Moran Eye Center Faculty, Residents, Fellows at ARVO 2019

Workshops
Monday, April 29
- **Research in Academia** – Mary Elizabeth Hartnett
- **Members-in-Training Career Forum: Preparing for your future career NOW! “In and Out of Industry”** – Barbara Wirostko

Wednesday, May 1
- Founding a company: from academic discovery to start-up to acquisition – Barbara Wirostko

Thursday, May 2
- **Novel insights into the genetics of Macular Telangiectasia Type 2 (MacTel)** – Paul S. Bernstein

Special Interest Group Presentations
Sunday, April 28
- **Biomechanical Injury and Inflammatory Signaling in the Eye**
  David Krizaj, Valery Shestopalov, Shizuya Saika, Daniel Sun, Claire Mitchell

Wednesday, May 1
- **Fluorescence lifetime imaging ophthalmoscopy from bench to bedside**
  Martin Zinkernagel, Chantal Dysli, Martin Hammer, Lydia Sauer, Srinivas Sadda, Sebastian Wolf, Martin Zinkernagel

Poster Session Presentations
Sunday, April 28
- **AII Amacrine Cell Connectivity in Degenerating Retina**
  Jeebika Dahal, Rebecca Pfeiffer, Crystal Sigulinsky, James Anderson, Daniel Emrich, Hope Morrison, Jessica Garcia, Kevin Rapp, Jia-Hui Yang, Carl Watt, Mineo Kondo, Hiroko Terasaki, Robert Marc, Bryan Jones
- **OFF-layer Branches of ON Cone Bipolar Cells in Early Retinal Degeneration**
  Jessica Garcia, Rebecca Pfeiffer, Crystal Sigulinsky, James Anderson, Daniel Emrich, Jeebika Dahal, Hope Morrison, Kevin Rapp, Jia-Hui Yang, Carl Watt, Mineo Kondo, Hiroko Terasaki, Robert Marc, Bryan Jones
• Comparative anatomy and connectivity of the Aii amacrine cell in mouse and rabbit retina
  Selena Wirthlin, Crystal Sigulinsky, James Anderson, Daniel Emrich, Christopher Rapp, Jeebika Dahal, Rebecca Pfeiffer, Kevin Rapp, Jia-Hui Yang, Carl Watt, Robert Marc, Bryan Jones
  • Conditional TRPV4 ablation inhibits pressure-induced retinal inflammation in mouse glaucoma
  Monika Lakk, Felix Vazquez-Chona, Oleg Yarishkin, David Krizaj
  • Corneal mechanotransduction drives TRPV4-dependent release of the transmitter ATP
  Luka Lapajne, Monika Lakk, Lara Gubeljak, Oleg Yarishkin, Marko Hawlina, David Krizaj
  • Prevention of Blindness from CMV Retinitis-Related Retinal Detachment by Prophylactic Argon Laser Demarcation
  Lynn M. Hassman, Khin Thida Oo, Marissa Larochelle, Partho Kalyani, NiNi Tun, Zaw Minn Din, Gary N. Holland, David Heiden, Albert T. Vitale
  • Cone mitochondria shape cytosolic Ca\textsuperscript{2+} transients and recovery of the photoreponse
  Rachel Hutto, Fatima Abbas, Celia Bisbach, James Hurley, Frans Vinberg, Susan Brockerhoff
  • TTR mutations and clinical characteristics of patients with vitreous amyloidosis
  Xiaohui Zhang, Ke Xu, Xiaolin Xu, Yang Li
  • Mutation Screening of \textit{OPA1} in a cohort Chinese patients with Suspected Autosomal Dominant Optic Atrophy
  UE XIE, Ting Xiao, Ke Xu, Xiaohui Zhang, Yang Li
  • Anatomical and fixation parameters as predictors of reading speed (RS) in Stargardt Disease

Monday, April 29
  • Fluorescence Lifetime Imaging Ophthalmoscopy (FLIO) Shows Early Toxicity of Hydroxychloroquine
  Paul S. Bernstein, Charles M. Calvo, Nicholas Henrie, Alexandra Vitale, Cole Milliken, Lydia Sauer
  • Fluorescence Lifetime Imaging Ophthalmoscopy (FLIO) in Birdshot Chorioretinopathy: A Possible Tool for Monitoring Disease Activity
  Karl Andersen, Alexandra Vitale, Rebekah Gensure, Marissa Larochelle, Akbar Shakoor, Albert Vitale, Paul Bernstein, Lydia Sauer
  • Generic UNet machine learning architecture can be trained to accurately and consistently identify retinal vascular features
• **Knockdown of the erythropoietin receptor in endothelial cells extends physiological retinal vascular development in a model of retinopathy of prematurity**

Aaron Simmons, Eric Kunz, Colin Bretz, Haibo Wang, Thipparat Suwanmanee, Tal Kafri, Mary Elizabeth Hartnett

• **EPOR signaling is important in neural retinal function following OIR**

Colin Bretz, Eric Kunz, Vladimir Divoky, Mary Elizabeth Hartnett

• **Unexpected susceptibility to Oxygen–induced Retinopathy (OIR) in β,β-carotene–9',10'-oxygenase 2 (BCO2) Knockout Mice**

Arunkumar Ranganathan, Eric Kunz, Mary Elizabeth Hartnett, Paul Bernstein

• **VMD2 Promoter–mediated Gene Therapy Optimizes Active Rap1a Expression in the Retinal Pigment Epithelium of Wild Type Mice**

Haibo Wang, Aniket Ramshekar, Eric Kunz, William Hauswirth, Mary Elizabeth Hartnett

• **Evaluation of Risk Factors for Pseudoexfoliation and Progression to Glaucoma: A Longitudinal Epidemiological Study**

Caleb Shumway, Karen Curtin, Sam Taylor, Chase Paulson, Barbara Wirostko

• **HDL–Cholesterol Receptor SR–BI May Serve as a Macular Carotenoid Transporter**

Binxiong Li, Evan W. George, Aruna Gorusupudi, Fu–Yen Chang, Gregory T. Rognon, Jeanne M. Frederick, Paul S. Bernstein

• **A novel nintedanib ophthalmic nanosuspension (AG–86893) for the treatment of pterygium**

Tan Nguyen, Sandy Lai1, Thomas Malone, Larry A. Wheeler, Madhu Cherukury

• **Supplementation with n3 Fatty Acids to Improve VLC–PUFA Levels in Diabetic Animal Models**

Aruna Gorusupudi, Fu–Yen Chang, Kelly Nelson, Gregory Hageman, Paul Bernstein

• **Systemic Delivery Of Endothelial Colony Forming Cells Enables Vascular Integration Into Diabetic Mouse retinas, But Not Diabetic Mouse Retinas Treated With AAV2.COMP–Ang1**

Lara Carroll, Xiaohui Zhang, Yufeng Huang, Yuanyuan Wu, Alan Stitt, Tim Curtis, Reinhold Medina, Balamurali Ambati

• **Differential modulation of photoreceptors and Müller glial cell function between acute hyperglycemia and long-term diabetes**

Silke Becker, Bruce Berkowitz, Frans Vinberg

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**Tuesday, April 30**

• **Gene therapy targeting PDGF–B for neovascular AMD**

Xiaohui Zhang, Hironori Uehara, Lara Carroll, Bonnie Archer, Balamurali Ambati

• **TRPV1–dependent activation of NKCC1 in mouse lens epithelium**

Mohammad Shahidullah, Amritlal Mandal, David Krizaj, Sarah Redmon, Nicholas A. Delamere
• Relationship between episcleral venous pressure, intraocular pressure and trabecular meshwork resistance: a mathematical model
  Sunu Mathew, Alon Harris, Alice Chandra Verticchio Vercellin, Barbara Wirostko, Bruce Martin, Giovanna Guidoboni

• The Effect of IVMED-80 Eye Drops on Lysinonorleucine (LNL) Amounts In Vivo for treatment of keratoconus.
  Santosh Kumar Muddana, Haeli Hauritz, Michael Burr, Balamurali Ambati, Sarah Molokhia

• Soluble form TrkB, but not full-length TrkB, express in mouse cornea
  Hironori Uehara, Bonnie Archer, Balamurali Ambati

• Successful rescue of M-cone function in aged M-opsin knock-out mice, a model for blue cone monochromacy
  Wen-Tao Deng, Jie Li, Ping Zhu, Wolfgang Baehr, William Hauswirth

• Fluorescence Lifetime Imaging Ophthalmoscopy (FLIO) in Patients with Pigment Epithelial Detachment (PED) due to Age-related Macular Degeneration (AMD)
  Lydia Sauer, Christopher B. Komanski, Alexandra Vitale, Paul S. Bernstein

• Spectral and Lifetime Autofluorescence Characteristics of Soft Drusen and Hyperpigmentation in Patients with Age-Related Macular Degeneration (AMD)
  Martin Hammer, Lynn Zweifel, Lukas Kreilkamp, Lydia Sauer, Rowena Schultz, Regine Augsten, Daniel Meller

• Assessment of Intraocular Lens Glare Type Photic Phenomena both at Large and Small Pupils in a Schematic Model Eye
  Kamal Das, Liliana Werner, Stephen Collins

• AG-73305, a novel multi-specific Fc-fusion protein for the treatment of diabetic macular edema
  Madhu Cherukury, Artemis Wu, Ben Chang, Tan Nguyen, Larry A. Wheeler

• Soluble form TrkB, but not full-length TrkB, express in mouse cornea
  Hironori Uehara, Bonnie Archer, Balamurali K. Ambati

• Development of a Cortical Visual Neuroprosthesis for the Blind: Preliminary results
  Eduardo Fernandez, Cristina Soto, Arantxa Alfaro, Pablo Gonzalez, Antonio Lozano, Sebastian Peña, Maria Dolores Grima, Alfonso Rodil, Antonio Alarcon, John Rolston, Tyler Davies, Richard A. Normann

• Germline deletion of both CETN2 and CETN3 destabilizes the distal connecting cilium of mouse photoreceptors
  Guoxin Ying, Jeanne Frederick, Wolfgang Baehr

• NudC is critical for outer segment disk size and photoreceptor cell viability
  Meredith G. Hubbard, Evan R. Boitet, Laurence M. Black, Nicholas J. Reish, Guoxin Ying, Wolfgang Baehr, Subhashini Bolisetty, Alecia K. Gross

• Identification of USH2A- and ADGRV1-interacting proteins in photoreceptors
Jun Yang, Dongmei Yu, Junhuang Zou

- Retinal microglia acquire a disease-associated transcriptome in chronic mouse glaucoma, which intensifies with neuroprotective complement inhibition
Alejandra Bosco, Sarah Anderson, Jacqueline Roberts, Cesar Romero, Michael Steele, Monica Vetter
- Activation of the cAMP signaling pathway sensitizes retinal microglia response to TRPV4 activation
Sarah Redmon, Monika Lakk, Oleg Yarishkin, David Krizaj

Wednesday, May 1
- Comparing Eye Care at a Tertiary Eye Care Clinic to a Free Homeless Clinic
Ashlie Bernhisel, Joshua Bo Hekzco, Brian Stagg, Jeff Pettey, Albert T. Vitale
- HTRA1 gene interaction network informs Age-Related Macular Degeneration (AMD) risk
Leah Owen, Patrice Hicks, Denise Morgan, Jeeyun Ahn, Giuliana Silvestri, Joan Miller, Kyu Hyung Park, Maria Kotoula, Ivana Kim, Lindsay Farrer, Neena Haider, Margaret M. DeAngelis
- Retinal ganglion cell type specific susceptibility to glutamatergic excitotoxicity
Ian Christensen, Bo Lu, Ning Yang, Kevin Huang, Ping Wang, Ning Tian
- Trabecular Meshwork and Ciliary Body
Moderators: Wei Zhu, David Krizaj
- Trabecular meshwork cell swelling and osmoregulation is subserved by TRPV4 and TRPM4 cation channels
Jackson Michael Baumann, Oleg Yarishkin, Monika Lakk, Felix Vasquez-Chona, David Krizaj
- The Visual Function Index (VF-14) reflects a notable loss in Vision-Related Quality of Life (VRQOL) in Stargardt Disease
- Fluorescence Lifetime Imaging Ophthalmoscopy (FLIO) in Clinically Unaffected Family Members of MacTel Patients
Alexandra Vitale, Lydia Sauer, Karl Andersen, Paul S. Bernstein
- Diabetic retinopathy, cytokines and growth factors
Moderators: Silke Becker
- AG-67650, a bi-specific fusion protein for the treatment of wet age-related macular degeneration
Larry Wheeler, Artemis Wu, Ben Chang, Tan Nguyen, Madhu Cherukury
- Retinal capillary blood flow, blood pressure, and ocular perfusion pressure in healthy and glaucomatous females
Rana Torabi, Alon Harris, Alice Chandra Verticchio Vercellin, Barbara Wirostko, George Eckert, Jennifer Eikenberry, Chi Wah Rudy Yung, Adrienne Ng, Christian Jonescu-Cuypers, Brent A. Siesky

Thursday, May 2
- Fluorescence lifetime imaging ophthalmoscopy (FLIO) in punctate inner choroidopathy and multifocal choroiditis with panuveitis
  Rebekah Gensure, Lydia Sauer, Alexandra Vitale, Akbar Shakoor, Albert Vitale, Paul Bernstein
- Migratory neural crest directs optic cup morphogenesis by depositing nidogens to build extracellular matrix superstructure
  Kristen Kwan, Chase Bryan, Macaulie Casey, Rebecca Pfeiffer, Bryan Jones
- Quantification of RPE changes in choroideremia using a Photoshop-based protocol
  Yi Zhai, Manlong Xu, Ioannis Dimopoulos, David G. Birch, Paul S. Bernstein, Peter Francis, Jenny Holt, David Kirn, Ian M. MacDonald
- Expression of the mechanotransduction channels is altered in the retina of myopic marmosets
  Tam Phuong, Ana Nour, David Krizaj, Alexandra Benavente-Perez
- IVMED-85 eye drops for myopia control in guinea pigs
  Sarah Molokhia, Haeli Hauritz, Bonnie Archer, Michael Burr, Leah A. Owen, Balamurali K. Ambati
- Telemedicine using a macro lens for anterior segment imaging in rural Panama
  Louie Cao, Param Bhattar, Austin Crochetiere, Laura Cuevas, Kaosoluchi Enendu, Emily Frisch, Sophia Raefsky, Caleb Shumway, Andrew Browne

Paper Session Presentations
Monday, April 29
- Stargardt disease ALK-001 phase 2 clinical trial: 12-month interim data
- Altered ubiquitin signaling in mammalian lens development causes metabolic and mitochondrial dysfunction leading to cataractogenesis
  Sheldon Rowan, Elizabeth Whitcomb, Eloy Bejarano, Fu Shang, Ke Liu, Rebecca L. Pfeiffer, Roberto Calitri, James D. Baleja, Bryan W. Jones, Paul G. FitzGerald, Allen Taylor
- The Mechanogated PIEZO1 Channel Regulates Ca2+ Homeostasis and Formation of Focal Contacts in Human Trabecular Meshwork Cells
  Oleg Yarishkin, Tam Phuong, Jackson Baumann, Sarah Redmon, Monika Lakk, David Krizaj

Tuesday, April 30
- Microglia and Innate Immunity
  Moderators: Malia Michelle Edwards, Margaret M. DeAngelis
Wednesday, May 1

- **Effect of Postmortem Time on Ex Vivo Human and Mouse Electroretinogram**
  Fatima Abbas, Anne Hanneken, Frans Vinberg
- **Remodeling of focal adhesions and actin regulatory proteins in trabecular meshwork under tensile stress requires TRPV4-dependent Rho signaling**
  David Krizaj, Monika Lakk
- **Genetic Epidemiology**
  Moderators: Katie Williams (King’s College London), Patrice Marie Hicks (University of Utah)
- **Genetic Epidemiologic Analysis of Hypertensive Retinopathy (HTR) Reveals Unique Risk in a Native American Population**
  Patrice Hicks, Samuel Collazo-Melendez, Albert Vitale, William Self, Mary Elizabeth Hartnett, Paul Bernstein, Denise Morgan, Michael Feehan, Akbar Shakoor, Ivana Kim, Leah Owen, Margaret M. DeAngelis

Thursday, May 2

- **Coupling architecture of the Aii/ON cone bipolar cell network in degenerate retina**
  Crystal Sigulinsky, Rebecca Pfeiffer, James Anderson, Daniel Emrich, Christopher Rapp, Jeebika Dahal, Jessica Garcia, Hope Morrison, Kevin Rapp, Jia-Hui Yang, Carl Watt, Mineo Kondo, Hiroko Terasaki, Robert Marc, Bryan Jones

Other Presentations
Monday, April 29

- **Global Eye Genetics Consortium 2019: “How to organize and manage an international consortium” – Margaret M. DeAngelis**

Minisymposiums
Tuesday, April 30

- **Mechanisms and biomechanics of traumatic retinal hemorrhage in children**
  Moderators: Donny W Suh, Brittany Coats, Gil Binenbaum
- **Biomechanical approaches to understanding mechanisms of traumatic retinal hemorrhage**
  Brittany Coats