

Macular FAST TRACK™

The logo graphic consists of three blue chevrons pointing to the right, stacked vertically. Below the text 'FAST TRACK' is a horizontal blue line.

October 23, 2023

**Hotel MS Amaragua
Torremolinos, Costa del Sol, Spain**

**brightfocus.org/MacularFastTrack
#MacularFastTrack**



**BrightFocus®
Foundation**

Cure in Mind. Cure in Sight.

Welcome to the BrightFocus Macular Fast Track 2023 Workshop!

For the last 50 years, BrightFocus Foundation has supported early-career scientists in their quest to discover cures for diseases of mind and sight. We are proud to organize and sponsor the second Macular Fast Track workshop, a unique immersive opportunity for emerging researchers to learn from, and interact with, leaders in this field. We are especially excited to hold Macular Fast Track as a pre-symposium to the XXth International Symposium on Retinal Degeneration (RD2023).



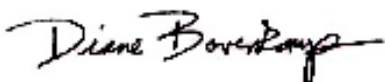
At BrightFocus, our mission is clear: harness the power of science to end the conditions we fear most—loss of sight and loss of mind. Through our support of research on macular degeneration, glaucoma, and Alzheimer’s and related dementia, we serve as an umbrella for scientific innovation in neurodegenerative disease research, uniquely positioned for experts to share discoveries about one disease to inform another. I encourage you to bring your most creative, most innovative ideas to BrightFocus.

We offer postdoctoral fellowship and new investigator grants to support early-stage scientists in macular degeneration research, in addition to a limited number of Innovation Awards for more seasoned investigators. We are an independent nonprofit organization, free to support investigator-initiated research that crosses borders and disciplines. The world-class members of our scientific review committees seek out the untried, the unexpected, and the most promising. Since our inception, we have funded nearly \$290 million in 25 countries.

For more information on our research opportunities, please visit brightfocus.org/apply or email us at researchgrants@brightfocus.org.

I hope that your time at Macular Fast Track is meaningful and rewarding, accelerating your path toward scientific discovery. Please remember that your journey doesn’t stop at the end of this workshop. As alumni of the BrightFocus Macular Fast Track, please keep in touch with each other and with BrightFocus. We hope this experience sparks collaboration for years to come.

Sincerely,



Diane Bovenkamp, PhD
Vice President, Scientific Affairs

About the Workshop

Workshop Goals

Macular Fast Track helps speed progress toward a cure for macular degeneration by investing in promising scientists in the field of vision research.

This workshop offers graduate students, postdocs, and other early-career researchers an immersive environment to learn and discuss foundational knowledge and recent discoveries through close interaction with established leaders in the field.

As a participant in this workshop, by its end you will have immersed yourself in the latest discoveries in macular degeneration research and connected with preeminent vision scientists and early-stage researchers from across the globe.

Thank you to this year's co-organizers and co-chairs:

John Ash, PhD

Catherine Bowes Rickman, PhD

Preeti Subramanian, PhD

Social Media | #MacularFastTrack

Share your photos and key takeaways from Macular Fast Track on social media using the **#MacularFastTrack** hashtag.

Schedule

All times are listed in the local time (CET–Central European Time)

<p>Session 1 08:50 - 10:30</p>	<p>BrightFocus Networking Lunch 12:30 - 14:00</p>
<p>Welcome and Introduction <i>Preeti Subramanian</i> <i>BrightFocus Foundation</i></p> <p>Introduction of Fast Track Speakers <i>Catherine Bowes Rickman, Duke University</i> <i>and John Ash, University of Pittsburgh</i></p> <p>A Multilayer, Deposit-Driven AMD Progression Sequence <i>Christine Curcio</i> <i>University of Alabama at Birmingham</i> <i>School of Medicine</i></p> <p>Imaging AMD: Current Efforts and Future Directions <i>Joseph Carroll</i> <i>The Medical College of Wisconsin</i></p> <p>Morning Coffee Break 10:30 - 11:00</p>	<p>Session 3 14:00 - 15:30</p>
<p>Session 2 11:00 - 12:30</p>	<p>Metabolism and Metabolic Defects in AMD <i>Jianhai Du</i> <i>West Virginia University</i></p> <p>Regulation of Innate Immunity in RPE <i>Andrew D. Dick</i> <i>Moorfields Eye Hospital and UCL Institute of Ophthalmology (UK)</i></p> <p>Afternoon Coffee Break 15:30 - 16:00</p>
<p>Genetics of AMD <i>Gregory S. Hageman</i> <i>University of Utah – John A. Moran Eye Center</i></p> <p>Cellular Mechanisms that Drive Vision Loss in AMD <i>Aparna Lakkaraju</i> <i>University of California, San Francisco</i></p>	<p>Session 4 16:00 – 17:30</p>
<p>Session 1 08:50 - 10:30</p>	<p>How Genetic and Environmental AMD Risk Factors Shape Pathogenic Inflammation <i>Florian Sennlaub</i> <i>Institut de la Vision (France)</i></p> <p>Wet AMD: Therapy Development <i>Daniel Martin</i> <i>Cleveland Clinic</i></p>

Speakers and Organizers



John Ash, PhD | Co-Chair, Macular Fast Track Organizing Committee

University of Pittsburgh
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Dr. John Ash's research is focused on both understanding the cause of blindness due to retinal degeneration and developing therapies to prevent loss of sight. His research is relevant to inherited retinal degenerations such as retinitis pigmentosa, cone-rod dystrophies, Leber congenital amaurosis (LCA), or age-related macular degeneration. His most recent studies have shown the important contribution of endogenously expressed cytokines such as leukemia inhibitory factor (LIF). His work has shown that these cytokines are expressed under conditions of stress, and that the increased LIF is important to prevent or delay photoreceptor or RPE cell death under chronic stress conditions, including inherited mutations known to cause blindness.

Work from his lab has demonstrated that loss of the LIF receptor, glycoprotein (gp) 130, or its signaling intermediate STAT3 results in accelerated retinal degeneration. The results have broad implications in the understanding of human inherited retinal degeneration. In humans, disease-causing genes are present before birth; however, patients inheriting those mutations that cause retinitis pigmentosa or age-related macular degeneration typically do not develop disease for 40 to 80 years.

Dr. Ash's work suggests that LIF and its receptor gp130 keep cells alive and functioning and serve to delay the onset and progression of disease. Variation in efficiency of this internally protective activity could also be a partial explanation of why family members who inherit the same mutation can have a wide range in the age of onset and severity of disease. This work has led to the identification of drug targets to promote cell survival and has led to the development of several gene therapy approaches to specifically enhance the survival of photoreceptors and RPE that are now being tested in models of disease.



Catherine Bowes Rickman, PhD | Co-Chair, Macular Fast Track Organizing Committee

Duke University
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Dr. Catherine Bowes Rickman is the George and Geneva Boguslavsky Professor of Ophthalmology and a professor of cell biology at Duke University in Durham, North Carolina. She earned her doctoral degree from the University of California, Los Angeles and completed her postdoctoral fellowship at the Jules Stein Eye Institute. Dr. Bowes Rickman is a translational scientist whose research efforts for more than two decades have been focused on the molecular/cell biology and pathobiology of age-related macular degeneration (AMD). To better understand the pathophysiology of AMD, she has created a number of murine models that recapitulate many aspects of human AMD and point the way toward eventual treatments for AMD.

She successfully demonstrated therapeutic rescue from dry AMD in one of these models. Dr. Bowes Rickman is now studying mouse models engineered to express humanized CFH (normal or AMD risk-associated variants) combined with other known AMD risk factors (advanced age and diet). These mice develop many aspects of the human AMD phenotype and provide an *in vivo* means to interrogate the pathogenic contribution of genetic, inflammatory, and environmental factors on AMD pathogenesis and test emergent therapies.



Preeti Subramanian, PhD | Co-Chair, Macular Fast Track Organizing Committee

BrightFocus Foundation
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Preeti Subramanian, PhD, oversees the Macular Degeneration Research and National Glaucoma Research programs at BrightFocus Foundation. She ensures a high level of scientific accountability within the Foundation's award programs and engages and maintains a strong relationship with the scientific community.

Before joining BrightFocus, Dr. Subramanian was a research scientist at the National Eye Institute (NEI) of the NIH for more than 10 years. Dr. Subramanian received her PhD in biochemistry from Virginia Commonwealth University in Richmond, Virginia, identifying a novel role for bioactive sphingolipid ceramide 1 phosphate (C1P) in mediating inflammation.

She completed her postdoctoral training at the NEI, performing investigations on pigment epithelium-derived factor (PEDF), an ocular protein with neurotrophic activity. She continued her research in vision science at the NEI, identifying and studying potential therapeutic agents for diseases involving RPE oxidative stress (e.g., age-related macular degeneration).



Joseph Carroll, PhD

The Medical College of Wisconsin
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Joseph Carroll, PhD, is the Richard O. Schultz, MD/Ruth Works Professor of Ophthalmology and professor in the departments of Biophysics; Biomedical Engineering; and Cell Biology, Neurobiology, and Anatomy at the Medical College of Wisconsin. Dr. Carroll directs the Advanced Ocular Imaging Program (AOIP), which utilizes a variety of retinal imaging tools to study the structure and function of the living human retina, as well as in various animal models. The group has worked to develop image analysis approaches to increase the scientific and clinical utility of these imaging devices and has supported dissemination efforts of this technology to research groups around the world. Dr. Carroll and his team have been at the forefront of the clinical application of adaptive optics retinal imaging, with over 200 peer-reviewed publications. His work focuses broadly on inherited retinal conditions, including albinism, achromatopsia, blue cone monochromacy, retinitis pigmentosa, and Usher syndrome.

Presentation Title: Imaging AMD: Current Efforts and Future Directions



Christine A. Curcio, PhD, FARVO

University of Alabama at Birmingham School of Medicine, EyeSight Foundation of Alabama, Vision Research Laboratories
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Christine A. Curcio, PhD, is the White-McKee Endowed Professor in Ophthalmology at the University of Alabama at Birmingham Heersink School of Medicine. She trained at Brown University (BS), University of Wisconsin–Madison, University of Rochester (PhD 1982, neurobiology and anatomy), Boston University, and University of Washington (postdoctoral) before joining UAB in 1990. Using laboratory and clinical approaches, she researches human retinal neuroscience, aging, and age-related macular degeneration (AMD), a prevalent cause of irreversible vision loss in older adults.

Presentation Title: A Multilayer, Deposit-Driven AMD Progression Sequence



Andrew D. Dick, FMedSci

University College London, University of Bristol

National Health Institute for Research Biomedical Research Centre, Moorfields Eye Hospital, and UCL Institute of Ophthalmology, London

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Dr. Andrew Dick is a clinician scientist and immunobiologist. He is director of the UCL Institute of Ophthalmology, where he is Duke Elder Professor of Ophthalmology. He is also chair and professor of ophthalmology at the University of Bristol in the U.K., where he previously was director of research for medicine and dentistry. He qualified in medicine and with a bachelor of science (Hons) in biochemistry from the University of London, and during his medical education he spent time as a research associate in biochemistry with Dr. Coleman at Yale, sponsored by the U.K.'s Medical Research Council (MRC). Later, he was an MRC postdoctoral fellow with Dr. Jon Sedgwick at the Centenary Institute of Cancer Medicine and Cell Biology in Sydney, Australia.

His research spans the basic and translational science conduit to early phase trials in inflammation as related to autoinflammatory, autoimmune, and degenerative retinal disease, as well as randomized control trials for immunomodulatory therapy in uveitis.

Presentation Title: Regulation of Innate Immunity in RPE



Jianhai Du, PhD

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Dr. Jianhai Du's research focuses on investigating retinal metabolism in both healthy and diseased states. Specifically, he aims to uncover the unique metabolic processes occurring within individual cells, as well as the interactions between cells that create the metabolic ecosystem of the retina. His research also focuses on understanding how retinal metabolism is affected by aging and retinal degenerative diseases, such as inherited retinopathy and age-related macular degeneration. By identifying the metabolic basis of these diseases, he hopes to develop nutrition-based treatment approaches that target the altered metabolic pathways in retinal diseases.

Presentation Title: Metabolism and Metabolic Defects in AMD



Gregory S. Hageman, PhD

University of Utah – John A. Moran Eye Center
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Dr. Gregory Hageman's primary research interest over the past 30 years has been directed toward the genetics and biology of age-related macular degeneration (AMD), a leading cause of irreversible worldwide blindness. Dr. Hageman and his colleagues discovered that a specific common haplotype of the complement regulator complement factor H (CFH) on chromosome 1 account for greater than 50% of risk for AMD in Caucasian populations. More recently, his team has generated strong ocular and systemic evidence that AMD comprises at least two biologically distinct diseases.

Dr. Hageman currently serves as the executive director of the Steele Center for Translational Medicine (SCTM), which was created to gain a robust understanding of AMD biology to discover pathways, identify and validate therapeutic targets, and develop therapies for AMD. He co-founded Perceive Biotherapeutics, a biotechnology company that is partnering with the Moran Eye Center to efficiently capitalize the commercialization of scientific discoveries made within the Moran SCTM. A clinical trial was recently approved by the FDA and a Phase I trial is in progress.

Presentation Title: Genetics of AMD



Aparna Lakkaraju, PhD

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Research in Dr. Aparna Lakkaraju's laboratory focuses on identifying cellular mechanisms that drive vision loss in inherited and age-related macular degenerations (AMD), with the goal of using this information to develop effective therapies. Dr. Lakkaraju's group studies the retinal pigment epithelium (RPE), which performs critical functions for vision and is a key site of injury in these diseases. Current areas of research focus include mitochondrial dynamics and autophagy in the RPE, mechanisms of intercellular communication in the retina, mechanisms of RPE dysfunction in disease (complement activation, drusen biogenesis, microglial activation), and identification and evaluation of novel therapeutic entities. Using multidisciplinary approaches, her team has identified clinically approved drugs that preserve RPE health and function and rescue visual deficits in preclinical models of macular degenerations.

Presentation Title: Cellular Mechanisms that Drive Vision Loss in AMD



Daniel F. Martin, MD

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Dr. Daniel F. Martin is chair of the Cleveland Clinic Cole Eye Institute, the Barbara and A. Malachi Mixon III Institute Chair in Ophthalmology, and professor of ophthalmology in the Cleveland Clinic Lerner College of Medicine of Case Western Reserve University. Dr. Martin's primary research interest is in clinical trials and the evaluation of new treatments for AMD. Dr. Martin treated the first person in the world with an anti-VEGF drug and led some of the earliest studies evaluating new drugs for neovascular AMD. In addition, Dr. Martin served as a principal investigator for dry AMD trials, such as AREDS I and AREDS II. From 2005-2017, he served as the study chair for the Comparison of AMD Treatments Trials (CATT) and the CATT Follow-Up Study. Currently, Dr. Martin serves as the network chair for the DRCR Retina Network, which has recently expanded its scope to include evaluation of new treatments for all retinal diseases. Within the DRCR Retina Network, Dr. Martin has primary responsibility for all AMD and other non-diabetic retinopathy trials.

Presentation Title: Wet AMD, Therapy Development



Florian Sennlaub, MD, PhD

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Dr. Florian Sennlaub's laboratory focuses on the pathogenic role of the chronic accumulation of mononuclear phagocytes (MP) in age-related macular degeneration (AMD). He demonstrated that MPs accumulate around large drusen, in choroidal neovascularization, and in and around atrophic zones. In a series of articles, his team showed how chronic MP infiltration of the photoreceptor cell layer interferes with RPE cell function and promotes neovascularization and photoreceptor degeneration. His recent work has demonstrated how environmental and genetic AMD-risk variants affect MP function and impair subretinal immune suppression and inflammation resolution. Together, his findings emphasize the role of the AMD-risk variants in inflammation in AMD and open new therapeutic avenues to inhibit pathogenic nonresolving subretinal MP accumulation in AMD.

Presentation Title: How Genetic and Environmental AMD Risk Factors Shape Pathogenic Inflammation

BrightFocus Staff



Diane Bovenkamp, PhD - Vice President, Scientific Affairs

Diane Bovenkamp, PhD, vice president of scientific affairs at BrightFocus Foundation, oversees the global operations of the organization's research programs. She serves as the scientific liaison in local, national, and international forums, and identifies and develops new research initiatives, partnerships, and funding policies consistent with the mission of BrightFocus.

Dr. Bovenkamp obtained her PhD in biochemistry from Queen's University in Kingston in Ontario, Canada, discovering and studying Eph receptors in angiogenesis and neural development in zebrafish and mice. She completed a postdoctoral fellowship in the Vascular Biology Program at Boston Children's Hospital/Harvard Medical School, isolating and characterizing zebrafish neuropilins. Dr. Bovenkamp conducted further research at the Johns Hopkins University Bayview Proteomics Center in the Division of Cardiology at Johns Hopkins School of Medicine in Baltimore, using proteomic techniques for biomarker detection in human serum.

Travel Fellowships

BrightFocus Foundation congratulates the 71 recipients of travel awards attending the 2023 Macular Fast Track and RD Meeting. The awards are funded by the National Eye Institute, NIH (USA); the Foundation Fighting Blindness (USA); BrightFocus Foundation (USA); Pro Retina (Germany); Limnopharma (Spain); and SparingVision (France).

As part of our commitment to increasing access to training and networking opportunities to researchers from groups underrepresented in the field, BrightFocus also awards Diversity Travel Fellowships to facilitate global collaboration among those pursuing a research career in vision sciences, with a focus on macular degeneration.

2023 Travel Awardees

Noncaveolar Caveolin1 in Müller Glia as a Potential Target in Retinal Neuroinflammation



Olawale Bankole

Graduate Student

University of Oklahoma Health Sciences Center, United States

Olawale Bankole received his bachelor of science in cell biology and genetics with a first-class qualification from the University of Lagos in Nigeria in 2015. He then came to the United States for a graduate program in biomedical sciences, where he had the opportunity to work in Dr. Mei-Zhen Cui's laboratory at the University of Texas, Permian Basin on a master's degree in molecular biology. He worked on elucidating the signaling mechanisms through which immune cells contribute toward the progression of vascular diseases. He was accepted for a doctoral program at University of Oklahoma Health Sciences Center, where he is currently pursuing his PhD under the supervision of Dr. Michael Elliott. Olawale's research is centered on understanding molecular and cellular processes that contributes to retinal diseases and vision loss. He's specifically interested in the role of Caveolin1 (Cav1), an ocular disease-linked gene, in retinal inflammatory responses and neuroprotective signaling. His work focuses on examining the consequences of sequestering Cav1 within caveolae both using an established in vitro system and a novel, regulatable in vivo approach in appropriate animal models. His long-term goal is to have an established career in the vision research field.

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BrightFocus Foundation Diversity Travel Awardee

Efficient and Flexible Dual mRNA Trans-Splicing AAV Vectors for Gene Therapy and Genome Editing



Elvir Becirovic

Assistant Professor

University of Zurich and University Hospital Zurich, Switzerland

From 2001 to 2006, Dr. Elvir Becirovic studied biology at the University of Cologne in Germany. From 2007 to 2010, he obtained his PhD at the Department of Pharmacy–Center for Drug Research at the Ludwig Maximilian University of Munich under the supervision of Dr. Martin Biel. From 2010 to 2014, he worked at the same institution as a postdoctoral fellow and subsequently as a junior research group leader. In 2019, he completed his habilitation and started working as chief technology advisor at ViGeneron GmbH, a gene-therapy company. In 2022, Dr. Becirovic was appointed assistant professor of experimental and translational ophthalmology at the University of Zurich and University Hospital Zurich. His research interests include (patho)physiology and gene therapy of inherited retinal diseases. He has contributed to 38 publications (15 of them as first or last author) and as lead inventor to two patents. Dr. Becirovic has received several awards and grants from various institutions, such as ARVO, Pro Retina, Retina Suisse, the German Research Foundation, the Swiss National Science Foundation, and the Volkswagen Foundation. Since 2014, he has supervised more than 20 master's and PhD students and has become a member of several scientific societies, such as ARVO, the German Society for Gene Therapy, and the European Society for Gene and Cell Therapy.

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BrightFocus Foundation Diversity Travel Awardee

Loss of TLR Signalling Slows RPE Degeneration in Mouse Models of Disease



Rachel Dalton

Graduate Student

Trinity College Dublin, Ireland

Rachel Dalton is an aspiring researcher in the field of human genetics, with a particular focus on ocular diseases and immunotherapeutic approaches. She is currently pursuing her PhD under the guidance of Dr. Sarah Doyle at Trinity College Dublin. Rachel's research has been focused on the mechanisms underlying geographic atrophy and exploring innovative ways to leverage the immune system for therapeutic advancements. She completed her bachelor's degree in human genetics at Trinity College Dublin, where she honed her foundational understanding of genetics and its applications in medical research. Rachel has a deep commitment to bridging the gap between scientific research and patient advocacy. She has worked with Fighting Blindness Ireland, engaging directly with patients affected by retinal diseases. By translating complex scientific concepts into accessible language, she aims to effectively communicate her research findings to patients, empowering them with knowledge and fostering a sense of hope. Her research interests revolve around unravelling the intricate complexities of age-related macular degeneration. Rachel's work aims to shed light on the underlying genetic factors and molecular pathways that contribute to the progression of this condition. She wants to explore the potential of immune-based interventions to halt or mitigate the disease's impact.

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BrightFocus Foundation Diversity Travel Awardee

Kinesin-2 Is Required for Photoreceptor Development Due to Function in the Early Stage of Ciliogenesis



Roni A. Hazim

Postdoctoral Fellow

University of California, Los Angeles, United States

Dr. Roni Hazim is a postdoctoral researcher with training in retinal cell biology. The focus of his research is intracellular trafficking in the retinal pigment epithelium (RPE). He is using this polarized simple epithelium as a model to study microtubule-based motor proteins and the cargos they transport to facilitate essential RPE functions. One of these functions is the maturation of phagosomes derived from ingested photoreceptor outer segments. Dr. Hazim is currently utilizing state-of-the-art live-cell imaging to investigate how phagosomes and motor proteins are recruited to one another, and how motor proteins facilitate the interactions of phagosomes with endolysosomal compartments to mediate their degradation.

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BrightFocus Foundation Diversity Travel Awardee

Exosomal miRNAs in Primary Polarized Retinal Pigmented Epithelium



Belinda Hernandez

Graduate Student

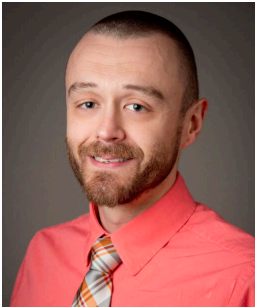
Duke University, United States

Belinda Hernandez is a PhD student in the University Program of Genetics and Genomics at Duke University under the mentorship of Dr. Catherine Bowes Rickman. Her project focuses on studying the role of exosomes in age-related macular degeneration. Her focus is to analyze the changes in the protein and miRNA content in exosomes' release from stress retinal pigment epithelium (RPE) cells to determine the impact on RPE dysfunction.

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BrightFocus Foundation Diversity Travel Awardee

A Novel Polygenic Model of Early Onset Inherited Cone-Rod Dystrophy, the BXD32 Mouse, Exhibits a Loss of Proper Outer Segment and/or Disc Morphogenesis



T.J. Hollingsworth

Assistant Professor

University of Tennessee Health Science Center, United States

Dr. T.J. Hollingsworth obtained his undergraduate degree in cellular/molecular biology at Jacksonville State University in Jacksonville in Alabama. He then attended the University of Alabama at Birmingham and obtained his PhD in cell biology/biochemistry of the retina in the Vision Science Graduate Program under his mentor, Dr. Alecia K. Gross. After two postdoctoral fellowships at the University of Oklahoma Health Science Center and the University of Tennessee Health Science Center, he became the manager of the UTHSC Neuroscience Institute Imaging Facility for four years. Dr. Hollingsworth is currently research faculty in ophthalmology at UTHSC, where he works in collaboration with Dr. Monica M. Jablonski developing better mouse models of age-related macular degeneration and glaucoma and small molecule therapeutic intervention of inherited retinal disease, AMD, and glaucoma. He also teaches microbiology, neurobiology, pharmaceutical sciences, and biochemistry courses at the University of Memphis and UTHSC. His research interests include the cellular and molecular mechanisms of disease pathogenesis (i.e., inherited diseases), as well as gene therapy and inflammation.

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BrightFocus Foundation Diversity Travel Awardee

Genetic Modifiers that Influence the Development of RPE Pathologies in Tmem135 TG Mice



Michael Landowski

Research Scientist I

University of Wisconsin–Madison, United States

Dr. Michael Landowski is a former postdoctoral fellow and current research scientist in Dr. Akihiro Ikeda's laboratory at UW-Madison, where he has been studying mechanisms that contribute to accelerated retinal aging phenotypes. Specifically, he is focusing on the roles of peroxisomal and mitochondrial metabolism in the photoreceptors and retinal pigmented epithelium. Because aging is the most associated risk factor for age-related macular degeneration, he hopes his work will lead to insights for the treatment of AMD.

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BrightFocus Foundation Diversity Travel Awardee

Elucidating the Role of Stat3 and RelA in Retinal Microglia Activity and Gene Expression



Raela Ridley

Graduate Student

University of Florida, United States

Raela Ridley is a third-year PhD student at the University of Florida whose interest in vision research is personal because she suffers from a retinal condition. Prior to her graduate education, she worked as a research technician in the lab of Dr. Cristhian Ildefonso, during which she oversaw a project in which she developed an AAV gene therapy delivering the anti-inflammatory myxoma gene, M013. Using this AAV gene therapy, the lab was able to curtail inflammation in an experimental autoimmune uveitis model by inhibiting the nuclear translocation of the NF-κB subunit RelA/p65. Now, as a graduate student, her dissertation project is focused on the role of transcription factors RelA and Stat3 in the modulation of retinal microglia functional states in retinal degeneration. She is currently co-mentored by Dr. Ildefonso and Dr. Clay Smith.

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BrightFocus Foundation Diversity Travel Awardee

Time-Course Changes of Connexin-Based Channels During Retinal Degeneration



Alicia Domenech

Graduate Student

Universidad CEU Cardenal Herrera, Spain

Esteemed Colleagues: Allow me to introduce myself as Alicia Domenech Bendaña. With great humility and enthusiasm, I extend my gratitude for allowing me to share my academic journey in the domains of pharmacy and optics as I undertake my second year of doctoral studies at CEU University, Valencia. From the outset of my academic voyage, I found myself inexorably drawn to the intricate and profound dimensions of the human eye and its profound impact on our lives. Along this journey, I have collaborated with eminent professors and researchers who have further ignited my fervor for scientific inquiry. Furthermore, I am pleased to share that I was awarded the best undergraduate record during my undergraduate studies. Currently, I have the privilege of being an active member of the research team led by Dr. Bejarano. Our group is focused on the study of aging and its consequences, an area of research that I consider fundamental in addressing current challenges in the field of ocular health. Participation in this distinguished eye-related congress is an honor, offering a fertile ground for the exchange of erudition, ideas, and experiences.

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BrightFocus Foundation Travel Awardee

In Vitro Modeling of the Immune System and Its Involvement in AMD Using iPSC-Derived Macrophages



Evangeline Monroe Foster

Research Associate

University College London, United Kingdom

Dr. Evangeline Foster received her PhD from the University of Oxford, where she studied the role of protein trafficking in Alzheimer's disease and neurodegeneration. In 2021, Dr. Foster joined Dr. Amanda Carr's lab at the UCL Institute of Ophthalmology as a research associate. Her current research focuses on the role of the immune system in age-related macular degeneration and healthy aging. To do this, she uses retinal and immune cells generated by human induced pluripotent stem cells (iPSCs) obtained from different donors.

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BrightFocus Foundation Travel Awardee

Therapeutic Approaches for Rhodopsin-Sector Retinitis Pigmentosa



Rosellina Guarascio

Postdoctoral Fellow

University College London, United Kingdom

In 2012, I graduated in Medical and Pharmaceutical Biotechnology at Vita-Salute San Raffaele University, Milan, and then I moved to London to work in neurobiology. I was a research assistant at King's College London for few months working on neurodevelopmental biology, and eventually I started a PhD on mechanisms of protein degradation in Alzheimer's Disease's models at UCL. At the end of my PhD, moved by a growing interest in mechanisms of neurodegeneration, I pursued my career focusing on inherited retinal dystrophies at UCL, Institute of Ophthalmology. For the past five years, I have been working on rhodopsin-mediated autosomal dominant forms of Retinitis Pigmentosa developing and consolidating a great combination of skills in animal physiology, stem cell differentiation and molecular biology. My work led to the characterization of mechanisms of light-induced retina degeneration driven by rhodopsin and to the identification of new therapeutic approaches to treat sector retinitis pigmentosa.

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BrightFocus Foundation Travel Awardee

Identification of Novel Negative Regulators of Blood-Retinal Barrier Integrity by Genome-Wide Screening and Its Relevance to Novel Treatments for Age-Related Macular Degeneration



Yosuke Hashimoto

Postdoctoral Fellow

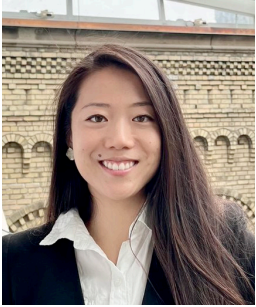
Trinity College Dublin, Ireland

Dr. Yosuke Hashimoto has studied CLDN5 gene and claudin-5 protein. Claudin-5 is the most enriched component of the tight junctions associated with the blood-brain barrier (BBB). He has developed anti-claudin-5 monoclonal antibodies that can inhibit the barrier-forming function of claudin-5. In addition, he has discovered a novel pathogenic CLDN5 missense mutation that causes alternating hemiplegia of childhood, a rare neurological disorder. Dr. Hashimoto has raised ¥7,800,000 and €5,000 in research funding. His current lab has studied the dose-dependent effect of claudin-5 expression on the BBB in vivo and has revealed its levels are critical in determining the onset, frequency, and severeness of a range of central nervous system diseases.

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BrightFocus Foundation Travel Awardee

Sustained Release of Sh3-RdCVF to Rescue Cone Photoreceptor Death in Retinitis Pigmentosa



Lia Huo

Graduate Student
University of Toronto, Canada

Lia Huo received her bachelor of science in neuroscience from McGill University in 2018 and then proceeded to enter the MD/PhD program at the University of Toronto the same year. After completing two years of medical school, Lia recently started her fourth year of her PhD, working on hydrogels as drug-delivery vehicles to the retina in Dr. Molly Shoichet's lab. Since starting her PhD, Lia has presented at 13 national and international conferences and has won three first-place presentation awards. In 2023, Lia has been awarded the Vision Science Research Program Award, the Jennifer Dorrington Award, the University of Toronto Award of Excellence, and the L'Oréal-UNESCO for Women in Science Fellowship. Beyond her research and medical pursuits, she actively advocates for women's economic prosperity in STEM. Since 2011, Lia has been involved with Build a Dream, a nonprofit organization that hopes to end underrepresentation of women in STEM and has met with stakeholders like the Minister of Labor and Status of Women to provide women with the necessary resources to succeed in STEM. In her spare time, Lia loves the outdoors and acrylic pour painting and organizes German meetups in Toronto to reconnect with her German culture and roots.

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BrightFocus Foundation Travel Awardee

Association of Genetic Risk Variants for Age-Related Macular Degeneration with Phenotypic Features of the Disease



Shlomit Jaskoll

Graduate Student (MD/MSc)

Hebrew University of Jerusalem, Israel

Shlomit Jaskoll is a second-year medical student at the Hebrew University of Jerusalem. Her academic journey has been diverse, initially encompassing two years in dentistry school with the same esteemed faculty as in her current program. Currently, she is pursuing a dual MD/MSc education track as a part of the unique “Tzameret” program offered by the School of Military Medicine. This distinct academic path has provided her with a comprehensive foundation for her current pursuits. For the past two years, she has been immersed in the world of retinal degeneration as a master’s student under the expert guidance of Dr. Itay Chowers, who leads the Department of Ophthalmology at Hebrew University–Hadassah School of Medicine. Dr. Chowers’s lab is dedicated to unraveling the complex mechanisms that underlie age-related macular degeneration (AMD). Shlomit aims to study the genetic underpinnings of AMD and their profound impact on patients’ lives. As she delves into this intricate web of genetics and retinal degeneration, her aspiration is to contribute vital insights that could potentially reshape our understanding of AMD’s development and pave the way for more effective interventions.

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BrightFocus Foundation Travel Awardee

Impact of Alternative Splicing of Ciliary Genes on the Development and Maturation of Human Photoreceptors



Marina Moya Molina

Graduate Student

Newcastle University, United Kingdom

Marina Moya Molina is a PhD student in biosciences and a Marie Skłodowska-Curie Actions Innovative Training Network (MSCA-ITN) fellow, studying ciliary signaling in development and disease and specializing in iPSCs-derived retinal organoids culture.

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BrightFocus Foundation Travel Awardee

Investigating Age-Related Retinal Disease in the Turquoise Killifish



Nicole Noel

Postdoctoral Fellow

University College London, United Kingdom

Dr. Nicole Noel is a postdoctoral fellow at the UCL Institute of Ophthalmology. She is an ocular geneticist and photoreceptor biologist who obtained her PhD in medical genetics from the University of Alberta in Canada, studying inherited photoreceptor degenerations and modeling disease in zebrafish. During her PhD, she identified novel genetic associations with photoreceptor disease in patients and developed a zebrafish retinopathy model. This was the first zebrafish model of photoreceptor degeneration with reported subretinal deposits, an age-related macular degeneration–like manifestation. Prior to that, she characterized photoreceptor–photoreceptor connections in the developing and adult zebrafish retina. Dr. Noel’s current research aims to characterize the biological processes underlying age-related retinal disease and identify potential treatments by utilizing killifish, a model of accelerated aging.

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BrightFocus Foundation Travel Awardee

Region-Specific, Stem-Cell Derived RPE Reproduces Macular RPE Sensitivity to AMD



Davide Ortolan

Postdoctoral Fellow

National Eye Institute, United States

Dr. Davide Ortolan is a third-year postdoctoral fellow in Dr. Kapil Bharti's lab at the National Eye Institute, part of the NIH, in Bethesda, Maryland. He obtained his bachelor's degree in biological sciences and his master's in molecular biology of the cell at the University of Milan in Italy. Dr. Ortolan obtained his PhD in experimental medicine from the University of L'Aquila in Italy through a partnership with Dr. Bharti's lab at the National Eye Institute. His research is focused on understanding the differential sensitivity between the central and peripheral retinal pigment epithelium (RPE) to age-related macular degeneration and reproduces the central and peripheral human RPE subpopulations using induced pluripotent stem cells. This work will lead to a better understanding of the molecular basis that initiates age-related macular degeneration.

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BrightFocus Foundation Travel Awardee

Perturbed Phagosome Clearance Alters Homeostatic Pathways in the RPE of a Stargardt Macular Dystrophy 3 Mouse Model



Antonio E. Paniagua

Assistant Project Scientist

University of California, Los Angeles, United States

Dr. Antonio Paniagua's scientific interest is focused on the daily renewal process of the photoreceptor outer segment (POS). This process involves the addition of disk membrane at the base of the POS and the phagocytosis of the POS tip by retinal pigment epithelium (RPE) cells. It is an essential process for vision and, in humans, defects in both steps lead to retinal degeneration. Using molecular and cell biology techniques, including electron microscopy and superresolution imaging, he is studying the roles of specific proteins involved in POS renewal, the regulation of both steps, and the coordination between the two cell types—photoreceptor and RPE cells—in renewing the POS. Dr. Paniagua will present his study of the molecular defects that cause impairment in POS phagosome degradation in Stargardt macular degeneration type 3.

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BrightFocus Foundation Travel Awardee

Prime Editing Rescues Aberrant Splicing Defect Caused by Pathogenic Variants in PRPH2



Peter M.J. Quinn

Principal Investigator and Associate Research Scientist
Columbia University, United States

Dr. Peter M.J. Quinn is a principal investigator and associate research scientist at Columbia University in New York. His main research focus lies in clinically translatable work, applying iPSC-derived retinal organoid models to further the understanding and treatment of inherited retinal diseases (IRDs). Currently, the Quinn Lab is developing gene-augmentation and prime-editing therapeutics for the amelioration of the phenotypic, histopathological, and molecular changes in IRD-mediated retinal organoid models. Dr. Quinn earned his PhD at Leiden University in the Netherlands under the tutelage of Dr. Jan Wijnholds, where he completed his doctoral thesis, "The Retinal Crumbs Complex: From Animal Models and Retinal Organoids to Therapy." Subsequently, he completed his postdoctoral studies in IRD research under the mentorship of Dr. Stephen H. Tsang and Dr. Irene H. Maumenee at Columbia University. He is currently supported by funding from the Curing Retinal Blindness Foundation, the Foundation Fighting Blindness Individual Investigator Research Award, and the NIH through Grant Number R01EY034952. Dr. Quinn is also the recipient of the 2020 and 2021 B. Doblí Srinivasan Award, an NIH Outstanding Scholars in Neuroscience Award, and the Alnylam Prize for Scientific Excellence; he was also shortlisted for the 2023 Junior Mentor of the Year Award at CUIMC.

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BrightFocus Foundation Travel Awardee

Unravelling Mutation-Specific Phenotypic Variation in iPSC-Derived RPE from Ciliopathy Patients



Dominik Reichert

Graduate Student

Johannes Gutenberg University, Germany/NEI, NIH, United States

Dominik Reichert is a third-year PhD student in Dr. Kapil Bharti's lab in the graduate partnership program at the National Eye Institute, NIH, in the U.S. and the Johannes Gutenberg University in Germany. He completed his bachelor's and master's degrees at the University of Mainz in Germany in the field of molecular biology, investigating ciliary protein interactions and the role of WNT signaling in the development of the retinal pigment epithelium (RPE). Since his bachelor's, he has been interested in understanding the underlying molecular mechanisms in the disease progression of ciliopathies. His PhD research delves into the primary cilium's role in RPE development and function, as well as the impact of diverse ciliary mutations on ciliopathy-associated retinal degenerations.

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BrightFocus Foundation Travel Awardee

An Intronic REEP6 Variant Affecting the Splicing of a Retina-Specific Exon Causes Autosomal Recessive Retinitis Pigmentosa in Palestinian Patients



Manar Salameh

Master's Student

Hadassah Hospital, Israel

Manar Salameh is a young Palestinian researcher from Jerusalem who started her journey researching retinal degeneration in 2017 when she was working as molecular genetics technologist at St. John of Jerusalem Eye Hospital. Through that work, she fell in love with the field and decided to pursue a master's degree in retinal genetics and was accepted by Hebrew University of Jerusalem, one of the leading labs in the field, where she is now studying the molecular ophthalmology of inherited retinal diseases. She looks forward to starting her PhD next year, where she will begin in vivo research characterizing retinal phenotypes of different mice models and implement RNA editing on them.

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BrightFocus Foundation Travel Awardee

ADAR-Mediated, Site-Directed RNA Editing of Inherited Retinal Disease–Causing Variants Within Splice Site Regions



Nina Schneider

Graduate Student

Hadassah University Medical Center, Israel

Nina Schneider is a direct-route PhD candidate in the lab of Dr. Dror Sharon at Hadassah University Medical Center in Jerusalem, with a bachelor's degree in psychobiology and a master's degree in human genetics and genetic counseling. Her work focuses on developing a novel therapy for inherited retinal diseases by recruiting the endogenous ADAR enzyme for site-directed RNA editing to recode the mutated RNA. The target pathogenic variants that she is working on both affect specific individuals in her hospital cohort and the international retinal disease community. She is grateful and honored to be a travel grant awardee and to participate in RD2023 and is looking forward to learning and making new connections and collaborations!

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BrightFocus Foundation Travel Awardee

The Importance of the Cahill Cycle for Cone Survival



Lan Wang

Graduate Student

University of Tübingen, Germany

Lan Wang has been a PhD student at the Institute for Ophthalmic Research at the University of Tübingen in Germany since 2022. She is originally from China, where she received an undergraduate degree in clinical medicine and a master's in ophthalmology. Currently, her research focuses on understanding the mechanisms of neuronal cell death in the context of retina diseases. Specifically, she uses organotypic retinal explant cultures, which she can manipulate under entirely controlled conditions, to study the impact of alterations in energy metabolism on cell survival. Her goal is to determine whether alterations in energy metabolism lead to retinal cell death, as well as its specific molecular pathways and cellular mechanisms.

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BrightFocus Foundation Travel Awardee

Investigating Genome Editing as a Potential Therapeutic for L-ORD



Ana Alonso-Carriazo Fernandez

Postdoctoral Fellow

University College London, United Kingdom

Dr. Ana Alonso-Carriazo Fernandez is a junior postdoctoral fellow based at the UCL Institute of Ophthalmology, where she has developed a keen interest in RPE, disease modeling, and gene therapies. She obtained her PhD in cell and developmental biology in 2022, with a project that focused on understanding the role of the guanine nucleotide exchange factor p114RhoGEF in retinitis pigmentosa, using iPSC-derived RPE, organoids, and in vivo models. Her postdoctoral work focuses on the development of novel gene-editing therapies for the treatment and prevention of inherited macular diseases. Since the beginning of her postdoctoral fellowship, Dr. Alonso-Carriazo Fernandez has been granted a Cell and Gene Therapies Pilot Data Fund by UCL. She is the current lead of the UCL Institute of Ophthalmology's Early Career Committee, a role she has held for over two years.

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Foundation Fighting Blindness Travel Awardee

Production and Functional Characterization of Induced Pluripotent Stem Cell-Derived Pericytes for Choriocapillaris Regeneration



Emma Burton

Graduate Student

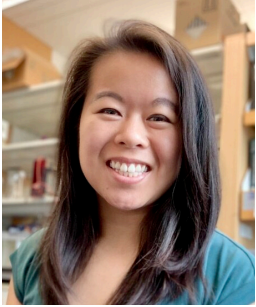
University College London, United Kingdom

Emma Burton is a second-year PhD student at the UCL Institute of Ophthalmology. She received her bachelor's degree in medical sciences and master's in biology from the University of Leeds in 2018 and started her position as a research technician in Dr. Pete Coffey's lab at UCL in 2019. She has since started studying toward a PhD within the same lab, where her research focuses on developing a stem cell-derived vascular network that could be used to enhance current stem cell therapies for age-related macular degeneration.

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Foundation Fighting Blindness Travel Awardee

Truncated Complement Factor H Gene Therapy Restores Complement Regulation in Multiple Organ Systems



Lindsey A. Chew

Graduate Student (MD/PhD)
Duke University, United States

Lindsey A. Chew is an MD/PhD candidate at Duke University. Inspired by her time raising guide dog puppies for the blind, she became especially interested in ophthalmology and vision research. Under the guidance of Dr. Catherine Bowes Rickman, Lindsey is now progressing through her PhD in cellular and molecular biology. Her thesis work is focused on the development of gene therapies to treat age-related macular degeneration (AMD). In the AMD-like mouse model generated by the Bowes Rickman Lab, Lindsey is integrating discoveries centered on complement factor H with adeno-associated virus technologies for therapeutic delivery. With simultaneous mentorship from clinicians, she has also learned to harness novel and minimally invasive microsurgical techniques in the murine eye. After completing her graduate studies, Lindsey will pursue a clinical residency in ophthalmology. As an aspiring physician–scientist, she hopes to continue contributing to translational vision research and the development of therapies for her future patients.

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Foundation Fighting Blindness Travel Awardee

Optimizing Primary Porcine RPE Cultures for Genetic Manipulation and High-Throughput Screening



Steffi Daniel

Postdoctoral Fellow

University of Minnesota, United States

Steffi Daniel is dedicated to unraveling the mysteries of age-related macular degeneration (AMD). Her research zeroes in on the development and progression of this condition, utilizing mouse models as a tool to investigate the significance of extracellular matrix components (ECM), particularly the secreted ECM protein fibulin-3, in upholding ocular homeostasis. To delve deeper into the intricacies of AMD, she has harnessed retinal pigment epithelium (RPE) cultures from porcine eyes and leveraged iPSCs as invaluable model systems. These systems allow her to dive into the realms of RPE pathobiology and explore potential therapeutic avenues. Steffi's work aims to bridge the gap between fundamental research and clinical applications, striving to shed light on the mechanisms behind AMD and ultimately contribute to the advancement of innovative treatments for this debilitating disease.

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Foundation Fighting Blindness Travel Awardee

An Analysis of the Landscape of RHO Variants in the Irish Population



Laura Finnegan

Postdoctoral Fellow

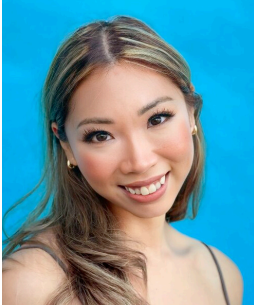
Trinity College Dublin, Ireland

Dr. Laura Finnegan is a postdoctoral research fellow in the Farrar Lab at Trinity College Dublin, where she works on identifying the genetic causes of and potential therapies for retinal degenerations. She is particularly interested in gene-agnostic therapies targeting key pathways affected in multiple conditions. Outside of the lab, Dr. Finnegan works as a freelance scientific illustrator and animator, breathing life into science communications for papers, patient outreach, and promotional videos for organizations such as Fighting Blindness Ireland.

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Foundation Fighting Blindness Travel Awardee

Restoration of Patterned Vision with AAV Optogenetic Gene Therapy in rd1 Mice Using eChRmine, new eChRmine- and ChroME-based Channelrhodopsins, and Their Soma-Targeting Variants



Victoria C. Fong

Graduate Student

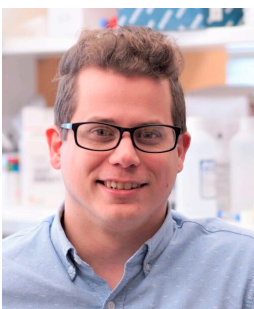
University of California, Berkeley, United States

Victoria Fong is from San Francisco. She received scholarships for both an undergraduate degree in neuroscience and behavior (2014) and a master's in developmental biology (2017) from Wesleyan University, where she studied genetic regulators of muscle stem cell development under the mentorship of Dr. Stephen H. Devoto. She then joined the lab of Dr. Teresa V. Bowman at Albert Einstein College of Medicine in New York, completing a drug screen identifying small molecular modulators of mutant defects causing myelodysplastic syndromes, a group of bone marrow failure disorders. This was her first foray into translational medicine and what inspired her to pursue a PhD. She is currently completing her doctorate in the lab of Dr. John G. Flannery at UC Berkeley, where she is engineering adeno-associated, viral-mediated, mutation-independent gene therapies for inherited retinal disease disorders. She plans to commit her career to drug development and translational research.

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Foundation Fighting Blindness Travel Awardee

Microvesicle Release of Mislocalized Rhodopsin from the Photoreceptor Inner Segment



Tylor R. Lewis

Postdoctoral Fellow

Duke University, United States

Dr. Tylor Lewis is currently a senior postdoc in Dr. Vadim Arshavsky's lab at Duke University, having completed his graduate work with Dr. Joseph Besharse at the Medical College of Wisconsin in 2018. His research interests are focused on the molecular mechanisms of vertebrate vision and the pathophysiology of retinal disease. He employs a combination of cellular, genetic, biochemical, and proteomic approaches to study the development and maintenance of rod and cone photoreceptor cells.

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Foundation Fighting Blindness Travel Awardee

RPGR, a Leading Causal Gene of Retinitis Pigmentosa, Regulates Cofilin-Mediated Actin Depolymerization to Facilitate Photoreceptor Disc Formation



Roly Megaw

Clinical lecturer and consultant ophthalmologist
University of Edinburgh, United Kingdom

Dr. Roly Megaw is a clinical lecturer and consultant ophthalmologist specializing in the inherited retinal diseases (IRDs). He runs the IRD service in southeast Scotland, where he is principal investigator on natural history studies and clinical trials, including for advanced therapeutics (gene replacement therapy). Dr. Megaw is a clinical lecturer at the MRC Human Genetics Unit (HGU), University of Edinburgh, where he uses stem cell and humanized mouse models to explore gene function, disease pathogenesis, and cell death pathways in IRDs, with the long-term goal of identifying novel therapeutics. In collaboration with the HGU bioinformatics core, he uses novel sequence analysis pipelines, with the aim of improving the molecular diagnosis rate of IRDs in Scotland. He is a member of the academic committee and the curriculum committee of the Royal College of Ophthalmologists, with a remit of improving U.K. clinical eye research. He is a trustee of the Ciliopathy Alliance charity and a member of the Northern Alliance Advanced Therapies Treatment Centre.

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Foundation Fighting Blindness Travel Awardee

Splenic Monocytes Contribute to Pathogenic Inflammation During Retinal Degeneration



Kaitryn Ronning

Postdoctoral Fellow
Institut de la Vision, France

Dr. Kaitryn Ronning is currently a postdoctoral researcher at the Vision Institute in Paris under the mentorship of Dr. Florian Sennlaub. Her research focuses on the role of immune cells during retinal degenerative disorders, with a focus on age-related macular degeneration and an eye toward the therapeutic potential of modulating these immune responders. Before moving to Paris, Dr. Ronning earned her bachelor's degrees in biology and music at Susquehanna University, and then earned her PhD in neuroscience at UC Davis in the lab of Dr. Marie Burns. During her PhD, she used a wide range of techniques, including single-cell mRNA sequencing and in vivo retinal imaging, to unravel the heterogeneity of the innate immune response during photoreceptor degeneration. Her work has been recognized by awards and fellowships from UC Davis, NIH T32 training programs, the Fondation de France, the Association for Research in Vision and Ophthalmology annual meetings, and more.

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Foundation Fighting Blindness Travel Awardee

In Vivo CRISPR-KO Screens for the Study of Photoreceptor Essential Genes



Riccardo Sangermano

Postdoctoral Fellow

Massachusetts Eye and Ear, United States

Dr. Riccardo Sangermano graduated in medical biotechnology from the Federico II University of Naples in Italy. In Naples, he joined the group of Dr. Nicola Brunetti-Pierri at the Telethon Institute of Genetics and Medicine (TIGEM), where he worked on congenital syndromes and inborn errors of metabolism, in particular, lysosomal storage disorders and mucopolysaccharidosis type I. In 2013, he obtained a Marie Skłodowska-Curie Early-Stage Researcher Fellowship as part of the EyeTN research training network and joined the group of Dr. Frans Cremers at Radboud University Medical Center in Nijmegen in the Netherlands. There, he contributed to the identification of novel genetic causes in inherited retinal degeneration, with special interest in unraveling the missing heritability in ABCA4 disease by combining targeted next-generation sequencing, splicing assay, and transcript analysis in patient-specific iPSC-derived retinal progenitors. After obtaining his PhD cum laude in medical science from Radboud University in 2018, he joined the group of Dr. Kinga Bujakowska at the Ocular Genomics Institute of Massachusetts Eye and Ear in Boston. As a postdoctoral research fellow, his next research goals are to investigate and functionally characterize the photoreceptor essential genes and genetic modifiers of disease severity in retinal degeneration patients.

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Foundation Fighting Blindness Travel Awardee

Discovering a Novel AAV Variant for Efficient RPE Transfection via Intravitreal Injection for Dry AMD Gene Therapy



Sonali Singh

Graduate Student

University of California, Berkeley, United States

Sonali Singh is a third-year vision science PhD candidate at UC Berkeley, where she's studying AAV-mediated gene therapies for dry age-related macular degeneration with Dr. John Flannery. She is exploring the potential of efficient RPE-transduction with AAV via intravitreal injection. She has been fascinated with the eye ever since she was diagnosed with high myopia at age six. Today, she has myopia to a degree of -16.25 diopters, putting her in the top 1% of the global population for most severe myopia. She is inspired by the cellular complexity of visual function and hopes to develop therapeutics for the visually impaired. Sonali has a bachelor's degree in cell, molecular, and developmental biology from UC Riverside. In 2020, she received the Postbaccalaureate Intramural Research Training Award (IRTA) from the NIH. Outside the lab, she serves as president of the Vision Science Student Government.

sonalisingh@berkeley.edu

Foundation Fighting Blindness Travel Awardee

Visualization of ATP levels in Photoreceptors of Acute Eye Preparations Show the Dependency of Rods on Aerobic Glycolysis for ATP Production



Gabriele Wögenstein

Graduate Student
University of Zurich, Switzerland

Gabriele Wögenstein is currently a PhD student in the laboratory for retinal cell biology led by Dr. Christian Grimm at the University of Zurich. She earned her bachelor's at the University of Applied Sciences in Vienna, where she acquired a broad knowledge in molecular biology. For her thesis, she worked on a research project to study leukaemogenesis at Cardiff University in the U.K., an experience that drove her to increase her knowledge in the field. She pursued a master's in molecular biotechnology and, for her thesis, joined the lab of Dr. Sandra Siegert at the Institute of Science and Technology in Austria. During this period, she gained fascinating insights into the function of microglia under physiological and pathophysiological conditions in the retina. Because she was fascinated by the interaction of different cell types in the retina and realized how cells rely on each other to function and generate useful visual signals, she decided to focus her PhD studies on one of the most important aspects for cellular function, energy metabolism.

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Foundation Fighting Blindness Travel Awardee

Extracellular Vesicles as Mediators of Retinal Homeostasis and Immune Modulation



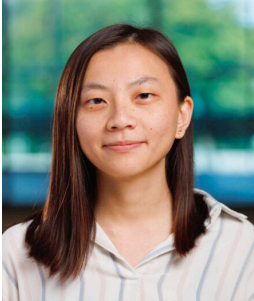
Yvette Wooff

Postdoctoral Fellow
Australian National University

Dr. Yvette Wooff is a postdoctoral research fellow in the Clear Vision Research group at Australian National University's John Curtin School of Medical Research. Her research focus is understanding the role and therapeutic potential of extracellular vesicles in retinal degenerative diseases. Dr. Wooff's work is supported by the BrightFocus Foundation (MDR Fellowship), Macular Disease Foundation Australia, and the Bootes Foundation.

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Foundation Fighting Blindness Travel Awardee

Spontaneous Retinal Abnormalities in the Cone-Dominant Northern Tree Shrew



Ching Tzu Yu

Graduate Student

Medical College of Wisconsin, United States

Ching Tzu Yu is a graduate student in the Department of Cell Biology, Neurobiology, and Anatomy at the Medical College of Wisconsin and is also a trainee member under Dr. Joseph Carroll's mentorship within the Advanced Ocular Imaging Program. Her work is based in two emerging cone-dominant species, the northern tree shrew and the 13-lined ground squirrel, to better recapitulate the cone-rich environment of the human foveal region. Her projects aim to understand and assess cone photoreceptor changes following retinal detachment, advance stem cell therapies to replace lost cone photoreceptors, and assess cone photoreceptor health through objective measures of structure and function. Her work regularly utilizes scanning light ophthalmoscopy (SLO), optical coherence tomography, and adaptive optics SLO (AOSLO) to assess the structure of retinal cells, specifically, cone photoreceptors. For measuring cone function, she uses multifocal electroretinography and AOSLO-enabled optoretinography to objectively assess the stimulus-induced response of cone photoreceptors.gabriele.

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Foundation Fighting Blindness Travel Awardee

Early Onset Ariboflavinosis Causes Functional and Structural Aberrations in Neural Retina and Retinal Pigment Epithelium



Xue Zhao

Graduate Student

University of Houston, United States

Xue Zhao is a PhD candidate in biomedical engineering at the University of Houston. She received her bachelor's in environmental engineering from Bohai University in China. Her current research focuses on a novel flavin-binding protein called retbindin (Rtbdn), which is critical to regulate retinal flavin levels in the retina, and how that affects the overall retinal homeostasis. This research will help clarify the importance of riboflavin and Rtbdn in retinal degeneration and identify the mechanisms of retinal degeneration associated with ariboflavinosis. It provides initial evidence of the intricate relationship between riboflavin homeostasis and retinal function.

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Foundation Fighting Blindness Travel Awardee

iPSC-RPE Cells Carrying the Complement Factor H (CFH) Y402H Polymorphism Show Impaired Response to Oxidative Stress and Promote Retinal Degeneration in a Novel Co-Culture Model for AMD



Angela Armento

Postdoctoral Fellow

University of Tübingen, Germany

Dr. Angela Armento's major research interest has always been focused on the molecular and cellular mechanisms of complex diseases, which led her to study age-related macular degeneration (AMD). Focusing on the pathophysiological role of retinal pigment epithelium (RPE) cells, she studied in vitro the combined impact of two main risk factors for AMD: complement system dysregulation and oxidative stress. Moreover, exploring the impact of complement factor H gene (CFH) dysregulation in RPE cells, she discovered noncanonical functions of FH intracellularly, with involvement on inflammatory signaling pathways, metabolic regulation, and antioxidant response. In addition, she established a "retina on a dish" co-culture model comprising RPE cells and porcine cone-rich retinal explants, which enables study of the impact of AMD-specific risks in the interrelation of RPE with the adjacent neuroretina. She is currently further developing this system to analyze AMD risk carrier versus control iPSC-derived RPE cells, with a focus on the role of CFH high-risk variants. Her future studies will aim to uncover the role of intracellular complement at the retina, with a chance to discover targets and rationales for therapy development that focus on disease prevention in the early stages of AMD.

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Limnopharma Travel Awardee

A CaBP4 Mutation in Dogs Causes Cone-Rod Synaptic Disorder, and Gene Augmentation Therapy Restores the Synaptic Cornerstones of the Outer Plexiform Layer, Leading to Subsequent Vision Rescue



Billie Beckwith-Cohen

Comparative Ophthalmology Resident
Michigan State University, United States

Dr. Billie Beckwith-Cohen is a fourth-year comparative ophthalmology resident and the Michigan State University College of Veterinary Medicine in the Department of Small Animal Clinical Sciences. Dr. Beckwith-Cohen holds a PhD in vision science from UC Berkeley and a doctor of veterinary medicine degree from the Hebrew University in Jerusalem. Her prior and current research focuses on retinal physiology and pathology and on methods to restore visual function following degenerative retinal diseases. Her current research mentor is Dr. Simon Petersen-Jones.

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National Eye Institute Travel Awardee

Multimodal Single-Nucleus Analysis of Photoreceptor and Muller Response to Aging in the Mouse Retina



Anne Marie Berry

Master's Student

University of California, San Diego, United States

Anne Marie Berry is a master's student in the Ayyagari Lab at UC San Diego's Shiley Eye Institute and has been a student researcher there since 2021. She completed her bachelor's degree in cellular and molecular biology at UC San Diego in 2022. Her research leverages multiomics methods and genetic analysis to study retinal degenerations. For her master's thesis, she is studying a noncoding mutation predicted to be causative for retinal degeneration using various bioinformatics methods as well as CRISPR-modified cells. She also studies the molecular changes in the mouse retina that occur with age using single cell genomics, with the goal of characterizing age-driven transcriptional and regulatory changes in the mouse retina. She presented her work at the ARVO Annual Meeting in 2022 and 2023. Her work in the Ayyagari Lab has helped her discover a passion for research, and after completion of her master's thesis she plans to pursue a PhD in biomedical sciences.

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National Eye Institute Travel Awardee

Mutation Agnostic CRISPR Genome Surgery for RHO-Linked Retinal Dystrophies



Salvatore Marco Caruso

Graduate Student

Columbia University, United States

Salvatore Marco Caruso is a fourth-year PhD candidate at Columbia University in New York studying biomedical engineering. His interests lie at the intersection of genomics, therapeutic gene editing, and multiomic technologies that can provide unprecedented insight into disease and rescue mechanisms. By attending the Macular Fast Track workshop hosted by BrightFocus Foundation, he hopes to develop a deeper understanding of macular degeneration and explore potential opportunities for collaboration.

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National Eye Institute Travel Awardee

A Source of Insulin in the Eye Governed by Starvation and Phagocytosis



Jon Iker Etchegaray

Postdoctoral Fellow

Washington University in St. Louis, United States

Dr. Jon Iker Etchegaray is a postdoctoral fellow in the lab of Dr. Kodi Ravichandran whose research has been focused on understanding the metabolic relationship between the retinal pigment epithelium (RPE) and the photoreceptors of the retina. Specifically, his work has revolved around studying how phagocytosis of photoreceptor outer segments (POS) by the RPE promotes metabolic homeostasis in the retina. Additionally, he has also worked extensively on studying the basic mechanism of phagocytosis in tissue-resident macrophages. As a predoctoral student in the lab of Dr. Kim McCall, he conducted research on how nonprofessional phagocytes (cells that are not specified to be phagocytic at differentiation) can become competent to phagocytose using *Drosophila melanogaster* as model system. Furthermore, he also conducted research on glia phagocytosis in the brain of *Drosophila melanogaster*. Finally, he also conducted a fellowship in the lab of Dr. Li Gan studying the role of microglia in frontotemporal dementia. In the future, he is interested in exploring the interplay between phagocytosis, inflammation, and metabolism, and how this relationship changes in age-related macular degeneration.

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National Eye Institute Travel Awardee

Noninvasive Assessment of Retinal Structure in the Elderly 13-Lined Ground Squirrel



Hannah M. Follett

Graduate Student

Medical College of Wisconsin, United States

Hannah Follett is a third-year student in the cell and developmental biology graduate program at the Medical College of Wisconsin. Under the mentorship of Dr. Joseph Carroll, Hannah's work has focused on advancing two cone-dominant animals, the 13-lined ground squirrel and the northern tree shrew, as models of vision and retinal degeneration. Her projects within these models have centered around the application of high-resolution imaging tools, such as optical coherence tomography and adaptive optics scanning light ophthalmoscopy, to assess retinal structure in animals with chemically induced retinal degeneration and to study age-related changes in retinal structure.

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National Eye Institute Travel Awardee

NUDC Is Critical for Photoreceptor Maintenance and Survival



Mary Anne Garner

Scientist I

University of Alabama at Birmingham, United States

Dr. Mary Anne Garner earned a PhD in neuroscience from Cornell University in 2009 and completed postdoctoral training with Dr. Francis S. Lee at Weill Cornell Medical College in New York. For 10 years, she taught undergraduate and graduate courses in biology and neuroscience and mentored undergraduate students in her research lab. In 2021, she reentered full-time research in the labs of Dr. Alecia K. Gross (neurobiology) and Dr. Christopher A. Girkin (ophthalmology) at the University of Alabama at Birmingham. Her current work in the Gross and Girkin labs focuses on retinal degenerations, including the cellular and molecular responses that occur following elevated intraocular pressure, as well as the roles of the effectors of cytoskeletal reorganization in postmitotic photoreceptors. While not busy in lab, Dr. Garner enjoys reading, riding her Peloton bike, and having adventures with her two children, Luke and Jude, and their dog, Liz.

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National Eye Institute Travel Awardee

Abnormal Activation of Mechanosensitive Ion Channels Mediates RPE Dysfunction in Models of Macular Degeneration



Colin Germer

Graduate Student

University of California, San Francisco, United States

Colin Germer is a graduate student in the Lakkaraju Laboratory in the Department of Ophthalmology at UCSF. He is currently working on several projects that explore lipid handling in both the RPE and retina, with a particular focus on mechanotransduction in the RPE and evaluating potential therapeutics for the treatment of AMD. He is on track to graduate by May 2024 and is excited to meet with investigators who have open postdoc positions in their laboratories. Mr. Germer is seeking to join a lab that does high-impact research in the eye that will help him progress onto the next step in his academic training.

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National Eye Institute Travel Awardee

Photomechanical Control of Choroidal Blood Flow



Albert L. Gonzales

Assistant Professor

University of Nevada, Reno School of Medicine, United States

Dr. Albert Gonzales is an assistant professor in the department of physiology and cell biology at the University of Nevada, Reno School of Medicine. After graduating from California State Polytechnic University, Pomona with a degree in biology, he obtained his PhD in biomedical science from Colorado State University in Fort Collins with Dr. Scott Earley. He completed his postdoctoral training at the University of Vermont in Burlington under the mentorship of Dr. Mark T. Nelson, the University Distinguished Professor in the Department of Pharmacology and chair of the department. In 2020, Dr. Gonzales joined the faculty of the University of Nevada, Reno School of Medicine. His laboratory is focused on understanding the active role capillary networks play in sensing and responding to the metabolic needs of the tissue and the mechanisms ensuring the point-to-point delivery of oxygen and nutrients and the removal of metabolic waste. His lab employs a broad range of modern experimental approaches and techniques, including ex vivo pressurized vasculature tissue preparations; high-speed, high-resolution Ca²⁺ imaging; and patch clamp electrophysiology.

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National Eye Institute Travel Awardee

Functional Roles of Dynamins in Mouse Rod Photoreceptor



Christin Hanke-Gogokhia

Postdoctoral Fellow

Yale University, United States

Dr. Christin Hanke-Gogokhia's past research experiences have focused on understanding retinal cell biology in photoreceptors and the retinal pigment epithelium/choroid. In Dr. Wolfgang Baehr's laboratory at the University of Utah, she studied protein-trafficking pathways to the rod outer segment, generated multiple knockout mouse models, and defined the signaling pathways altered in patients with retinal diseases, such as retinitis pigmentosa, Leber congenital amaurosis, and Joubert syndrome. Her subsequent postdoctoral work in Dr. Maria T. Rodriguez-Boulan's laboratory at Weill Cornell Medicine was focused on understanding the role of a novel hedgehog signaling pathway in the choroid as part of age-related macular degeneration pathogenesis. She also discovered that chloride channel 2 is required for proper RPE apical membrane development and photoreceptor survival. For her second postdoctoral training, she joined Dr. Vadim Arshavsky's laboratory at Duke University, where she addressed a complex, poorly understood feature of photoreceptor outer segment morphogenesis (i.e., disc enclosure in rod outer segments, for which she received a NIH F32 fellowship). With the transfer of her F32 fellowship to Dr. Jonathan Demb's laboratory at Yale University, she continued investigating the function of dynamin in photoreceptors. Currently, she is studying retinal electrophysiology to address mechanisms that enable visual processing, an exciting and new direction of her F32 fellowship project.

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National Eye Institute Travel Awardee

Characterization of Human RPE Models of Choroideremia Reveals Mitochondrial Dysfunction



Nan Hultgren

Postdoctoral Fellow

Jules Stein Eye Institute, University of California, Los Angeles, United States

Dr. Nan Hultgren has a broad background in molecular and cellular mechanisms of disease in a variety of contexts, including immunology, vascular biology, and retinal/retinal pigment epithelium (RPE) biology. After receiving her bachelor's degree from California State University, East Bay, she worked in Dr. Jeoung-sook Shin's laboratory at UC San Francisco, investigating the molecular mechanism regulating the maturation of thymic dendritic cells and how this affects the development of regulatory T cells *in vivo*. In 2018, she received her PhD from UC Irvine, with Dr. Christopher Hughes, on transcriptional regulation and role of Slug-mediated endothelial-to-mesenchymal transition in endothelial cell angiogenesis. Since 2019, Dr. Hultgren has been a postdoctoral fellow in Dr. David Williams's laboratory at UCLA's Jules Stein Eye Institute. Her postdoctoral training focuses on the role of mitochondrial dynamics in healthy and diseased RPE (such as those from choroideremia patients), and how it affects and respond to RPE interaction with the photoreceptors via phagocytosis of photoreceptor outer segment tips. In the future, she hopes to leverage her broad knowledge in molecular and cellular processes to study the outer retina as a complete functional unit and understand how mitochondrial dynamics and metabolism change and affect the interactions among different outer retinal cells in health and diseases.

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National Eye Institute Travel Awardee

Determining Whether There Is a “Point of No Return” for Gene Therapy Rescue in Rod Monochromatism



Anders Steen Knudsen

Graduate Student

Columbia University, United States

Anders Steen Knudsen recently graduated from Tufts University in Boston, where he majored in biomedical engineering. He is now a PhD student in the Tsang Lab at Columbia University in New York, which focuses on novel gene therapies for inherited retinal diseases, such as retinitis pigmentosa, age-related macular degeneration, and rod monochromatism. The lab is focused on translational research, with his current project focused on determining whether direct and sustained cone rescue is possible in an animal model of cone dystrophy.

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National Eye Institute Travel Awardee

Alternative Complement Pathway Perturbation and RPE Metabolism



Rayne Ruiyi Lim

Postdoctoral Fellow

University of Washington, United States

Dr. Rayne Lim is a postdoctoral fellow at the University of Washington in Seattle, working in the laboratory of Dr. Jennifer Chao. She obtained her bachelor's degree in biological sciences from Nanyang Technological University in Singapore and her doctorate in biomedical sciences from the University of Missouri, under the mentorship of Dr. Shyam S. Chaurasia. Her research interest is deciphering the mechanisms underlying retinal degenerative diseases such as age-related macular degeneration and diabetic retinopathy, with a current emphasis on the role of complement system in the retinal pigment epithelium (RPE). In 2023, she received the Macular Degeneration Postdoctoral Fellowship from the BrightFocus Foundation to investigate factor H-like protein 1 insufficiency in the RPE.

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National Eye Institute Travel Awardee

CEP162 Deficiency Causes Human Retinal Degeneration and Reveals a Dual Role in Ciliogenesis and Neurogenesis



Nafisa Nuzhat

Graduate Student

University of Michigan–Ann Arbor, United States

Dr. Nafisa Nuzhat’s research experience and academic training fostered an appreciation for cell biology and its vast applications. She began as an undergraduate studying how lungs form alveolar branches during development and whether that process could be replicated in a lung organoid model. As a research technician, she investigated how the female ovarian reserve is formed and also helped contribute to establishing an in vitro model for oocyte development. Her path ultimately led her to pursue a PhD in Dr. Jillian Pearing’s lab at the University of Michigan, where her dissertation work sought to determine how a human mutation in a ciliary gene causing nonsyndromic retinal degeneration affected the photoreceptor outer segments, which are specialized primary cilia. Her dissertation journey culminated in her first author publication in *The Journal of Clinical Investigations*. Along the way, she also pursued a science communication fellowship in which she developed interactive workshops to engage the general public in her research endeavors. Dr. Nuzhat is also committed to equity and has led DEI initiatives, fostered inclusive graduate admissions, and has bridged faculty–student interactions. Moving forward, her goal is to contribute to neuroscience through translational roles in an academic or industry setting.

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National Eye Institute Travel Awardee

Why Do Mutations in IMPDH1 Cause Photoreceptor Degeneration?



Kaitlyn Michelle Rutter

Graduate Student

University of Washington, United States

Kaitlyn Rutter is a graduate student in Dr. Susan Brockerhoff's lab at the University of Washington in Seattle. Her current work is focused on understanding why mutations in inosine monophosphate dehydrogenase 1 (IMPDH1) cause autosomal dominant retinitis pigmentosa. IMPDH1 is a metabolic protein involved in de novo purine biosynthesis and is found abundantly in rods and cones. Using zebrafish as a model system, she is interested in studying metabolic changes and protein localization in wild-type and IMPDH-mutant retinas. Prior to starting graduate school, she earned her bachelor's degree in biochemistry from Colorado Mesa University.

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National Eye Institute Travel Awardee

Trafficking and Interdependency of Interphotoreceptor Matrix Proteoglycans IMPG1 and IMPG2: Insights Into Retina Degeneration



Ezequiel M. Salido

Research Assistant Professor

West Virginia University, United States

The Salido Lab combines neuroscience and extracellular matrix cell biology to reveal the functional properties of the extracellular matrix around the photoreceptors and their role in vision and pathology.

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National Eye Institute Travel Awardee

Dysfunction of the RabGTPase Rab11a Compromises the Structural Integrity of the Retinal Pigment Epithelium



Sydney Williams

Graduate Student

University of California, San Francisco, United States

Sydney Williams hails from Charlotte, North Carolina, and went to school at Hampton University in Virginia to study biology on the pre-med track. During her undergraduate career, she conducted several research projects both on campus and through external universities that spanned cell/molecular biology, toxicology, and microbiology. After graduating, she was awarded the UC-HBCU and IMSD Fellowship to continue her studies at UC San Francisco, where she is getting her PhD in pharmaceutical sciences and pharmacogenomics. She joined Dr. Aparna Lakkaraju's lab in June 2022 and has been studying the role of Rab proteins in retinal pigment epithelium (RPE) homeostasis. The results of her preliminary work have prompted her thesis work on pre- and post-translational mechanisms of RPE differentiation and how these mechanisms relate to macular degenerations.

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National Eye Institute Travel Awardee

Integrative Single-Nucleus Multiomic Analysis of Retinal Cell Types Involved in Early-Onset Retinal Degeneration Due to the Loss of Mfrp



DaNae R. Woodard

Postdoctoral Fellow

University of California, San Diego, United States

Dr. DaNae Woodard is an Institutional Research and Academic Career Development Award (IRACDA; K12) postdoctoral fellow awardee at UC San Diego. In 2021, she received her PhD in biological chemistry from the University of Texas Southwestern Medical Center in Dallas, where she discovered a passion for understanding the mechanisms of retinal degeneration. She is currently in the laboratory of Dr. Radha Ayyagari at the UC San Diego Shiley Eye Institute, where her goals are to continue deciphering the underlying molecular mechanisms involved in idiopathic and inherited retinal degenerative diseases, as well as shed light on the function(s) of proteins involved in disease. To accomplish these goals, she utilizes single cell genomics, biochemistry, and animal and cell culture models. In addition to research, she also participates in pedagogical trainings and guest lecture at San Diego City College, which is offered through the IRACDA program. Her long-term goal is to secure a tenure-track faculty position at a reputable institution where she will combine her ophthalmic expertise with biochemistry and genomics while exposing the next generation of scientists to the incredible world of retina research.

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National Eye Institute Travel Awardee

Glutaminase Deficiency in Photoreceptors Disrupts Nonessential Amino Acid Biosynthesis, Activates the Integrated Stress Response, and Reduces Protein Synthesis to Induce Rapid Degeneration



Thomas Wubben

Assistant Professor

University of Michigan, United States

Dr. Thomas Wubben is a translational-research ophthalmologist, vitreoretinal surgeon, and assistant professor in the Department of Ophthalmology and Visual Sciences at the University of Michigan's Kellogg Eye Center. He is the associate director of the Vitreoretinal Surgical Fellowship and a member of the Cellular and Molecular Biology program at the University of Michigan. As a vitreoretinal surgeon, Dr. Wubben provides medical and surgical care to patients with a multitude of retinal degenerative diseases (RDDs) in the clinic and performs subretinal gene therapy as part of the inherited retinal disease (IRD) group at University of Michigan. As a basic research scientist, he has extensive experience in drug discovery, design, and development and the molecular genetics and biochemistry that govern cell survival in the retina. Dr. Wubben's translational research program looks to improve our understanding of the metabolic signals that drive retinal cell function and survival in RDDs and ultimately, to identify novel therapeutic paradigms to improve vision in those affected by such diseases. His group has demonstrated that reprogramming photoreceptor metabolism is a novel neuroprotective therapeutic strategy, and they are currently developing small molecule therapeutics and gene therapies to reprogram retinal metabolism for neuroprotection.

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National Eye Institute Travel Awardee

Identification of Neuroprotectants Promoting Rod Photoreceptor Survival in New Zebrafish Genetic Models of Retinitis Pigmentosa



Liyun Zhang

Assistant Professor

Johns Hopkins University, United States

Dr. Liyun Zhang received her medical degree from Beijing Medical University (Peking University Health Science Center) in China and practiced as an ophthalmologist at the Beijing Tong Ren Hospital Eye Center. Driven by a desire to unravel eye disease mechanisms and discover effective treatments, she pursued advanced studies, obtaining her PhD degree at the Chinese University of Hong Kong. She later completed postdoctoral training at Purdue University, the University of Cincinnati, and Johns Hopkins University. Dr. Zhang's research focuses on understanding the molecular mechanisms underlying retinal degenerative diseases and identifying innovative therapies. Her laboratory employs zebrafish to model human retina degeneration and conducts large-scale drug screening to discover new treatments for patients.

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National Eye Institute Travel Awardee

Inner Retinal Vascular Integrity in the Pathogenesis of Retinitis Pigmentosa



Kieva Byrne

Graduate Student

Trinity College Dublin, Ireland

Kieva Byrne is a fourth-year PhD candidate researching vascular impacts in inherited retinal diseases. She completed her bachelor's degree in human genetics from Trinity College Dublin in 2020 and continued her research at the Smurfit Institute of Genetics, where she is currently working on completing her PhD. Her interests are centered around the characterization of the inner blood-retinal barrier in retinal degenerative disorders, particularly retinitis pigmentosa.

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Pro Retina European Travel Awardee

Computational and Phenotypic-Based Drug Discovery for Inherited and Age-Related Blindness



Patrizia Colucci

Postdoctoral Fellow

University College Dublin, Ireland

Dr. Patrizia Colucci is a member of the Marie Skłodowska-Curie Actions Innovative Training Network (MSCA-ITN) ORBITAL network and works in the research group of Dr. Breandán Kennedy at University College Dublin. Her research focuses on the discovery of pharmacological treatments able to improve or restore vision by applying computational and phenotypic drug discovery using zebrafish as an in vivo system. Before moving to Ireland, Dr. Colucci received her master's degree in molecular biotechnology in 2019 at the University of Pisa and her PhD in biochemistry and molecular biology in 2023 at the University of Siena in Italy. During her PhD, she worked in the field of nanomedicine and developed a neuroprotective nano-based drug delivery system for the posterior eye. She was recently awarded an IRC Enterprise Partnership Scheme Postdoctoral Fellowship for a project that aims to discover drug treatments for inherited and age-related blindness.

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Pro Retina European Travel Awardee

Versican GAG- α Domain Deficiency Causes Developmental Rosette Formation in the Retina



Andrea E. Dillinger

Postdoctoral Fellow

University of Regensburg, Germany

Dr. Andrea Dillinger is a postdoctoral fellow at the Institute of Human Anatomy and Embryology in the lab of Dr. Ernst R. Tamm at the University of Regensburg in Germany. She received her PhD in biology at the University of Regensburg under the supervision of Dr. Rudolf Fuchshofer. Her research focuses primarily on investigating mechanisms and signaling factors maintaining retinal and choroidal vascular integrity, and the design and delivery of therapeutics for retinal vascular disorders. In addition, she is interested in the role of extracellular matrix and extracellular matrix-associated proteins on retinal structure integrity and neuronal survival. Her research is currently funded by Pro Retina.

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Pro Retina European Travel Awardee

Loss of SARM1 Attenuates Chemokine Production and Immune Cell Infiltration During Retinal Degeneration



Luke Gibbons

Graduate Student

Trinity College Dublin, Ireland

Luke Gibbons is a final-year PhD student under the supervision of Dr. Sarah Doyle at Trinity College Dublin who completed his undergraduate studies there in immunology in 2018 and then began his PhD studies in March 2019. Luke's current research focuses on the regulation of photoreceptor cell death and immune cell recruitment during retinal degeneration by the protein SARM1. The Doyle Lab has published work identifying the role of SARM1 in promoting photoreceptor degeneration in a mouse model of retinitis pigmentosa and an oxidative-stress-induced retinal degeneration model. His future research aim is to explore the promising potential of SARM1 as a therapeutic target for the treatment of retinal degenerative disease.

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Pro Retina European Travel Awardee

The Citric Acid Cycle in Photoreceptor Survival



Larissa Govers

Graduate Student

University of Zurich, Switzerland

Larissa Govers is a PhD candidate at the University of Zurich in Switzerland under the supervision of Dr. Christian Grimm. She earned her bachelor's degree in biomedical sciences at the Radboud University in Nijmegen in the Netherlands, which gave her the opportunity to explore this broad field and different research areas and resulted in a keen interest for metabolism research. As a result, she pursued a master's in biomedical sciences at the same university, focusing on molecular biology. She was given several opportunities to gain hands-on experience in both wet lab and bioinformatic (omics) analyses. She earned her master's at University College of London, where she focused on identifying novel genetic mutations resulting in hypomagnesemia and chronic kidney disease. Her research experience at three different departments in two different countries gave her a unique experience with diverse cultures and taught her to work under different approaches. Currently, she is working on her PhD thesis, which focuses on the role of the TCA cycle in photoreceptor survival.

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Pro Retina European Travel Awardee

5 Retinal Remodeling and ECM Performance After Laser Photocoagulation in the Zebrafish: Regenerative Capacity Under Scrutiny



Laura Jahnke

Postdoctoral Fellow

Inselspital University Bern, Switzerland

Dr. Laura Jahnke is an early postdoc in experimental ophthalmology at Inselspital Bern. Her work focuses specifically on the wound-repair mechanisms in retinal models and the impact of chronic extracellular matrix formation. Inspired by international collaborations, she initiated a fresh project centered on detecting early signs of Parkinson's disease through retinal changes. When she isn't occupied with reviewing up-to-date research data, her preferred destination is the Swiss Alps.

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Pro Retina European Travel Awardee

The First Large-Scale Genetic Analysis of Inherited Retinal Diseases in the Portuguese Population Identifies a Unique Pattern of Mutations



Karolina Kaminska

Graduate Student

Institute of Molecular and Clinical Ophthalmology Basel (IOB), Switzerland

Karolina Kaminska is originally from Poland, where she graduated from the Medical University of Warsaw as a medical laboratory scientist and started her career in human genetics, focusing first on hereditary hearing impairment, followed by a broader spectrum of neurodegenerative diseases. She worked for a few years in a genetic diagnostic lab, which shaped her future research interests. Currently, she is a PhD student at the Institute of Molecular and Clinical Ophthalmology in Basel, Switzerland. Her work focuses on population genetics to fill the missing gaps and provide genetic diagnosis for patients with inherited retinal diseases (IRDs), as well as on the functional characterization of novel IRD-causing genes.

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Pro Retina European Travel Awardee

Optogenetic Engineering of Stem Cell–Derived Photoreceptors to Improve Visual Restoration



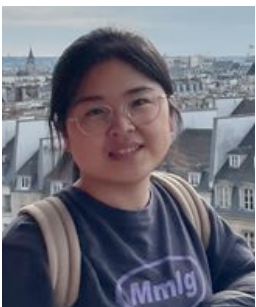
Elise Léger

Postdoctoral Fellow
Institut de la Vision, France

After earning a master’s degree in molecular and cell signaling, Dr. Elise Léger discovered the world of ophthalmology research during her PhD. Her project focused on glaucoma and the involvement of retinal cholesterol metabolism in the pathophysiology of this disease. She then wanted to acquire knowledge and skills in the major field of interest represented by stem cell therapy, so she joined Dr. Olivier Goureau’s team at the Vision Institute in Paris, where she was recruited as a postdoctoral fellow two years ago. She now has the opportunity to take part in an innovative project combining cell therapy and optogenetics to treat degenerative photoreceptor pathologies. As the contribution of stem cells to the development of new therapies in humans is a subject that particularly interests her, she would like to pursue this area in her career and supplement her research training with other complementary cutting-edge techniques, such as microfluidics.

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Pro Retina European Travel Awardee

Rod-Derived Cone Viability Factor 2 for the Treatment of Inherited Retinal Degeneration



Zheng Li

Graduate Student
Institut de la Vision, France

Zheng Li has been a PhD student at the Vision Institute in Paris under the mentorship of Dr. Thierry Léveillard since October 2021. She obtained both her master’s and bachelor’s degrees from the School of Pharmaceutical Sciences at Peking University in Beijing. Her current research focuses on the therapy of retinal degeneration by photoreceptor protection. This work involves animal-model and gene-therapy validation to uncover the cellular signaling mechanism for potential therapeutic insights.

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Pro Retina European Travel Awardee

Characterizing Retinal Dysfunctional Disease Models Using a Drug-Induced Method and Gene-Editing Technology



Qi Lu

Graduate Student

University College Dublin, Ireland

Qi Lu is a final-year PhD student who has been working with Dr. Alison Reynolds at University College Dublin since 2019. His interest is focused on how to generate new inherited retinal degeneration disease models, for example, Stargardt disease (STGD1), an inherited juvenile macular disorder, using cone-rich zebrafish as a model organism.

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Pro Retina European Travel Awardee

Opsin-Miner: Using Exome Sequencing Data to Decipher Pathogenic Events in the OPN1LW/OPN1MW Gene Cluster



Mathieu Quinodoz

Senior Scientist

Institute of Molecular and Clinical Ophthalmology Basel (IOB), Switzerland

Dr. Mathieu Quinodoz is a researcher working in genetics of the eye disease, who specifically uses bioinformatics to find causative mutations in patients with retinal degenerations. He has worked at IOB in the lab of Dr. Carlo Rivolta since earning his PhD three years ago from the University of Lausanne in Switzerland.

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Pro Retina European Travel Awardee

Retinal T Cell Populations and Chronic Immunosenescence in a Murine Model of Geographic Atrophy



Lucas Stürzbecher

Graduate Student (MD/PhD)

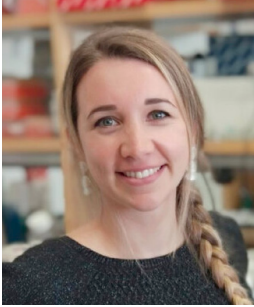
Charité Universitätsmedizin, Berlin and Eye Clinic, University Hospital Freiburg, Germany

Lucas Stürzbecher began medical school in 2014, where he developed an early enthusiasm for ophthalmology. Thus, he decided to combine his areas of interest in ophthalmology and immunology in his PhD. His research, which focuses on cells of the adaptive immune system and their involvement in ocular diseases such as age-related macular degeneration and hypertensive retinopathy, was funded by the Ernst and Berta Grimmke Foundation. During his PhD, he was supported by the Deutschlandstipendium (the Germany Scholarship) and a scholarship from the German Ophthalmological Society, as well as a scholarship from the Charité in Berlin. Besides medicine, he studied design thinking and is active as a board member of the Alumni Association of the Charité. Recently, he started training as an ophthalmologist at the Eye Center at the University Hospital of Freiburg.

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Pro Retina European Travel Awardee

BMI1 Loss Disrupts Multiple Signaling Pathways, Contributing to Photoreceptor Survival in the Rd1 Retina



Adeline Berger

Research Group Leader

Jules-Gonin Eye Hospital, Switzerland

Dr. Adeline Berger is a junior group leader with over seven years of academic experience. With an academic background in molecular biology from the Sorbonne University in Paris, she conducted research on gene therapy for neurodegenerative retinal diseases during her PhD. Her passion for epigenetics motivated her transition to cancer research during her postdoctoral position at Weill Cornell Medicine in New York. Her work there in cancer epigenetics led to significant findings on transcription-factor-driven epigenetic changes in prostate cancer. Today, she is combining her interest in translational research with her fields of expertise at the Jules-Gonin Eye Hospital (Fondation Asile des Aveugles) in Lausanne, Switzerland. The focus of her group is on understanding the epigenetic mechanisms behind retinal degeneration and ocular tumors.

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Sparing Vision Travel Awardee



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