This is achieved through non-visual photoreception, or the activation of photoreceptors that function independently of vision. To synchronize sleep-wake cycles, our retinas transmit light information to our brain's central circadian clock using rods, cones and intrinsically photoreceptive ganglion cells.

The Buhr Lab has identified additional unique photoreceptors which allow for the cells within the retina to synchronize to sunlight. These photoreceptors are completely distinct from visual photoreceptors, like an extra eye for the retina itself. The synchronization of circadian clocks within the retina contributes to the retina's response to photo damage and the long-term health of the tissue.



Research Associate Professor Dr. Ethan Buhr.

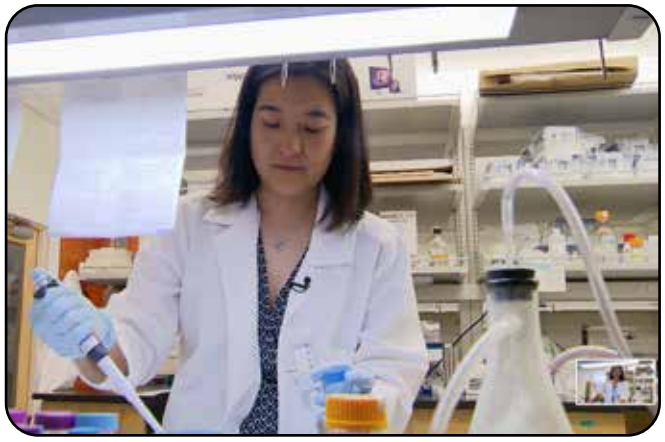
Outside of the retina, the Buhr Lab is also studying the role of non-visual photoreceptors in other areas exposed directly to light, such as the cornea and skin. Violet-light sensitive photoreceptor cells are induced in response to injury. Once active these cells activate pathways related to the synchronization of wound-healing mechanisms. An important next step is to understand the way that the signal is transmitted among the cells.

The Chao Lab

Jennifer Chao, MD, PhD
Associate Professor
Gordon and Joan Bergy Professor
Vice Chair, Research

There are currently no effective treatments to prevent vision loss in most patients with inherited retinal degenerations (IRDs) or dry age related macular degeneration (AMD).

The Chao Lab is working to understand the mechanisms of retinal degenerative diseases and identify potential therapeutic targets for treatment. In pursuit of this goal, the Chao lab and their collaborators have taken on three synergistic approaches: (1) identify mechanisms of disease that contribute to the initiation and progression of macular degenerative diseases; (2) utilize patient-derived stem cells to develop more sophisticated and physiologically relevant models of retinal diseases; and (3) conduct imaging and interventional clinical trials of retinal degeneration patients to determine the effectiveness of novel therapeutics.



Jennifer Chao, MD, PhD is Vice Chair for Research.

Targeted panels offer rapid genetic sequencing for inherited retinal disease

When attempting to identify the sequence of the genes responsible for inherited retinal diseases (IRDs), time is of the essence. Whereas previously, this process could take months, Assistant Professor Debarshi Mustafi, MD, PhD, and his colleagues in the UW Department of Ophthalmology have developed a method for genetic sequencing for IRDs that takes just days.

Assistant Professor Dr. Debarshi Mustafi.

Mustafi, a pediatric retina specialist at Seattle Children's with a lab at the Karalis Johnson Retina Center at South Lake Union, is investigating the genetic basis of inherited retinal degeneration and the potential for therapeutic intervention to prevent the progression of blindness. In the pediatric population, IRDs constitute a significant cause of visual impairment and can be one of the first presenting features of a syndromic condition that has extra-ocular consequences.

"Using isolated blood samples from affected IRD patients and their families, the lab can carry out targeted genome sequencing to identify novel pathogenic variants of disease and reconstruct disease haplotypes, which has implications for interpreting disease risks in IRDs," Mustafi said.

The molecular basis of inherited retinal disease (IRD) requires effectively characterizing mutations across over 300 genes. Mustafi said that currently used short-read panel sequencing leaves 30–40 percent of patients with a non-diagnostic result. This is because most smaller commercial panels do not cover all regions of disease genes. Targeted long-read sequencing can focus the sequencing efforts of disease regions of interest to provide comprehensive information on genetic variants contributing to disease.

"This sequencing has the potential to enable rapid, phased mutation analysis in a single step in a matter of days or hours," he said. "The sequencing is customizable. It takes a matter of minutes to add or subtract a gene. This way, we can selectively sequence what we want and disregard everything else."

The rapid turnaround from sample extraction to diagnosis will enhance clinicians' ability to provide more targeted therapy in a timely manner.

Mustafi is also investigating the potential of this technique to rapidly identify pathogenic variants in retinoblastoma, for which rapid diagnosis is critical as it can affect treatment regimens to minimize morbidity and mortality.

"Not only are we able to provide a complete molecular diagnosis in a shorter time frame, but we can do so at nearly a quarter of the cost of commercial panels and using only the blood from the patient," Mustafi said. "The goal is to determine if we can identify variants quickly and think about the next step, knowing their disease variant we can target."

Rapid sequencing is currently used to diagnose eye diseases such as Usher Syndrome, Stargardt disease, and retinitis pigmentosa. But the potential is there to expand this to other ocular diseases and even extra-ocular inherited conditions, Mustafi said.

The Fortenbach Lab

Chris Fortenbach, MD, PhD
Assistant Professor

Degenerative blinding diseases, such as age-related macular degeneration, are responsible for more than 200 million cases of vision loss worldwide. Among the diseases resulting in retinal degeneration, many cause gradual dysfunction and, ultimately, death of the light-sensing cells in the retina known as photoreceptors. While treatments to prevent degeneration remain under investigation, therapies to restore vision have begun to emerge.

Dr. Fortenbach's lab is investigating the therapeutic potential for photoswitches to restore vision in degenerated retinas. These light-sensitive small molecules bind to the degenerating retina and confer new light sensitivity to retinal cells. Photoswitches can be delivered via intravitreal injection, rather than requiring retinal surgery.

Dr. Chris Fortenbach recently joined the Department of Ophthalmology faculty.

The Fortenbach Lab is researching the mechanisms by which photoswitches restore light-sensitivity and methods to improve visual outcomes among treated individuals. information. Overall, the lab's goal is to help develop a medication capable of restoring sight and improving the quality of life for patients with vision loss.

The Lee Lab

Cecilia Lee, MD, MS
Professor, Klorfine Family Endowed Chair
Aaron Lee, MD, MSCI
Associate Professor, C. Dan and Irene Hunter Endowed Professor

Aaron and Cecilia Lee collaborate on the mining of large clinical data sets and registries from around the world and unlocking the power of Big Data through recent breakthroughs in machine learning and artificial intelligence.

Their major research focuses include bioinformatics, deep learning, next generation sequencing, clinical epidemiology, and data visualization. The availability of huge datasets allows the Lees to determine real-world outcomes of treatments and identify risk factors and trends in disease on an unparalleled scale. Combined with machine learning approaches,

Drs. Cecilia and Aaron Lee.

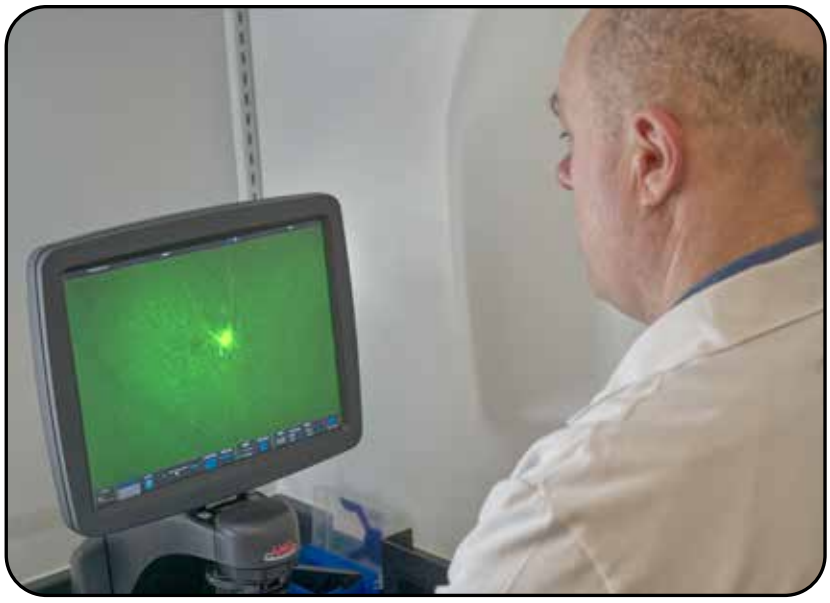
the Lees anticipate that personalized precision retinal medicine will become a reality – finding the best possible treatment options for patients based on analysis of millions of similar cases. The Lee Lab's recent published work includes clinical outcomes research in age-related macular degeneration and diabetic retinopathy. Learn more at comp.ophthalmology.uw.edu.

Manookin Lab is furthering understanding of the circuitry of the retina

Finding a way to restore vision lost to eye disease is the overarching goal of Associate Professor Mike Manookin's research at the Vision Science Center at South Lake Union.

"The goal is to understand the retina well enough to restore vision in disease states," says Manookin. "We currently don't have a deep enough understanding of the retina to restore function following blinding disease."

To do that, we need to know the retina's circuitry, Manookin explained.



Associate Professor Dr. Michael Manookin.

"There's been progress made in some animal models, but less so in humans in learning what information different retinal circuits are encoding and how disease affects them," he says.

The Manookin laboratory investigates the function and connectivity of neural circuits in the retina using techniques including electrophysiology, calcium imaging, and electron microscopy.

Working in collaboration with Research Associate Professor Ethan Buhr, PhD, and Adjunct Professor Fred Rieke, PhD, Manookin is recording the electrical activity of light sensitivity in neurons of the retina to help learn how we can stimulate light sensitivity. His research is partly supported by grants from the National Institutes of Health.

Manookin says there are over 80 different neuronal types in the human retina. These form the components of the specialized circuits that transform the signals from photoreceptors into a neural code responsible for our perception of color, form, motion, and, thus, visual experience.

Many blinding diseases, such as retinitis pigmentosa, cause death of the rods and cones but spare other cell types within the retina.

Thus, many techniques for restoring visual function following blindness are based on the premise that other cells within the retina remain viable and capable of performing their various roles in visual processing. However, the circuitry of the remaining retina does seem to change following the loss of photoreceptors.

Understanding the native and non-native circuitry will be critical to emerging techniques for vision restoration, including gene therapy, cell-based therapies, and small molecule photoswitches.

The Neitz Lab

Maureen Neitz, PhD
Ray Hill Chair

Jay Neitz, PhD
Bishop Foundation Professor

The Neitz lab is developing genetic tests and treatments for common vision disorders, and investigating the retinal circuitry for vision.

Jay and Maureen Neitz collaborate in their studies of the visual system, taking a multidisciplinary approach that uses techniques ranging from molecular genetics to human and animal psychophysics.

Major focus areas include developing gene therapy for cone-based vision disorders, investigating the role of genetic variability in the cone photo pigments in common eye diseases including AMD, myopia, and glaucoma, understanding the physiological basis for color perception. The Neitz lab is also developing treatments for myopia, the most common vision problem globally. In addition, the Neitzes are developing genetic tests to identify individuals at risk for developing common eye diseases so that therapeutic interventions can be started before symptoms appear. Learn more at neitzvision.com.

Drs. Maureen and Jay Neitz

The Pepple Lab

Kathryn Pepple, MD, PhD
Associate Professor

The Pepple Lab is investigating the role of the innate immune system in ocular inflammation and studying new anti-inflammatory treatments for patients with uveitis.

Ocular inflammation, or uveitis, is potentially blinding disease that can affect people of all ages. Using cutting edge molecular methods, including multiplex cytokine analysis, optical coherence tomography angiography, in vivo bioluminescence imaging, and multicolor flow cytometry, the Pepple lab is studying animal models of uveitis to determine the key mediators of ocular inflammation. The lab is also testing compounds that target these key mediators to find promising new therapies for patients.

Associate Professor Dr. Kathryn Pepple

The Sabesan Lab

Ram Sabesan, PhD
George and Martina Kren
Associate Professor

The Sabesan lab investigates the functional mechanisms by which photoreceptors and their ensuing neural circuits mediate the most fundamental aspects of vision and how these visual capacities are affected by retinal diseases. To this end, the Sabesan lab develops and uses novel cellular imaging tools which enable the visualization of the structure and function of living retinal cells at unprecedented spatial scales.

The backbone of the methods pursued by the lab is a technology called adaptive optics – the same tool used by astronomers to peer at small objects in space. Using adaptive optics, one can overcome the optical imperfections that exist in the human eye, converting the eyeball essentially into a microscope objective. By combining adaptive optics with other microscopy techniques, one obtains the ability to probe living cells in the retina of humans. This allows the probing of retinal cells in diseased human eyes at high resolution, thus serving as sensitive biomarkers for early disease diagnosis and monitoring of cellular events involved in disease progression. Learn more at sablab.ophthalmology.uw.edu.

Associate Professor Dr. Ram Sabesan.

The Van Gelder Lab

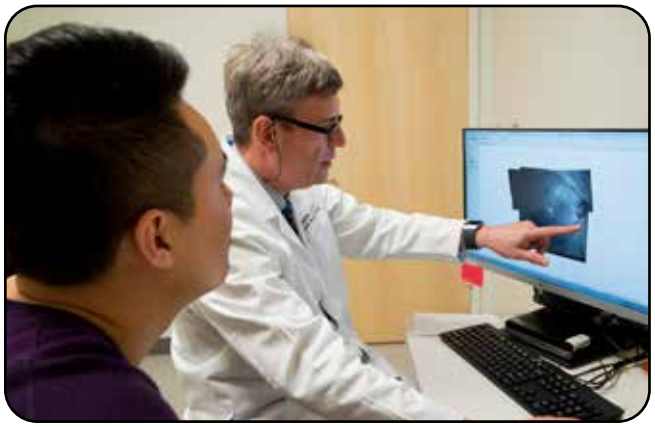
Russell Van Gelder, MD, PhD
Professor and Chair
Boyd Bucey Memorial Chair

The Van Gelder Lab has three main interests:

Molecular diagnostics of ocular infectious disease. Ocular infectious diseases, including microbial keratitis, conjunctivitis, and endophthalmitis, are significant causes of potentially blinding diseases. Most infectious organisms causing ocular disease originate in the ocular surface. Using cutting-edge molecular methods, including next generation sequencing, the Van Gelder lab is developing new techniques for rapid diagnosis of ocular infectious disease.

Vision restoration. Degenerative blinding diseases, including age-related macular degeneration, are caused by the death of rods and cones. The Van Gelder lab is investigating the therapeutic potential of synthetic small molecule photoswitches for restoring light sensitivity to degenerated retinas.

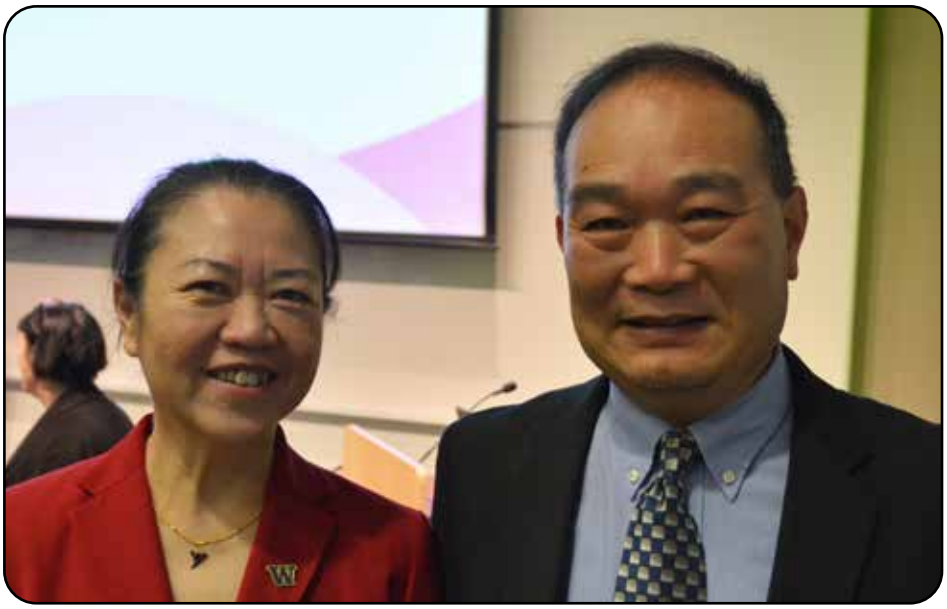
Non-visual photoreception. The Van Gelder lab is also working to understand how light affects mammalian physiology outside the visual system. They are particularly interested in the 'non-visual opsins' including Opn3, Opn4, and Opn5 and their roles in circadian rhythm synchronization and wound healing.



Bucey Professor and Chair Dr. Russell Van Gelder.

Ricky Wang, PhD receives UW Medicine Inventor of the Year Award

Ricky Wang, PhD, George and Martina Kren Endowed Chair in Ophthalmology Research and Professor of Bioengineering and Ophthalmology, has been honored as the 2023 UW Medicine Inventor of the Year.



Dr. Ricky Wang, right, with Dr.Tueng Shen, at the UW Medicine Inventor of the Year reception in November 2023.

The Inventor of the Year Award recognizes a UW researcher whose work has the potential to radically improve healthcare through the translation of research from the bench, with industry partnerships, to products or processes with significant impacts on health.

"I am deeply humbled by this honor," Dr. Wang said. "It has truly been my honor to work here at UW with so many brilliant colleagues in Bioengineering, Ophthalmology, and our lab."

The Wang lab is dedicated to developing novel and clinically useful biomedical imaging techniques for early diagnosis, treatment, and management of human diseases. Dr. Wang is widely credited with inventing optical coherence tomography (OCT) angiography, a technique in which blood flow can be measured in all blood vessels in the eye non-invasively. This technique is now a standard testing modality in ophthalmology offices worldwide.

His efforts have contributed to retinal findings in patients, including infants, with unprecedented precision, speed, and imaging resolution. He has also collaborated with Professor of Ophthalmology and Graham and Brenda Siddall Endowed Chair Tueng Shen, MD, PhD, on developing an OCT-based method to measure the cornea's structural integrity.

Dr. Wang has been a UW faculty member since 2010. He is a joint Professor in both Departments of Ophthalmology and Bioengineering. In addition to the Kren Chair, Dr. Wang has also held the Washington Research Foundation and David and Nancy Auth Innovator Award in the Department of Bioengineering.

Dr. Wang earned his PhD in engineering from the University of Glasgow. He began his academic career in the United Kingdom, holding a professorship at Cranfield University. In 2005 he moved to Oregon Health Sciences University, where he directed the biophotonics and imaging laboratory.

Dr. Wang's laboratory is phenomenally productive. He has authored or co-authored over 500 papers in peer-reviewed literature. He is currently editor-in-chief of Biomedical Optics Express journal.

SELECT CURRENT AND RECENT GRANTS AND TRIALS

Clinical trials and grants are the tools of translation between patient care and research. The UW is second in the nation in the federal funding it spends annually on research and development according to the Higher Education Research and Development (HERD) Survey. The UW Medicine Department of Ophthalmology ranks third in the nation in total NIH grant funding.

National Institutes of Health (NIH)

Ethan Buhr, PhD
The mechanism of extra-visual circadian photoentrainment in mammals

Jennifer Chao, MD, PhD
Metabolism of AMD iPSC-derived RPE

Metabolic dysfunction from ECM remodeling in diseases of human RPE

Aaron Lee, MD, MSCI
Bridge2AI: Uncovering the details of how human health is restored after disease, using Type 2 diabetes as a model.

Cecilia Lee, MD, MS
Aging eyes and aging brains in studying Alzheimer's disease: Modern ophthalmic data collection in the adult changes in thought (ACT) study

Michael Manookin, PhD
Function, diversity, and circuitry of parallel retinal ganglion cell pathways

Debarshi Mustafi, MD, PhD
The role of non-coding variants in Usher disease

Jay Neitz, PhD
Linking retinal circuits to perception

Maureen Neitz, PhD
CORE grant for vision research

Kathryn Pepple, MD, PhD
Immune mechanisms of post-infectious uveitis

Ram Sabesan, PhD
Contribution of the trichromatic cone mosaic to human vision

Optoretinography: All-optical measures of functional activity in the human retina

Russell Van Gelder, MD, PhD
Determinants of the periocular microbiome

Research to Prevent Blindness

Jennifer Chao, MD, PhD
Physiologically relevant In vitro modeling of RPE disease

Russell Van Gelder, MD, PhD
Unrestricted Departmental Award

Foundation Fighting Blindness, Inc.

Debarshi Mustafi, MD, PhD
Deciphering the missing heritability in inherited retinal diseases with targeted long-read genome sequencing

Kathryn Pepple, MD, PhD
Evaluating mitigation strategies for intravitreal viral vector-mediated inflammation across animal models

Robert M. Sinskey, MD Foundation

Ethan Buhr, PhD
Evaluating the effect of light and opsin-5 function on corneal wound healing

Debarshi Mustafi, MD, PhD
Identification of non-coding disease causing mutations in usher syndrome type 2

Kathryn Pepple, MD, PhD
Immunomodulation to improve success with gene therapy in the eye

Karine Duarte Bojikian, MD, PhD
Exploring the potential of phs-oct to monitor patients with glaucoma and assess treatment

Cecilia Lee, MD, MS
The eyes as a window into your health: leveraging retinal imaging to detect Alzheimer's disease

Michael Manookin, PhD
Neural recording and stimulus design for early detection of retinal disease

Andrew Stacey, MD, MSc
Leveraging clinical images and artificial intelligence to improve eye cancer care

OTHER GRANTS AND MAJOR SPONSORS

Aaron Lee, MD, MSCI
Lowy Medical Research Institute
Application of machine learning to the MacTel project for the UK Biobank and pathogen discovery

Raghu Mudumbai, MD
Stoke Therapeutics, Inc.
A prospective natural history study of patients with autosomal dominant optic atrophy

Debarshi Mustafi, MD, PhD
Alcon Research Institute
Targeted long-read sequencing to identify phased pathogenic variants in inherited retinal diseases

Maureen Neitz, PhD
Medical College of Wisconsin (NEI)
Assessing photoreceptor structure and function in normal and diseased retinae

Kathryn Pepple, MD, PhD
Institute for Arthritis Research
Efficacy of systemic administration of pentideX2-13 in the treatment of experimental uveitis

Kasra Rezaei, MD
Jaeb Center for Health Research
Diabetic retinopathy clinical research network

Ram Sabesan, PhD
Burroughs Wellcome Fund
Studying visual function on a cellular scale

Andrew Stacey, MD
The Gerber Foundation
Rapid neonatal genetic diagnosis of retinoblastoma utilizing targeted long-read sequencing technology

SELECTED CLINICAL TRIALS

ADVISE - Adalimumab vs. Conventional immunosuppression for corticosteroid-sparing for uveitis. Randomized clinical trial that compares different types of treatments for non-infectious uveitis.

AI-READI - Multisite observational study of subjects with and without type 2 diabetes.

Chalazia - Local 5-fluorouracil injection for the treatment of chalazia: a prospective, comparative study.

DOVETAIL - a multi-center, non-randomized, open-label, multiple ascending dose study in patients with diabetic or uveitic macular edema.

DRCR Protocol AF - A randomized clinical trial evaluating fenofibrate for prevention of worsening diabetic retinopathy.

Eye in AD - The study is evaluating the possibility of surrogate markers for Alzheimer's disease.

EXPLORE and HORIZON - These two studies evaluate gene therapy for patients with geographic atrophy. In the EXPLORE study, the primary focus was patients with rare mutations associated with AMD. In contrast, the HORIZON study evaluated the treatment in a wide range of patients with geographic atrophy due to AMD.

Genentech OCT - This study evaluates differences in OCT images collected by different OCT devices.

MacTel NHOR - A natural history observation and registry study of macular telangiectasia type 2.

MacTel SAFE - Phase 2a study of the effect of serine supplementation and fenofibrate treatment on serum deoxysphinganine levels in patients with macular telangiectasia (MacTel) Type 2.

Nanodropper - Use of nanodropper vs. standard eyedropper in patients with glaucoma and ocular hypertension.

Nicox Denali - A phase 3 trial evaluating the safety and efficacy between a new glaucoma drug (NCX 470) and an existing drug (Latanoprost) in patients with open-angle glaucoma or ocular hypertension.

Stoke FALCON - The study follows patients with optic atrophy caused by the OPA1 gene mutations in preparation for a gene therapy study.

Viridian - An interventional clinical trial for patients with thyroid eye disease.

Grant to study prevention of uveitis in ocular gene therapy

Associate Professor Kathryn Pepple, MD, PhD, has received a three-year grant from the Foundation Fighting Blindness to study ocular gene therapy associated with uveitis and test prevention strategies.

Associate Professor Dr. Kathryn Pepple

"Gene therapy is an amazing technology for patients with inherited eye diseases," Dr. Pepple said. "With gene therapy, we can hope to restore sight and to prevent blindness in a way never possible before. Inflammation in the eye following gene therapy administration, or gene therapy-associated uveitis, has been identified in several clinical trials. This inflammation is a potential barrier to gene therapy for all patients."

Dr. Pepple said the goal is to identify a safe and effective treatment strategy to prevent gene therapy-associated inflammation for all patients.

"Any approach we can develop that improves therapeutic delivery and patient outcomes will be beneficial. Looking at inflammation not as a barrier to this great technology but as something that everybody is dealing with, and planning for it, will help make gene therapy an even better treatment in the long run."

For the past 10 years, Dr. Pepple's lab at South Lake Union has studied uveitis in rodent models of disease. Dr. Pepple and her team have identified specific cytokines — small proteins crucial to our immune system response — involved in different stages of eye inflammation.

Using animal models, her lab has also tested novel anti-inflammatory therapies in collaboration with industry partners. A recent collaboration involved a Seattle biotech company that has developed a new molecule for blocking T-cell activation. T cells are immune cells responsible for initiating many forms of autoimmune uveitis.

Dr. Pepple's research and clinical efforts all address her central career goal to prevent blindness in her patients with uveitis through effective medical management of ocular inflammation.

"Even though many medications are available for patients with uveitis, treatment failures, and side effects can leave some patients without good disease control. New and better therapies are still needed. Using our animal models of uveitis, we have identified immune cells and cytokines that are important in driving chronic inflammation in the eye. The next step is to confirm this data using human tissue samples."

VISION SCIENCE RESEARCH FACULTY & ASSOCIATES

OPHTHALMOLOGY PRIMARY

Ethan Buhr, PhD
Research Associate Professor

Michelle Cabrera, MD
Associate Professor

Jennifer Chao, MD, PhD
Gordon and Joan Bergy Associate Professor

Chris Fortenbach, MD, PhD
Assistant Professor

Murray Johnstone, MD
Clinical Professor

Jim Kuchenbecher, PhD
Acting Assistant Professor

Aaron Lee, MD, MSc
C. Dan and Irene Hunter Endowed Associate Professor

Cecilia Lee, MD, MS
Klorfine Family Endowed Chair

Mike Manookin, PhD
Associate Professor

Debarshi Mustafi, MD, PhD
Assistant Professor

Jay F. Neitz, PhD
Bishop Professor

Maureen E. Neitz, PhD
Ray H. Hill Endowed Chair

Vimal Pandiyan, PhD
Acting Instructor

Kathryn Pepple, MD, PhD
Associate Professor

Ram Sabesan, PhD
George and Martina Kren Associate Professor

Tueng T. Shen, MD, PhD
Graham and Brenda Siddall Endowed Chair

Dr. Cecilia Lee, Professor and Klorfine Family Endowed Chair, speaks at the 14th annual Gained In Translation Symposium in Portland, Ore., a meeting of clinicians and vision scientists from the University of Washington, the University of British Columbia, and Oregon Health Sciences University.

Russell Van Gelder, MD, PhD
Boyd K. Bucey Memorial Chair

Ruikang "Ricky" Wang, PhD
George and Martina Kren Endowed Chair in Ophthalmology

ADJUNCT

Susan E. Brockerhoff, PhD
Professor, Biochemistry

John I. Clark, PhD
Professor, Biological Structure

Ione Fine, PhD
Professor, Psychology

Jim Hurley, PhD
Professor, Biochemistry

Dirk Keene, MD, PhD
Professor, Laboratory Medicine and Pathology

Thomas A. Reh, PhD
Professor, Biological Structure

Frederick M. Rieke, PhD
Professor, Physiology and Biophysics

Kathryn Scherpelz, MD, PhD
Assistant Professor, Laboratory Medicine and Pathology

Rachel Wong, PhD
Professor and Chair

EMERITI

Robert E. Kalina, MD
Professor Emeritus Ophthalmology

Ann Milam, PhD
Professor Emerita Ophthalmology

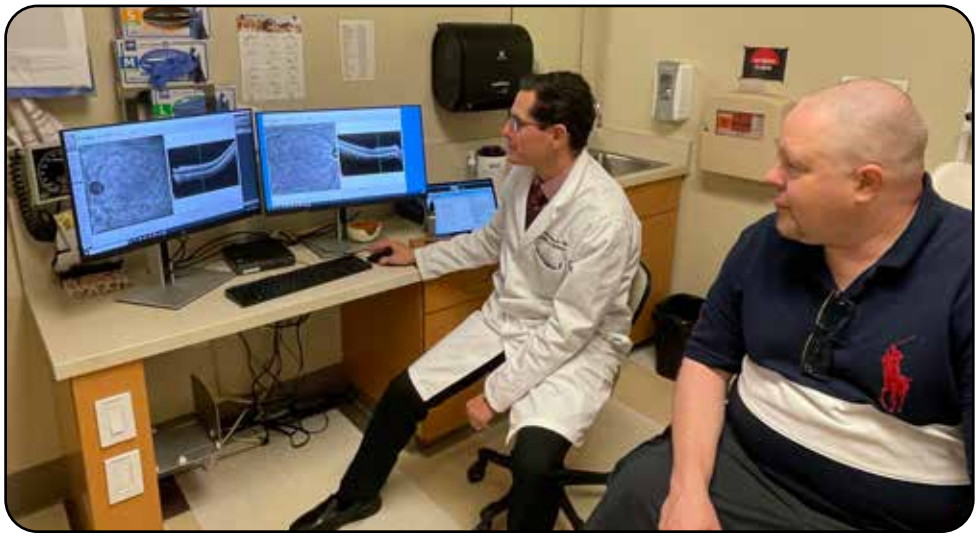
Michael Mustari, PhD
Research Professor Emeritus Ophthalmology

John C. Saari, PhD
Professor Emeritus Ophthalmology

PATIENT CARE

The Beat Goes On: Popular DJ finds the right rhythm by coming to the UW Medicine Eye Institute

As "DJ Tecumseh," Isaac Dyckoff has played music for hundreds of weddings and other important family celebrations. Diagnosed with Type 1 diabetes in the sixth grade, he knew that one day it could affect his eyesight but hadn't maintained regular eye care.



Isaac Dyckoff meets with Dr. Kasra Rezaei at the UW Medicine Eye Institute. Dyckoff is a professional DJ at events throughout the greater Seattle area.

But when he started experiencing decreased vision in his eyes, he knew it was time to get help.

"My children were two and five at the time, and I am thinking, is this the last time I am going to see my kids?"

His wife arranged for him to visit the UW Medicine Eye Institute where he first met Associate Professor Kasra Rezaei, MD.

"From the minute I walked in, the mindset was totally different," he said. "Dr. Rezaei was much more engaging and optimistic – like, let's work together on this."

He ultimately had vitrectomy surgery for his severe diabetic retinopathy. During his vitrectomy, the surgeon removes all the blood from back of his eyes, peeled all the scar tissue over the retina and places pan-retinal laser photocoagulation.

"My vision is good now; it's cool to be able to go to the swimming pool and see my kid's face when he is jumping off the diving board," Isaac said. "I am so thankful for Dr. Rezaei's care. "The mental side of this can be rough, and knowing you have people in your corner meant a lot."

"DJ Tecumseh" Isaac Dyckoff is a professional DJ at events throughout the greater Seattle area. His vision is stable after treatments at the UW Medicine Eye Institute.

Four specialists, one visit: This multidisciplinary clinic is providing collaborative care for patients

A unique multidisciplinary clinic at the UW Medicine Eye Institute allows patients with idiopathic intracranial hypertension (IIH) to receive treatment from as many as four specialists in one visit.

One morning a month, neuro-ophthalmology, neurology, and neurosurgery specialists hold a joint clinic at the Eye Institute. The clinic began in 2017 partly because of a gift from a grateful patient who had previously been treated for IIH and had a positive experience and outcome.

From left, Drs. Michael Williams, Ami Cuneo, Courtney Francis and Michael Levitt at the IIH clinic at the UW Medicine Eye Institute.

"In our IIH clinic, patients may see up to four physicians in one visit," said neuro-ophthalmologist Courtney Francis, MD, associate professor of ophthalmology and medical director of the Eye Institute. "To our knowledge, there is nothing like it in the country that brings everyone together in one place."

"Patients appreciate the thoughtful approach with the multi-disciplinary nature of the clinic in that they receive all these visits at one time, saving travel time and costs as well as getting input from multiple specialists at once," Dr. Francis said.

IIH is a condition with high pressure in the fluid surrounding the brain, and optic nerves. This can cause headaches and vision loss. IIH can affect anyone but is more common in women (90%) than men. The cause of IIH is unknown; however, there is a clear association with obesity.

"The biggest risk of the condition is blindness," Dr. Francis said. "It's a complex condition, so the neuro-ophthalmologist is often the first person that sees the patient."

Francis is joined at the clinic by neurosurgeon Michael Levitt, MD, neurologist Michael Williams, MD, and neurologists Ami Cuneo, MD, and Natalia Murinova, MD, MHA. Both Cuneo and Murinova are headache specialists and Williams helps manage patients who have had shunts placed.

IIH is associated with increased pressure in the brain, leading to vision loss or headaches. Weight loss and medications are often prescribed, but in some cases, there is a need for surgical treatments.

These might include the placement of a shunt in the brain to drain the fluid, placing a stent in one of the veins in the brain, or performing surgery on the optic nerve.

"Because treatment of IIH can be complex, it becomes helpful for some patients for us to all be in the same room at the same time – discussing the patient's symptoms and exam findings and coming up with a multidisciplinary, collaborative approach for patient care," Dr. Francis said.

UW MEDICINE OPHTHALMOLOGY PATIENT CARE FACULTY

COMPREHENSIVE OPHTHALMOLOGY

Anthony Chung, MD

Assistant Professor

EDUCATION

BS, University of Iowa
MD, University of Iowa
Residency: Ophthalmology, University of Iowa Hospitals and Clinics

Anne Ko, MD

Clinical Assistant Professor

EDUCATION

BS, Neuroscience, Brown University
MD, Brown University
Residency: Ophthalmology, New York Eye and Ear Infirmary
Fellowship: Cornea and External Disease, USC/ Doheny Eye Institute

Whitney Lomazow, MD

Assistant Professor

EDUCATION

BS, Emory University
MD, Rutgers New Jersey Medical School
Residency: Pediatrics, Children's Hospital of New York Presbyterian
Residency: Ophthalmology, Washington University
Fellowship: Cornea and External Disease, U California, Irvine

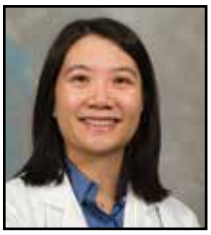
Eric R.H. Duerr, MD

Assistant Professor

EDUCATION

BA, Biology, Case Western Reserve University
MD, University of Pittsburgh School of Medicine
Residency: Ophthalmology- Bascom Palmer Eye Institute at the University of Miami
Fellowship: Glaucoma- Bascom Palmer Eye Institute at the University of Miami

Deborah L. Lam, MD



Associate Professor
Chief of Eye Care Services, VA Puget Sound Health Care System

EDUCATION

BA, Chemistry, Northwestern University,
MD, Northwestern University School of Medicine
Residency: Ophthalmology, University of Washington

Parisa Taravati, MD

Robert E. Kalina MD Associate Professor
Vice Chair, Education
Director, Residency Program
Chief of Service, UW Medical Center

EDUCATION

BS, Chemistry, University of Iowa
MD, University of Iowa, 2005
Residency: Ophthalmology, University of Iowa

Shu Feng, MD

Assistant Professor
Director, Medical Student Clerkship Program

EDUCATION

BS, Bioengineering, University of Washington

MD, Oregon Health & Science University
Residency: Ophthalmology, University of Washington

Thellea Leveque, MD, MPH

Clinical Professor

EDUCATION

BA, Sociology, Amherst College
MD, Duke University School of Medicine
MPH, Clinical Leadership, University of North Carolina
Residency: Ophthalmology, University of Michigan
Fellowship: Uveitis, University of Washington

Jennifer T. Yu, MD, PhD

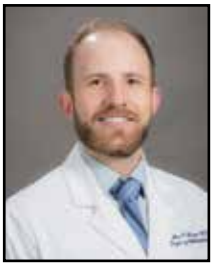
Clinical Associate Professor; Director, 4W Ophthalmology Clinic at Harborview; Director of Trauma and Consult Services at Harborview

EDUCATION

BS, Cellular and Molecular Biology, University of Michigan
MD, Washington University School of Medicine
PhD, Molecular Oncology, Washington University School of Medicine
Residency: Ophthalmology, Washington University School of Medicine

CORNEA AND EXTERNAL DISEASE

Alex Beazer, MD



Acting Assistant Professor

EDUCATION

BS, Brigham Young University
MD, Tulane University School of Medicine
Residency: Ophthalmology, University of Arizona College at South Campus
Fellowship: Cornea and Refractive Surgery, University of California, San Diego

Tueng T. Shen, MD, PhD

Professor; Graham and Brenda Siddall Chair In Cornea Research In Ophthalmology; Adjunct Professor In Bioengineering & Global Health; Associate Dean for Medical Technology Innovation, UW School of Medicine

EDUCATION

BA, Chemistry, Wellesley College, Wellesley, MA
PhD, Medical Engineering, Massachusetts Institute of Technology, Cambridge, MA
MD, Harvard Medical School, Boston, MA
Residency in Ophthalmology, Massachusetts Eye & Ear Infirmary, Harvard Medical School, Boston, MA
Fellowship in Cornea, Refractive, and External Disease, Moran Eye Center, University of Utah, Salt Lake City, UT

Miel Sundararajan, MD

Assistant Professor

EDUCATION

Undergraduate Education: BS, Bioengineering, Rice University
Medical School: MD, Baylor College of Medicine
Residency: Ophthalmology, New York Eye & Ear Infirmary
Fellowship: UCSF/Proctor Foundation, Uveitis, UCSF/Proctor Foundation, Cornea & External Disease

GLAUCOMA

Karine Duarte Bojikian, MD, PhD

Assistant Professor

EDUCATION

Medical School: MD, Federal University of Sao Paulo

Ph.D., Federal University of Sao Paulo
Residency: Ophthalmology, University of Washington, Seattle, WA
Fellowship: Casey Eye Institute & Devers Eye Institute, Portland, OR

Andrew Chen, MD

Assistant Professor

EDUCATION

BS, University of California Los Angeles
MD, David Geffen School of Medicine at UCLA
Residency: Ophthalmology, Flaum Eye Institute at the University of Rochester
Fellowship: Glaucoma, Stein Eye Institute at UCLA

Philip P. Chen, MD

Professor
Grace E. Hill Endowed Chair
Vice Chair for Clinical Services

EDUCATION

Undergraduate Education: BS, Biological Sciences, Stanford University
Medical School: MD, Yale University School of Medicine
Residency: Ophthalmology, University of Southern California
Fellowship: Glaucoma, University of Miami

Raghu Mudumbai, MD

Associate Professor; Division DIrector, Glaucoma

EDUCATION

BA, City University of New York
MD, City University of New York/State University of New York
Residency: Ophthalmology, State University of New York
Fellowship: Glaucoma, New York Eye and Ear Infirmary
Neuro Ophthalmology, Orbit, Oculoplastics, University of Minnesota

Aaron Lee, MD receives Young Investigator Award from ASRS

Aaron Lee, MD, C. Dan and Irene Hunter Associate Professor, received the 2023 President's Young Investigator Award during the 2023 American Society of Retina Specialists (ASRS) annual scientific meeting at the Seattle Convention Center.

Dr. Aaron Lee

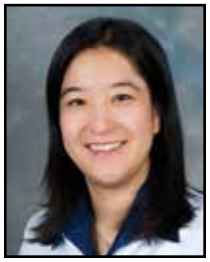
The award is given by the ASRS Foundation to nurture the development of next-generation retina leaders. It recognizes an ASRS member age 45 or younger who has made substantial contributions to the field of retina that will potentially improve patients' lives.

Dr. Lee chairs the American Academy of Ophthalmology Information Technology Steering Committee. He is an associate editor for Translational Vision Science & Technology and Ophthalmology Science and is on the editorial board of the American Journal of Ophthalmology and Nature Scientific Reports. Dr. Lee has published over 175 peer-reviewed manuscripts and is known as a leader in the field of artificial intelligence and ophthalmology.

His research is focused on the translation of novel computation techniques in machine learning to uncover new disease associations and mechanisms from routine clinical data, including electronic health records and imaging.

In 2022, Dr. Aaron Lee and Klorfine Family Chair and Professor Dr. Cecilia Lee were jointly awarded a $33 million, four-year grant as part of the Bridge to Artificial Intelligence (Bridge2AI) program, a new initiative by the National Institutes of Health to expand the use of artificial intelligence in biomedical and behavioral research. Artificial intelligence holds great promise for enabling research breakthroughs and improving clinical care.

MEDICAL AND SURGICAL RETINA



Jennifer Chao, MD, PhD
Gordon and Joan Bergy Associate Professor
Vice Chair, Research

EDUCATION
BS. Stanford University
MD, Ophthalmology, Yale University
PhD, Yale University
Residency, USC/Doheny Eye Institute
Fellowship, Vitreoretinal Surgery - USC/ Doheny Eye Institute

Yewlin Chee, MD
Associate Professor

EDUCATION
AB, Princeton University
MD, University of Pennsylvania
Residency, Ophthalmology, Harvard University
Fellowship, Vitreo-Retinal Disease & Surgery, Harvard University

Christopher Fortenbach, MD, PhD
Assistant Professor

EDUCATION
BS, Biochemistry and Molecular Biology, UC Davis
MD, UC Davis
PhD, Biochemistry, Molecular, Cellular, and Developmental Biology, UC Davis
Residency, Ophthalmology, University of Iowa Hospitals and Clinics
Fellowship, Vitreoretinal Surgery, University of Iowa Hospitals and Clinics

Aaron Lee, MD, MSc

C. Dan and Irene Hunter Associate Professor

EDUCATION

BS, Biochemistry,
MD, Washington University School of Medicine
MS, Washington University School of Medicine
Residency, Ophthalmology, Washington University School of Medicine
Fellowships, Medical Retina, Moorfields Eye Hospital; Surgical Retina, UBC

Cecelia Lee, MD, MS

Professor
Klorfine Family Endowed Chair

EDUCATION

BS, Emory University
MD, Emory University School of Medicine
Residency, Ophthalmology, Emory University
Fellowships, Uveitis, Washington University in St. Louis
Medical Retina, Moorfields Eye Hospital

Debarshi Mustafi, MD, PhD

Assistant Professor

EDUCATION

BS, University of Chicago
MD, Case Western Reserve University
Ph.D., Case Western Reserve University
Residency: Ophthalmology, University of Southern California
Fellowship: Vitreoretinal Surgery, University of Washington

Lisa Olmos de Koo, MD, MBA

Associate Professor
Division Director, Retina
Director, Retina Fellowship

EDUCATION

AB, Chemistry, Harvard University
MD, Baylor College of Medicine
MBA, Rice University
Residency, Ophthalmology, Bascom Palmer Eye Institute, University of Miami
Fellowship, Vitreoretinal Surgery, Bascom Palmer Eye Institute, University of Miami

Kasra Rezaei, MD

Associate Professor

EDUCATION

MD, Azad University, Tehran, Iran
Residency, Ophthalmology, Vanderbilt Eye Institute, Vanderbilt University
Fellowship, Vitreo-Retinal Fellowship, Associated Retina Consultants

NEURO-OPHTHALMOLOGY

Brian Chou, MD, MA

Assistant Professor

EDUCATION

BS, Northwestern University
MD, Northwestern University Feinberg School of Medicine
MA, The Graduate School at Northwestern University
Residency, Ophthalmology, University of Washington
Fellowship, Neuro-ophthalmology, Stein/Doheny Eye Institute at UCLA

Courtney Francis, MD

Associate Professor; Division Director, Neuro-Ophthalmology; Medical Director, UW Medicine Eye Institute

EDUCATION

ScB, Neuroscience, Brown University
MD, University of Rochester
Residency: Ophthalmology, University of Alabama, Birmingham School of Medicine
Fellowship: Neuro-Ophthalmology, Doheny Eye Institute/University of Southern California

Eugene May, MD

Clinical Associate Professor

EDUCATION

BS (Engineering), Tulane University
MD, University of Chicago Pritzker School of Medicine
Residency: Neurology, Walter Reed Army Medical Center
Fellowship: Neuro-ophthalmology, Walter Reed Army Medical Center

NEURO-OPHTHALMOLOGY

Raghu Mudumbai, MD
Associate Professor;

EDUCATION
BA, City University of New York
MD, City University of New York/State University of New York
Residency: Ophthalmology, State University of New York
Fellowship: Glaucoma, New York Eye and Ear Infirmary
Neuro Ophthalmology, Orbit, Oculoplastics, University of Minnesota

OCULAR ONCOLOGY

Andrew W. Stacey, MD, MSc
Associate Professor

EDUCATION
BS, Biostatistics, Brigham Young University
MD, Ohio State University
MS, Statistics, Brigham Young University
Residency: Ophthalmology, The University of Michigan Kellogg Eye Center
Fellowship: Ocular Oncology, Moorfields Eye Hospital and St. Bartholomew Hospital

OCULOPLASTIC AND RECONSTRUCTIVE SURGERY

Christopher Chambers, MD
Associate Professor
Director, Oculoplastic and Reconstructive Surgery Fellowship

EDUCATION
BS, University of Notre Dame
MD, The Ohio State University College of Medicine
Residency, Ophthalmology, Kresge Eye Institute
Fellowship, Opthalmic Plastic and Reconstructive Surgery, University of Pennsylvania

Shu-Hong (Holly) Chang,MD
Clinical Associate Professor

EDUCATION
BA, Genetics, Duke University
MD, Johns Hopkins University
Residency: Ophthalmology, Washington University in St. Louis; Chief Residency, Washington University in St. Louis
Fellowship: Ophthalmic pathology, Washington University in St. Louis, Orbital and oculofacial plastic & reconstructive surgery, UCLA

Matthew Zhang, MD
Assistant Professor

EDUCATION
BS, Neurobiology/ Biochemistry, University of Washington
MD, University of Pittsburgh
Residency: Ophthalmology, Vanderbilt Eye Institute
Fellowship: Oculoplastic and Orbital Surgery, Wills Eye Hospital and Lankenau Medical Center

OPTOMETRY

Susan Dini, OD
Teaching Associate

EDUCATION
BS, University of Washington

OD, Pacific University College of Optometry, Forest Grove, OR

Hoi Yee (Zoe) Leung, OD
Teaching Associate

EDUCATION
BS, Bioengineering and Biochemistry, University of Washington
OD, College of Optometry, States University of New York
Residency: Primary Care Optometry, Thomas E. Creek VA Medical Center

OPTOMETRY

Vivian Manh, OD, MS
Clinical instructor

EDUCATION
BSC, University of Waterloo School of Optometry
OD, University of Waterloo School of Optometry, 2009
MS, Indiana University School of Optometry
Residency: Southern California College of Optometry, 2010

Nancy Ross Anibarro, OD
Teaching Associate Division Director, Optometry

EDUCATION
BA, Exercise and Sports Medicine, Western Washington University
OD, Pacific University of Optometry, Forest Grove, OR
Residency: Westside VAMC, Chicago, IL, 2003, Hines VAMC Blind Rehabilitation

Jennifer Truong, OD
Teaching Associate

EDUCATION
BS, Kinesiology -Sport Medicine, California Polytechnic State University
BS, Vision Science, Salus University College of Optometry
OD, Salus University College of Optometry
Residency: Department of Veterans Affairs, Memphis, TN

PEDIATRIC OPHTHALMOLOGY

Francine M. Baran, MD
Cinical Associate Professor

EDUCATION
BS, Chemistry, Washington University
MD, Ophthalmology, Drexel University College of Medicine
Residency: Ophthalmology, State University of New York Downstate
Fellowship: Pediatric, Children's National Medical Center

Michelle Cabrera, MD
Associate Professor, Chief, Division of Ophthalmology, Seattle Children's

EDUCATION
BS, Stanford University
MD, University of California at San Francisco
Residency: Ophthalmology, University of California, San Francisco
Fellowship. Pediatric ophthalmology and strabismus, Duke Eye Center

Erin Herlihy, MD
Associate Professor Director, Pediatric Ophthalmology Fellowship

EDUCATION
BS, University of Notre Dame
MD: Loyola University Stritch School of Medicine
Residency: Ophthalmology, University of Washington
Fellowship: Pediatric Ophthalmology and Strabismus, University of Michigan

Laura C. Huang, MD
Assistant Professor

EDUCATION
BA, University of Califonia Los Angeles (UCLA)
MD, University of Miami Miller School of Medicine
Residency: Ophthalmology, Stanford University
Fellowship: Pediatric Ophthalmology and Strabismus, University of Washington; Uveitis and Intraocular Inflammation, University of Washington

Kristina Tarczy-Hornoch, MD, DPhil
Professor

EDUCATION
BA, Physiological Sciences, University of Oxford, UK
MD, University of California at San Francisco School of Medicine
D. Phil., Neurophysiology, University of Oxford, UK
MS, Clinical and Biomedical Investigation, University of Southern California
Residency: Ophthalmology, University of Southern California, Keck School of Medicine
Fellowship: Pediatric Ophthalmology and Strabismus, Johns Hopkins Hospital

Pediatric ophthalmology receives Seattle Children's Family Choice Award

The Ophthalmology Department at Seattle Children's has received the Family Choice Award, one of Children's top honors, and is especially meaningful because patients and families are the ones who nominate. The 2023 winners were announced by Children's Family Advisory Council.

Excerpt from the nomination:

"We have worked with many doctors in this clinic, and they have all demonstrated wonderful family centered care. My son has a very complicated issue, and there is a lot going on. They are all willing to write things down and explain things until we can understand the issues. The doctors always ask us what we need or ask us for our opinions on how we feel about the path moving forward."

"We are so incredibly honored to receive this award, said Michelle Cabrera, MD, Associate Professor and Division Director of Pediatric Ophthalmology. "The Ophthalmology team includes a cohesive group of doctors, surgeons, ophthalmic technicians, and administrators who all do so much to enhance the care of our patients. There is not a single team member who doesn't wake up every day motivated to provide great care to patients and families. Receiving this award is so special for us and brings incredible joy and meaning to all of us."

UVEITIS AND OCULAR INFLAMMATION

Laura C. Huang, MD
Assistant Professor

EDUCATION
BA, University of Califonia Los Angeles (UCLA)
MD, University of Miami Miller School of Medicine
Residency: Ophthalmology, Stanford University
Fellowship: Pediatric Ophthalmology and Strabismus, University of Washington; Uveitis and Intraocular Inflammation, University of Washington

Miel Sundararajan, MD
Assistant Professor

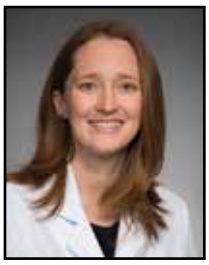
EDUCATION
BS, Bioengineering, Rice University
Medical School: MD, Baylor College of Medicine
Residency: Ophthalmology, New York Eye & Ear Infirmary
Fellowship: UCSF/Proctor Foundation, Uveitis, UCSF/Proctor Foundation, Cornea & External Disease

Thellea Leveque, MD, MPH
Clinical Professor

EDUCATION
BA, Sociology, Amherst College
MD, Duke University School of Medicine
MPH, Clinical Leadership, University of North Carolina
Residency: Ophthalmology, University of Michigan
Fellowship: Uveitis, University of Washington

Russell N. Van Gelder, MD, PhD
Professor, Boyd K. Bucey Memorial Chair, UW Medicine Department of Ophthalmology, Director, Karalis Johnson Retina Center
Director, UW Vision Science Center

EDUCATION
BS, Stanford University
MD, Stanford University School of Medicine
PhD, Stanford University Hospital and Veterans Administration Hospital
Residency, Barnes-Jewish Hospital and Washington University
Fellowships, Uveitis and Medical Retina, Barnes Retina Institute



Kathryn L. Pepple, MD, PhD
Associate Professor
Director, Uveitis Fellowship

EDUCATION
BS, Microbiolology, University of Oklahoma
MD, Baylor College of Medicine
PhD, Baylor College of Medicine
Residency, Ophthalmology, Duke University
Fellowships, Medical Retina, Duke University; Uveitis, University of Washington

EDUCATION

PREPARING THE NEXT GENERATION OF PHYSICIANS AND VISION SCIENTISTS

The University of Washington Department of Ophthalmology has trained more than 200 eye physicians and surgeons since 1966. Our current trainees include 20 residents and five fellows.

RESIDENCY PROGRAM

The Ophthalmology residency program is designed to develop clinicians well trained in medical and surgical ophthalmology and prepared to excel as community practitioners, or to follow a career track that will lead them to academic medicine or biomedical research. With our outstanding faculty and state of the art facilities, our residents are exposed to a wide variety of pathology from the greater WWAMI region (Washington, Wyoming, Alaska, Montana, Idaho).

Kalina Professor Dr. Parisa Taravati guides second-year resident Cameron Ward, MD in a surgical wetlab.

FELLOWSHIP PROGRAMS

Hargiss Ophthalmic Plastic & Reconstructive Surgery Fellowship

This two-year training program is designed to provide exposure to all aspects of ophthalmic plastic surgery.

Kinyoun Retina Fellowship

This two-year training program is designed to provide exposure to all aspects of medical retina disease, vitreoretinal surgery, uveitis, and ocular tumors.

Pediatric Ophthalmology Fellowship

This one-year, comprehensive medical and surgical Pediatric Ophthalmology and Strabismus fellowship. This competitive training program is designed to provide exposure to all aspects of pediatric ophthalmologic and adult strabismic disease.

Gensheimer Endowed Fellowship in Ocular Inflammatory Diseases

The University of Washington Department of Ophthalmology offers a one- or two-year, comprehensive AUPO FCC (Association of University Professors of Ophthalmology Fellowship Compliance Committee) approved uveitis and ocular inflammation fellowship.

MEDICAL STUDENT ELECTIVE CLERKSHIPS

We are pleased to offer several excellent clerkship opportunities for medical students interested in clinical exposure to the field of ophthalmology including the medical and surgical management of eye diseases.

Class of 2023: fellows and residents

Faculty with 2023 fellowship graduates Erin Godbout, MD: Kareem Sioufi, MD; Matt McKay, MD; Gabrielle Turski, MD and Alexandra Van Brummen, MD.

The 49th annual Department of Ophthalmology Resident Alumni Day was held June 17, 2023, in the Orin Smith Auditorium at UW Medicine South Lake Union.

The keynote speaker was Kuldev Singh, MD, MPH, Professor of Ophthalmology at Stanford University, speaking on "Glaucoma Innovation and the Looming Public Health Crisis."

At the graduation ceremony held in the evening, Hannah Hashimi, MD, a third-year resident, received the Resident Research Award for her presentation on "Effects of Social Determinants of Health on Preferred Practice Patterns in Glaucoma." Andrew Chen, MD, Assistant Professor, was honored as the full-time Teacher of the Year.

The graduation event honored fellows Matt McKay, MD; Alexandra Van Brummen, MD; Erin Godbout, MD: Kareem Sioufi, MD and Gabrielle Turski, MD.

Dr. McKay is joining the faculty of Harvard Medical School and the Massachusetts Eye and Ear Infirmary, while Drs. Godbout and Sioufi are headed to private practice in oculoplastics and medical retina, respectively. Dr. Van Brummen is staying at UW to complete a second fellowship in oculoplastics, and Dr. Turski is moving to the University of Virginia to complete an additional fellowship in vitreoretinal surgery.

Graduating residents Alex Legocki, MD (oculoplastics fellowship); Preston Luong, MD (private practice comprehensive); Connor Nathe, MD (private practice comprehensive); Grace Su, MD (cornea fellowship); and Philina Yee, MD (glaucoma fellowship) were also honored.

2023 resident graduates Alex Legocki, MD, Connor Nathe, MD, Philina Yee, MD, Preston Luong, MD and Grace Su, MD.

PUBLICATIONS

ACADEMIC YEAR 2023 (JULY, 2022 THROUGH JUNE, 2023)

1: Saraf SS, **Leveque TK**, Kim JB, Nash RW, Pepple KL, **Olmos de Koo LC**. **Idiopathic penetration of cilia into the posterior segment presenting as sectoral scleritis with progressive intraocular inflammation.** Retin Cases Brief Rep. 2022 Jul 1;16(4):452-456.

2: Kihara Y, Montesano G, **Chen A**, Amerasinghe N, Dimitriou C, Jacob A, Chabi A, Crabb DP, **Lee AY**. **Policy-Driven, Multimodal Deep Learning for Predicting Visual Fields from the Optic Disc and OCT Imaging**. Ophthalmology. 2022 Jul;129(7):781-791.

3: Meirick TM, **Mudumbai RC, Zhang MM, Chen PP**. **Punctal Stenosis Associated with Topical Netarsudil Use**. Ophthalmology. 2022 Jul;129(7):765-770.

4: Vorperian A, Khan N, Lee J, Burkemper B, Zhou X, Grisafe D, LeTran V, Chu Z, Wong B, Xu B, Song B, **Wang RK**, Richter G. **Intrasession Repeatability and Intersession Reproducibility of Macular Vessel Parameters on Optical Coherence Tomography Angiography in Glaucomatous and Non-Glaucomatous Eyes**. Curr Eye Res. 2022 Jul;47(7):1068-1076.

5: Yaghy A, **Lee AY**, Keane PA, Keenan TDL, Mendonca LSM, **Lee CS** and others. **Artificial intelligence-based strategies to identify patient populations and advance analysis in age-related macular degeneration clinical trials**. Exp Eye Res. 2022 Jul;220:109092.

6: **Francis CE**. **Magnetic Resonance Imaging Appearance of a Scleral Buckle**. Ophthalmology. 2022 Jul;129(7):780.

7: Martin EA, **Johnstone MA**. **A Novel Technique Identifies Valve-Like Pathways Entering and Exiting Schlemm's Canal in *Macaca nemestrina* Primates With Similarities to Human Pathways**. Front Cell Dev Biol. 2022 Jul 4;10:868029.

8: Rezeanu D, **Neitz M, Neitz J**. **How We See Black and White: The Role of Midget Ganglion Cells**. Front Neuroanat. 2022 Jul 5;16:944762.

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2022-2023 CAB HIGHLIGHTS

- Engaged community members in faculty presentations about inherited retinal diseases, ocular oncology, and computational ophthalmology.
- Supported Vision Innovation Research Awards.
- Donated devices to support curriculum materials for residents.
- Other projects board members have previously funded and worked on include attracting talented new faculty; funding innovative research projects led by junior faculty; supporting the work at the Karalis Johnson Retina Center; holding community events and symposiums about specific eye conditions; and raising funding to expand opportunities for medical students across the country to complete ophthalmology rotations at UW.

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