FORUM 2025

Neurolongevity, Neuroprotection, Neurorestoration

Hilton Santa Barabara Beachfront Resort

Santa Barbara, California

September 19-20, 2024

FutureVisionFound.org

FUTURE VISION FORUM

2024 Future Vision Forum
Neurolongevity, Neuroprotection, and Neurorestoration

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2024 Future Vision Forum
Neurolongevity, Neuroprotection, and Neurorestoration

Thursday, September 19, 2024

7:15-8:15 Breakfast
8:15-8:30 Welcome – S Huang

8:30-10:10 Session 1 - Neurolongevity I – Moderator: Carol Greider, Suber Huang

8:30-8:50 Distinguished Lecture, Nobel Laureate, Carol Greider
8:50-10:10 Moderated Discussion

10:10-10:25 Break

10:25-12:00 Session 2 – Neurolongevity II

10:25-10:40 Overview
10:40-12:00 Moderated Discussion

12:00 – 1:00 Lunch

1:00-2:20 Session 3 – Neuroprotection I – Moderator – Andrew Pieper, Suber Huang

1:00-1:15 Overview
1:15-2:20 Moderated Discussion

2:20-2:35 Break

2:35-4:00 Session 4 – Neuroprotection II

2:35-2:50 Overview
2:50-4:00 Moderated Discussion

4:00-4:10 Day 1 Review, Preview of Day 2
4:10 Adjourn

6:15-7:00 Cocktail Hour
7:00-7:15 Faculty Photo
7:15-9:00 Future Vision Forum President's Dinner

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2024 Future Vision Forum

Neurolongevity, Neuroprotection, and Neurorestoration

Friday, September 20, 2024

7:15-8:15 Breakfast
8:15-8:30 Welcome

8:30-10:10 Session 5 – Neurorestoration I – Moderator – Charles Liu, Suber Huang

8:35-8:50 Overview
8:50-10:10 Moderated Discussion

10:10-10:25 Break

10:25-12:00 Session 6 – Neurorestoration II

10:25-10:40 Overview
10:40-12:00 Moderated Discussion

12:00 – 1:00 Lunch

1:00-4:00 Session 7 – Developing a Consensus Statement
1:00-4:00 Forecast, Suggestions and Future Plans – Moderator – Mark Humayun, Suber Huang

4:00-4:05 Closing remarks, acknowledgements, adjourn

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2024 Future Vision Forum

Neurolongevity, Neuroprotection, and Neurorestoration

Breakfast : Rodney's

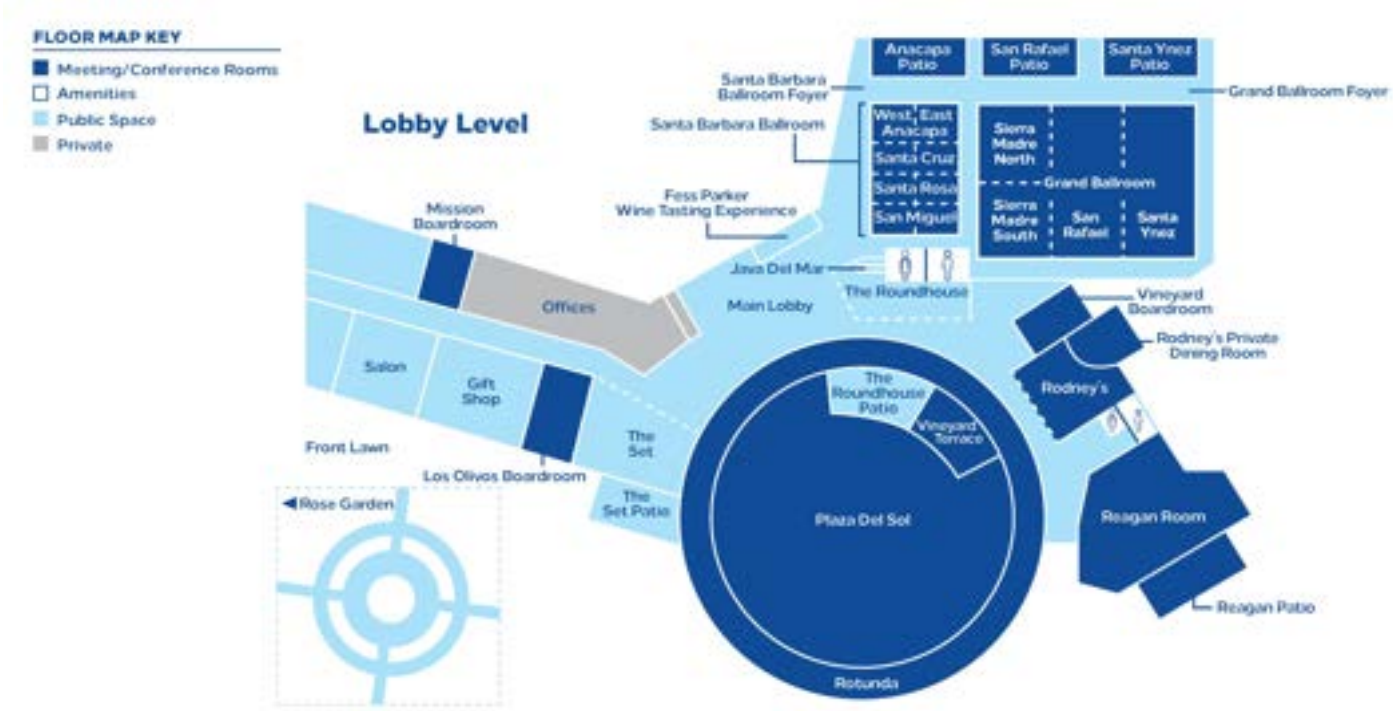
Meeting: Santa Ynez

Breaks: Santa Ynez Foyer

Lunch: Rodney's

Cocktail Hour / Gala Dinner: Rotunda

Welcome Dinner: Anacapa Patio



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Mayssa Attar, PhD
Bausch + Lomb

Petr Baranov, MD, PhD
Harvard University

Jean Bennett, MD, PhD
University of Pennsylvania

Michael Bonaguidi, PhD
University of Southern California

Catherine Bowes Rickman, PhD
Duke University

Michael Cheetham, MD
University College of London

Michael Chiang, MD, PhD
NEI/ National Institute of Health

Vasileios Christopoulos, PhD
University of California, Riverside

Pete Coffey, PhD
University College of London

Anne Coleman, MD, PhD
Stein Eye Institute, UCLA

Jacque Duncan, MD
University of California, San Francisco

Greg Field, PhD
University of California, Los Angeles

John Flannery, PhD
University of California, Berkeley

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Stanford University

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Mayssa Attar, PhD

Senior Vice President of Research & Development

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Narrative Biography

Mayssa Attar is an accomplished executive with more than two decades of leadership experience in the biopharmaceutical and device industries. She has made significant contributions to the development, registration and/or commercialization of more than a dozen approved therapies. She joined Bausch and Lomb in May 2023 in the role of Senior Vice President, Global Pharmaceutical and Consumer Product R&D Head. Prior to her current role, Mayssa spent 3 years at AbbVie as the Vice President of Research, Nonclinical and Translational Sciences Eye Care, Neurotoxins and Aesthetics at AbbVie. At AbbVie, Mayssa was awarded the title of Senior Research Fellow in recognition of her scientific contributions to advance science for patients. Mayssa began her industry career at Allergan where she spent more than 20 years and assumed roles of increasing responsibility where she became the Global Head of Nonclinical and Clinical Pharmacology overseeing the entire portfolio.

Dr. Attar has over 30-peer reviewed publications, over a dozen issued patents and is an invited national and international speaker. Mayssa has served as adjunct faculty at USC School of Pharmacy and as a board member for the Allergan Foundation and the Greater Irvine Chamber of Commerce.

Dr. Attar earned her Bachelor of Science with Honors and Masters of Science in Biochemistry from the University of Ottawa, Canada. Under the mentorship of Vincent HL Lee, a pioneer in drug delivery, Mayssa earned her PhD in Pharmaceutical Sciences from the University of Southern California. Mayssa is a Diplomate of the American Board of Toxicology.

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Shen J, Attar M. Antibody-Drug Conjugate (ADC) Research in Ophthalmology--a Review. Pharm Res. 2015 Nov;32(11):3572-6. doi: 10.1007/s11095-015-1728-9. Epub 2015 Jun 10. PMID: 26058945.

Luu KT, Seal J, Green M, Winskill C, Attar M. Effect of Anti-VEGF Therapy on the Disease Progression of Neovascular Age-Related Macular Degeneration: A Systematic Review and Model-Based Meta-Analysis. J Clin Pharmacol. 2022 May;62(5):594-608. doi: 10.1002/jcph.2002. Epub 2022 Jan 5. PMID: 34783362; PMCID: PMC9305109.

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Petr Baranov, MD, PhD

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Narrative Biography

Petr Baranov got his MD and PhD from Russian State Medical University in Moscow, where he studied medicine, cybernetics, anatomy and cell biology. He relocated to US to join Michael Young's team at Harvard Medical School, where he advanced the translation of human retinal progenitor cell technology. Petr pioneered the application of low oxygen culture conditions for retinal cell expansion, which enabled cell production for clinical trial for Retinitis Pigmentosa.

As a Principal Investigator and Assistant Professor at the Harvard Medical School Department of Ophthalmology, Petr's group is committed to the development of cell replacement therapies for glaucoma, traumatic optic neuropathies and other age-related sensory disorders. To achieve this audacious goal of functional restoration of vision, they combine the advancements in bioinformatics, regenerative medicine, retinal cell biology, deep learning, automation, transplantation, and functional imaging of the retinal neurons on a single-cell level. They have established the protocols for sorting, AI-based analysis and automated production of stem-cell derived retinal organoids and their use for drug discovery and cell production for transplantation.

Vision restoration through cell replacement therapy is a highly collaborative effort and requires addressing multiple aspects of donor cell integration. Baranov lab work on RGC production from stem cells, and methods to improve neuron survival and maturation in transplantation setting are supported by the National Eye Institute, Bright Focus Foundation and Gilbert Family Foundation. The team has extensive experience with small and large animal models of retinal disease, stem cell differentiation, imaging and automation, transplantation, and cell therapy development. To address the significant steps of the bench to bedside translation, they rely on productive collaborations with academia (advanced imaging, bioinformatics, and deep learning, genetic engineering) and industry (scaled up cell manufacture, cell isolation, and characterization).

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References

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Bennett JL. Optical Coherence Tomography, Retinal Atrophy, and Neurodegeneration in Progressive Multiple Sclerosis: Sprinting to the Finish. Neurology. 2023 Sep 5;101(10):420-421. doi: 10.1212/WNL.0000000000207607. Epub 2023 Jul 17. PMID: 37460230.

Narrative Biography

Jean Bennett joined University of Pennsylvania's School of Medicine in 1992 and has spent the past 3 decades developing gene-based strategies for treating inherited retinal degenerations. She has run a true bench-to-bedside translational research program and, in the process, has trained hundreds of physician-scientists, many of whom are now leaders in translational research around the globe. She was the scientific leader of a team that translated reversal of blindness in animal models to demonstration of efficacy and safety of gene therapy in children and adults. She was the scientific director of clinical studies at the Children's Hospital of Philadelphia that led to first FDA-approved gene therapy for a genetic disease (blindness due to RPE65 deficiency, studies that were sponsored by a company that she co-founded (but in which she waived financial benefit), Spark Therapeutics). She helped develop the primary outcome measure for that trial that led in 2017 to the first US FDA-approved gene therapy product. This was subsequently approved by the European Medicines Agency. In 2023, Jean became Professor Emeritus but continues to develop gene-based therapies for blinding diseases at UPenn and with other biotechnology and academic groups. Jean graduated from Yale College, received her PhD (Zoology, Cell and Developmental Biology) from University of California, Berkeley and her MD from Harvard Medical School. She then received post-graduate training at Yale University and Johns Hopkins in Human Genetics and Developmental Genetics. An internationally recognized expert in gene therapy, Dr. Bennett has authored more than 120 peer-reviewed papers. She has received many awards including the Smithsonian Ingenuity Award and was a Co-recipient of the Champalimaud Award, the Sanford Lorraine Cross Award, the Harrington Prize, and the Helen Keller Prize in Vision Research. She is a member of the National Academy of Medicine, National Academy of Science, the Association of American Physicians and the American Academy of Arts and Sciences.

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FUTURE VISION FORUM

Michael Bonaguidi, PhD

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Narrative Biography

Michael A. Bonaguidi, PhD, investigates how stem cells act to adapt and repair the adult brain. Using endogenous neural stem cells as a model system, the Bongauidi Lab's approach incorporates principles from neuroscience, stem cell biology, single cell molecular biology, cellular biology and genomics, computational biology, systems biology and engineering to unravel brain plasticity. We focus on the reciprocal interaction between neural stem cells and their surroundings during normal, aging, injured and diseased states. Our long-term goal evaluates the capacity of endogenous stem cells to serve as a cellular mediator of neural function and as a therapeutic source of cognitive rejuvenation.

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Catherine Bowes Rickman, PhD, FARVO

George and Geneva Boguslavsky Professor of Ophthalmology, Professor of Cell Biology, Duke University

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Narrative Biography

Dr. Catherine Bowes Rickman is a Professor in the Departments of Ophthalmology and Cell Biology at Duke University in Durham, NC. 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 over two decades have been focused on the molecular/cell biology and pathobiology of age-related macular degeneration (AMD). She holds the George and Geneva Boguslavsky Endowed Vision Research Chair, which helps support her research program. In an effort to better understand the pathophysiology of AMD, she has created several murine models that recapitulate many aspects of human AMD and point the way toward eventual treatments for AMD. She has successfully used one model (humanized APOE4 mouse) to test therapies for dry AMD, identifying amyloidbeta (Aβ) as a viable therapeutic target for treating the dry form of AMD for which there are no effective therapies currently for humans. Dr. Bowes Rickman is now studying mouse models engineered to express human complement factor H (CFH) (normal or AMD risk-associated variants) combined with other known AMD risk factors (advanced age and diet). The mice expressing the CFH AMD risk variant 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. Specifically, her program is currently focused on ocular gene therapy of the protective form of CFH and gene therapy targeting the cholesterol metabolism for the dry form of AMD.

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FUTURE VISION FORUM

Michael Cheetham, PhD

Professor of Molecular Cell Biology, University College of London

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Narrative Biography

Dr. Michael Cheetham is a Professor of Molecular Cell Biology at the UCL Institute of Ophthalmology (IoO). He did a degree in genetics in Swansea before training in immunology then molecular biology. Mike completed his PhD on Alzheimer's disease at the Institute of Psychiatry, London and worked on other forms of dementia before moving to the IoO as a lecturer in 1995 when he started working on inherited retinal dystrophy. He was promoted to Professor in 2005. The research in the Cheetham lab is now focused on the cell biology of protein homeostasis (proteostasis) in the nervous system and understanding the molecular basis of inherited retinal dystrophy and developing therapies. The lab uses a combination of model systems, including animal and stem cell models, to probe disease mechanisms and has pioneered the use of 3D retinal organoids to model human genetic disease. For example, they have used this technology recently to help develop an antisense therapy for LCA10, which is now in clinical trial.

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Narrative Biography

Michael F. Chiang is Director of the National Eye Institute, at the National Institutes of Health in Bethesda, Maryland. By background, he is a pediatric ophthalmologist and is also board-certified in clinical informatics. His research focuses on the interface of biomedical informatics and clinical ophthalmology in areas such as retinopathy of prematurity (ROP), telehealth, artificial intelligence, electronic health records, data science, and genotype-phenotype correlation. He is an Adjunct Investigator at the National Library of Medicine, and his group has published over 275 peer-reviewed papers and developed an assistive artificial intelligence system for ROP that received Breakthrough Status from the U.S. Food and Drug Administration.

Dr. Chiang began at NIH in November 2020. He serves as Chair of multiple NIH-wide committees and working groups involving data science, imaging, health equity, and clinical research. He is an elected member of the National Academy of Medicine. Before coming to NIH, he received a BS in Electrical Engineering and Biology from Stanford University, an MD from Harvard Medical School and the Harvard-MIT Division of Health Sciences and Technology, and an MA in Biomedical Informatics from Columbia University. He completed residency and pediatric ophthalmology fellowship training at the Johns Hopkins Wilmer Eye Institute. Between 2001-2010, he worked at Columbia University, where he was Anne S. Cohen Associate Professor of Ophthalmology & Biomedical Informatics, director of medical student education in ophthalmology, and director of the introductory graduate student course in biomedical informatics. From 2010-2020, he worked at Oregon Health & Science University (OHSU), where he was Knowles Professor of Ophthalmology & Medical Informatics and Clinical Epidemiology, and Associate Director of the Casey Eye Institute.

He previously served as a member of the American Academy of Ophthalmology (AAO) Board of Trustees, Chair of the AAO IRIS Registry Data Analytics Committee, Chair of the AAO Artificial Intelligence Committee, Chair of the AAO Medical Information Technology Committee, and on numerous other national and local committees. He currently serves as an Associate Editor for the Journal of the American Medical Informatics Association and is Associate Editor of the textbook Biomedical Informatics: Computer Applications in Health Care and Biomedicine. He has previously served as an Associate Editor for the Journal of the American Association for Pediatric Ophthalmology and Strabismus, and on the Editorial Boards for Ophthalmology, Ophthalmology Retina, and the Asia-Pacific Journal of Ophthalmology.

References

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FUTURE VISION FORUM

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Narrative Biography

Dr. Christopoulos is an Assistant Professor in the University of California, Riverside Department of Bioengineering and Cooperating Faculty in the Graduate Neuroscience Program. He is also a Visiting Professor at the Division of Biology and Biological Engineering at the California Institute of Technology (Caltech) and an Adjunct Clinical Assistant Professor of Neurological Surgery at the Keck School of Medicine of University of Southern California (USC). Prior to joining UC Riverside, Dr. Christopoulos was a Research Faculty and Director of Neurotechnology at the T&C Chen BrainMachine Interface Center at Caltech. He received his PhD in Computer Science and Engineering, with minor in Cognitive Neuroscience, from the University of Minnesota. His research interests focus on understanding the mechanisms of higher order cognitive functions in humans and nonhuman primates, such as decision-making, motor learning and motor control. In the recent years, he has extended his research to clinical studies in patients with brain and spinal cord injuries, including intracortical Brain-Machine Interface in individuals with tetraplegia and functional ultrasound imaging in patients who undergo surgery for treating brain and spinal cord disorders.

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FUTURE VISION FORUM

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Narrative Biography

Professor Pete Coffey, DPhil, is Theme Lead of Development, Ageing and Disease at University College London's Institute of Ophthalmology and the Co-Executive Director of Translation at UC Santa Barbara's Center for Stem Cell Biology and Engineering. He is the principal author and co-author of two landmark papers demonstrating the use of human cells to halt visual deterioration in models of age-related macular degeneration. His achievements include the launch of the London Project to Cure Blindness, which aims to develop a stem cell therapy for the majority of all types of age-related macular degeneration, seminal work on retinal transplantation (as described by Debrossy & Dunnett, Nature Neuroscience 2001). Prof. Coffey has received many honors and awards, including the prestigious Estelle Doheny Living Tribute Award in 2009, Retinitis Pigmentosa International's Vision Award in 2009, the CIRM Leadership Award in 2010, and the New York Stem Cell Foundation Roberston Prize in 2011. Finally, in 2018, the results of two patients were presented in which an engineered biopolymer with stem cell derived retinal pigment epithelium cells were implanted into the eye. Not only did this demonstrate that regenerative medicine is feasible but resulted in the sustained recovery of reading in blind patients with sudden severe vision loss from Macular Degeneration – a breakthrough validating the stem cell treatment paradigm.

References

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Narrative Biography

Dr. Coleman was appointed director of the Stein Eye Institute and chair of the UCLA Department of Ophthalmology in 2022, having served as a national leader in ophthalmology, including as president of the American Academy of Ophthalmology (AAO), chair of the National Eye Institute's National Eye Health Educational Program, president of Women in Ophthalmology, president of the Council for the American Ophthalmological Society, and as associate editor of the American Journal of Ophthalmology. In recognition of her contributions to the field, Dr. Coleman has received many awards, including the AAO Life Achievement Award and Secretariat Award and being elected to the National Academy of Medicine. Dr. Coleman has a passion for patient care, particularly for those traditionally underserved by mainstream medical systems. As director of the Stein Eye Institute Center for Community Outreach and Policy and the UCLA Mobile Eye Clinic, Dr. Coleman has overseen outreach efforts to screen and treat over 180,000 medically underserved children and adults of Southern California.

An accomplished researcher, Dr. Coleman focuses on the diagnosis, treatment, risk factors, geneenvironment interactions, and the societal impact of glaucoma, cataracts, myopia, and age-related macular degeneration. In the surgical arena, Dr. Coleman pioneered the use of the Ahmed glaucoma valve—the world's leading glaucoma drainage device and publishing the first peerreviewed article describing its safety and efficacy. She has more than 260 peer-reviewed publications and has currently received over 20 million dollars in federal/private funding.

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Narrative Biography

Jacque L. Duncan, M.D., Chair and Distinguished Professor, Department of Ophthalmology, University of California, San Francisco, is also the Chair of the Foundation Fighting Blindness Scientific Advisory Board, and the co-Chair of the FFB Clinical Consortium Executive Committee. She graduated with distinction and honors from Stanford University, then spent a year doing research at the University of Colorado while she applied to medical school. She completed medical school, internship and ophthalmology residency at the University of California, San Francisco. Dr. Duncan completed a medical retina fellowship at the University of Pennsylvania, working with Drs. Stuart Fine and Samuel G. Jacobson. Her fellowship training focused on patients with age-related macular degeneration and inherited retinal degenerations. She returned to join the ophthalmology faculty at UCSF in 2000, supported by a K08 award to work with her mentor, Matt LaVail, studying rodent models of inherited retinal degeneration. Dr. Duncan was appointed Interim Chair 1/1/22, and has served as Chair of the Department of Ophthalmology at UCSF 12/1/22 after a national search.

Dr. Duncan has expertise in the diagnosis and management of patients with retinal degenerations including age-related macular degeneration, retinitis pigmentosa, cone-rod dystrophy and Stargardt disease. She has a strong interest in developing imaging and monitoring technologies to better evaluate both the progress of disease and the efficacy of emerging therapies. In collaboration with Austin Roorda, Ph.D., Professor at the University of California, Berkeley School of Optometry, and Joseph Carroll, PhD, Professor at the Medical College of Wisconsin, she has studied cone photoreceptors in the eyes of patients with many different types of inherited retinal degeneration. Dr. Duncan has received funding to support her research from the Foundation Fighting Blindness, Research to Prevent Blindness, the National Eye Institute and the US Food and Drug Administration Office of Orphan Product Development, in addition to several sponsors of clinical trials for patients with inherited retinal degenerations. She has served as chair of the FFB Scientific Advisory Board since 2015. She worked with FFB Leadership to launch the FFB Consortium which comprises over 45 clinical centers and over 150 investigators with expertise in the care and study of patients with inherited retinal degenerations.

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Narrative Biography

Dr. Greg D. Field holds the Joan and Jerome Snyder Vision Science Chair at the Stein Eye Institute at the University of California, Los Angeles. Dr. Field is a leader in understanding the neurophysiology of the retina, with an emphasis on retinal ganglion cells. He received his B.S. in Physics from the University of Puget Sound and his Ph.D. in Physiology and Biophysics from the University of Washington. He has previously held professorships at the University of Southern California and Duke University. His research combines his training in physics and neuroscience to understand how visual input is processed by the retina, encoded into electrical signals and transmitted the rest of the brain. He has pioneered the use of large-scale multielectrode arrays to understand retinal function in both health and disease, using both rodent and non-human primate models. Most recently, his laboratory has shown how the timing of gene therapies to correct inherited photoreceptor degenerative diseases is critical for halting degenerating and rescuing vision.

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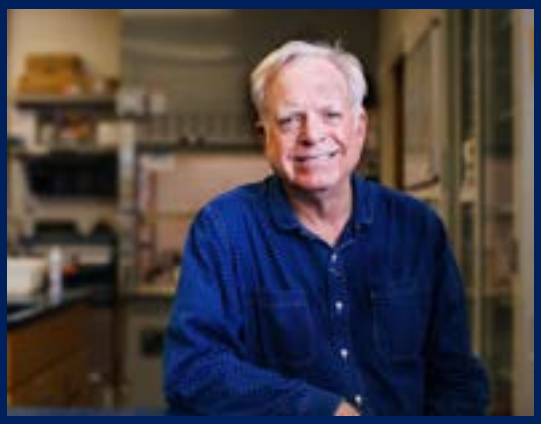

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Narrative Biography

I have been a faculty member at UC Berkeley in Vision Science and Neuroscience since 1995, having mentored many Ph.D. students over this period. I have mentored over 15 Ph.D. students and 7 postdoctoral fellows. (2 are currently tenured faculty and 4 are scientists in biotechnology companies). I maintain my commitment to biology education and to serving the scientific community. I serve as vice chair of three non-profit charities, the Foundation Fighting Blindness, Fighting Blindness, Ireland and Fighting Blindness South Africa. I currently teach in the Optometry school, as well as in the Helen Wills Neuroscience Institute and the Vision Science Ph.D. program.

An integral part of my role in mentoring Berkeley students entails promoting a safe and supportive environment to conduct research. My students are trained in the ethical conduct of research which includes instruction in unbiased and rigorous experimental design. As a major emphasis of my lab is developing therapeutics for blinding retinal diseases, this is essential for moving therapeutics to clinical application. As any therapeutic we develop will have to, ultimately meet rigorous good manufacturing practice (GMP) and good laboratory practice (GLP) standards, students in the lab are mentored in the methodology, analysis, interpretation, and reporting of results.

As part of running a biosafety level II lab that makes and tests viral vectors in animal models of disease, we provide extensive training in laboratory safety. Several of the Ph.D. students from my lab have moved on to careers in biotechnology companies and academia. My lab actively supports students in their transition to careers in these fields after graduation. In nearly all cases, Ph. D students in my laboratory have completed all the degree requirements within 5.5 years of their entering the program.

My research program is focused on understanding the genetic and biochemical underpinnings of inherited retinal degenerations and designing genetic therapies for these blinding conditions. The expertise of my laboratory group is directed toward developing viral vectors for gene therapy and gene transfer to retinal neurons, epithelia and glia. We have developed small animal models of retinal degenerations and treatments for these conditions for over 30 years. We study both normal retinal functions as well as disease states to develop rational therapeutics for retinal dystrophies. We have over 2 decades of expertise in promoter design and AAV serotype selection and modification to generate viral vectors that can efficiently transfect retinal cells, in vivo. We have expertise in analyzing the use of these vectors in animal retina in vivo. In our studies to develop viral vectors targeted to specific classes of retinal neurons, we use ‘directed evolution’ approaches to identify capsid variants as well as promoter selection to optimize cell class specific expression and minimize off-target ectopic expression. We have experience in expression of functional indicators of neuronal activity, e.g. genetically-encoded calcium indicators (gCamP) as well as optogenetics for vision restoration.

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Narrative Biography

Dr. Jeffrey Goldberg is Professor and Chair of Ophthalmology and Director of the Byers Eye Institute at Stanford University, and a member of the National Academy of Medicine. His clinical effort is focused on patients in need of medical or surgical intervention for glaucoma and other retinal and optic nerve diseases, as well as cataract. His research is directed at neuroprotection and regeneration of retinal ganglion cells and the optic nerve, a major unmet need in glaucoma and other optic neuropathies, and his laboratory is developing novel molecular, stem cell and nanotherapeutics approaches for eye repair.

Dr. Goldberg received his B.S. magna cum laude from Yale University, and his M.D. and Ph.D. from Stanford University where he made significant discoveries about the failure of optic nerve regeneration. He did his clinical training in ophthalmology and then in glaucoma at the Bascom Palmer Eye Institute, and was awarded a fellowship from the Heed Foundation. He was named the 2010 Scientist of the Year by the Hope For Vision foundation, and received the Cogan award from the Association for Research in Vision and Ophthalmology in 2012. He was elected in 2010 to the American Society of Clinical Investigation, an honorary society of physician scientists, and in 2021 to the American Ophthalmological Society. He directs an NIH-funded research laboratory and is one of the scientists funded by the National Eye Institute's Audacious Goals Initiative. In addition, he has developed significant expertise with implementing FDA clinical trials for optic nerve neuroprotection and regeneration. His goal is to translate scientific discoveries to patient therapies.

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Narrative Biography

Carol Greider, Ph.D. received her bachelor's degree from the University of California at Santa Barbara in 1983 and a Ph.D. in 1987 from the University of California at Berkeley. In 1984, working together with Dr. Elizabeth Blackburn, she discovered telomerase, an enzyme that maintains telomeres, or chromosome ends. In 1988, Dr. Greider went to Cold Spring Harbor Laboratory where, as an independent Cold Spring Harbor Fellow, she cloned and characterized the RNA component of telomerase. In 1990, Dr. Greider was appointed as an assistant investigator at Cold Spring Harbor Laboratory, followed later by appointment to Investigator in 1994. She expanded the focus of her telomere research to include the role of telomere length in cellular senescence, cell death and in cancer. In 1997, Dr. Greider moved her laboratory to the Department of Molecular Biology and Genetics at The Johns Hopkins University School of Medicine. In 2003 she was appointed as the Daniel Nathans Professor, and Director of the Department of Molecular Biology and Genetics. At Johns Hopkins University, Dr. Greider's group continued to study telomerase and determined the secondary structure of the human telomerase RNA. In addition, they characterized the loss of telomere function in mice, which allowed an understanding of short telomere syndromes in humans such as bone marrow failure, pulmonary fibrosis and other diseases. in 2009, Dr. Greider shared the Nobel Prize in Physiology or Medicine with Drs. Elizabeth Blackburn and Jack Szostak for their work on telomeres and telomerase. In 2020, Dr. Greider established her laboratory at the University of California Santa Cruz where her research groups studies fundamental mechanisms of telomere length regulation.

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Narrative Biography

Mark S. Humayun, MD, PHD, FARVO is the Cornelius J. Pings Chair in Biomedical Sciences, Professor of Ophthalmology, Biomedical Engineering, and Integrative Anatomical Sciences, Director of the USC Ginsburg Institute for Biomedical Therapeutics, and Co-Director of the USC Roski Eye Institute.

Dr. Humayun is an internationally recognized pioneer in vision restoration. He assembled a team of multidisciplinary experts to develop the first FDA approved artificial retina, Argus II, for sight restoration. He has more than 150 issued patents and over 300 peer reviewed publications. He has a google scholar H index of 106.

Dr. Humayun is a member of the U.S. National Academies of Medicine, Engineering, and Inventors. He is a Fellow of the American Association for the Advancement of Science (AAAS), Institute of Electrical and Electronics Engineers (IEEE), American Society of Retinal Specialists (ASRS), and Association for Research in Vision and Ophthalmology (ARVO).

For his extraordinary contributions he was awarded the United States' highest technological achievement, the 2015 National Medal of Technology and Innovation by President Obama. He is the recipient of the 2018 IEEE Biomedical Engineering Award, the 2020 IEEE Medal for Innovations in Healthcare Technology, and the Charles Schepens award by the American Academy of Ophthalmology in 2021. Dr. Humayun was named top 1% of ophthalmologists by the U.S. News & World Report.

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Narrative Biography

Dr. Suber S. Huang, MD, MBA, FASRS, serves as the CEO of the Retina Center of Ohio and holded esteemed positions as a Voluntary Assistant Clinical Professor of Ophthalmology at the Bascom Palmer Eye Institute, University of Miami, and the Hong Leong Visiting Professor of Ophthalmology at the National University of Singapore. He is the visionary behind the Future Vision Foundation, an organization dedicated to celebrating breakthrough vision research through compelling documentaries that highlight discovery, impact, and hope. Dr. Huang also founded the Future Vision Forum, which unites leaders in basic, translational, and clinical research to foster innovation in vision research. He plays key roles on the boards of the Foundation Fighting Blindness, Retina Global, and the Cleveland Sight Center, and is the founder of Cell Sight Therapeutics and SH Creative Arts, LLC.

Dr. Huang's academic journey includes an undergraduate degree from Johns Hopkins University and a medical degree from the Albert Einstein College of Medicine. He completed his ophthalmology residency at the Wilmer Eye Institute and a fellowship in Vitreoretinal Diseases and Surgery at the Bascom Palmer Eye Institute. Furthering his education, he trained at Harvard University and the Wharton School of Business, and earned an Executive MBA from the Weatherhead School of Management. Throughout his career, Dr. Huang has held numerous prestigious positions, including President of the American Society of Retina Specialists and Chair of the Research, Regulatory, and External Scientific Affairs Committee. He has made significant contributions to clinical trials, research, and educational programs, and has been recognized with numerous awards, including induction into the Retina Hall of Fame and multiple "Top Doctors" and "Best Doctors in America" honors. Dr. Huang is also a celebrated documentary filmmaker and advocate for vision research, receiving accolades such as the Fight for Sight Vision Research Advocate Award.

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Narrative Biography

During life's early stages cells display high levels of plasticity, regeneration and resilience against stress, dysfunction and injury, which are key features of human health. Dr. Juan Carlos Izpisua Belmonte, previously the Roger Guillemin Chair and Professor at the Salk Institute, has contributed towards understanding the molecular basis underlying embryogenesis and early postnatal life, as well as gained insights into how to program and rejuvenate adult and diseased cells. He is developing technologies to program cells to states similar to those observed in the early, healthy stages of life, with the objective of developing universal health therapeutics to overcome human disease and aging.

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Narrative Biography

Dr. Johnson is a clinician-scientist with an active clinical practice focusing on medical and surgical treatment of complex glaucoma in children and adults. As a neuroscientist, he leads a translational science laboratory working to develop innovative neuroprotective and neuroregenerative treatments for glaucoma and other optic neuropathies.

Dr. Johnson received his PhD in neuroscience from the University of Cambridge as a Gates Scholar, and his MD from the Johns Hopkins University School of Medicine. He then completed his ophthalmology residency, glaucoma fellowship, and chief residency at the Wilmer Eye Institute, where he joined the faculty in 2019. His current research focuses on the engineering and transplantation of human stem cell derived retinal ganglion cells into small and large preclinical models of optic neuropathy, with a particular interest in the mechanisms that underlying synaptic integration of donor neurons into existing and diseased neuroretinal circuitries. His laboratory demonstrated that the retinal internal limiting membrane is an important barrier to engraftment of neurons transplanted into the vitreous cavity and has developed methods for disrupting the ILM to enable synaptic integration of donor RGCs. His work has been recognized with the National Eye Institute's Scientific Director's Award, the AFER/ARVO Merck Innovative Ophthalmology Research Award, the Douglas H Johnson Award from the BrightFocus Foundation, and election to the Glaucoma Research Society. In 2023, he was recognized as a Top-10 most impactful author of research involving applications of stem cells in glaucoma worldwide. Dr Johnson serves as the Chairman of Organizing Committee for the international RGC Repopulation, Stem Cell Transplantation, and Optic Nerve Regeneration (RReSTORe) Consortium (http://rrestore.info), on the Editorial Board of Ophthalmology Science, on the Annual Meeting Program Committee for ARVO, and on the Research Committee for the American Glaucoma Society.

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Rusty Kelley is the managing director for the Foundation's venture arm, the Retinal Degeneration Fund with responsibility for all external investments that strategically align with the Foundation's therapeutic mission.

Prior to the Fund, Rusty led translational and interdisciplinary science programs at the Burroughs Wellcome Fund. Prior to BWF, he was a senior scientist, director and then head of preclinical at Tengion, a tissue engineering spinout of Wake Forest University.

Earlier in his career Rusty served in clinical development at PPD, Inc. where he managed clinical trials in the divisions of Medicine, NIH trials and Infectious Disease. Prior to PPD, Rusty was on the bench in pharmaceutics and analytical chemistry at AAIPharma.

Rusty received a BA in Chemistry from UNC, a PhD in Pharmacology from LSU's Health Science Center. He was then awarded an American Heart postdoctoral fellowship in the School of Medicine at UNC, and recently earned an executive MBA from Duke University,

Rusty is currently a Board director at Nacuity Pharmaceuticals, SparingVision, and Opus GTx, and a Board observer for Atsena Tx, Perceive Bio, and Amber Bio. Rusty has also recently served several non-profit Boards including NC-based CED, and DC-based HRA.

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Spencer Kellis, Ph.D. is the Senior Team Lead for Data Science, Software, and Clinical at Blackrock Neurotech and Research Assistant Professor of Neurological Surgery at Keck School of Medicine of USC in Los Angeles, CA. Prior to joining Blackrock Neurotech, he was a Member of the Professional Staff at the California Institute of Technology (Caltech), and Director of Engineering for the Chen Brain-Machine Interface Center at Caltech, where he helped to manage and run a clinical trial of intracortical brain-machine interfaces for quadriplegia due to spinal cord injury. Spencer received M.S. and Ph.D. degrees in Electrical Engineering from the University of Utah, and B.S. in Electrical Engineering from Brigham Young University.

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Narrative Biography

Linda A. Lam, MD, MBA, is Vice Chair of Satellite Clinical Affairs and Professor of Clinical Ophthalmology at the USC Keck School of Medicine. She graduated with honors in Neuroscience at Brown University. Dr. Lam received her medical degree with honors at Cornell University Medical College, where she also completed a research fellowship on retinal cell physiology. She completed her residency at Cole Eye Institute at Cleveland Clinic, before her fellowship at Georgetown University Hospital and Retina Group of Washington.

Dr. Lam is Medical Director of USC Roski Eye Institute Arcadia. She is also a graduate of the executive MBA program at the USC Marshall School of Business. Serving as Vice Chair in the academic landscape and management in the private start-up marketplace, she is involved in business development, strategy, and operations. She has experience in market strategy and enhancing operational efficacy in health care. She is a lecturer in the Executive MBA and Entrepreneurship Program at the USC Marshall Business School.

She serves on American Academy of Ophthalmology (AAO) Board on Vision Rehabilitation and American Society of Retina Specialists (ASRS) Federal Affairs Committee. Dr. Lam also serves on the Board of Directors at the Braille Institute of America and Envision Inc., non-profit foundations established to improve the lives of those with visual impairment. Her research includes macular degeneration therapies, innovations in vitreoretinal surgery, and creating novel technology to aid low vision individuals.

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Narrative Biography

Dr. Liu is an engineer-neurosurgeon who works at the interface of the two disciplines to develop transformative solutions to restore function to the nervous system. He was born in Taiwan and spent his entire childhood in Southern Africa, where his father was a diplomat. He attended high school in College Station, TX, before completing his undergraduate education in Chemical Engineering at the University of Michigan, Ann Arbor. He continued his education at Rice University, where he received his PhD in Chemical/Bioengineering before attending medical school at Yale University School of Medicine.

Dr. Liu completed his neurosurgery training at USC. He is now Professor of Neurological Surgery, with secondary appointments in multiple departments. He is the founding director of the USC Neurorestoration Center where many “firsts” have been accomplished in regenerative medicine, neuroprosthetics, and neuromodulation. This work has contributed to a working definition of “neurorestoration”. Dr. Liu collaborates with multiple PI’s, including those at Caltech where he is appointed as visiting associate. He has played a leadership role at Rancho Los Amigos National Rehabilitation Center, the principal living laboratory for the USC NRC, where he serves at the Chief of Innovation and Research and Director of the RLA Neurorestoration Center. In addition, Dr. Liu serves at the Medical Director of the Casa Colina Research Institute, which together with Rancho, represents the major rehabilitation resource for our region. Dr. Liu remains very actively clinically in epilepsy surgery, where he has led the establishment of the USC Epilepsy Care Consortium, a unique group of 11 collaborating NAEC centers that represent one third of all the epilepsy centers in CA and serves as a living laboratory to understand the systems-level barriers to effective epilepsy care in our region.

His work has been featured in local, national, and international print, online, and broadcast media and has been published in high impact journals. Dr. Liu has also played a leadership role in athletic brain health, serving as the principal Team Neurosurgeon for the USC Athletics, as well as a neurotrauma consultant to the NFL Los Angeles Chargers and the Rose Bowl Game.

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Narrative Biography

Stan Louie is Professor at Alfred Mann School of Pharmacy and Pharmaceutical Sciences. In addition, he is the Director of the Clinical Experimental Therapeutics (CXPT) graduate program which develops novel therapeutics across a wide array of diseases and conditions. Currently, his research focus is understanding the molecular mechanism(s) associated with inflammation and molecular mechanisms promoting tissue resolution utilizing the renin angiotensin system (RAS) and bioactive lipid pathways. To comprehensively understand molecular changes associated with disease advancement, his team utilizes a multi-omics approach that include metabolomics/lipidomics, proteomics/phosphor-proteomics and transcriptomics to unveil hidden pathways in disease pathogenesis. He has used this approach to also identify therapeutic targets and have developed a number of strategies using this approach.

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Narrative Biography

Dr. Luhrs is the Vice President of Pharma Research & External Scientific Innovation of Bausch + Lomb based at their Irvine, California West Coast Hub. In this role, he leads an integrated internal research and external science evaluation and collaboration group dedicated to helping our patients by building an innovative pipeline for indications spanning the eye.

After an academic career in immunology and a start in oncology biotech, Dr. Luhrs has been focused on ophthalmology drug discovery and development for more than 15 years—and never looked back. Prior to Bausch + Lomb, he held various roles at Allergan and AbbVie prior to leading their retina and ocular surface discovery research teams. Dr. Luhrs received his B.S. in Biological Sciences from Penn State University and a Ph.D. from the University of California—Irvine.

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FUTURE VISION FORUM

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Narrative Biography

Dr. Mahajan is a professor and vitreoretinal surgeon in the Department of Ophthalmology at Stanford University. He is the Vice Chair for Research and directs the Molecular Surgery Program and the NIH-funded Omics Laboratory that uses high-throughput methods in proteomics, genomics, and phenomics to identify molecules involved in eye disease. The lab uses protein crystallography and structural modeling to design therapeutic inhibitors that can be tested in stem cell and transgenic animal disease models. His team also created the TEMPO precision health tool that integrates human proteomics with single cell gene expression to identify molecular pathways active in living humans. Mahajan's multidisciplinary team helps translate laboratory studies into human clinical trials at Stanford and through the founding and support of biomedical start-ups.

Denise Montell,PhD

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Narrative Biography

Denise Montell earned her BA in Cell Biology from the University of California, San Diego, and her PhD in Neuroscience from Stanford University, followed by postdoctoral studies at the Carnegie Institution of Washington. She joined the faculty of the Johns Hopkins Medical School Department of Biological Chemistry in 1992 and rose through the ranks to Full Professor. At JHUSOM, she also served as the Founding Director of the Center for Cell Dynamics. After 20 years at JHUSOM, she returned to her California roots and joined UC, Santa Barbara as the Duggan Professor of Molecular, Cellular and Developmental Biology. Professor Montell's research focusses on identifying the molecular mechanisms that drive cellular behaviors such as motility, phagocytosis, and stress resilience to develop novel approaches to the treatment of diseases such as neurodegeneration and cancer. Professor Montell is an elected fellow of the American Society for Cell Biology and the American Association for the Advancement of Science. She has served on advisory councils for NIGMS, NCI, the American Cancer Society, and the Howard Hughes Medical Institutes.She is a two-time winner of the NIH Director's Pioneer Award and the recipient of the 2024 E. B. Wilson Award of the American Society for Cell Biology. In 2021 she was elected to the US National Academy of Sciences.

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Narrative Biography

Dr. Nickells received an honors BSc degree in biology and biochemistry at the University of Victoria, B.C. He went on to complete his PhD in developmental biology at the University of Calgary, and a post-doctoral fellowship under Dr. Eric H. Davidson at the California Institute of Technology. It was here that he developed an interest in vision research and moved on to study photoreceptor cell gene expression at Indiana University and eventually retinal ganglion cell biology at the Wilmer Eye Institute at Johns Hopkins. He has been a faculty member in the Department of Ophthalmology and Visual Sciences at the University of Wisconsin-Madison since 1994. His work at Wisconsin helped open the field of studying apoptotic cell death of retinal ganglion cells after optic nerve damage and was an early advocate of using mouse models to study the molecular mechanisms of ganglion cell neuropathology. His current work is principally on investigating the contributions of different members of the BCL2 gene family in the process of intrinsic apoptosis in both acute and chronic optic neuropathies.

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FUTURE VISION FORUM

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Steven G. Ojemann, MD is Clincal Professor of Neurosurgery, Neurology, and Psychiatry at the University of Colorado Anschutz School of Medicine, and Director of Stereotactic and Functional Neurosurgery at the University of Colorado Hospital. He is also the Surgical Director at the Brooke Gordon Comprehensive Epilepsy Center at Denver Health Medical Center. Dr. Ojemann received his medical degree at the University of California, Los Angeles, and completed his neurosurgical training at the University of California, San Francisco. He joined the faculty of the University of Colorado School of Medicine in 2002, and has developed a practice specializing in the surgical treatment of movement disorders, epilepsy, and psychiatric disorders. His research interests include investigation of neurophysiologic biomarkers of movement and psychiatric disorders, neuromodulation and ablative technqiues for the treatment of epilepsy, and surgical delivery of gene and cellular therapies for Parkinson's disease and epilepsy.

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Narrative Biography

Andrew A. Pieper earned his MD and PhD in neurosciences from the Johns Hopkins University School of Medicine in 2001. He earned his PhD in the laboratory of Dr. Solomon H. Snyder and conducted his medicine internship and psychiatry residency at Johns Hopkins Hospital. At Case Western Reserve University (CWRU), he is the inaugural Rebecca E. Barchas, MD, Professor of Translational Psychiatry in the School of Medicine, and the inaugural Morley-Mather Chair of Neuropsychiatry of University Hospitals. He holds appointments in the CWRU Departments of Psychiatry, Neurosciences, and Pathology and operates a weekly geriatric psychiatry clinic at the Louis Stokes VA Medical Center. He is also the Director of the Brain Health Medicines Center of the University Hospitals Harrington Discovery Institute (HDI).

In addition to research and patient care, he is highly dedicated to mentoring younger scientists at all levels, including high school students and undergraduate students, as well as graduate students, postdoctoral fellows, and junior faculty. His dedication to mentorship was recently recognized by his receipt of the 2023 John S. Diekhoff Award for Distinguished Graduate Student Mentoring, which identifies outstanding contributions to the education of graduate students through advising. This is CWRU's highest mentoring honor, and the nomination and selection process are entirely driven by graduate students. Dr. Pieper is additionally the Founding (2022) Director of the University Hospitals / CWRU American Heart Association (AHA) Partnership to Promote Diversity in Science, which every year hosts 4 summer students from groups traditionally underrepresented in science in various labs across CWRU and also sponsors their attendance at the annual international AHA meeting. He also serves as Associate Director of the CWRU Medical Scientist Training Program (MSTP) and Director of the HDI-MSTP Fellowship that offers specific training and resources to MSTP students for pursuing drug development of their discovery.

Andrew Pieper's lab is dedicated to advancing brain health and discovering new neuroprotective strategies for treating patients suffering from injury and aging-related forms of neurodegenerative disease, including Parkinson's disease (PD), Alzheimer's disease (AD), and traumatic brain injury (TBI). To date he has published over 120 peer-reviewed articles in the field of brain health. Notably, his laboratory has identified a novel chemical compound series that preserves and restores normal energy levels of nerve cells (and their supporting cells) under conditions of otherwise overwhelming stress. Given the high energy demand of the brain, these compounds have shown broad efficacy in animal and human cellular models of neurodegenerative disease, both in the Pieper laboratory and in other laboratories across the world.

Recently, Dr. Pieper's group utilized these compounds to discover and report the first demonstration in the field of the ability of the mouse brain to fully recover from advanced neurodegenerative disease, including from both AD and the chronic neurodegeneration and cognitive impairment caused by traumatic brain injury (TBI). This proof of principle in animal models contradicts the long-held belief that neurodegenerative disease and its effects on the brain are irreversible, which raises the possibility of brain health and functional recovery for human patients suffering from these forms of neurodegenerative disease.

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Narrative Biography

Dr. Teresa Puthussery is an Associate Professor in the Herbert Wertheim School of Optometry and Vision Science and the Helen Wills Neuroscience Institute at the University of California, Berkeley. She received her clinical training in optometry and PhD in neurobiology from the University of Melbourne, Australia. She completed postdoctoral training in the Department of Ophthalmology at Oregon Health and Science University and joined the faculty there in 2013 before being recruited to UC Berkeley in 2017.

Dr Puthussery's laboratory combines optical imaging, electrophysiology and molecular methods to understand the structure and function of neuronal cell types and circuits in the primate retina. Her research also seeks to determine how retinal circuits are altered by photoreceptor degeneration. Her research has been funded by grants from the National Eye Institute since 2014, including an Audacious Goals Initiative Grant focused on testing cell-based therapies for vision restoration in a primate model of photoreceptor degeneration.

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FUTURE VISION FORUM

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Narrative Biography

Dr. T. Michael Redmond, Ph.D., is Chief of the Laboratory of Retinal Cell & Molecular Biology, National Eye Institute, NIH, where he is also Head of the Molecular Mechanisms Section. Dr. Redmond received his Ph.D. degree in 1983 from University College, Dublin (Ireland) with graduate training at the Medical University of South Carolina, Charleston, SC. He received post-doctoral training as a Visiting Fellow, and then Staff Fellow, at the LRCMB, NEI, investigating the biochemistry, molecular biology, and role in ocular immunology, of interphotoreceptor retinoid-binding protein (IRBP). Dr. Redmond was tenured as research biologist in the NEI (1990).

He is best known for his identification of RPE65 retinol isomerase, which had been newly discovered by him and his group as he started his lab. Following their initial biochemical characterization of RPE65, Dr. Redmond and his co-workers demonstrated RPE65's essential role in vision, being among the first to show that mutations in the human RPE65 gene cause Leber congenital amaurosis (LCA), an early onset severe blindness. He went on to show that RPE65 is necessary for the all-trans to 11-cis isomerization of vitamin A in retinal pigment epithelium (RPE), and that RPE65 is the actual and crucial retinol isomerase enzyme of the visual cycle. These studies helped provide a basic framework upon which the future successful RPE65 gene therapy was based.

In addition, his group was the first to identify and clone a mammalian beta-carotene oxygenase 1 (BCO1) enzyme. BCO1 is a close relative of RPE65 and catalyzes the first step in formation of vitamin A from pro-vitamin A carotenoids in animals, a role also important to vision. He continues to study the complex mechanisms of RPE65, the visual cycle, systemic carotenoid and retinoid metabolism, ocular proteomics, and the regulatory role of long non-coding RNAs in RPE and retina, utilizing techniques in biochemistry, biophysics, transgenic models, etc. He has published over 140 original papers and reviews on his research.

Dr. Redmond is a co-awardee of the 2018 António Champalimaud Award in Vision Research; and is a co-awardee of the Helen Keller Prize for Vision Research (2023). In service work, he was a member (2017-2022) of the ARVO Board of Trustees, and Vice-President of ARVO in 2022. He is a member of several journal editorial boards and has reviewed manuscripts for more than 40 journals in the areas of vision research, biochemistry, molecular biology, and genetics. He has served as grant reviewer on several NIH and foundation review panels.

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Narrative Biography

José-Alain Sahel is a clinician-scientist who discovered fundamental mechanisms underlying the irreversible loss of cones after the loss of rods in retinal degenerations. He identified (with T. Léveillard) endogenous cone-protective protein RdCVF and conceived a gene-independent neuroprotective therapy to rescue central vision, now in clinical trial. He spearheaded a novel gene therapy for Leber Hereditary Optic Neuropathy, a blinding neurodegenerative disease. Dr. Sahel is at the forefront of several first-in- man studies on prosthetic vision. After early clinical applications of the Argus II retinal prosthesis, he led -alongside D. Palanker at Stanford University and Pixium Vision, a start-up he co-founded- the clinical development of a highly innovative wireless retinal prosthesis for photovoltaic vision restoration, now in clinical trials in Europe and US for Age-related Macular Degeneration, with unprecedented outcomes. After successful restoration of visual function in animal models of retinal degeneration -with B. Roska (IOB, Basel)- Dr. Sahel conceived the first-in-man clinical trial combining a biotherapy (photoactivatable optogene channelrhodopsin expressed in retinal ganglion cells) coupled with a stimulation device, and observed the first clinical evidence for vision restoration using optogenetic (reported in a breakthrough study published in Nature Medicine in May 2021).

José-Alain Sahel, MD, is Distinguished Professor and Chairman, The Eye and Ear Foundation Endowed Chair, Department of Ophthalmology, University of Pittsburgh School of Medicine and Medical Center, Emeritus Professor at Sorbonne University, Honorary Professor at University College London, Adjunct Professor at the Hebrew University of Jerusalem and at Carnegie Mellon University. He was the Founding Director of the Paris-based Vision Institute, of the Institut Hospitalo-Universitaire (IHU) FOReSIGHT , Chairman of Departments of Ophthalmology at the Quinze-Vingts National Ophthalmology Hospital, Rothschild Ophthalmology Foundation Hospital and head of both the French National Reference Center for Rare Retinal Dystrophies and the Paris Ophthalmology Clinical Investigation Center (2006-2020), overseeing more than 80 clinical trials (retinal implants, gene therapy, stem cell therapies, optogenetics), often first-in-human.

He co-authored over 700 peer-reviewed articles and 40 patents. Dr. Sahel is the recipient of several awards including the Alcon Research Institute Award for Excellence in Vision Research, Grand Prix NRJ- Neurosciences-Institut de France, FFB Llura Liggett Gund Award, Falling Walls Breakthrough of the Year in Life Sciences (2021), Chica and Heinz Schaller Foundation Award in Translational Neuroscience (2022), the International Prize in Translational Neuroscience administered by the Max Planck Society (with Botond Roska, 2023).

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Narrative Biography

Mandeep Singh is a vitreoretinal surgeon and translational neuroscientist. He is the Andreas C. Dracopoulos Professor of Ophthalmology at the Johns Hopkins Wilmer Eye Institute with a joint appointment in the McKusick-Nathans Department of Genetic Medicine. He is the founding co-director of the Johns Hopkins Genetic Eye Diseases Center and director of the Hereditary Retinal Disease service at the Johns Hopkins Hospital. He is also a Vitreoretinal Clinician in the Ocular Stem Cell & Translational Research Section in the National Eye Institute, National Institutes of Health (NIH), USA. His NIH-funded laboratory research focus is retinal stem cell therapy. His team studies the application of pluripotent stem cells and retinal organoids as regenerative treatment modalities for hereditary retinopathies. He is the Study Chair of the Gyrate Atrophy Ocular and Systemic Study (GYROS), an FDA-funded international consortium study sponsored by the Foundation Fighting Blindness. His work has been published in leading journals including Nature Communications, Science Translational Medicine, and Proceedings of the National Academy of Sciences USA. In recognition of his research, he was elected to the Club Jules Gonin and has received several awards including the Ruskell Medal of the United Kingdom, the ARVO Bert M. Glaser Award for Innovative Research in Retina, and the Macula Society Young Investigator Award.

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Narrative Biography

Dr. Dong Song is an Associate Professor of Neurological Surgery and Biomedical Engineering and Director of the Neural Modeling and Interface Laboratory at the University of Southern California (USC). Dr. Song received his B.S. degree in Biophysics from the University of Science and Technology of China in 1994 and his Ph.D. degree in Biomedical Engineering from USC in 2004. His research aims to develop biomimetic devices that can be used to treat neurological disorders. Specifically, his group uses a combined experimental and computational strategy to (1) understand how brain regions such as the hippocampus perform cognitive functions, (2) develop next-generation modeling and neural interface methodologies to investigate brain functions during naturalistic behaviors, and (3) build cortical prostheses that can restore and enhance cognitive functions lost in diseases or injuries. He received the James H. Zumberge Individual Award at USC in 2008, the Outstanding Paper Award of IEEE Transactions on Neural Systems and Rehabilitation Engineering in 2013, and the Society for Brain Mapping and Therapeutics Young Investigator Award in 2018. Dr. Song has published over 190 peer-reviewed journal articles, book chapters, and conference papers. He is a member of the Biomedical Engineering Society, IEEE, Society for Neuroscience, and National Academy of Inventors. Dr. Song's research has been supported by DARPA, NSF, and NIH.

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Narrative Biography

W Daniel Stamer, Ph.D. currently serves as the Joseph A.C. Wadsworth Professor of Ophthalmology and Professor of Biomedical Engineering at Duke University. Professor Stamer was educated at the University of Arizona, earning his bachelors of science in Molecular and Cellular Biology in 1990 and doctorate in Pharmacology and Toxicology in 1996. He completed two research fellowships: the first with Dr. Andrea Yool in electrophysiology and the second with Dr. David Epstein in glaucoma/cell biology.

Professor Stamer started his research program in 1998 at the University of Arizona, where he remained for 13 years, rising through the ranks to full Professor and Director of Ophthalmic Research. He joined the faculty at the Duke Eye Center in 2011. Notable recent accomplishments include the Rudin Prize for Glaucoma in 2012, the RPB Senior Scientific Investigator Award in 2013 and election as ARVO Trustee in 2015 and president in 2018. He currently holds prominent editorial positions in three premier ophthalmology journals: as Editor-in-Chief for the Journal of Ocular Pharmacology and Therapeutics, member of editorial board Investigative Ophthalmology and Visual Science and executive editor of Experimental Eye Research. In addition to 39 collaborative projects with 11 pharmaceutical companies, he NIH has continuously funded Professor Stamer's research for the past 18 years. His work is documented in 140 original articles, 27 review articles/book chapters and 19 editorials. The primary research focus of the Stamer Laboratory is to understand the molecular and cellular mechanisms that regulate conventional outflow in health, and the dysregulation that occurs in disease leading to ocular hypertension.

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Narrative Biography

A/Prof Su Xinyi graduated with MB BChir PhD from the University of Cambridge (UK). Currently, she balances her time leading the Institute of Molecular and Cell Biology (IMCB), A*STAR as Executive Director whilst providing clinical leadership as Senior Consultant, Vitreo-Retinal Surgeon at the National University Hospital (NUH). Xinyi also holds joint appointments as Research Director at the Department of Ophthalmology, National University of Singapore (NUS), Co-Director at the Centre of Innovation and Precision Eye Health (NUS), and Clinician-Scientist at the Singapore Eye Research Institute (SERI).

Xinyi's research focus on harnessing biomaterial, regenerative stem-cell, and nucleic acid technologies for the treatment of age-related retinal degenerative disease. Her work has been published in, inter alia, Nature Biomedical Engineering, Nature Communications, Lancet Global Health, PNAS, and Advanced Materials. With a career total of over SGD25 million in competitive research grants, Xinyi is also the recipient of multiple global and national awards, including the Asia- Pacific Academy of Ophthalmology's Young Ophthalmologist Award (2019), the Asia-Pacific Vitreo- Retinal Society Leadership Development Program Gold Award (2020), Ten Outstanding Young Persons of Singapore Award (for Medical Innovation, 2021), the Susan Lim Outstanding Stem Cell Young Investigator Award (2022) and National Medical Research Council Clinician Scientist Award (2022). In 2022, she was accepted into the prestigious international membership of The Macular Society.

Passionate about clinical translation of research, Xinyi holds several patents and co-founded an ISO 13485 (Medical Device Quality System) accredited spin-off company, Vitreogel Innovations, focussed on developing next-gen vitreous substitutes. Beyond research, Xinyi is committed to talent development and has mentored numerous clinician-scientists as the Deputy Director of the Clinician- Scientist Academy (NUHS).

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Narrative Biography

Dr. Swaroop obtained his M.Sc. in Biochemistry from the G.B. Pant University of Agriculture and Technology and his Ph.D. in Biochemistry at the Indian Institute of Science, Bangalore--both in India. After completing his postdoctoral training at Yale University in molecular biology and human genetics, he joined the faculty at the University of Michigan as an assistant professor in the Departments of Ophthalmology and in Human Genetics. He became a full professor in 2000, and held the Harold F. Falls Collegiate Professorship from 2003 to 2007. In September 2007, Dr. Swaroop established the Neurobiology-Neurodegeneration and Repair Laboratory at the National Eye Institute to advance research in all aspects of retinal biology, disease and therapy. The studies in the Swaroop laboratory have focused primarily on 1) genetic and epigenetic regulation of photoreceptor development and aging, 2) genetic defects and mechanisms of photoreceptor dysfunction in retinal neurodegeneration, 3) genetics of age-related macular degeneration, and 4) design of new therapeutic paradigms using cell, gene or small molecule-based approaches. Dr. Swaroop has received many honors, including the Board of Director's award from The Foundation Fighting Blindness, the Harrington Senior Scientific Award from Research to Prevent Blindness, the Distinguished Faculty Lectureship Award of the University of Michigan Medical School, the Bireswar Chakrabarti Memorial Oration Award by the Indian Eye Research Group, the Prof. P.N. Chhuttani Chair as Distinguished Medical Scientist (visiting) at the Post Graduate Institute of Medical Education and Research, and the Outstanding Alumnus award from G.B. Pant University. Dr. Swaroop has received the National Eye Institute Director's award and Alcon Award for Outstanding Vision Research. He was honored by ARVO as a Gold Fellow for his service to the vision community, and by the NIH Director's Ruth L. Kirschstein Award "for exemplary performance while demonstrating significant leadership, skill and ability in serving as a mentor." Dr. Swaroop has trained over 500 students, interns and fellows. A number of his trainees hold faculty or scientist positions at institutions and/or biomedical industries worldwide. Dr. Swaroop has published almost 350 peer-reviewed articles, invited chapters and reviews (Scopus h-index=71), and has delivered 300 invited lectures including several named and keynote talks worldwide. Dr. Swaroop is on the advisory and editorial boards of, and reviews manuscripts for, many high impact journals. He routinely contributes to institutional committees for promotions and tenure and evaluates grants for several national and international funding agencies.

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Narrative Biography

Associate Prof Daniel Ting is a senior consultant vitreo-retinal surgeon working in the Singapore National Eye Center (SNEC), an Associate Professor with Duke-NUS Medical School and an Adjunct Clinical Associate Professor and an Innovation Mentor at Stanford University. He is also the Director of Singapore Health Service (SingHealth) AI Office, SNEC Chief Data and Digital Officer, and the Head of AI and Digital Innovation in Singapore Eye Research Institute (SERI). In 2017, Dr Ting was US- ASEAN Fulbright Scholar visiting the Johns Hopkins University Fulbright Scholar to share his expertise in AI and big data in medicine. In addition to that, his research focus span across not only on the technical aspect on machine learning, deep learning, large language models, explainable AI, privacy preserving technologies, but also safe, responsible and ethical clinical AI applications. He is also involved in several international consensus reporting guidelines such as STARD-AI, QUADAS-AI and DECIDE-AI.

To date, Daniel has published >250 publications on peer reviewed, book chapters, educational articles and conference abstracts. Of those, 45 were published in high impact journals (IF >10) such as JAMA, NEJM, Lancet, Nature Medicine, Nature Biomedical Engineering, Lancet Digital Health, Progress in Retinal and Eye Research, Diabetes Care, Nature Digital Medicine, Ophthalmology and etc. As of January 2024 (Google Scholar), his current H index: 58, i-10 index: 148 with total citations of >16696. One of his COVID-19 articles was published in Nature Medicine (1st author), entitled “Digital Technology and COVID-19” has so far been cited for >1100 times with >110,000 views. Daniel has received a total of 100M research grants, in which 20 M as a principal investigator, and 80M as co-investigators on AI and digital innovation related projects in health.

Dr Ting serves in several leadership positions at the different AI and eye societies, including the American Academy of Ophthalmology AI and Retina Ophthalmology Technology Assessment committees, and he also chairs the AI and Digital Innovation Standing Committee for the Asia-Pacific Academy of Ophthalmology and Asia-Pacific Vitreo-Retinal Society. He also serves in numerous advisory and editorial boards in the top-tiered digital and medical journals, including Lancet Digital Health, Frontiers in Medicine, Frontiers in Digital Health and Asia-Pacific Journal of Ophthalmology; Section Editor in British Journal of Ophthalmology and Editorial Board Member in Ophthalmology, Ophthalmology Retina, Ophthalmology Science, British Journal of Ophthalmology, Asia-Pacific Journal of Ophthalmology and Retina.

For the accomplishment, Dr Ting was recognized by many top-tiered international AI and ophthalmology societies in winning many prestigious scientific awards, including Tatler Asia Gen T Award (2021), Singapore National Clinician Scientist Award (2021), Asia-Pacific Academy Ophthalmology (APAO) Nakajima Award (2021), Asia-Pacific Vitreo-Retinal Society (APVRS) Ian Constable Award (2021), MICCAI OMIA Prestigious Achievement Award (2020), ARVO Bert Glaser Award for Innovative Research in Retina (2020), USA Macula Society Evangelos Gragoudas Award (2019), APAO Young Ophthalmologist’s Award (2018) and APTOS Young Innovator Award (2017).

In 2022 and 2023, he is included in the World’s Top 100 Ophthalmologists Power list by the Ophthalmologists; and the World’s Top 2% Scientists by the Stanford University world ranking. In 2021, he was ranked 1st globally in the deep learning over the past decade (2010 – 2021), and has since been consecutively ranked top 10 worldwide for AI, machine learning and deep learning in science, engineering and health till to date.

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Narrative Biography

Stanislav Tomarev, Ph.D., is a Senior Investigator and Head of the Section of Retinal Ganglion Cell Biology at the National Eye Institute, NIH. He received his Ph.D. from the Koltzov Institute of Developmental Biology, USSR Academy of Sciences. Prior to joining the National Eye Institute in 1989, he held a faculty position at the Koltzov Institute of Developmental Biology.

Dr. Tomarev's section studies the molecular mechanisms of retinal ganglion cell neuroprotection and regeneration of their axons in optic neuropathies. Current efforts are focused on the neuroprotective effects of small extracellular vesicles derived from different types of stem cells and neuronal precursor cells. He and his colleagues are also studying the role of secreted protein components of AMPA receptor complexes on the activity of receptors and the effects of these proteins on retinal and brain functions.

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Narrative Biography

Dr. Yassine holds the Kenneth and Bette Volk Endowed Chair of Neurology at University of Southern California. The Yassine Lab works on understanding how changes in brain lipid metabolism predispose individuals to develop Alzheimer's disease (AD) pathology. Dr. Yassine is an expert in lipid metabolism. The Yassine Lab approach combines imaging studies, clinical trials, observational cohorts, and animal models with a focus on AD/APOE and is actively funded by NIH. Dr. Yassine is the leader of the Research and Education (REC) core of the USC ADRC. He is the 2022 chair of NIA's Research and Education Component's (REC) steering committee, past co-chair of the Nutrition, Metabolism and Dementia Professional Interest Area (PIA) of the Alzheimer's Association, and sits on the ISTAART Advisory council 2022-2024. Dr. Yassine is interested in drug development for Alzheimer's disease.

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Narrative Biography

Donald J. Zack, M.D., Ph.D., is the Guerrieri Professor of Genetic Engineering and Molecular Ophthalmology and Director of the Center for Stem Cells and Ocular Regenerative Medicine (STORM) at the Wilmer Eye Institute, Johns Hopkins University School of Medicine. His lab studies the control of gene expression in retinal ganglion cells, photoreceptor cells, and retinal pigment epithelial cells. He and his colleagues are also studying the mechanisms by which these cells die in glaucoma, retinitis pigmentosa, and age-related macular degeneration (AMD), and are developing novel methods to slow down, and hopefully prevent, their death. Additionally, they are developing methods to promote the differentiation of stem cells into retinal ganglion cells, photoreceptors, and RPE cells, in the hope that someday such cells might offer the possibility of restoring vision to glaucoma and retinal degeneration patients who have already lost significant vision due to loss of retinal cells.

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Narrative Biography

Sika Zheng, Ph.D., is a Professor in the Division of Biomedical Sciences at the University of California Riverside. He is the Founding Director of the UCR Center for RNA Biology and Medicine and the Graduate Advisor of the Biomedical Sciences PhD Program. He obtained his PhD in Neuroscience from Johns Hopkins Medical Institutions and received his post-graduate training on RNA processing at UCLA as a HHMI postdoctoral fellow. His current research connects RNA biology and neuroscience to unveil the unique regulation and function of neural splicing and nonsense-mediated mRNA decay (NMD) in neurogenesis and neurological diseases. His discovery and findings about the RNA code of neuronal longevity has contributed to the understanding of the general principle underlying the long-term survival of neuronal cells.

He was an American Heart Association Pre-doctoral fellow and NIH K99/R00 awardee, and has received Sydney Finegold Award, “Fine Science Tools” Award for Excellence in Neuroscience Research, University of California Reagents Faculty Fellowship, Faculty Development Award, Distinguished Service Award, and Annual Block Director Teaching Award. He has served as a reviewer on multiple study sections and for various funding agencies, including NIH, European Research Council, and is a current member of the NCF study section. He is a regular reviewer for over 30 scientific journals including Neuron, Molecular Cell, Development Cell, Nature Biotechnolgoy/CellBiology/Medicine/Neuroscience/Structure & Molecular Biology/Communications, etc. His lab has been continuously funded by the NIH since 2014 and trained over 40 PhD students, postdocs, undergraduate students and junior researchers.

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Future Vision Foundation

The Future Vision Foundation

Future Vision Foundation (FVF) is an independent 501(c)3 not-for-profit organization. Founded in 2017 by Dr. Suber Huang and Jennifer Deutsch, the Foundation's mission is to inspire and accelerate vision research by uniting visionary leaders worldwide in scientific collaboration and celebrate groundbreaking advancements in sight through impactful films filled with discovery and hope.

The Foundation furthers the awareness and advancement of sight-saving research through the annual convening of the Future Vision Awards and Future Vision Forum. The **Future Vision Awards** (art) is a cinematic celebration honoring individuals' medical breakthroughs in sight by highlighting their extraordinary research and its impact on vision care. The **Future Vision Forum** (science) is an unparalleled multidisciplinary symposium uniting visionary leaders worldwide to catalyze emerging research and accelerate innovation that improves the lives of people with eye diseases and visual disabilities. *Together*, the Future Vision Foundation's Awards and Forum aspire to unify art and science to enact unprecedented change in the field of vision.

Future Vision Films

Documentaries created by the Foundation honor pioneers in vision health by delving into their work, illuminating its significance, and demonstrating how it helps people who need it most. Our innovative use of visual arts to tell compelling stories of vision is novel and uniquely powerful. These inspiring films aim to raise awareness about medical advancements and be a catalyst for vision research.

Every year, the Future Vision Awards feature the worldwide debut of Laureate films. Those who receive the Laureate Award are entitled to use their documentary film as a means to share their story, present their research, and promote dialogue that will lead to support for their work.

Future Vision Laureate & Luminary Awards

The Laureate Award is given to individuals who have made remarkable contributions in their field of academic study related to the eye, eye disease, or vision. The awardee's work is recognized as emerging, exceptional, novel, and innovative. Catherine Bowes Rickman, Ph.D., Philip Rosenfeld, M.D., Ph.D., and Carol Shields, M.D. are the 2023 recipients of this prestigious award.

The Luminary Award acknowledges an individual or organization's exceptional support of vision research or patient care. This year's winner is David Pyott of the David and Molly Pyott Foundation. Previous honorees include Lulie and Gordon Gund of the Foundation Fighting Blindness, Dr. Hunter Cherwek of ORBIS International, Rebecca Alexander of the Usher Syndrome Society, and Bradford and Bryan Manning of Two Blind Brothers.

Future Vision Forum

The Future Vision Forum (Forum) is a first-in-kind annual scientific meeting chartered under the Future Vision Foundation. Faculty participants are visionary leaders in ophthalmology, visual science, and allied fields that share basic science, translational, and clinical viewpoints on the most critical topics of emerging research. This multidisciplinary approach fosters ideas, programs, and collaborations that result in highly focused and strategic viewpoints that accelerate innovation, discovery, and improve the lives of people with eye disease and visual disability. The Forum is a strategic, think-tank-style meeting limited to only 50 invitees. Faculty participants engage in moderated panel discussions that foster brainstorming and unique research collaborations. Each year, a major Forum award is conferred. The inaugural recipient was Dr. Michael Chiang, Director of the National Eye Institute/NIH.

For more information, contact the Foundation's Executive Director, Jessica Pietropinto, at jpietropinto.fvf@gmail.com or (216) 382-3366.

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