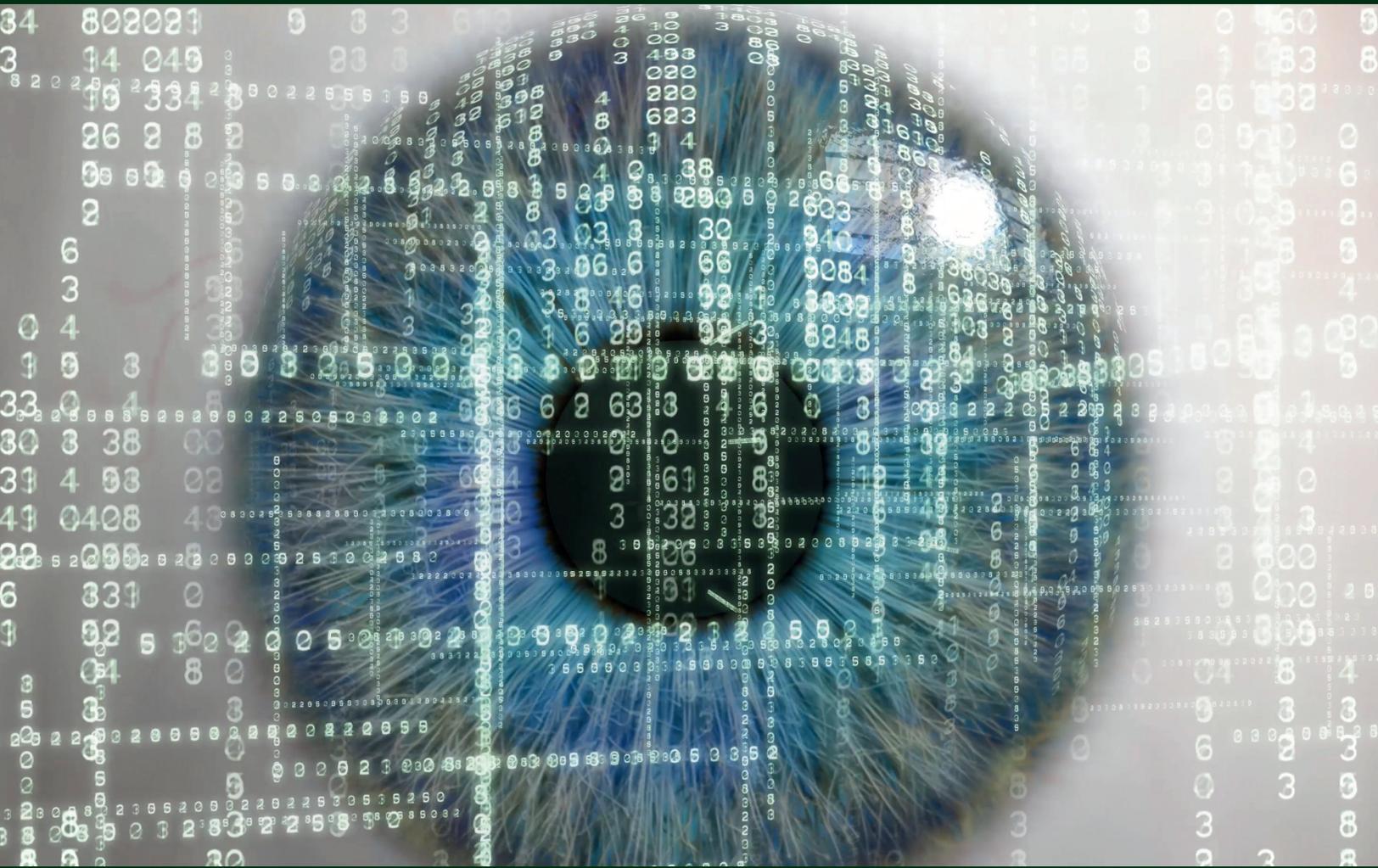


Vision Science Research Center Retreat Program



March 13, 2026
The Marnix E. Heersink Conference Center

UAB
Vision Science
Research Center

Vision Science Research Center

Mission

The mission of the Center is to support the research programs of its members through the maintenance of shared facilities, to foster interdisciplinary collaboration in vision research, and to serve the university, community, state and region through education and outreach.

Vision

The VSRC will provide leadership in research in all areas of vision. The Center will strive to improve the competitiveness of its members through the support of shared facilities and graduate education and will support clinical research and community outreach.

Goals

The VSRC has the specific goal of creating an internationally recognized center of excellence in vision science, which, by its research and related activities, will constitute a major resource for the generation of knowledge and the training of new vision scientists. The VSRC provides technical assistance in the development of new projects, equipment support, laboratory facilities, and management of shared services and instrumentation to UAB vision scientists. The VSRC sponsored Visiting Scholars Program in the School of Optometry and the Loris and David Rich Lecture Series in the Department of Ophthalmology and Visual Sciences bring internationally recognized vision scientists to the University. The Vision Research at UAB Seminars showcase UAB's basic and clinical research and relevant other scientific activities on the UAB campus.

Agenda

9:00 – 9:10 a.m.

WELCOME AND INTRODUCTION

9:15 – 9:25 a.m.

RESEARCH DEVELOPMENT RESOURCES AT UAB

Frannie Horn, J.D., Ed.S., Director of Research Development, UAB Office of Research

9:30 – 10:00 a.m.

RAPID-FIRE FACULTY PRESENTATIONS I (3 MINUTES EACH)

10:00 – 10:15 a.m.

BREAK (15 MINUTES)

10:15 – 11:30 a.m.

KEYNOTE ADDRESS

Michael F. Chiang, M.D., Director, National Eye Institute

11:30 a.m. – 1:30 p.m.

LUNCH AND POSTER SESSION

1:30 – 2:00 p.m.

RAPID-FIRE FACULTY PRESENTATIONS II (3 MINUTES EACH)

2:00 – 4:00 p.m.

ASK THE DIRECTOR SOCIAL/POSTER AWARDS

Keynote Speaker



Michael F. Chiang, M.D.
Director, National Eye Institute

Michael F. Chiang, M.D. is Director of the National Eye Institute. 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 250 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 Co-Chair of a trans-NIH working group for high value data asset sustainability, Chair of a trans-NIH clinical trials infrastructure working group, Co-Chair of a trans-NIH medical imaging working group, Co-Chair of the NIH AIM-AHEAD advisory committee, and Co-Chair of the NIH Common Fund Bridge2AI program. He is a member of the NIH Scientific Data Council. 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 co-directed an NIH-funded T32 training program in visual science for graduate students and research fellows, as well as an NIH-funded K12 clinician-scientist program at OHSU.

Faculty Talks

Rapid Fire Session I (morning)

9:30–9:33	Safal Khanal	Introduction
9:33–9:36	Paul Gamlin	Updates on two NEI-funded research projects in the Gamlin Laboratory
9:36–9:39	Kathy Weise	UAB pediatric optometry research: The million dollar clinic
9:39–9:42	Yuchen Wang	Molecular insights into retinal circuits assembly and remodeling
9:42–9:45	Crawford Downs	Changes in diurnal IOP fluctuation magnitude and rhythm following chronic IOP elevation in nonhuman primates (NHPs)
9:45–9:48	Jillian Ziemanski	Differential complement activation in the tears of Sjögren's disease patients
9:48–9:51	Alecia Gross	Cytoskeletal proteins NUDC and CFL1 are critical for regulating retinal function and viability
9:51–9:54	Oliver Gramlich	Assembling the human retinofugal system in vitro
9:54–9:57	Tylor Lewis	RPE pseudopods maintain photoreceptor outer segment renewal despite subretinal
9:57–10:00	Safal Khanal	Basic, clinical, and translational myopia research in the Khanal laboratory

Rapid Fire Session II (afternoon)

1:30–1:33	Safal Khanal	Introduction
1:33–1:36	Maria Grant	Indole-3-propionic acid links gut dysfunction to diabetic retinopathy: a biomarker and novel therapeutic approach
1:36–1:39	Timothy Gawne	Refractive development and the elusive ocular signaling cascade
1:39–1:42	Lawrence Sincich	Physiological underpinnings of resolution acuity
1:42–1:45	Konark Mukherjee	Cellular mechanism of optic nerve hypoplasia
1:45–1:48	Kristina Visscher	Examining the whole-brain networks involved in visual perceptual learning
1:48–1:51	Timothy Kraft	Novel finding of rod pathway failures Alzheimer's subject and in mouse model

Faculty Talks & Poster Presentations

1:51–1:54	Rafael Grytz	Indigo light supplementation prevents myopia susceptibility in tree shrews: a hypothesis for the myopia boom
1:54–1:57	Julie Quinet	Neural control of coordinated eye movements
1:57–2:00	Steve Pittler	Why does mutation of the DHDDS K42 codon to Glu cause non-syndromic retinitis pigmentosa (RP), while deletion of this codon causes brain disorders without an ocular phenotype?

Posters

Choice Isoken Amieghemen	Dysfunction of $\alpha 264$ leads to photoreceptor degeneration through disrupted synaptic mitochondria and calcium crosstalk	P01
Becky Lin	Signals regulating microglial migration in retinitis pigmentosa mouse models	P02
Christina Nicou	Optimization of data sampling for IOP and CSFP telemetry	P03
Fadeela Sheini	RXR α maintains retinal vascular integrity and modulates inflammation in diabetic retinopathy	P04
Christopher R Starr	Visualizing extracellular vesicles released from retinal photoreceptors	P05
Swastika Adhikari	Axial length and choroidal thickness responses to short-term optical stimuli in young adults	P06
Prince Mintah	Understanding short-term choroidal thickness changes induced by indigo light	P07
Hadi Shirazi	Collagen crimp heterogeneity improves patient-specific LASIK modeling accuracy	P08
Rohit Dhakal	Relationship between local retinal and choroidal signals of eye growth in humans	P09
Elizabeth Murray	Exploring retinoid transport defects as a pathological mechanism for vision loss in ADAM9-associated cone-rod dystrophy	P10
Sadhana Sharma	Foveolar deficits from experimental glaucoma revealed in primary visual cortex	P11
Hannah Stanfield	Primary cilia regulate Notch signaling during early retinal development	P12
Jacob Nydegger	Assessing the impact of IMPG1 and IMPG2 in ADAM9 related cone-rod dystrophy	P13
Sindhu Gurralla	Wavelength intervention for nearsighted kids (WINK): early recruitment and baseline characteristics from a myopia control clinical trial	P14
Faizminbanu Vahora	Human axial length and choroidal thickness responses to chromatically simulated defocus	P15

Poster Presentations

Sandra Owusu	Integrative liver-targeted therapy for diabetic macular edema: combining tauroursodeoxycholate and traditional Chinese medicine	P16
Sankeerthana Kalva	Measuring melanopsin contribution using a portable chromatic pupillometry system	P17
Sarbodeep Paul	An engineered probiotic expressing Ang1-7 mitigates diabetic retinopathy in db/db mice	P18
Saba Tufail	Optic nerve alterations in Down syndrome mouse models	P19
Emma Wiegmann	Express disjunctive saccades elicited during gap paradigm in monkeys	P20
Sergio Li Calzi	Gene therapy with ELOVL2/4 reduces neovascularization and capillary vasodegeneration while increasing peripheral vascular density in a mouse model of retinopathy of prematurity	P21
Micheli Seveo Sielski	Endothelial Rap1 restricts inflammation in the HREC	P22
Khushi Talajia	Optic nerves are more cellular and display PUFA enrichment compared to the sciatic nerve	P23
Abubakar Sadik Mohammed	The auxiliary subunit of voltage-gated calcium channel, $\alpha 2\delta 4$, regulates synaptic organization of retinal bipolar cells	P24
Trong Thuan Ung	AAV-mediated restoration of synaptic structure and function in adult $\alpha 2\delta 4$ knockout mouse model of night blindness and cone rod dystrophy	P25
Gillian Huskin	The role of $\alpha 2\delta 4$ in the dendritic genesis and remodeling of retinal bipolar cells	P26
Jeffrey Messinger	Photoreceptor (PR) ultrastructure in the outer junctional zone (OJZ) of geographic atrophy (GA) of age-related macular degeneration (AMD), a quantitative clinicopathologic correlation	P27
Essaline Curlee	Retinal signaling failures found in Alzheimer's disease in mice and humans	P28
Bibek Adhikari	Double-knockout of SDR16C5 / SDR16C6 leads to Meibomian gland and corneal pathology	P29
Ram Prasad	Immunomodulation by bone marrow (BM) cells expressing increased levels of angiotensin-converting enzyme 2 (ACE2) corrects diabetic retinopathy (DR) in type 1 diabetic (T1D) mice	P30
Ashley Rennhack	Does the calvarial bone marrow compartment serve as a reparative reservoir to maintain hematopoiesis and protect the retina in type 2 diabetes?	P31

Retreat Planning Committee



Steven Pittler
Optometry and Vision Science



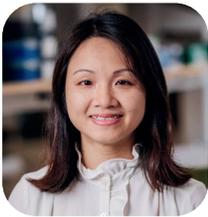
Maria Grant
Ophthalmology



Safal Khanal
Optometry and Vision Science



Yuchen Wang
Optometry and Vision Science



Holly Chen
Cell, Developmental, and Integrative
Biology

Staff Support



Misty Cuthbert
Optometry and Vision Science



Christina Crowe
Ophthalmology



Nakia Lee
Optometry and Vision Science



Satina Richardson
Optometry and Vision Science

VSRC Leadership Committee



Steven Pittler
Chair, Executive
Internal and External Advisory
Committee Member



Karen Gamble
Executive Committee
Member



Paul Gamlin
Executive Committee Member



Tim Kraft
Executive Committee
Member



Crawford Downs
Executive Committee Member



Kelly Nichols
Internal Advisory
Committee Member



Lawrence Sincich
Executive Committee
Member



Anupam Agarwal
Internal Advisory Committee
Member



Brian Samuels
Executive and Internal
Advisory Committee
Member



Adam Gordon
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Member



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Executive Committee
Member



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Laura Frishman
External Advisory Committee Member
(University of Houston)



Mike Iuvone
External Advisory
Committee Member
(Emory University)

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