

enVISION

News From the UC Davis Eye Center

Non-Profit Org.
US Postage
PAID
UC Davis
Permit #3

SPRING/
SUMMER



2015

UC DAVIS eyePOD;
IMAGING FOR THE FUTURE

enVISION

UC Davis Eye Center
4860 Y Street, Suite 2400
Sacramento, CA 95817



WEBSITE

May 15-17, 2015
38th Annual Ophthalmology Symposium
Cataract Uncorked
Napa Valley Marriott Hotel & Spa
Napa, California

June 20, 2015
4th Annual Resident & Alumni Day
Matsui Lecture Hall
Education Building, UC Davis Medical Center
Sacramento, California

October 3, 2015
4th Annual The EYES of a Child
Crowne Plaza Hotel
Sacramento, CA

November 15, 2015
Alumni, Volunteer Clinical Faculty and Friends Reception
American Academy of Ophthalmology
Las Vegas, Nevada

The UC Davis Eye Center Honor Roll, which includes our lifetime and annual donors, will be featured in our Fall/Winter issues here forth.

Thank you for your support!

For more information on supporting the Eye Center, please contact Holland Adams at 916-734-6435 or hroadams@ucdavis.edu

From the Chair's Desk

Bringing Diversity in Science Together

One of the most remarkable aspects of working in an institution like UC Davis is the array of scientific talent that is collocated on our campuses. In the traditional university setting, investigators in different fields are often "siloe" in their areas of interest, having minimal crosstalk with other investigators. Here at UCD, the Eye Center faculty has been proactive in seeking out talent in areas traditionally outside of vision science. This has had the effect of revitalizing our approach to challenges in vision research.

Engineering, bioengineering, veterinary medicine, physiology, biochemistry, genetics, materials science, computer sciences, are but a few of the areas outside of ophthalmology that have become foci of collaboration, bringing novel approaches to solving the problems of eye disease. Veterinary ophthalmology is a particularly good example of an area that provides great opportunities to study human disease and its management through animal models. Yet another example is the EyePod, featured in this issue - a collaborative effort that brings together Vision Scientist with diverse talent.

The list of publications from 2014 in the current issue of enVISION reflects the amazing diversity of contributions to vision science at UCD.

With the growth of vision science at UC Davis, this type of creative cross-fertilization will undoubtedly increase, sustaining and augmenting the vitality and creativity of the investigators at our institution. The future for us and for our patients is a bright one.

Sincerely,



Mark J. Mannis, MD, FACS
Professor and Chair
Department of Ophthalmology &
Vision Science
UC Davis Eye Center



enVISION

is published by the UC Davis Eye Center. For more information about ophthalmology services and vision research at UC Davis, visit our Web site at: www.ucdmc.ucdavis.edu/eyecenter or call (916) 734-6435.

Managing Editor
Mark J. Mannis, MD

Contributing Editors
Cameron Blount
Kimber Chavez
Holland Adams

Contributors
Mark J. Mannis, MD
E. Antoinette McLean
Edward N. Pugh Jr., PhD

Production Manager
Holland Adams

Photography
Bhupinder Dhillon
Emi Manning
Ellen Redenbo

Graphic Design
UC Davis Eye Center Staff

UC Davis Eye Center
4860 Y St., Suite 2400
Sacramento, CA 95817
(916) 734-6602

UC Davis Eye Center Optical Shop
4860 Y St., Suite 2013
Sacramento, CA 95817
(916) 734-6300

UC Davis Eye Services Roseville
2261 Douglas Blvd.
Roseville, CA 95661
(916) 783-7109 (option 7)

UC Davis Eye Services Cadillac Drive
77 Cadillac Dr.
Sacramento, CA 95825
(916) 734-4642

UC Davis Cadillac Drive Optical Shop
77 Cadillac Dr.
Sacramento, CA 95825
(916) 734-6644

UC Davis Folsom Eye Center & Optical Shop
251 Turn Pike Dr., Suite 1070
Sacramento, CA 95630
EC: 916-357-4880
OS: 916-357-4888

OUR VISION

Our vision is to be the world's transformational leader in collaborative vision research and in the development of cures for blinding eye disease from cornea to cortex.

OUR MISSION

We will realize our vision through pioneering collaborative vision research, providing state-of-the-art, world-class eye care, and training superbly prepared ophthalmologists and vision scientists.

APPOINTMENTS

To Schedule Patient Appointments:
(916) 734-6602 (Patients - All Sites)
(916) 734-6992 (FAX)
(916) 734-6650 (Lasik)

- 02** From the Chair's Desk
- 05** Faculty Honors and Awards
- 06** The EyePod: an Ocular Imaging Facility for Developing Stem Cell and Molecular Therapeutics
- 10** Celebrating a Transformational Gift
- 18** James Brandt Appointed Vice-Chair for International Programs & New Technologies
- 20** UC Davis Leadership Profile: James E. Goodnight
- 22** Employee of the Year Awards
- 24** The UC Davis Eye Center is pleased to announce the addition of three new faculty
- 26** AAO Reception
- 30** From the Collection at UC Davis
- 32** The Center for Vision Science 2014 Publication List
- 52g** Faculty

OPTICAL SHOP
ASK AN EYE STAFF MEMBER TODAY!

UC Davis Eye Center
Optical Shop
4860 Y St., Suite 2013
Sacramento, CA 95817
(916) 734-6300

UC Davis Cadillac Drive
Optical Shop
77 Cadillac Dr.
Sacramento, CA 95825
(916) 734-6644

UC Davis Folsom
Optical Shop
251 Turn Pike Dr., Suite 1070
Sacramento, CA 95630
916-357-4888

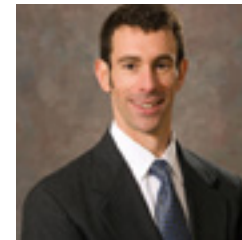


web



facebook

2014-15 Faculty Honors and Awards



Mark Goldman, Ph.D.

Appointed Howard Hughes Medical Institute Professor



Mark J. Mannis, M.D.

Cornea Society Castroviejo Medal Recipient

Mark Mannis, Eye Center Chair, receives the 2014 Castroviejo Medal

Mark J. Mannis, MD, FACS was the recipient of the 2014 Castroviejo Medal. This award, established in 1975 and named after the father of modern corneal transplant surgery, is awarded by the Cornea Society in the United States. The medal recognizes outstanding lifetime achievement and contributions to the field of corneal surgery and external disease. Dr. Mannis is the most recent recipient of this award for his leadership and contributions to his field.



Christopher J. Murphy, D.V.M., Ph.D.

OTSS Career Achievement Award

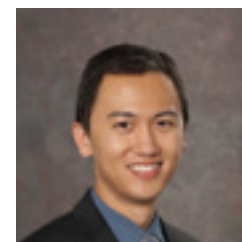
Christopher J. Murphy has been named recipient of the 2015 Career Achievement Award in Ocular Toxicology from the OTSS (Ocular Toxicology Specialty Section of the Society of Toxicology). This prestigious award is given for contributions to the field of ocular toxicology and for the depth and breadth of scientific contributions in the field. Dr. Murphy is recognized for his leadership in the field of ocular toxicology, mentorship of young scientists in the field, and influence on key regulatory and safety decisions. The award attests to his leadership and service to the discipline.



John S. Werner, Ph.D.

International Colour Vision Society 2015 Verriest Medal Recipient

John S. Werner, Ph.D. will be the recipient of the International Colour Vision Society 2015 Verriest Medal. This award was established in 1991 in memory of the founding member of the Society, Dr. Guy Verriest, and honors outstanding contributions in the field of color vision. Dr. Werner is the most recent recipient of this award for his leadership and contributions to his field.



Glenn Yiu, M.D., Ph.D.

2014 Evangelos S. Gragoudas Award

2014 American Academy of Ophthalmology
Best Poster Award

The EyePod: an Ocular Imaging Facility for Developing Stem Cell and Molecular Therapeutics

The challenge: visualizing individual cells in disease and during therapy

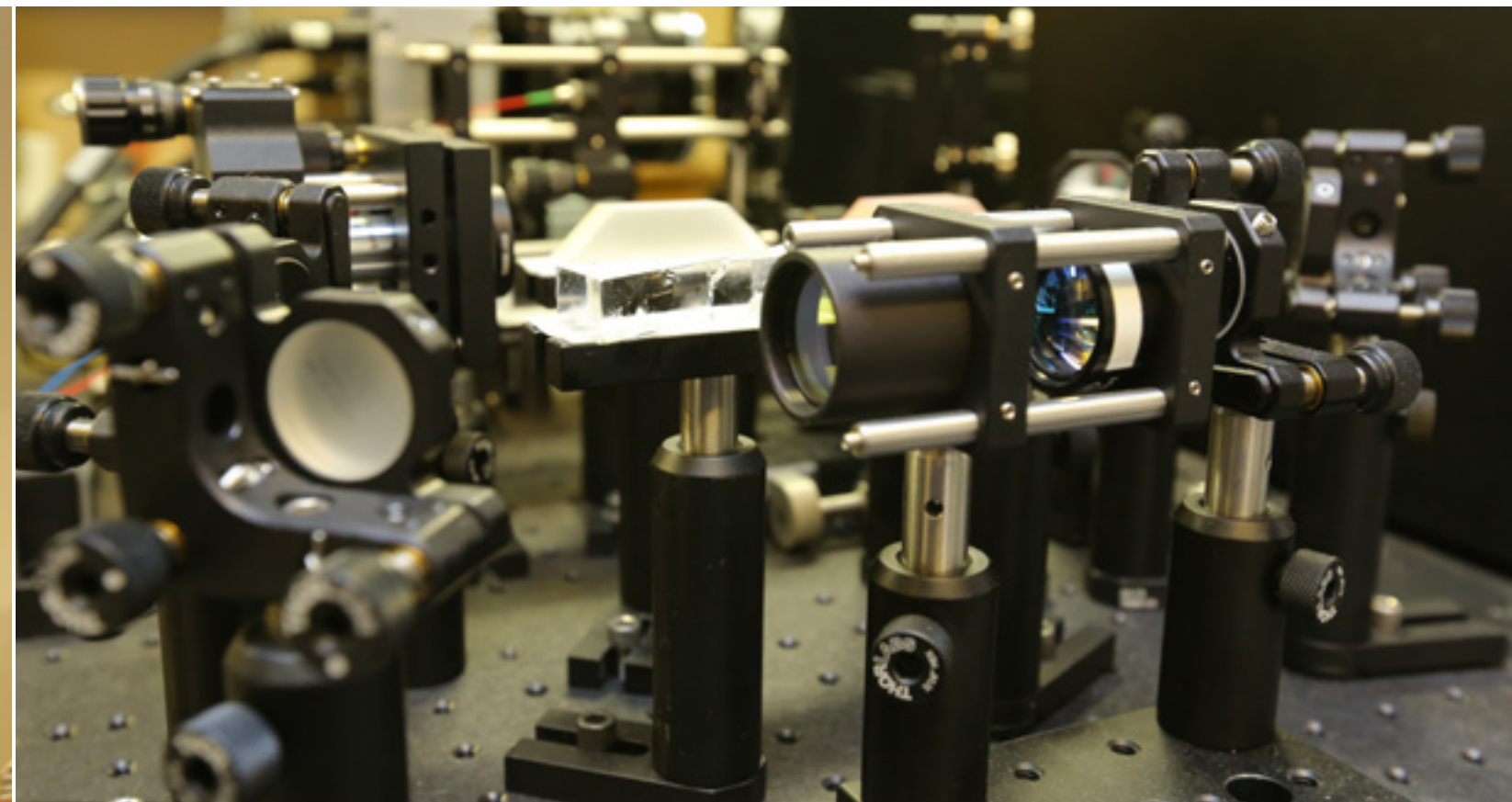
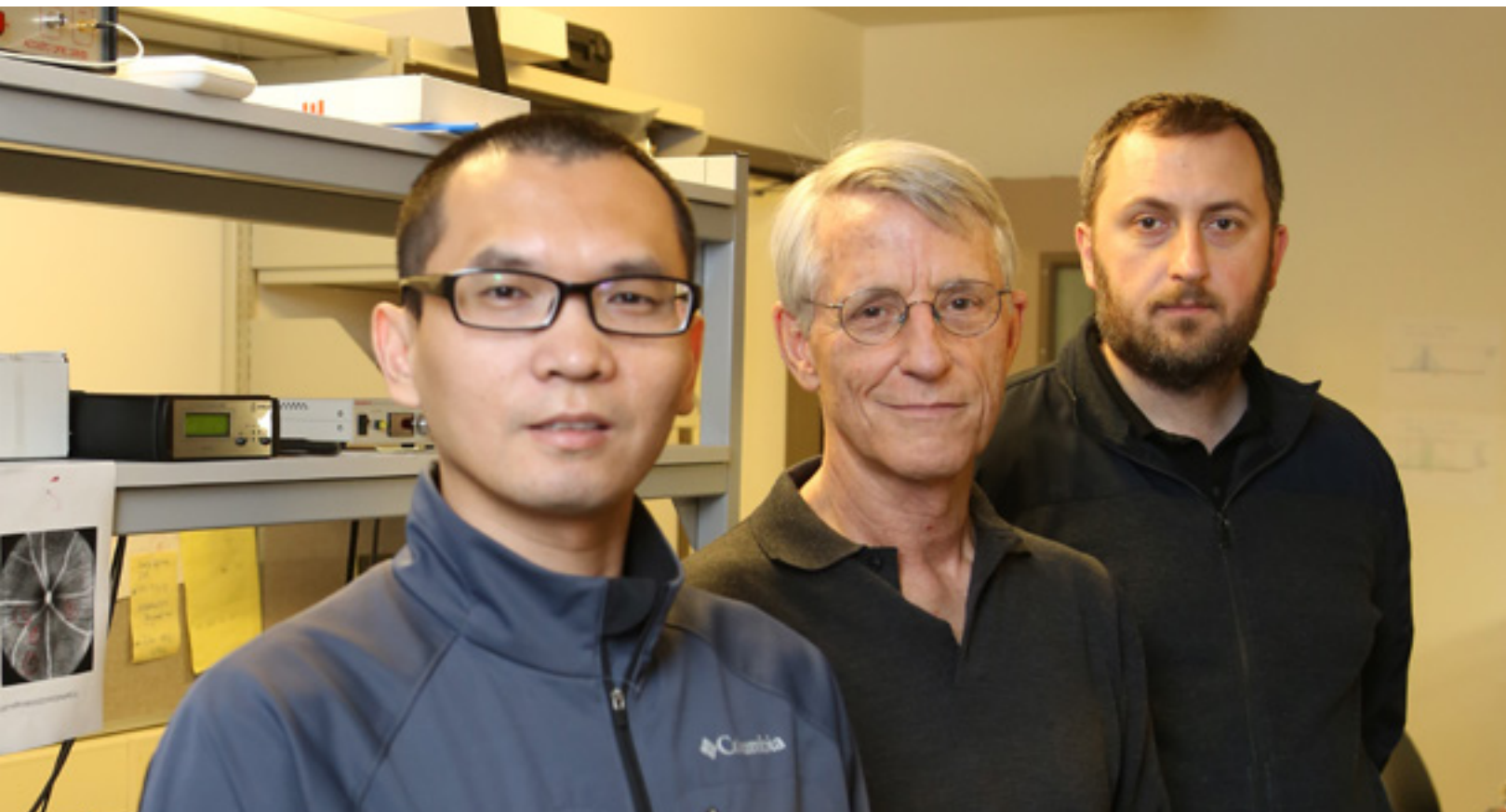
by Edward N. Pugh, Jr., Ph.D.

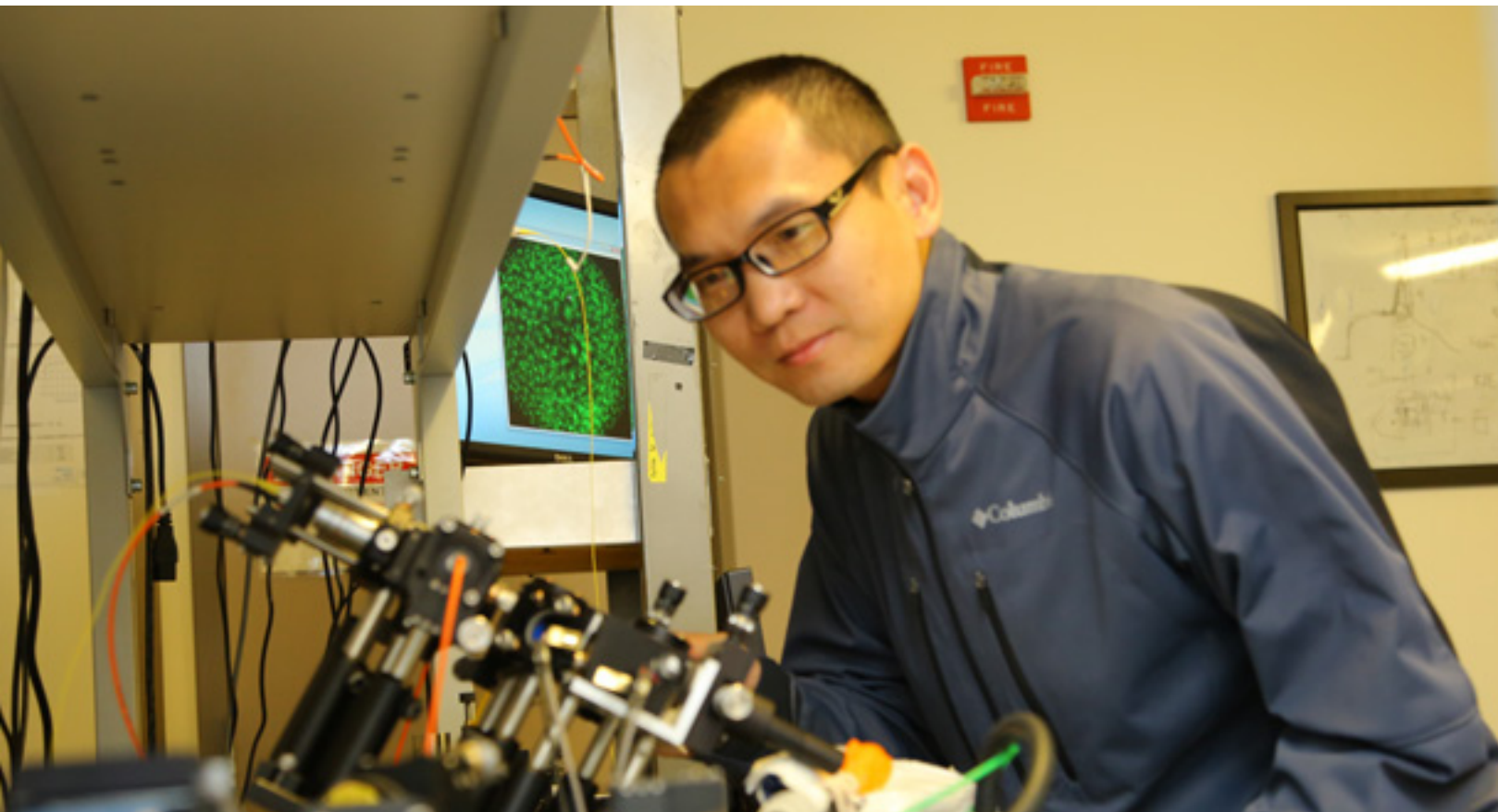


Biomedical science in the 21st century is widely understood to have entered the translational era: that is, a time of translating the advances in scientific understanding of events at the molecular and cellular levels into effective therapeutic strategies for treating disease. Many of the amazing tools that have been developed for laboratory investigations are not adaptable to studies in living organisms. For example, in the laboratory, we can induce a stem cell to differentiate into a particular adult cell type, tantalizing us with the dream of functional tissue regeneration. This is not so straightforward in the living organism.

In the eye, retinal ganglion cells, which transmit all visual information gathered by the photoreceptors of the eye along their axons to the brain, are the cells

that are damaged in glaucoma, optic neuropathies and other blinding diseases. Replacement of these damaged cells with stem cells would be an appropriate therapy. However, science generally lacks the ability to observe the integration of a transplanted stem cell at its proper location in the target in the living organism, to follow the time course of its structural differentiation, and then to determine if the cell is functioning properly, information that would be necessary in order for us to replace diseased cells. In fact, many reasonable treatment strategies suffer from our inability to measure effectiveness of the treatment at the cellular level. The ability to do so would vastly improve our ability to monitor how gene therapy, drug treatment, dietary change, and manipulation of the immune system to name but a few, affect treatment of diseased tissues.

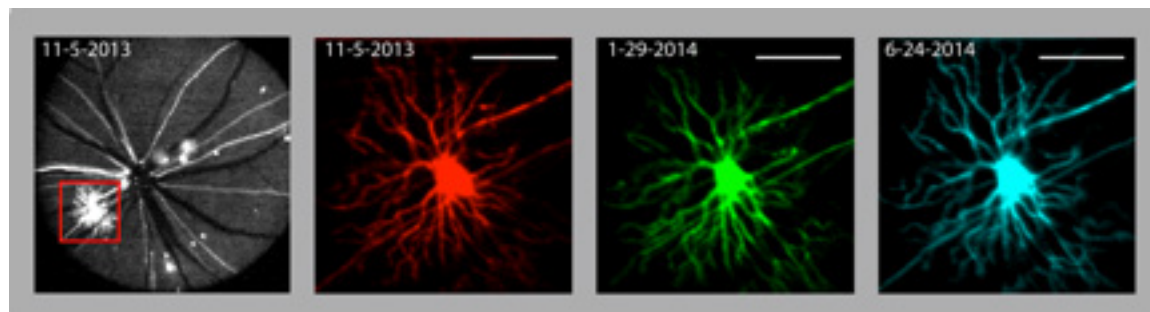




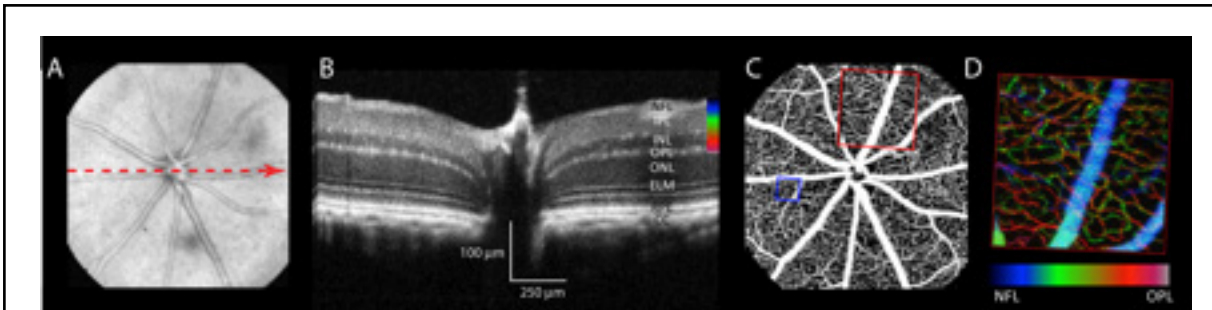
EyePod imaging

The EyePod is a small animal ocular imaging facility whose express goals are to “achieve long-term, single-cell resolution imaging of cells in the retina, and support UCD scientists who investigate cellular function, disease and therapy with the eye in obtaining data for grant applications or primary research papers.” The EyePod was constructed with an \$860,000 grant to a team of UC Davis investigators by the highly competitive UC Davis Research

Investments in Science and Engineering (RISE) program (<http://research.ucdavis.edu/research/gc/rise/eye-pod/>). The team, headed by Edward Pugh, includes Ophthalmology faculty members Robert Zawadzki (who serves as the EyePod managing director), Marie Burns and John Werner, as well as faculty from a number of other departments. The EyePod incorporates a suite of state-of-the-art imaging technologies, including a custom widefield optical coherence tomography (OCT) and custom multichannel confocal scanning laser ophthalmoscopy (SLO), all of which provide cellular-level resolution imaging (figures 1, 2).



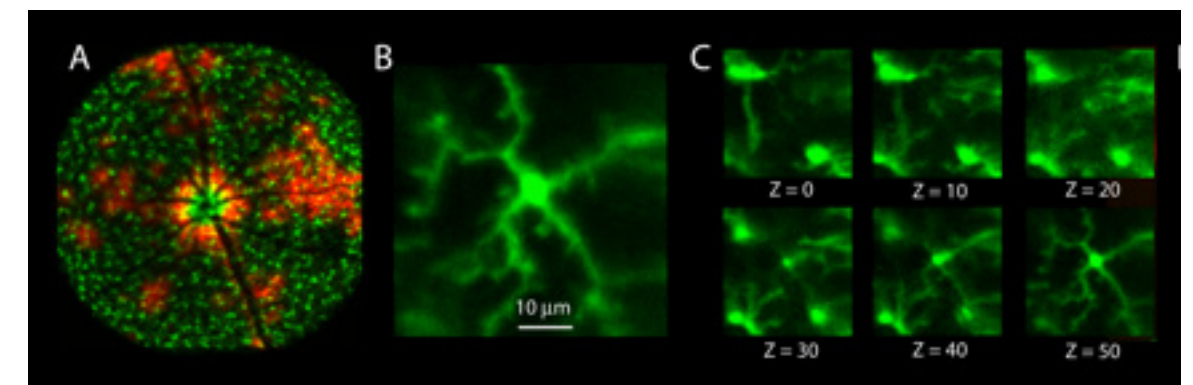
Fluorescence images of a single retinal ganglion cell expressing a fluorescent protein in a living mouse taken over 8 months. The leftmost image shows a wide-field (50 degrees visual angle) view centered on the optic nerve head: bright lines are axons of cells, most of whose cell bodies lie outside the viewing field. Magnified images of the cell in the red box taken on the indicated dates reveal its dendrites and axons; the images were colorized. The scale bar represents 100 μm , about twice the thickness of a human hair. (The mouse was provided by Nadean Brown, Associate Professor of Cell Biology & Human Anatomy, who investigates ganglion cell development.)



Fluorescence images of a single retinal ganglion cell expressing a fluorescent protein in a live mouse taken over 8 months. The leftmost image shows a wide-field (50 degrees visual angle) view centered on the optic nerve head: bright lines are axons of cells whose cell bodies lie outside the viewing field. Magnified images of the cell in the red box revealing its dendrites and axons are shown in the three other panels; the images were colorized. The scale bar represents 100 μm , about twice the thickness of a human hair. (The mouse was provided by Nadean Brown, associate professor of Cell Biology & Human Anatomy, who investigates ganglion cell development.)

Particularly impressive performance is achieved by the Adaptive Optics SLO, which achieves sub-micrometer resolution imaging: this exquisite capability is well

illustrated by EyePod images of microglia, the resident immune cells of the central nervous system (figure 3). Supporting therapeutic initiatives.



Scanning laser ophthalmoscope (SLO) fluorescence images of cells in the living mouse retina. A. Green fluorescence arises from microglia cells (green dots), the resident macrophages of the retina, while red shows Müller glia labeled by viral gene delivery of a red fluorescent protein. Panel B shows a single microglia cell at very high magnification obtained with the EyePod's Adaptive Optics SLO system. The ability of the AO-SLO to resolve cells in depth is illustrated in panel C, where the instrument is focused at different depths in the retina (the image in B obtained at depth $z = 50$). (Mice expressing Green Fluorescent Protein in microglia were provided by Marie Burns, who is investigating the role of these immune cells in retinal degeneration. The viral construct labeling the Müller cells was developed in the Center for Visual Science Molecular Construct Core facility, directed by Dr. Burns.

Having achieved its goal of long-term, single-cell resolution imaging, the EyePod team is now intensely engaged in applying its technology to disease models and therapeutic initiatives. EyePod data have contributed in the past 6 months to a number of NIH and California Institute of Regenerative Medicine grant applications, including those by Anna La Torre, PhD (Ass't Professor of Cell Biology; ESC-derived retinal ganglion cell transplantation therapy), Marie Burns, PhD (Prof. of Ophthalmology & Neuroscience; role of microglia in degenerative eye disease), Kit Lam, MD, PhD (Prof. & Chair of Molecular Medicine; nanoparticle therapeutics in an ocular model of glioblastoma), Jan Nolte PhD (Prof. of Hematology & Oncology, Director,

Stem Cell Program and Institute for Regenerative Cures; long-term survival and function of intraocularly transplanted neuronal stem cells), and a steadily increasing number of research papers. Importantly, these efforts are not directed solely at eye disease and therapy, but rather more broadly at any research that uses the eye as model system for the study of central nervous system diseases.

The EyePod represents a unique coalition of scientific talent on the UC Davis Campus that employs state-of-the-art imaging to unlock the secrets of disease and test therapeutic interventions at the cellular level in the living organism.

Celebrating a Transformational Gift



Photo 1



Photo 2

Photo 1:
Dean Julie A. Freischlag, MD;
Ernest E. Tschannen and
Chancellor Linda P.B. Katehi

Photo 2:
Shaun Keister; Dean
Julie A. Freischlag, MD;
Ernest E. Tschannen;
Chancellor Linda P.B. Katehi;
Michele C. Lim, MD;
Mark J. Mannis, MD and
Chong Porter

On Wednesday, December 10th the UC Davis Eye Center honored a transformational gift from grateful patient Ernest E. Tschannen. Joining Mr. Tschannen in celebration was Chancellor Linda P.B. Katehi; (Vice Chancellor for Human Health Sciences and Dean) of the School of Medicine, Julie A. Freischlag, M.D.; Mark J. Mannis, M.D. Professor and Chair, UC Davis Eye Center; Michele C. Lim, M.D., Professor and Vice- Chair, UC Davis Eye Center, and members of the UC Davis Eye Center Advisory Council. Please join us in thanking Mr. Tschannen for a wonderful gift that will propel the UC Davis Eye Center forward both now and in the future.



Photo 3



Photo 4

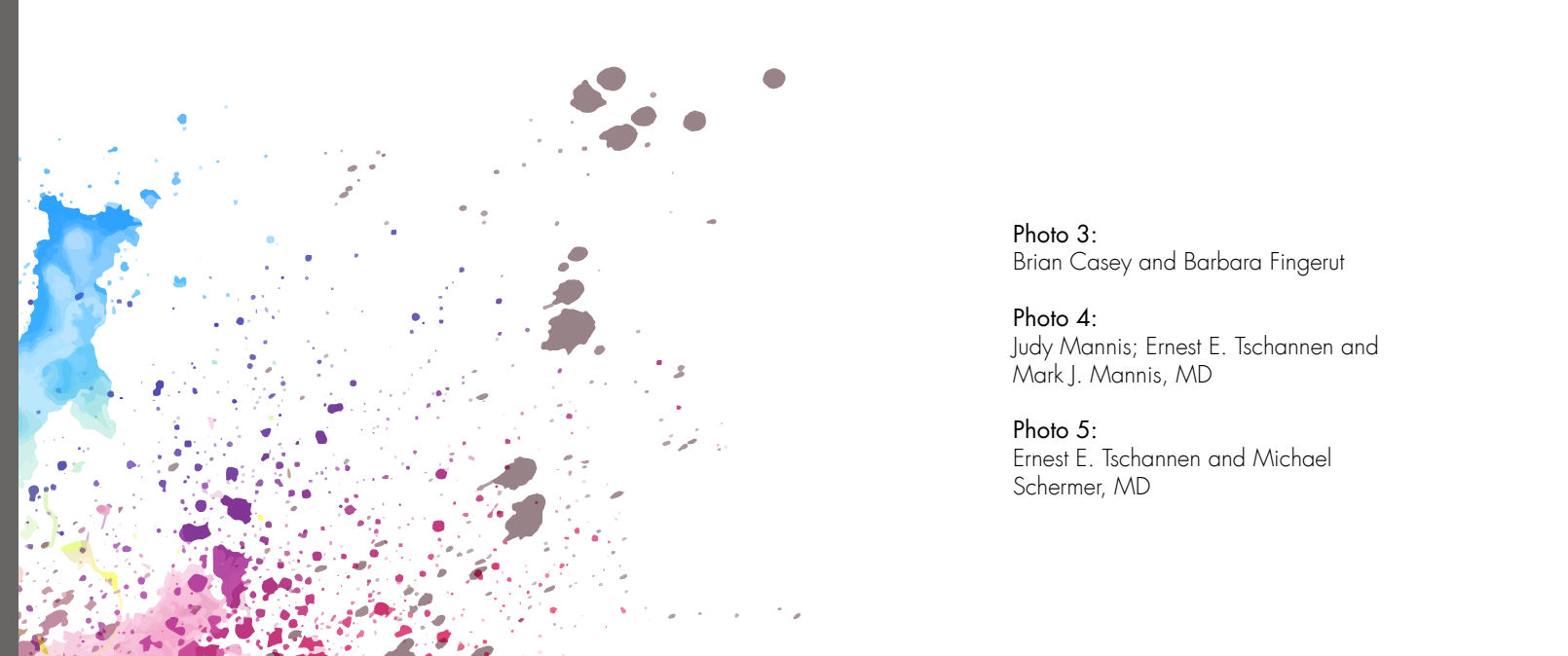


Photo 3:
Brian Casey and Barbara Fingerut

Photo 4:
Judy Mannis; Ernest E. Tschannen and
Mark J. Mannis, MD

Photo 5:
Ernest E. Tschannen and Michael
Schermmer, MD



Photo 5



Photo 6



Photo 7



Photo 8

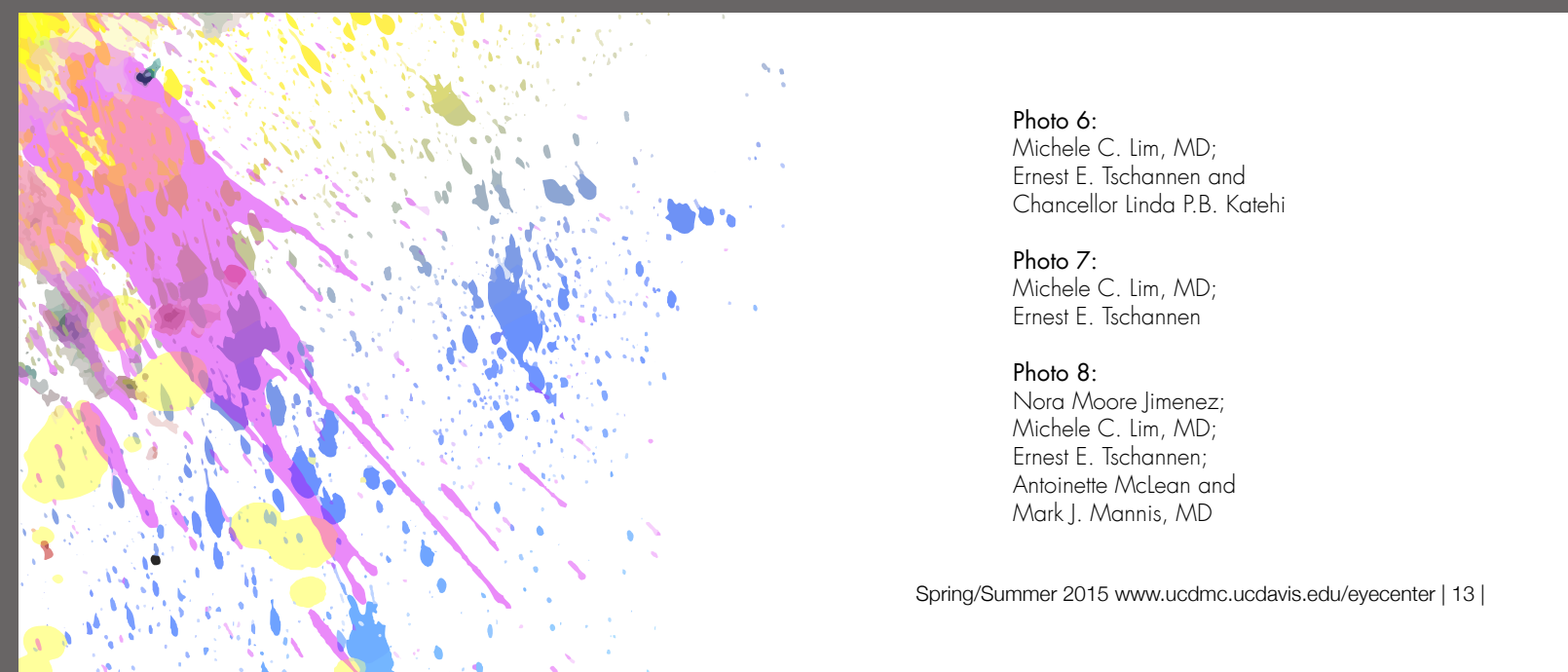


Photo 6:
Michele C. Lim, MD;
Ernest E. Tschannen and
Chancellor Linda P.B. Katehi

Photo 7:
Michele C. Lim, MD;
Ernest E. Tschannen

Photo 8:
Nora Moore Jimenez;
Michele C. Lim, MD;
Ernest E. Tschannen;
Antoinette McLean and
Mark J. Mannis, MD

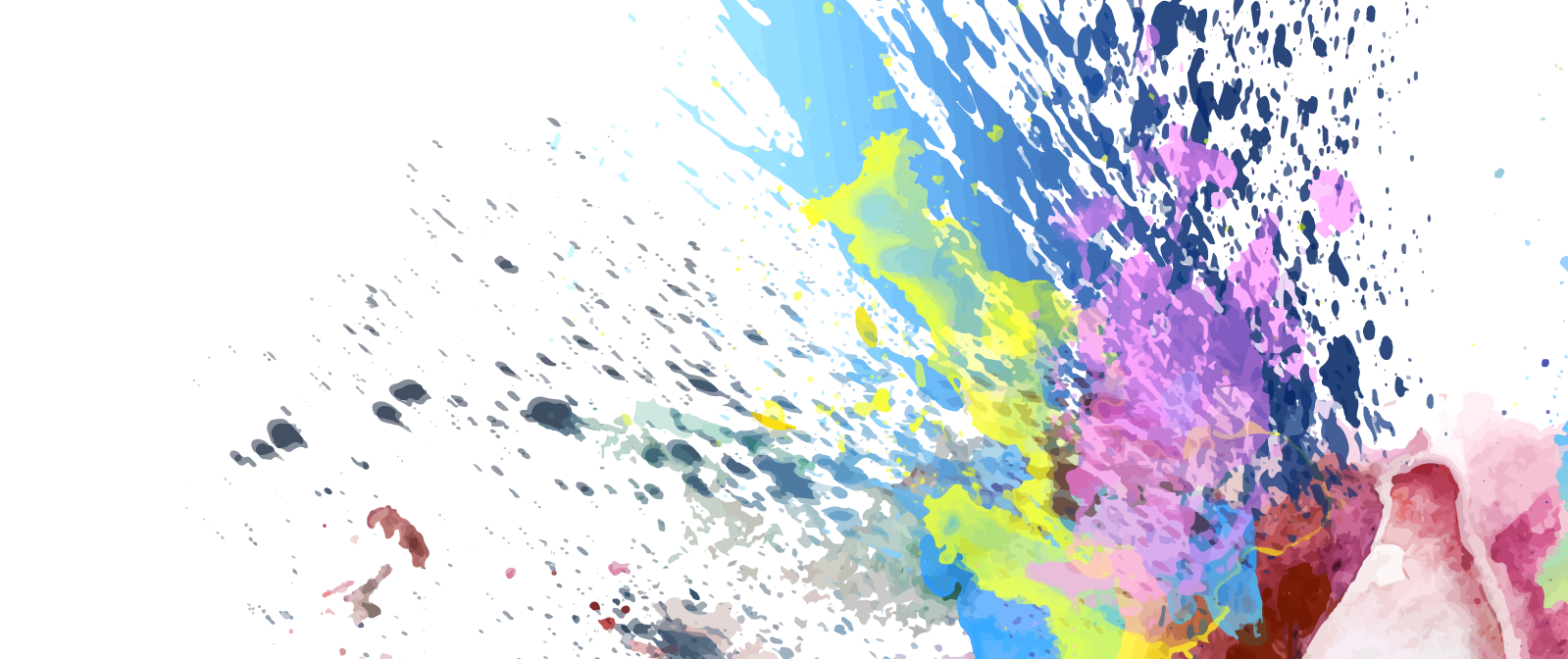


Photo 9



Photo 10

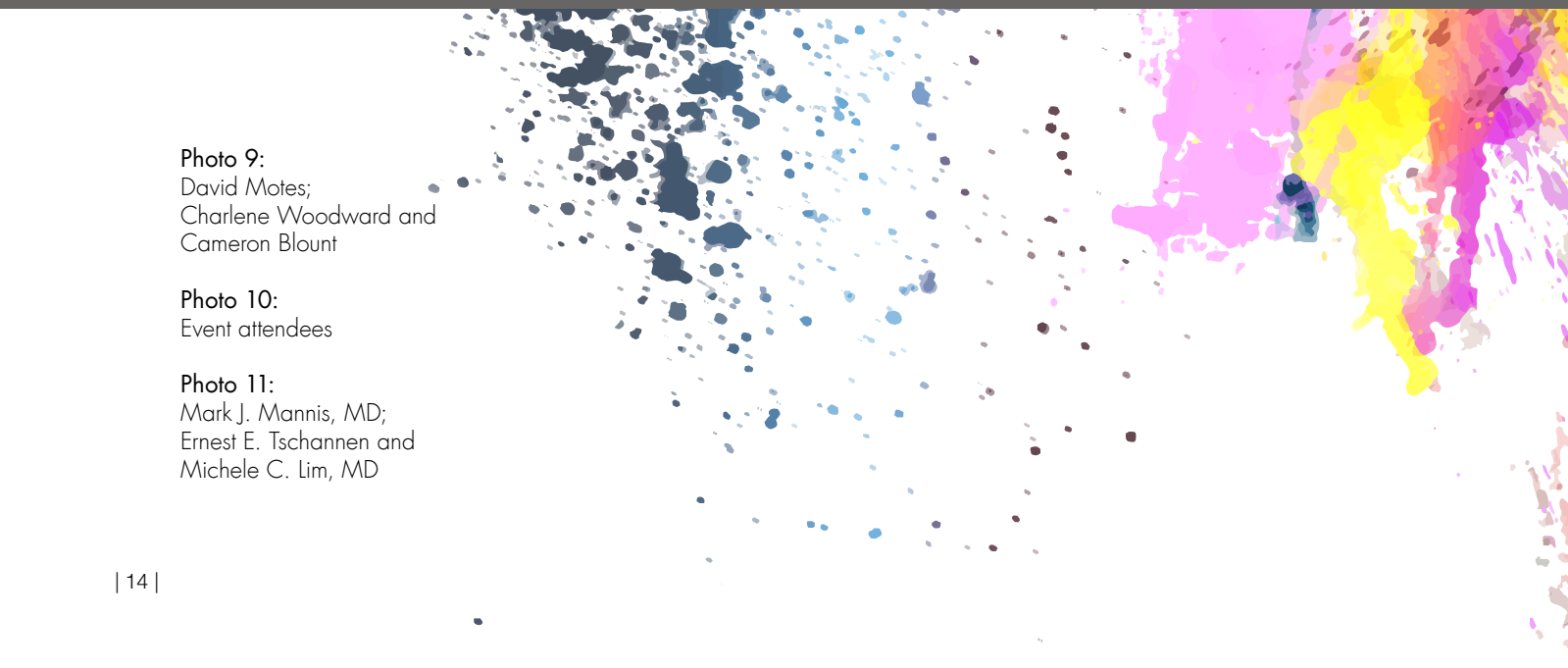


Photo 9:
David Motes;
Charlene Woodward and
Cameron Blount

Photo 10:
Event attendees

Photo 11:
Mark J. Mannis, MD;
Ernest E. Tschannen and
Michele C. Lim, MD



Photo 11

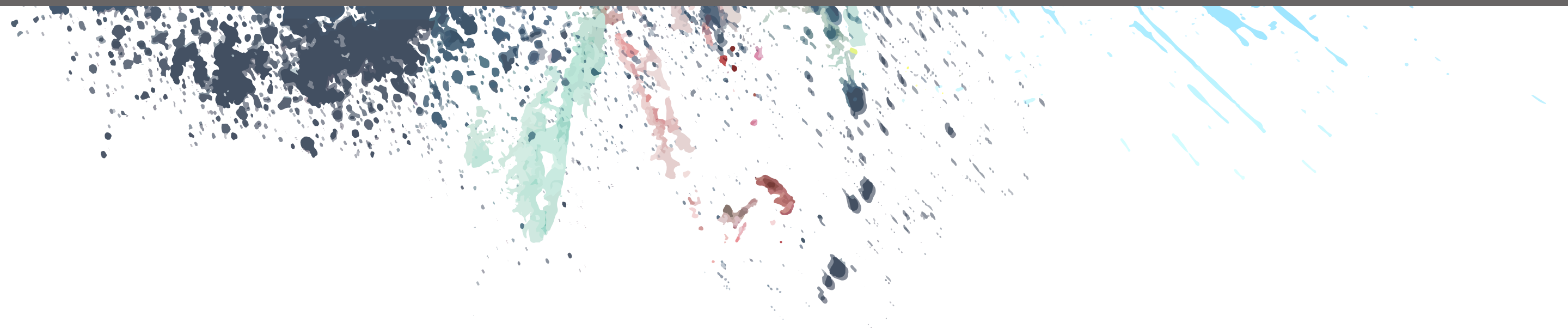


"Your gift will inspire Eye Center physicians and scientists to find innovative treatments for patients with disabling eye disease. I am honored to have you as a personal friend, and I admire your great generosity to an important cause."

Mark Mannis, MD

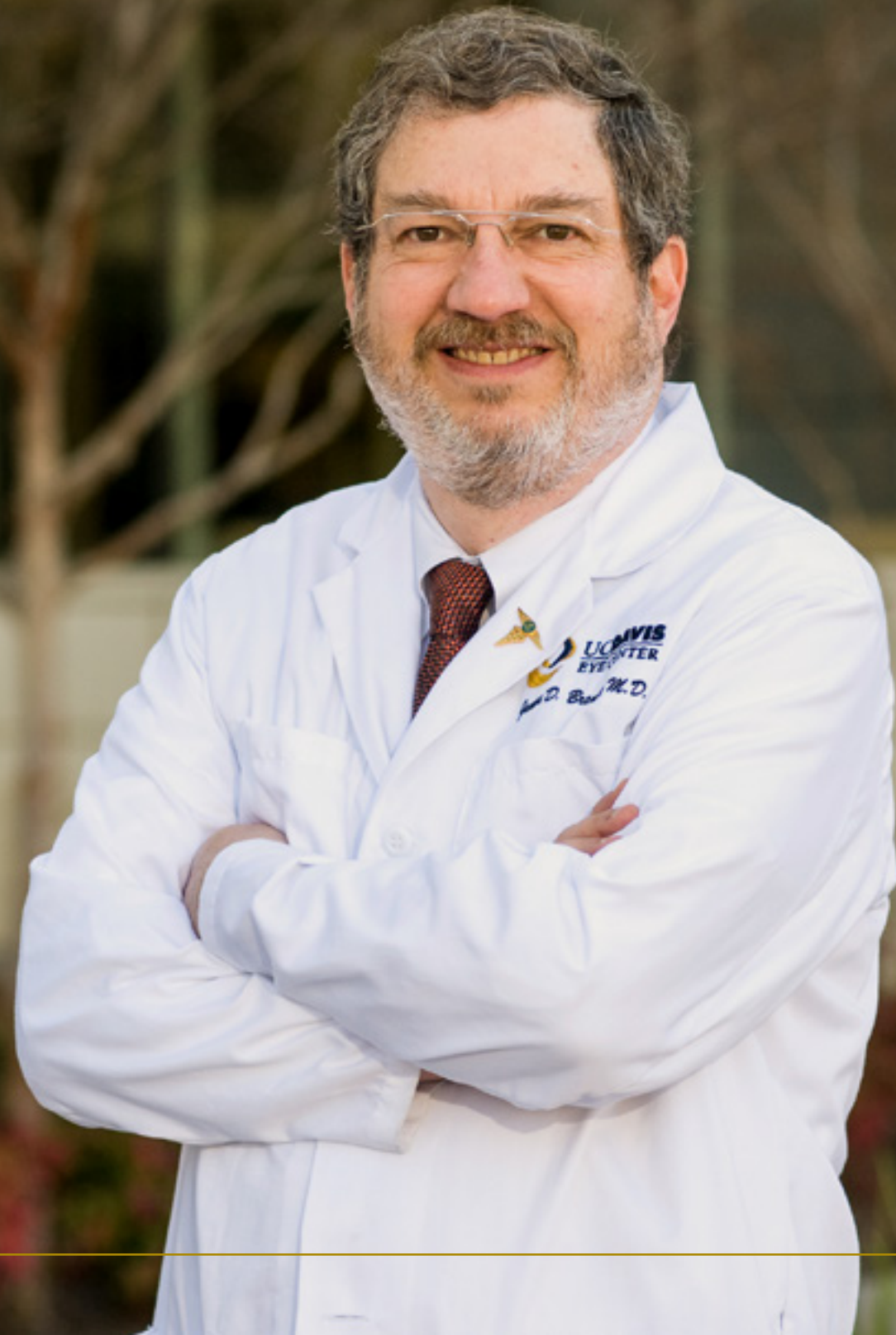
"Your generosity is an example of how one person can ignite a research effort that will eventually benefit thousands of patients in the future."

Michele Lim, MD



James D. Brandt, M.D.

Appointed Vice-Chair for International Programs
& New Technologies



James D. Brandt, M.D., Professor of Ophthalmology and Director of the Glaucoma Service at the UC Davis Eye Center, was recently appointed Vice-Chair for International Programs and New Technologies. In this new role, Dr. Brandt will oversee the Center's ever-increasing international footprint. For example, the Eye Center and the UC Davis Health System have entered into a unique partnership with Orbis International, an organization dedicated to prevention and care of blinding eye disease in the developing world (see EnVision Fall/Winter 2014). The Eye Center has many other international programs as well – residents from UC Davis travel regularly to Mexico with Volunteer Clinical Faculty and to the Islamia Eye Hospital in Dhaka, Bangladesh.

Dr. Brandt has worked with Orbis and other international NGOs like the Himalayan Cataracts Project since the early 2000s, and he has recruited other members of the faculty to join him in engagement abroad. Eye Center faculty now travel regularly to Asia, Africa and South America to teach and provide ophthalmic care.

"Our role with Orbis and other NGOs is not to go and teach the doctors in other countries how to take care of common problems like cataract," says Brandt. "The doctors with whom we work are extremely skilled surgeons; in their resource-starved countries, they perform low-tech, low-cost, high-volume, high-quality cataract surgery with outcomes similar to those in the developed world. Our role is to train the faculty surgeons abroad in new techniques for more uncommon disorders where new treatments are becoming available so that these techniques can be adopted by their trainees."

Under the leadership of Julie Freischlag, Dean of the School of Medicine & Vice Chancellor for Health Sciences at UC Davis, the UC Davis Health System has plans to greatly expand and coordinate the global outreach of the Schools of Medicine, Nursing and Veterinary Medicine and programs in Public Health, Biomedical Engineering and Health Informatics. In his role as Vice-Chair for International Programs, Dr. Brandt will serve on a School of Medicine oversight committee and lend his and the Eye Center's input as these Global Health initiatives gain momentum.

The joining of International Programs and New Technologies in Dr. Brandt's new portfolio is a logical one. A proudly self-described 'geek,' Dr. Brandt has been involved in technology issues at the Health System for over two decades and sits on the Health System's IT oversight committee. Part of the Orbis-UC Davis initiative is a technological one – the Eye Center will soon begin a telemedicine relationship with the Instituto Regional d'Oftalmologia in Trujillo, Peru with regularly scheduled joint teaching conferences and real-time surgical demonstrations.

Dr. Brandt is a graduate of Yale University and received his MD degree from Harvard Medical School. After a residency at the Doheny Eye Institute, University of Southern California, he trained in glaucoma at the Wills Eye Hospital in Philadelphia. Dr. Brandt is an active research collaborator both locally and nationally and served as a principal investigator of the Ocular Hypertension Treatment Trial, a \$40 million NIH clinical trial. He serves on the Editorial Boards of Ophthalmology and The Journal of Glaucoma, holds leadership positions in both national and international glaucoma organizations and has given numerous named lectures and visiting professorships around the world.



"My life has been filled with wonderful serendipity."

James E. Goodnight, M.D., Ph.D.

UC Davis Leadership Profile: James E. Goodnight, Jr., MD, PhD

Navigating the complicated maze of healthcare delivery in the United States is a challenging task for any provider in 2015. If one adds to this task delivering care in an institution with the additional missions of teaching and research, this prospect is even more daunting. The UC Davis Health System Practice Management Board was established to maximize efficient and high quality healthcare delivery to our patients and to handle the complex business issues that must be addressed to sustain the practice of medicine in an academic center. At the administrative helm of the Practice Management Board is James E. Goodnight, Jr. MD, PhD.

A native of San Antonio Texas, Dr. Goodnight is one of four children. His father was a general practitioner. In college at the University of Texas, Austin, Dr. Goodnight decided to pursue a career in medicine that took him to Baylor for medical school, the University of Utah for training in general surgery, and UCLA for surgical oncology. He came to UC Davis in 1980 when the School of Medicine was only 12 years old, recruited as a surgical oncologist by the chair of the Department of Surgery, William Blaisdell. While building a busy surgical practice in the community with special interest in breast cancer, GI cancer, and melanoma, he became the founding director of the UC Davis Cancer Center (1991) and in 1996 became chair of the Department of Surgery, succeeding Dr. Blaisdell.

Jim Goodnight has transformed his career several times, always bringing distinction and accomplishment to the task at hand. When he moved to Sacramento from UCLA, the transition was startling—from well-furnished offices in Westwood to an office in a trailer here in Sacramento. Yet, he points out that his career, spanning five deans at UC Davis, has far exceeded anything he could have expected, as he has watched and participated in the growth of the Health System into a first-class academic medical center.

Taking the lead role in the Cancer Center in 1991 was an extraordinary experience in "change management", as he pulled together diverse

treatment modalities for cancer patients into a single organization providing a well-organized and comprehensive clinical delivery system. And while he never expected to become Chair of the Department of Surgery, during his tenure as chairperson, he more than tripled the size of the department and added both breadth and depth to the services provided.

The year 2008 brought yet another career transformation, as Dr. Goodnight changed directions from clinical practice to take on the challenge of leading the newly formed Practice Management Board. He saw this as an extraordinary opportunity to meet leaders in other fields at UCD and at other great institutions, and to learn what it takes to drive the business of medicine. He has watched the board grapple with difficult issues such as access to care and the creation of regional alliances and has seen very positive impact on the practice of medicine at UC Davis and our provision of care to the region.

Of the Eye Center, Dr. Goodnight notes that the Department of Ophthalmology has always been at the epicenter of activity in the Health System. He cites John Keltner, Chair Emeritus of the Eye Center, as a true citizen of the Health System, both having built a strong department and also having led the extremely effective Ambulatory Care Work Group for Several Years. Of the Eye Center, Dr. Goodnight comments, "The Eye Center is a strong organization with dedicated leadership and a record of service to the Health System."

Outside his busy career, Dr. Goodnight is devoted to his wife, Carol and their three daughters and three grandchildren.

And, as for coming transformations, the next phase is not yet crystal clear, but Dr. Goodnight looks forward to more time for reading, traveling, and writing. But he notes of his remarkable career: "My life has been filled with wonderful serendipity."

Employee of the Year Awards

Each December, UC Davis Eye Center faculty sponsor a holiday celebration to recognize the hard work and accomplishments for both School of Medicine and hospital staff. An important aspect of this celebration is the recognition of employees who had particularly successful years in furthering the mission and vision of the department. The recipients of this year's award are:



Sharon Saefong
School of Medicine



Marian Vaitai
Eye Center Clinic



Jose Arcilla
Supervisor's Choice Award

The UC Davis Eye Center is pleased to announce the addition of three new faculty

Gary D. Novack, PhD, joins the UC Davis Eye Center as a Visiting Professor in the Department of Pharmacology with a joint appointment in the Department of Ophthalmology & Vision Science. Dr. Novack is President of PharmaLogic Development, Inc., a company he founded in 1989 that operates as a consulting service to the pharmaceutical, biotechnical and medical device communities. As a volunteer, Dr. Novack also contributes to the University of California as the president of the UC Santa Cruz Alumni Association, as the president of the UC Santa Cruz Foundation, and has served as a UC Regent. He has also served as a director of the American Society of Clinical Pharmacology and Therapeutics, and a section chair for the American Society of Pharmacology and Experimental Therapeutics.



Edward N. Pugh, Jr., PhD is Professor in the Departments of Cell Biology & Human Anatomy, and of Physiology & Membrane Biology, and was recently given a secondary appointment in Ophthalmology. Funded continuously by the NIH over his career, he has authored over 100 scientific papers (overall H-impact factor of 50) on photoreceptor physiology and visual function. His work has received international recognition, including the Troland Award of the National Academy of Sciences, the Alcon Research Award, and the Proctor Medal of the Association for Research in Vision and Ophthalmology.

Pugh heads a team of investigators funded by UC Davis Research Investments in Science and Engineering (RISE) who have developed a state-of-the-art mouse in vivo ocular imaging facility (the "EyePod"). This imaging facility achieves single-cell resolution imaging. Ongoing research in the EyePod is focused on neuronal function, neurodegeneration, vascular physiology, inflammation, as well as assessing stem cell, viral mediated gene therapy and other therapeutic interventions in disease models.



Vivek Srinivasan, Ph.D., joins the UC Davis Eye Center as a Assistant Professor with a joint appointment in the Department of Biomedical Engineering. Dr. Srinivasan currently runs a diverse but integrated research program that develops and applies novel imaging techniques to understand neuronal and metabolic control of hemodynamics in the central nervous system. He has an extensive background in biomedical optics and photonics as well as neuroimaging, and has made contributions to retinal imaging technologies that are currently used clinically. He recently moved from the Martinos Center for Biomedical Imaging in the Radiology Department at Massachusetts General Hospital to the UC Davis Biomedical Engineering Department, where he is a member of the Biomedical Engineering and Neuroscience Graduate Groups. His laboratory has received funding from federal (NIH) and foundation (American Heart Association, Glaucoma Research Foundation) sources.



The UC Davis Eye Center is honored to welcome Dr. Novack, Dr. Pugh and Dr. Srinivasan to our faculty.

AAO Chicago



Antoinette McLean, Nora Moore Jimenez, Holland Adams, Kimber Chavez



Ronald Foltz, MD, Marcia Foltz, Melissa Tong, MD, Bobeck Modjtahedi, MD



Richard Jones, MD, Joseph Zeiter, MD



Kimberly Wingses, MD, Mark Greiner, MD, Eric Chin, MD



James Brandt, MD, Anna al Gallas, MD, Mark Mannis, MD, Ala Moshiri, MD



Mark Mannis, MD, Jack Hughes, MD, Michael Schermer, MD, Deborah Hughes

We had a strong turnout this year at our American Academy of Ophthalmology Alumni, VCF and Friends Reception in Chicago. The event, held at the Fairmont Millennium Park Hotel on Sunday, October 19, 2014, was a great opportunity for alumni to come together and visit with faculty, staff, current residents and fellows.

Alumni Program Chair, Joseph T. Zeiter, MD, shared the impact that the UC Davis Eye Center Alumni Fund for Educational Excellence has had on our residency program this past year. The Fund covered the travel expenses for three residents to San Blas, Sinaloa Mexico, where care is provided for 450 patients; the remodel and upgrades of our resident training room; and support for our annual Alumni and Resident Day program.

Professor and Chair, Mark J. Mannis, MD made two announcements, one regarding a surgical training course that is being developed between the UC Davis Department of Ophthalmology & Vision Science and the School of Veterinary Medicine, and the other regarding the grand opening celebration of the state-of-the-art Lanie Albrecht Foundation Microsurgical Training Laboratory.

Thank you for your support and the enhanced experience you've provided for our resident and fellow training programs. We look forward to celebrating with you all in Las Vegas, Nevada in the Fall.



Bruna Ventura, MD, Judy Mannis, Liana Ventura, MD, Mark Mannis, MD,



Puneeta Thinda, Sumeer Thinda, MD, Jennifer Li, MD, Nandini Gandhi, MD



Dennis Cortes, MD, Ellen Redenbo, Jennifer Harter



Mark Mannis, MD, Mark Greiner, MD, Frank Garcia-Ferrer, MD, Jason Dimmig, MD



John Keltner, MD, Kimberly Wingses, MD



Lawrence Morse, MD, PhD, Cynthia Toth, MD, Glenn Yiu, MD, PhD



Joseph Zeiter, MD, David Telander, MD, PhD



Harinderpal Chahal, MD, Vivian Lien, MD, Peter Wu, MD



James Brandt, MD, Yao Liu, MD, Melissa Tong, MD, Michele Lim, MD



Michael Schermer, MD, John Keltner, MD, Mark Mannis, MD, Shelly Schermer, Nancy Keltner, Judy Mannis

From the Collection at UC Davis

Dating from c1857, the Förster perimeter, designed by the physiologist Hermann Auber and Richard Förster of Breslau, dominated the field of perimetry for two decades and was used for over 100 years to examine the visual field. Auber and Förster decided that it was important to keep the stimulus at a constant distance from the eye as it was placed in different parts of the visual field; their solution was a simple arc perimeter as seen here.



1833 issue of Von Ammon's Zeitschrift für die Ophthalmologie was only the third regular "journal" dedicated to ophthalmology. First published in 1830, it represents a major turning point in the science of ophthalmology. Friedrich von Ammon (1796 – 1861) established Dresden as a major ophthalmic center and contributed broadly to both ophthalmology and plastic surgery during his lifetime.



Ophthalmic cautery device (c 1940)
Cautery has been used in medicine since ancient times. This instrument is designed to provide heat cautery during ophthalmic surgery. The conical tip is heated over an alcohol lamp and then applied to the ocular surface to achieve hemostasis.

The Center for Vision Science &
The UC Davis for Vision Science

2014 Publication List

JAMES B. AMES, PH.D.

DEPARTMENT OF CHEMISTRY
COLLEGE OF BIOLOGICAL SCIENCES

Park S, Li C, Haeseleer F, Palczewski K, **Ames JB**. Structural insights into activation of the retinal L-type Ca^{2+} channel (Cav1.4) by Ca^{2+} -binding protein 4 (CaBP4). 2014. Journal of Biological Chemistry; 289(45):31262-31273.

Lim S, Rockwell NC, Martin SS, Dallas JL, Lagarias JC, **Ames JB**. Photoconversion changes bilin chromophore conjugation and protein secondary structure in the violet/orange cyanobacteriochrome NpF2163g3. 2014. Photochemical and Photobiological Sciences; 13(6):951-962.

Zhang Y, Matt L, Patriarchi T, Malik ZA, Chowdhury D, Park DK, Renieri A, **Ames JB**, Hell JW. Capping of the N-terminus of PSD-95 by calmodulin triggers its postsynaptic release. 2014. The European Molecular Biology Organization Journal; 17; 33(12):1341-1353.

Lim S, Dizhoor AM, **Ames JB**. Structural diversity of neuronal calcium sensor proteins and insights for activation of retinal guanylyl cyclase by GCAP1. 2014. Frontiers in Molecular Neuroscience; 17; 7:19.

Peshenko IV, Olshevskaya EV, Lim S, **Ames JB**, Dizhoor AM. Identification of target binding site in photoreceptor guanylyl cyclase-activating protein 1 (GCAP1). 2014. Journal of Biological Chemistry; 4; 289(14):10140-10154.

MELISSA BARNETT, OD.

DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Barnett M. Comparing contact lenses to intraocular lens correction of monocular aphakia during infancy – a literature review. 2014. American Optometric Association Contact Lens and Cornea Section Newsletter; 29: 41, 42, 44-47.

Bennett M. DeNaeyer G, Barnett M, Schornack M, Woo S, Louie D. Scleral lens case grand rounds. 2014. Contact Lens Spectrum; 29: 33-36, 38-40, 42-45

Barnett M. Blepharo-induced ocular surface Disease (OSD): No match for scleral lenses. Review of Cornea & Contact Lenses. September 2014.

Barnett M. Ocular and systemic manifestations of Sjögren's syndrome. Ocular Surface Society of Optometry Newsletter. July 2014.

Barnett M. Identifying Sjögren's syndrome. 2014. Contact Lens Spectrum; 26(6); 157-162.

Barnett M. Scleral lenses for keratoconus. 2014. American Optometric Association Contact Lens and Cornea Section Newsletter. June.

Barnett M. Insights on solution induced corneal staining (SICS) and preservative-associated transient hyperfluorescence (PATH). 2014. American Optometric Association Contact Lens and Cornea Section Newsletter; May.

Barnett M. Get in the cone zone: Part 2. 2014. Optometric Management; May.

Barnett M, Messer B. Putting scleral lenses front and center. 2014. Review of Cornea & Contact Lenses; April.

Barnett M. Corneal collagen cross-linking and photorefractive keratectomy. 2014. Ocular Surface Society of Optometry Newsletter; April.

Barnett M. Mystifying...Multifocal inter ocular lens (IOLs) Post-Lasik. 2014. American Optometric Association Contact Lens and Cornea Section Newsletter; April.

Carrasquillo K, **Barnett M**. Scleral lens applications in unique populations. 2014. Contact Lens Spectrum; 29, Issue: February.

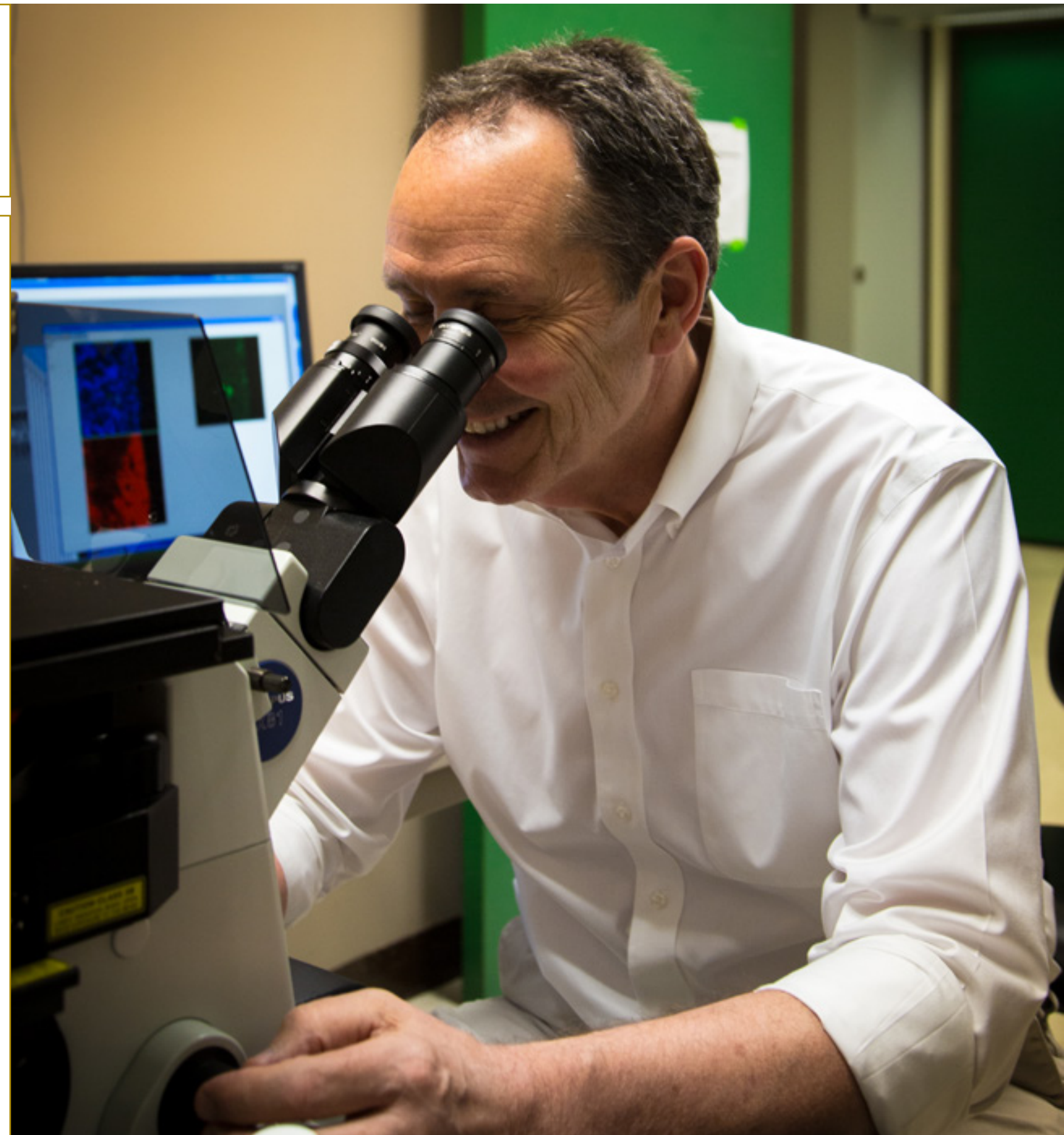
Barnett M. Tear osmolarity. 2014. American Optometric Association Contact Lens and Cornea Section Newsletter; February.

Barnett M. Don't forget gas permeable (GP) Options. 2014. Optometric Management; January.

JAMES D. BRANDT, M.D.

DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Nie B, Li R, **Brandt JD**, Pan T. Microfluidic tactile sensors for three-dimensional contact force measurements. 2014. Lab Chip; 14(22):4344-4353.



Nie B, Li R, **Brandt JD**, Pan T. Iontronic microdroplet array for flexible ultrasensitive tactile sensing. 2014. *Lab Chip*; 21; 14(6):1107-1116.

NADEAN L. BROWN, Ph.D.
DEPARTMENT OF CELL BIOLOGY & HUMAN ANATOMY
COLLEGE OF BIOLOGICAL SCIENCES AND SCHOOL OF MEDICINE

Maurer KA, Riesenberger AN, **Brown NL**. Notch signaling differentially regulates Atoh7 and Neurog2 in the distal mouse retina. 2014. *Development*; 141:3243-3254. PMID: PMC4197552.

MARIE E. BURNS, Ph.D.
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE
DEPARTMENT OF CELL BIOLOGY AND HUMAN ANATOMY
COLLEGE OF BIOLOGICAL SCIENCES

Kessler C, Tillman M, **Burns ME**, Pugh EN Jr. Rhodopsin in the rod surface membrane regenerates more rapidly than bulk rhodopsin in the disc membranes in vivo. 2014. *The Journal of Physiology*; 592(13):2785-2797. PMID: PMC4221820.

Zam A, Zhang P, Levine E, Pugh EN Jr, **Burns ME**, Zawadzki RJ. Evaluation of OCT for quantitative in-vivo measurements of changes in neural tissue scattering in longitudinal studies of retinal degeneration in mice. 2014. *SPIE Proceedings*; 8934:893422; 1-6.

Arshavsky VY, **Burns ME**. Current understanding of signal amplification in phototransduction. 2014. *Cellular Logistic*; 4:e28680-1-e28680-3.

Levine ES, Zam A, Zhang P, Pechko A, Wang X, FitzGerald P, Pugh EN Jr, Zawadzki RJ, **Burns ME**. Rapid light-induced migration of retinal microglia in mice lacking Arrestin-1. 2014. *Vision Research*; 102:71-79. PMID: PMC4162662.

JEFFREY J. CASPAR, MD.
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Hunter AA, Modjtahedi SP, Long K, Zawadzki R, Chin EK, **Caspar JJ**, Morse LS, Telander DG. Improving visual outcomes by preserving outer retina morphology in eyes with resolved pseudophakic cystoid macular edema. 2014. *Journal of Cataract and Refractive Surgery*; 40(4):626-631.

GINO CORTOPASSI, Ph.D.
DEPARTMENT OF MOLECULAR BIOSCIENCES
SCHOOL OF VETERINARY MEDICINE

Tomilov A, Bettaieb A, Kim K, Sahdeo S, Tomilova N, Lam A, Hagopian K, Connell M, Fong J, Rowland D, Griffey S, Ramsey J, Haj F, **Cortopassi G**. Shc depletion stimulates brown fat activity in vivo and in vitro. 2014. *Aging Cell*; 13(6):1049-1058. PMID: PMC4244234.

Sahdeo S, Scott BD, McMackin MZ, Jasoliya M, Brown B, Wulff H, Perlman SL, Pook MA, **Cortopassi GA**. Dyclonine rescues frataxin deficiency in animal models and buccal cells of patients with Friedreich's ataxia. 2014. *Human Molecular Genetics*; 23(25):6848-6862. PMID: PMC4245046.

Hayashi G, Shen Y, Pedersen TL, Newman JW, Pook M, **Cortopassi G**. Frataxin deficiency increases cyclooxygenase 2 and prostaglandins in cell and animal models of Friedreich's ataxia. 2014. *Human Molecular Genetics*; 20; 23(25):6838-6847. PMID: PMC4245045.

Sahdeo S, Tomilov A, Komachi K, Iwashita C, Datta S, Hughes O, Hagerman P, **Cortopassi G**. High-throughput screening of FDA-approved drugs using oxygen biosensor plates reveals secondary mitochondrial effects. 2014. *Mitochondrion*; 17:116-125. PMID: PMC4142054.

PAUL FITZGERALD, Ph.D.
DEPARTMENT OF CELL BIOLOGY AND HUMAN ANATOMY
COLLEGE OF BIOLOGICAL SCIENCES
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Manthey AL, Lachke SA, **FitzGerald PG**, Mason RW, Scheiblin DA, McDonald JH, Duncan MK. Loss of Sip1 leads to migration defects and retention of ectodermal markers during lens development. 2014. *Mechanisms of Development*; 131:86-110. PMID: PMC4144920.

Levine ES, Zama A, Zhanga P, Pechko A, Wang X, **FitzGerald PG**, Pugh EN Jr, Zawadzki RJ, Burns ME. Rapid light-induced activation of retinal microglia in mice lacking Arrestin-1. 2014. *Vision Research*; 102:71-79. PMID: PMC4162662.

Gerhart J, Greenbaum M, Scheinfeld V, **FitzGerald P**, Crawford M, Bravo-Nuevo A, Pitts M, George-Weinstein M. Myo/Nog Cells: Targets for preventing the accumulation of skeletal muscle-like cells in the human lens. 2014. *PlosOne*; 9(4): e95262. PMID: PMC3988172.

JOY JIA GENG, Ph.D.
DEPARTMENT OF PSYCHOLOGY
CENTER FOR MIND AND BRAIN

Vossel S, **Geng JJ**, Friston, K. Attention, predictions and expectations, and their violation: attentional control in the human brain. 2014. *Frontiers in Human Neuroscience*; 8:463. PMID: PMC4078908.

Stankevich B, **Geng JJ**. Reward associations and spatial probabilities produce additive effects on attentional selection. 2014. *Attention, Perception, and Psychophysics*; 76:2315-2325.

Geng JJ. Attentional mechanisms of distractor suppression. 2014. *Current Directions in Psychological Science*; 23(2):147-153.

Minzenberg MJ, Gomes, GC, Yoon JH, Watrous AJ, **Geng JJ**, Firl AJ, Carter C.S. Modafinil augments oscillatory power in middle frequencies during rule selection. 2014. *Psychophysiology*; 51(6):510-519.

MARK S. GOLDMAN, Ph.D.
DEPARTMENT OF NEUROBIOLOGY, PHYSIOLOGY AND BEHAVIOR
COLLEGE OF BIOLOGICAL SCIENCES
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Lim S, **Goldman MS**. Balanced cortical microcircuitry for spatial working memory based on corrective feedback control. 2014. *Journal of Neuroscience*; 34(20):6790-6806.

LEONARD M. HJELMELAND, Ph.D.
DEPARTMENT OF OPHTHALMOLOGY & VISION SCIENCE
SCHOOL OF MEDICINE

Smit-McBride Z, Forward KI, Nguyen AT, Bordbari MH, Oltjen SL, **Hjelmeland LM**. Age-dependent increase in miRNA-34a expression in the posterior pole of the mouse eye. 2014. *Molecular Vision*; 5(20):1569-1578. PMID: PMC4225137.

HENRY Y. HO, Ph.D.
DEPARTMENT OF CELL BIOLOGY AND HUMAN ANATOMY
COLLEGE OF BIOLOGICAL SCIENCES

Robichaux MA, Chenuaux G, **Ho HY**, Soskis MJ, Dravis C, Kwan KY, Šestan N, Greenberg ME, Henkemeyer M, Cowan CW. EphB receptor forward signaling regulates area-specific reciprocal thalamic and cortical axon pathfinding. 2014. *Proceedings of the National Academy of Sciences United States of America*; 111(6):2188-2193.

Cha J, Bartos A, Park C, Sun X, Li Y, Cha SW, Ajima R, **Ho HY**, Yamaguchi TP, Dey SK. Appropriate crypt formation in the uterus for embryo homing and implantation requires Wnt5a-ROR signaling. 2014. *Cell Reports*; 8(2):382-392.

Hatakeyama J, Wald J, Printsev I, **Ho HY**, Carraway K. Vangl1 and Vangl2: planar cell polarity components with a developing role in cancer. 2014. *Endocrine Related Cancer*; 21(5):345-356.

STEVEN R. HOLLINGSWORTH, D.V.M.
DEPARTMENT OF SURGICAL AND RADIOLOGICAL SCIENCES
SCHOOL OF VETERINARY MEDICINE

Molter CM, **Hollingsworth SR**, Kass PH, Chinnadurai SK, Wack RF. Intraocular pressure in captive American flamingos (*Phoenicopterus ruber*) as measured by rebound tonometry. 2014. *Journal of Wildlife and Zoo Medicine*; 45(3):664-667.

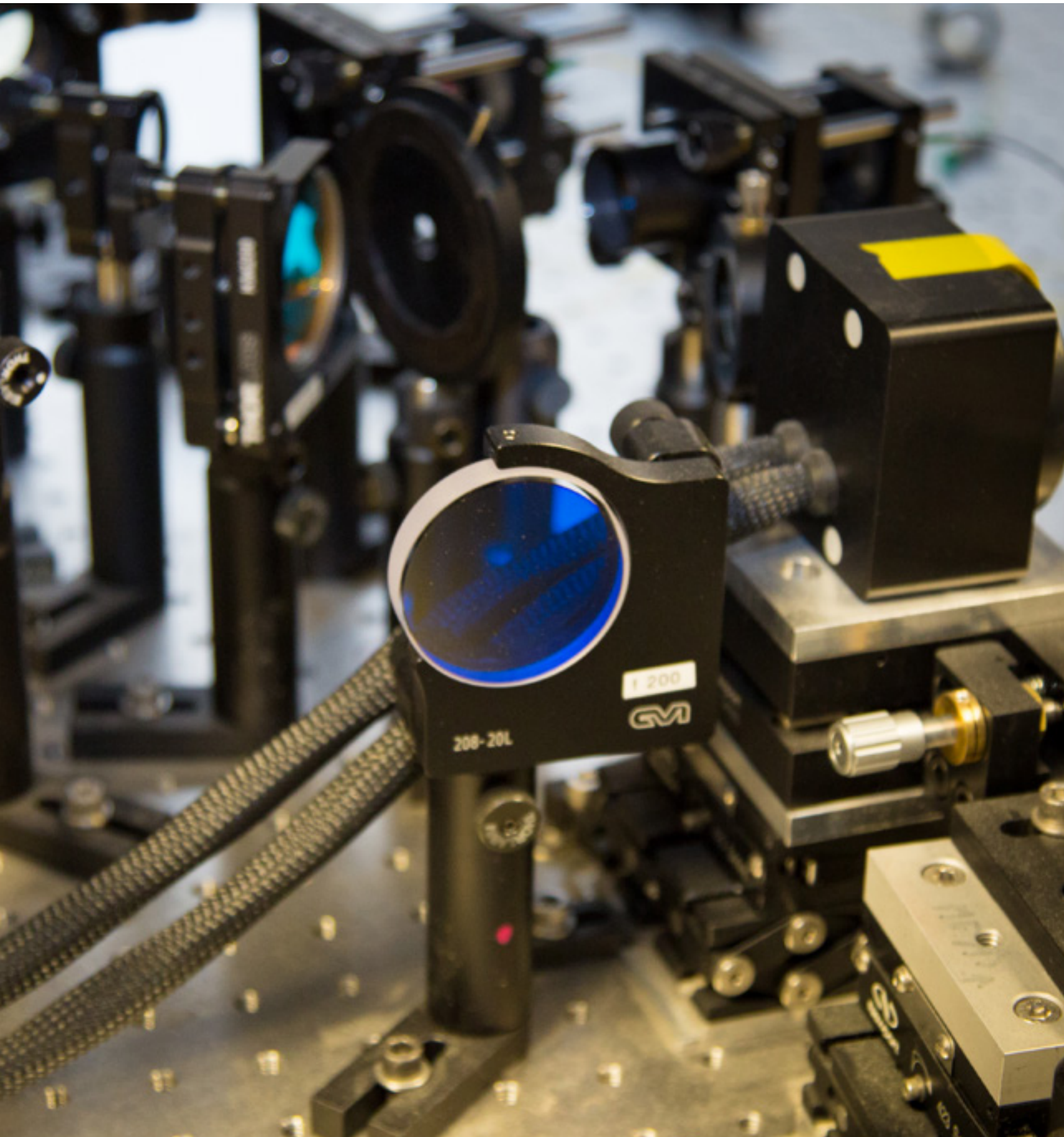
JOHN L. KELTNER, M.D., EMERITUS
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Keltner JL, Johnson CA, Cello KE, Wall M; NORDIC Idiopathic Intracranial Hypertension Study Group. Baseline visual field findings in the Idiopathic Intracranial Hypertension Treatment Trial (IIHTT). 2014. *Investigative Ophthalmology and Vision Science*; 29; 55(5):3200-3207. PMID: PMC4031894.

NORDIC Idiopathic Intracranial Hypertension Study Group Writing Committee, Wall M, McDermott MP, Kiebertz KD, Corbett JJ, Feldon SE, Friedman DI, Katz DM, **Keltner JL**, Schron EB, Kupersmith MJ. Effect of acetazolamide on visual function in patients with idiopathic intracranial hypertension and mild visual loss: the idiopathic intracranial hypertension treatment trial. 2014. *The Journal of the American Medical Association*; 311(16):1641-1651.

Wall M, Kupersmith MJ, Kiebertz KD, Corbett JJ, Feldon SE, Friedman DI, Katz DM, **Keltner JL**, Schron EB, McDermott MP; NORDIC Idiopathic Intracranial Hypertension Study Group. The idiopathic intracranial hypertension treatment trial: clinical profile at baseline. 2014. *The Journal of the American Medical Association Neurology*; 71(6):693-701.

Optical coherence tomography (OCT) Committee for NORDIC Idiopathic Intracranial Hypertension Study Group, Auinger P, Durbin M, Feldon S, Garvin M, Kardon R, **Keltner J**, Kupersmith M, Sibony P, Plumb K, Wang JK, Werner JS. Baseline optical coherence tomography (OCT) measurements in the idiopathic intracranial hypertension treatment trial, part I: quality control, comparisons, and variability. 2014. *Investigative Ophthalmology and Vision Science*; 4; 55(12):8180-8188. PMID: PMC4266084.



Optical coherence tomography (OCT) Sub-Study Committee for NORDIC Idiopathic Intracranial Hypertension Study Group, Auinger P, Durbin M, Feldon S, Garvin M, Kardou R, **Keltner J**, Kupersmith MJ, Sibony P, Plumb K, Wang JK, Werner JS. Baseline OCT measurements in the idiopathic intracranial hypertension treatment trial, part II: correlations and relationship to clinical features. 2014. *Investigative Ophthalmology and Vision Science*; 4; 55(12):8173-8179. PMID: PMC4266073.

Friedman DI, McDermott MP, Kiebertz K, Kupersmith M, Stoutenburg A, **Keltner JL**, Feldon SE, Schron E, Corbett JJ, Wall M; NORDIC IIHTT Study Group. The idiopathic intracranial hypertension treatment trial: design considerations and methods. 2014. *Journal of Neuroophthalmology*; 34(2):107-117.

S. KHIZER KHADERI, M.D., M.P.H.
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Patel RP, Lin J, **Khaderi SK**. Beyond Gaming: The utility of video games for sports performance. 2014. *International Journal of Gaming and Computer-Mediation Simulations*; 6(1):41-49.

Leah A. Krubitzer, Ph.D.
Department of Psychology
Center for Mind and Brain

Seelke AM, Dooley JC, **Krubitzer LA**. The cellular composition of the marsupial neocortex. 2014. *The Journal of Comparative Neurology*; 522(10):2286-2298. PMID: PMC4090354.

Seelke AMH, Dooley JC, **Krubitzer LA**. Photic preferences of the short-tailed opossum (*Monodelphis domestica*). 2014. *Neuroscience*; 269:273-280. PMID: PMC4020983.

Cooke DF, Goldring AB, Baldwin MKL, Recanzone GH, Chen A, Pan T, Simon SI, **Krubitzer LA**. Reversible deactivation of higher order posterior parietal areas I: Alternations of receptive field characteristics in early stages of neocortical processing. 2014. *Journal of Neurophysiology*; 112:2545-2560. PMID: PMC4233270.

Goldring AB, Cooke DF, Baldwin MKL, Recanzone GH, Gordon AG, Pan T, Simon SI, **Krubitzer LA**. Reversible deactivation of higher order posterior parietal areas II: Alterations in response properties of neurons in areas 1 and 2. 2014. *Journal of Neurophysiology*; 112:2545-2560. PMID: PMC4233279.

Krubitzer LA, Stolzenberg DS. The evolutionary masquerade: Genetic and epigenetic contributions to the neocortex. 2014. *Current Opinion in Neurobiology*; 24C:157-165.

Cooke DF, Goldring A, Recanzone GH, **Krubitzer LA**. The evolution of parietal areas associated with visuomanual behavior: From grasping to tool use. 2014. In: Chalupa L, Werner J. (Eds.). *The Visual Neurosciences*:1049-1063. Cambridge, MIT Press.

JENNIFER Y. LI, M.D.
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Yanez-Soto B, Mannis MJ, Schwab IR, **Li JY**, Leonard BC, Abbott NL, Murphy CJ. Interfacial phenomena and the ocular surface. 2014. *Clinical Science: The Ocular Surface Phenomena*; 12(3):178-201.

MICHELE C. LIM, M.D.
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Lim MC, Chiang MF, Boland MV, McCannel CA, Wedemeyer L, Epley KD, Silverstone DE, Saini A, Lum F. 2014. Meaningful use: how did we do, where are we now, where do we go from here? *Ophthalmology*; 121(9):1667-1669.

Silverstone DE, **Lim MC**. American Academy of Ophthalmology Medical Information Technology Committee. Ensuring information integrity in the electronic health record: the crisis and the challenge. 2014. *Ophthalmology*; 121(2):435-437.

Barton K, Feuer WJ, Budenz DL, Schiffman J, Costa VP, Godfrey DG, Buys YM, Ahmed Baerveldt Comparison Study Group (**Lim MC** for UCD). Three-year treatment outcomes in the Ahmed Baerveldt comparison study. 2014. *Ophthalmology*; 121(8):1547-1557.

ANGELIQUE Y. LOUIE, PH.D.
DEPARTMENT OF BIOMEDICAL ENGINEERING
COLLEGE OF ENGINEERING

Tu C, Ng TS, Jacobs RE, **Louie AY**. Multimodality PET/MRI agents targeted to activated macrophages. 2014. *Journal of Biological Inorganic Chemistry*; 19 (2):247-258.

STEVEN J. LUCK, PH.D.
DEPARTMENT OF PSYCHOLOGY
CENTER FOR MIND AND BRAIN

Luck SJ. An introduction to the event-related potential technique, second edition. 2014. Cambridge, MIT Press.

Sawaki R, **Luck SJ**. How the brain prevents and terminates shifts of attention. In G. R. Mangun (Ed.). *Cognitive Electrophysiology of Attention, Signal of the Mind*. 2014. New York: Elsevier: 16-29.

Kappenman ES, Farrens JL, **Luck SJ**, Proudfit GH. Behavioral and event-related potentials (ERP) measures of attentional bias to threat in the dot-probe task: poor reliability and lack of correlation with anxiety. 2014. *Frontiers in Psychology*; 5:1368.

Keil A, Debener S, Gratton G, Junhöfer M, Kappenman ES, **Luck SJ**, Luu P, Miller G, Yee CM. Committee report: Publication guidelines and recommendations for studies using electroencephalography and magnetoencephalography. 2014. *Psychophysiology*; 51(1):1-21.

Leonard CJ, Robinson BM, Hahn B, Gold JM, **Luck SJ**. Enhanced distraction by magnocellular salience signals in schizophrenia. 2014. *Neuropsychologia*; 56: 359-366.

Lockhart SN, Roach AE, **Luck SJ**, Geng JJ, Beckett L, Carmichael O, DeCarli C. White matter hyperintensities are associated with visual search behavior independent of generalized slowing in aging. 2014. *Neuropsychologia*; 52: 93-101.

Lopez-Calderon J, **Luck SJ**. ERPLAB: An open-source toolbox for the analysis of event-related potentials. 2014. *Frontiers in Human Neuroscience*; 8(213):1-14.

Luck SJ, McClenon C, Beck VM, Hollingworth A, Leonard CJ, Hahn B, Robinson BM, Gold JM. Hyperfocusing in schizophrenia: Evidence from interactions between working memory and eye movements. 2014. *Journal of Abnormal Psychology*; 123(4):783-795.

DAVID J. MAGGS, BVSc., (Hons)
DEPARTMENT OF SURGICAL AND RADIOLOGICAL SCIENCES
SCHOOL OF VETERINARY MEDICINE

Shilo-Benjamini Y, Pascoe PJ, **Maggs DJ**, Pypendop BH, Johnson EG, Kass PH, Wisner ER. Comparison of retrobulbar and peribulbar regional anesthesia with bupivacaine in cats. 2014. *American Journal of Veterinary Research*; 75 (12):1029-1039.

Newbold GM, Outerbridge CA, Kass, PH, **Maggs DJ**. Prevalence of *Malassezia* species on the periocular skin of dogs and its association with blepharitis, ocular discharge, and application of ophthalmic medications. 2014. *Journal of the American Veterinary Medical Association*; 244(11):1304-1308. PMID: PMC4105591.

Alhaddad H, Gandolfi B, Grahn RA, Rah H, Peterson CB, **Maggs DJ**, Good KL, Pedersen NC, Lyons LA. Genome-wide association and linkage analyses localize a progressive retinal atrophy locus in Persian cats. 2014. *Mammalian Genome*; 25(7-8):354-362.

Semenkow SL, Johnson NM, **Maggs DJ**, Margulies BJ. Controlled release delivery of penciclovir via a silicone (MED-4750) polymer: kinetics of drug delivery and efficacy in preventing primary feline herpesvirus infection in culture. 2014. *Virology Journal*; 22; 11:34. PMID: PMC3939932.

Semenkow SL, Johnson NM, **Maggs DJ**, Margulies BJ. Controlled release delivery of penciclovir via a silicone (MED-4750) polymer: kinetics of drug delivery and efficacy in preventing primary feline herpesvirus infection in culture. 2014. *Virology Journal*; 22; 11:34. PMID: PMC3939932.

Wiggins KT, Skorupski KA, Reilly CM, Frazier SD, Dubielzig RR, **Maggs DJ**. Presumed solitary intraocular or conjunctival lymphoma in 7 dogs and 3 cats (1985-2013). 2014. *Journal of the American Veterinary Medical Association*; 244 (4):460-470.

Groth AD, Contreras MT, Kado-Fong HK, Nguyen KQ, Thomasy SM, **Maggs DJ**. In vitro cytotoxicity and antiviral efficacy against feline herpesvirus type 1 of famciclovir and its metabolites. 2014. *Veterinary Ophthalmology*; 17(4):268-274.

Jayson S, Sanchez-Migallon Guzman D, Petritz O, Freeman K, **Maggs DJ**. Medical management of acute ocular hypertension in a western screech-owl (*Megascops kennicottii*). 2014. *Journal of Avian Medicine and Surgery*; 28(1):38-44.

Wiggins KT, Vernau W, Lappin MR, Thomasy SM, **Maggs DJ**. Diagnostic utility of aqueocentesis and aqueous humor analysis in dogs and cats with anterior uveitis. 2014. *Veterinary Ophthalmology*; 17(3):212-220.

Trope GD, McCowan CI, Tyrrell D, Lording PM, **Maggs DJ**. Solitary (primary) uveal T-cell lymphoma in a horse. 2014. *Veterinary Ophthalmology*; 17(2):139-145.

Boostrom BO, Good KL, **Maggs DJ**, Rebhun RB, Johns JL, Kent MS. Unilateral intraocular mastocytosis and anterior uveitis in a dog with subcutaneous mast cell tumors. 2014. *Veterinary Ophthalmology*; 17(2):131-138.

GEORGE R. MANGUN, Ph.D.
DEPARTMENT OF PSYCHOLOGY
CENTER FOR MIND AND BRAIN
DEPARTMENT OF NEUROBIOLOGY
SCHOOL OF MEDICINE

Bastos AM, Briggs F, Alitto HJ, **Mangun GR**, Usrey WM. Simultaneous recordings from the primary visual cortex and lateral geniculate nucleus reveal rhythmic interactions and a cortical source for γ -band oscillations. 2014. *The Journal of Neuroscience*; 34(22):7639-7644. PMID: PMC4035524.

Bengson JJ, Kelley TA, Zhang X, Wang JL, **Mangun GR**. Spontaneous neural fluctuations predict decisions to attend. 2014. *Journal of Cognitive Neuroscience*; 26(11):2578-2584.

Mazaheri A, Fassbender C, Coffey-Corina S, Hartanto TA, Schweitzer JB, **Mangun GR**. Differential oscillatory electroencephalogram between attention-deficit/hyperactivity disorder subtypes and typically developing adolescents. 2014. *Biological Psychiatry*; 76(5):422-429

MARK J. MANNIS, M.D.
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Dunn SP, Gal RL, Kollman C, Raghinaru D, Dontchev M, Blanton CL, Holland EJ, Lass JH, Kenyon KR, **Mannis MJ**, Mian SI, Rapuano CJ, Stark WJ, Beck RW for the Cornea Donor Study Investigator Group. Corneal graft rejection ten years after penetrating keratoplasty in the cornea donor study. 2014. *Cornea*; 33(10):1003-1009.

Mand P, **Mannis MJ**. What is the best treatment approach for severe blepharitis? 2014. *Vision Pan-America*; 13(3):67-69.

Lisch W, **Mannis MJ**. Professor Dr. Med Oskar Fehr: The fate of an outstanding German-Jewish ophthalmologist: An early contribution to cornea and external disease. 2014. *Cornea*; 33(8):860-864.

Yanez-Soto B, **Mannis MJ**, Schwab IR, Li JY, Leonard BC, Abbott NL, Murphy CJ. Interfacial phenomena and the ocular surface. 2014. *The Ocular Surface*; 12(3):178-201.

Armitage WJ, Ashford P, Crow B, Dahl P, Distler P, DeMatteo J, Gopinathan U, **Mannis MJ**, Moffatt L, Parsons C, Ponzin D, Tan D. Implementation of standardized terminology and International Society of Blood Transfusion 128 product codes for ocular tissue. 2014. *International Journal of Eye Banking*; 2(1):1-6.

Velez M, **Mannis MJ**, Izquierdo L, Sanchez JG, Velasquez LF, Rojas S. Simultaneous surgery for corneal edema and aphakia: descemet stripping endothelial keratoplasty (DSEK) and placement of a retro pupillary aphakic iris claw lens. 2014. *Cornea*; 33(2):197-200.

LAWRENCE S. MORSE, M.D., Ph.D.
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Age-Related Eye Disease Study 2 (AREDS2) Research Group (**Morse LS** for UCSD), Chew EY, Clemons TE, Sangiovanni JP, Danis RP, Ferris FL 3rd, Elman MJ, Antoszyk AN, Ruby AJ, Orth D, Bressler SB, Fish GE, Hubbard GB, Klein ML, Chandra SR, Blodi BA, Domalpally A, Friberg T, Wong WT, Rosenfeld PJ, Agrón E, Toth CA, Bernstein PS, Sperduto RD. Secondary analysis of the effects of Lutein/Zeaxanthin on age related macular degeneration progression. 2014. *The Journal of the American Medical Association Ophthalmology*; 132(2):142-149.

Daniel E, Toth CA, Grunwald JE, Jaffe GJ, Martin DF, Fine SL, Huang J, Ying G, Hagstrom SA, Winter K, Maguire MG, Comparison of Age-related Macular Degeneration Treatments Trials Research Group (**Morse LS** for UC Davis). Risk of scar in the comparison of age-related macular degeneration treatment trials. 2014. *Ophthalmology*; 121(3):656-666. PMID: PMC3943618.

Schwartz DM, Fingler J, Kim DY, Zawadzki RJ, **Morse LS**, Park SS, Fraser SE, Werner JS. Phase-variance optical coherence tomography: a technique for noninvasive angiography. 2014. *Ophthalmology*; 121(1):180-187. PMID: PMC4190463.

Hagstrom SA, Ying GS, Pauer GJ, Sturgill-Short GM, Huang J, Maguire MG, Martin DF; Comparison of Age-Related Macular Degeneration Treatments Trials (CATT) Research Group (**Morse LS** for UC Davis). VEGFA and VEGFR2 gene polymorphisms and response to anti-vascular endothelial growth factor therapy: comparison of age-related macular degeneration treatments trials (CATT). 2014. *The Journal of the American Medical Association Ophthalmology*; 132(5):521-527. PMID: PMC4162123.

Ying GS, Kim BJ, Maguire MG, Huang J, Daniel E, Jaffe GL, Grunwald JE, Flaxel CJ, Rahhal F, Regillo C, Martin DM, CATT Research Group (**Morse LS** for UC Davis). Sustained visual acuity loss in the comparison of age-related macular degeneration treatments trials. 2014. *The Journal of the American Medical Association Ophthalmology*; 132(8):915-21. PMID: PMC4151260.

Kim BJ, Ying GS, Huang J, Levy NE, Maguire MG, CATT Research Group (**Morse LS** for UC Davis). Sporadic visual acuity loss in the Comparison of Age-Related Macular Degeneration Treatments Trials (CATT). 2014. *American Journal of Ophthalmology*; 158(1):128-135. PMID: PMC4301065.

Writing Group for the AREDS2 Research Group (**Morse LS** for UC Davis), Bonds DE, Harrington M, Worrall BB, Bertoni AG, Eaton CB, Hsia J, Robinson J, Clemons TE, Fine LJ, Chew EY. Effect of long-chain ω -3 fatty acids and lutein + zeaxanthin supplements on cardiovascular outcomes: results of the Age-Related Eye Disease Study 2 (AREDS2) randomized clinical trial. 2014. *The Journal of the American Medical Association Internal Medicine*; 174(5):763-771.

Boyer DS, YoonYH, Belfort R, Bandello F, Maturi RK, Augustin AJ, Li XY, Cui HJ, Hasjad Y, Whitcup SM, Ozurdex MEAD Study Group (**Morse LS** for UC Davis). Three-year randomized sham-controlled trial of dexamethasone intravitreal implant in patients with diabetic macular edema. 2014. *Ophthalmology*; 121(10):1904-1914.

Bressler NM, Varma R, Suner IJ, Dolan CM, Ward J, Ehrlich JS, Coleman S, Turpcu A: RIDE and RISE Research Groups (**Morse LS** for UC Davis). Vision-related function after ranibizumab treatment for diabetic macular edema: results from RIDE and RISE. 2014. *Ophthalmology*; 121(12):2461-2472.

Lee JY, Folgar FA, Maguire MG, Ying GS, Toth CA, Martin DF, Jaffe GJ; CATT Research Group (**Morse LS** for UC Davis). Outer retinal tubulation in the comparison of age-related macular degeneration treatments trials (CATT). 2014. *Ophthalmology*; 121(12):2423-2431. PMID: PMC4254295.

Chew EY, Clemons TE, Bressler DB, Elman MJ, Danis RP, Domaopally A, Heier JS, Kim JE, Garfinkel RA, Appendix 1 for AREDS2-HOME Study Research Group (**Morse LS** for UC Davis). Randomized trial of the ForeseeHome monitoring device for early detection of neovascular age-related macular degeneration. The HOME Monitoring of the Eye (HOME) study design - HOME study report number 1. 2014. *Contemporary Clinical Trials*; 37(2):294-300.

Hunter AA, Modjtahedi SP, Long K, Zawadzki R, Chin EK, Caspar JJ, **Morse LS**, Telander DG. Improving visual outcomes by preserving outer retina morphology in eyes with resolved pseudophakic cystoid macular edema. 2014. *Journal of Cataract and Refractive Surgery*; 40(4):626-631.

Age-Related Eye Disease Study 2 Research Group (**Morse LS** for UC Davis), Huynh N, Nicholson BP, Agrón E, Clemons TE, Bressler SB, Rosenfeld PJ, Chew EY. Visual acuity after cataract surgery in patients with age-related macular degeneration: age-related eye disease study 2 report number 5. 2014. *Ophthalmology*; 121(6):1229-1236. PMID: PMC4047168.

CHRISTOPHER J. MURPHY, DVM., PH.D.
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE
DEPARTMENT OF SURGICAL AND RADIOLOGICAL SCIENCES
SCHOOL OF VETERINARY MEDICINE

Gorouhi F, Shah NM, Raghunathan VK, Mohabbati Y, Abbott NL, Isseroff RR, **Murphy CJ**. Epidermal growth factor-functionalized polymeric multilayer films: interplay between spatial location and bioavailability of EGF. 2014. *The Journal of Investigative Dermatology*; 134(6):1757-1760.

Morgan JT, Wood JA, Walker NJ, Raghunathan VK, Borjesson DL, **Murphy CJ**, Russell P. Human trabecular meshwork cells exhibit several characteristics of, but are distinct from, adipose-derived mesenchymal stem cells. 2014. *Journal of Ocular Pharmacology and Therapeutics*; 30(2-3):254-266. PMID: PMC399198.

Herron M, Agarwal A, Kierski PR, Calderon DF, Teixeira LB, Schurr MJ, **Murphy CJ**, Czuprynski CJ, McAnulty JF, Abbott NL. Reduction in wound bioburden using a silver-loaded dissolvable microfilm construct. 2014. *Advanced Healthcare Materials*; 3(6):916-928. PMID: PMC4112187.

Garland SP, McKee CT, Chang YR, Raghunathan VK, Russell P, **Murphy CJ**. A cell culture substrate with biologically relevant size-scale topography and compliance of the basement membrane. 2014. *Langmuir*; 30(8):2101-2108. PMID: PMC3983385.

Jain R, Calderon D, Kierski PR, Schurr MJ, Czuprynski CJ, **Murphy CJ**, McAnulty JF, Abbott NL. Raman spectroscopy enables noninvasive biochemical characterization and identification of the stage of healing of a wound. 2014. *Analytical Chemistry*; 86(8):3764-3772. PMID: PMC4004186.

Murphy KC, Morgan JT, Wood JA, Sadeli A, **Murphy CJ**, Russell P. The formation of cortical actin arrays in human trabecular meshwork cells in response to cytoskeletal disruption. 2014. *Experimental Cell Research*; 328(1):164-171. PMID: PMC4178168.

Zwigenberger AL, Park SA, **Murphy CJ**. Computed tomographic imaging characteristics of the normal canine lacrimal glands. 2014. *BioMed Central Veterinary Research*; 10:116. PMID: PMC4038083.

Thomasy SM, Raghunathan VK, Winkler M, Reilly CM, Sadeli AR, Russell P, Jester JV, **Murphy CJ**. Elastic modulus and collagen organization of the rabbit cornea: epithelium to endothelium. 2014. *Acta Biomaterials*; 10(2):785-791. PMID: PMC4280096.

Park SA, Raghunathan VK, Shah NM, Teixeira L, Motta MJ, Covert J, Dubielzig R, Schurr M, Isseroff RR, Abbott NL, McAnulty J, **Murphy CJ**. PDGF-BB does not accelerate healing in diabetic mice with splinted skin wounds. 2014. *PLoS One*; 9(8):e104447. PMID: PMC4133340.

Yañez-Soto B, Mannis MJ, Schwab IR, Li JY, Leonard BC, Abbott NL, **Murphy CJ**. Interfacial phenomena and the ocular surface. 2014. *The Ocular Surface*; 12(3):178-201.

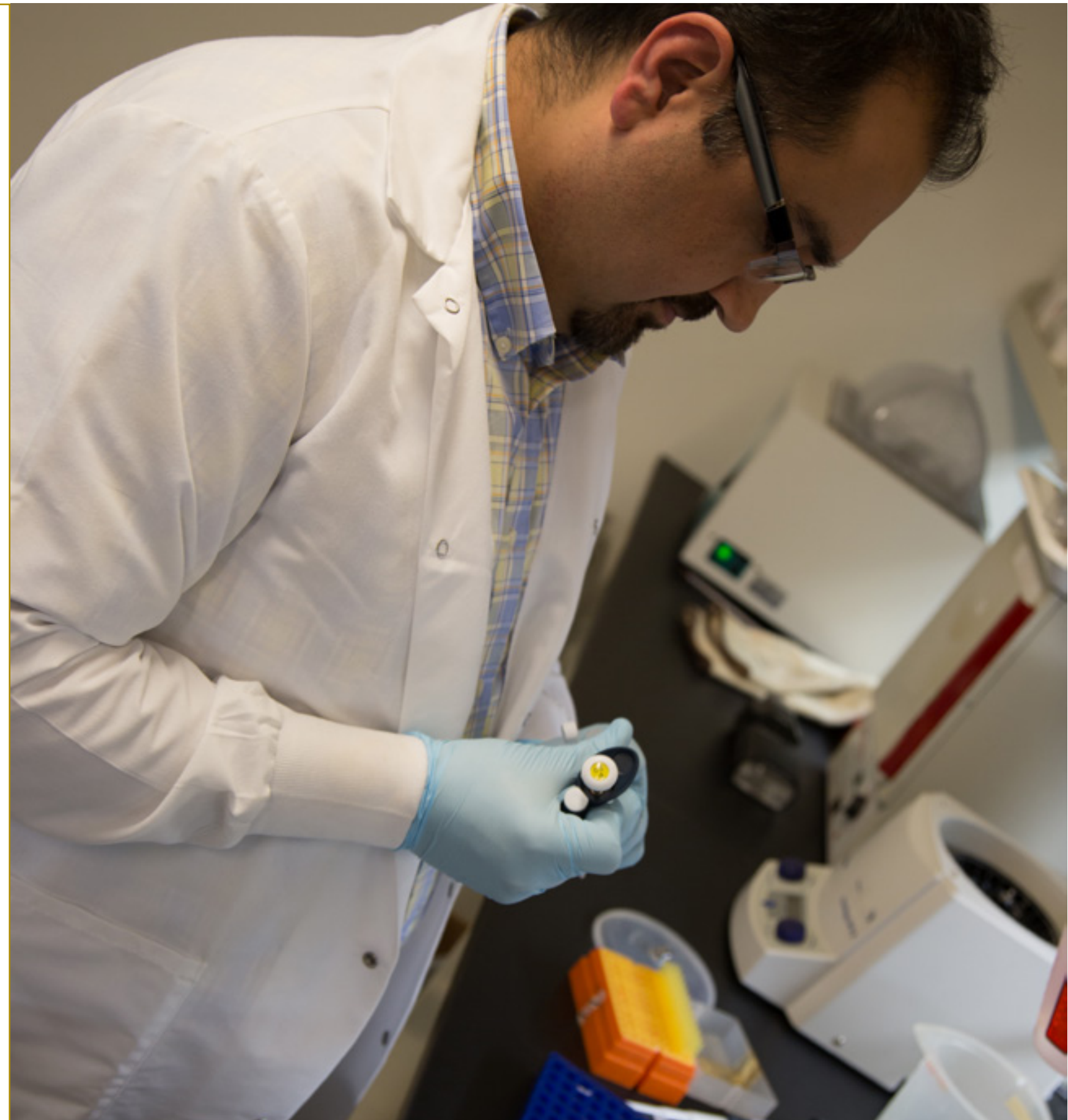
Chang YR, Raghunathan VK, Garland SP, Morgan JT, Russell P, **Murphy CJ**. Automated AFM force curve analysis for determining elastic modulus of biomaterials and biological samples. 2014. *Journal of the Mechanical Behavior of Biomedical Materials*; 37:209-218.

Park SA, Teixeira LB, Raghunathan VK, Covert J, Dubielzig RR, Isseroff RR, Schurr M, Abbott NL, McAnulty J, **Murphy CJ**. Full-thickness splinted skin wound healing models in db/db and heterozygous mice: implications for wound healing impairment. 2014. *Wound Repair and Regeneration*; 22(3):368-380.

Carr A, Weber EP 3rd, **Murphy CJ**, Zwigenberger A. Computed tomographic and cross-sectional anatomy of the normal pacu (*Colossoma macroponum*). 2014. *Journal of Zoo and Wildlife Medication*; 45(1):184-189.

Morgan JT, Raghunathan VK, Thomasy SM, **Murphy CJ**, Russell P. Robust and artifact-free mounting of tissue samples for atomic force microscopy. 2014. *Biotechniques*; 56(1):40-42.

Garland SP, Wang RY, Raghunathan VK, Lam KS, **Murphy CJ**, Russell P, Sun G, Pan T. Photopatternable and photoactive hydrogel for on-demand generation of hydrogen peroxide in cell culture. 2014. *Biomaterials*; 35(5):1762-1770. PMID: PMC3992930.



Keller KA, Paul-Murphy J, Weber EP 3rd, Kass PH, Guzman SM, Park SA, Raghunathan VK, Gustavsen KA, **Murphy CJ**. Assessment of platelet-derived growth factor using a splinted full thickness dermal wound model in bearded dragons (*Pogona vitticeps*). 2014. *Journal of Zoo and Wildlife Medicine*; 45(4):866-874.

Raghunathan VK, Dreier B, Morgan JT, Tuyen BC, Rose BW, Reilly CM, Russell P, **Murphy CJ**. Involvement of YAP, TAZ and HSP90 in contact guidance and intercellular junction formation in corneal epithelial cells. 2014. *PLoS One*; 9(10):e109811. PMID: PMC4188597.

JODI M. NUNNARI, PH.D.
DEPARTMENT OF MOLECULAR AND CELLULAR BIOLOGY
COLLEGE OF BIOLOGICAL SCIENCES

Labbé K, Murley A, **Nunnari J**. Determinants and functions of mitochondrial behavior. 2014. *Annual Review of Cell Developmental Biology*; 30:357-391.

Vlahakis A, Graef M, **Nunnari J**, Powers T. TOR complex 2-Ypk1 signaling is an essential positive regulator of the general amino acid control response and autophagy. 2014. *Proceedings of the National Academy of Sciences of the United States of America*; 111(29):10586-10591. PMID: PMC4115538.

Pfanner N, van der Laan M, Amati P, Capaldi RA, Caudy AA, Chacinska A, Darshi M, Deckers M, Hoppins S, Icho T, Jakobs S, Ji J, Kozjak-Pavlovic V, Meisinger C, Odgren PR, Park SK, Rehling P, Reichert AS, Sheikh MS, Taylor SS, Tsuchida N, van der Bliek AM, van der Klei IJ, Weissman JS, Westermann B, Zha J, Neupert W, **Nunnari J**. Uniform nomenclature for the mitochondrial contact site and cristae organizing system. 2014. *Journal of Cell Biology*; 204(7):1083-1086. PMID: PMC3971754.

Friedman JR, **Nunnari J**. Mitochondrial form and function. 2014. *Nature*; 505(7483):335-343.

LISA M. OAKES, PH.D.
DEPARTMENT OF PSYCHOLOGY
CENTER FOR MIND AND BRAIN

Kwon MK, Luck SJ, **Oakes LM**. Visual short-term memory for complex objects in 6- and 8-month-old infants. 2014. *Child Development*; 85(2):564-577. PMID: PMC3872168.

Kovack-Lesh KA, McMurray B, **Oakes LM**. Four-month-old infants' visual investigation of cats and dogs: relations with pet experience and attentional strategy. 2014. *Developmental Psychology*; 50(2):402-413.

MARY O'HARA, M.D.
DEPARTMENT OF OPHTHALMOLOGY & VISION SCIENCE
SCHOOL OF MEDICINE

O'Hara MA. Cataract in a child: Treatment. 2014. In: Zwaan J, (Ed.) *Decision-making in ophthalmology: An algorithmic approach*: 244-247. Jaypee Brothers Medical Publishers, New Delhi.

TINGRUI PAN, PH.D.
DEPARTMENT OF BIOMEDICAL ENGINEERING
COLLEGE OF ENGINEERING

Chen A, Wang R, Bever CR, Xing S, Hammock BD, **Pan T**. Smartphone-interfaced lab-on-a-chip devices for field-deployable enzyme-linked immunosorbent assay. 2014. *Biomicrofluidics*; 5; 8(6):064101. PMID: PMC4241779.

Pan T, Xu Y. Mobile medicine: can emerging mobile technologies enable patient-oriented medicine? 2014. *Annual of Biomedical Engineering*; 42(11):2203-2204.

Zhao S, Zhu K, Zhang Y, Zhu Z, Xu Z, Zhao M, **Pan T**. ElectroTaxis-on-a-Chip (ETC): an integrated quantitative high-throughput screening platform for electrical field-directed cell migration. 2014. *Lab Chip*; 21; 14(22):4398-4405.

Nie B, Li R, Brandt JD, **Pan T**. Microfluidic tactile sensors for three-dimensional contact force measurements. 2014. *Lab Chip*; 21; 14(22):4344-4353.

Cooke DF, Goldring AB, Baldwin MK, Recanzone GH, Chen A, **Pan T**, Simon SI, Krubitzer L. Reversible deactivation of higher-order posterior parietal areas. I. Alterations of receptive field characteristics in early stages of neocortical processing. 2014. *Journal of Neurophysiology*; 15; 112(10):2529-2544. PMID: PMC4233270.

Goldring AB, Cooke DF, Baldwin MK, Recanzone GH, Gordon AG, **Pan T**, Simon SI, Krubitzer L. Reversible deactivation of higher-order posterior parietal areas. II. Alterations in response properties of neurons in areas 1 and 2. 2014. *Journal of Neurophysiology*; 15; 112(10):2545-2560. PMID: PMC4233279.

Garland SP, Murphy TM Jr, **Pan T**. Print-to-pattern dry film photoresist lithography. 2014. *Journal of Micromechanics and Microengineering*; 24 (5):057002. PMID: PMC4128193.

Chen A, **Pan T**. Manually operatable on-chip bistable pneumatic microstructures for microfluidic manipulations. 2014. *Lab Chip*; 14 (17): 3401-3408. PMID: PMC4140693.

Digiglio P, Li R, Wang W, **Pan T**. Microfluidic arterial tonometry for continuous wearable non-invasive hemodynamic monitoring. 2014. *Annuals of Biomedical Engineering*; 42 (11):2278-2288.

Jian Z, Han H, Zhang T, Puglisi J, Izu LT, Shaw JA, Onofriok E, Erickson JR, Chen YJ, Horvath B, Shimkunas R, Xiao W, Li Y, **Pan T**, Chan J, Banyasz T, Tardiff JC, Chiamvimonvat N, Bers DM, Lam KS, Chen-Izu Y. Mechanochemotransduction during cardiomyocyte contraction is mediated by localized nitric oxide signaling. 2014. *Science Signaling*; 7(317):27. PMID: PMC4103414.

Nie B, Li R, Brandt JD, **Pan T**. Iontronic microdroplet array for flexible ultrasensitive tactile sensing. 2014. *Lab Chip*; 14(6):1107-1116.

Xing S, Zhao S, **Pan T**. Print-to-print: printer-enabled out-of-cleanroom multiobject microprinting method. 2014. *Methods in Cell Biology*; 119:219-233.

Zhao S, Chen A, Revzin A, **Pan T**. Stereomask lithography for multi-protein patterning. 2014. *Methods in Cell Biology*; 119:175-192.

Garland SP, Wang RY, Raghunathan VK, Lam KS, Murphy CJ, Russell P, Sun G, **Pan T**. Photopatternable and photoactive hydrogel for on-demand generation of hydrogen peroxide in cell culture. 2014. *Biomaterials*; 35(5):1762-1770. PMID: PMC3992930.

SUSANNA S. PARK, M.D., PH.D.
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Park SS, Bauer G, Abedi M, Pontow S, Panorgias A, Jonnal R, Zawadzki RJ, Werner JS, Nolte J. Intravitreal autologous bone marrow CD34+ cell therapy for ischemic and degenerative retinal disorders: Preliminary phase 1 clinical trial findings. 2014. *Investigative Ophthalmology and Vision Science*; 9; 56(1):81-89. PMID: PMC4288143.

Shi A, Cross C, Morrissey B, Durbin-Johnson B, Pilli S, Zawadzki RJ, **Park SS**. Macular pigment and macular volume in eyes of patients with cystic fibrosis. 2014. *Free Radical Research*; 48(7):740-748.

Chin EK, Ventura B, See K, Siebles J, **Park SS**. Nonmydriatic fundus photography for teleophthalmology diabetic retinopathy screening in rural and urban clinics. 2014. *Telemedicine and eHealth*; 20(2):102-108.

Schwartz DM, Fingler J, Kim DY, Zawadzki RJ, Morse LS, **Park SS**, McClintic S, Werner JS. Phase-variance optical coherence tomography: a technique for noninvasive angiography. 2014. *Ophthalmology*; 121(1):180-187. PMID: PMC4190463.

Daniel E, Toth CA, Grunwald JE, Jaffe GJ, Martin DF, Fine SJ, Huang J, Ying GS, Hagstrom SA, Winter K, Maguire MG; Comparison of Age-related Macular Degeneration Treatments Trials Research Group (**Park SS** for UCD). Risk of scar in the comparison of age-related macular degeneration treatments trials. 2014. *Ophthalmology*; 121 (3):656-666. PMID: PMC3943618.

Capone A Jr, Singer MA, Dodwell DG, Dreyer RF, Oh KT, Roth DB, Walt JG, Scott LC, Hollander DA, SHASTA Study (**Park SS** for UCD). Efficacy and safety of two or more dexamethasone intravitreal implant injections for treatment of macular edema related to retinal vein occlusion (Shasta study). 2014. *Retina*; 34(2):342-345.

Hagstrom SA, Ying GS, Pauer GJ, Sturgill-Short GM, Huang J, Maguire MG, Martin DF; Comparison of Age-Related Macular Degeneration Treatments Trials (CATT) Research Group (**Park SS** for UC Davis). VEGFA and VEGFR2 gene polymorphisms and response to anti-vascular endothelial growth factor therapy: comparison of age-related macular degeneration treatments trials (CATT). 2014. *The Journal of the American Medical Association Ophthalmology*; 132(5):521-527. PMID: PMC4162123.

Kim BJ, Ying GS, Huang J, Levy NE, Maguire MG, CATT Research Group (**Park SS** for UC Davis). Sporadic visual acuity loss in the Comparison of Age-Related Macular Degeneration Treatments Trials (CATT). 2014. *American Journal of Ophthalmology*; 158 (1):128-135. PMID: PMC4301065.

Boyer DS, YoonYH, Belfort R, Bandello F, Maturi RK, Augustin AJ, Li XY, Cui HJ, Hasjad Y, Whitcup SM, Ozurdex MEAD Study Group (**Park SS** for UC Davis). Three-year randomized sham-controlled trial of dexamethasone intravitreal implant in patients with diabetic macular edema. 2014. *Ophthalmology*; 121(10):1904-1914.

Folgar FA, Jaffe GJ, Ying GS, Maguire MG, Toth CA; Comparison of Age-Related Macular Degeneration Treatments Trials Research Group (**Park SS** for UC Davis). Comparison of optical coherence tomography assessments in the comparison of age-related macular degeneration treatments trials. 2014. *Ophthalmology*; 121(10):1956-1965.

Hagstrom SA, Ying GS, Pauer GJ, Huang J, Maguire MG, Martin DF; CATT Research Group Group (**Park SS** for UC Davis). Endothelial PAS domain-containing protein 1 (EPAS1) gene polymorphisms and response to anti-VEGF therapy in the comparison of AMD treatments trials (CATT). 2014. *Ophthalmology*; 121(8):1663-1664. PMID: PMC4122574.

Lee JY, Folgar FA, Maguire MG, Ying GS, Toth CA, Martin DF, Jaffe GJ; CATT Research Group (**Park SS** for UC Davis). Outer retinal tubulation in the comparison of age-related macular degeneration treatments trials (CATT). *Ophthalmology*; 121(12):2423-2431. PMID: PMC4254295.

Gewaily DY, Grunwald JE, Pistilli M, Ying GS, Maguire MG, Daniel E, Ostroff CP, Fine SL; CATT Research Group (**Park SS** for UC Davis). Delayed patchy choroidal filling in the Comparison of Age-Related Macular Degeneration Treatments Trials (CATT). 2014. *American Journal of Ophthalmology*; 158(3):525-531.

Ying GS, Kim BJ, Maguire MG, Huang J, Daniel E, Jaffe GJ, Grunwald JE, Blinder KJ, Flaxel CJ, Rahhal F, Regillo C, Martin DF; CATT Research Group (**Park SS** for UC Davis). Sustained visual acuity loss in the comparison of age-related macular degeneration treatments trials. 2014. The Journal of the American Medical Association, Ophthalmology; 132(8):915-921. PMID: PMC4151260.

Chew EY, Clemons TE, Bressler SB, Elman MJ, Danis RP, Domalpally A, Heier JS, Kim JE, Garfinkel RA; Appendix 1 for AREDS2-HOME Study Research Group (**Park SS** for UC Davis). Randomized trial of the ForeseeHome monitoring device for early detection of neovascular age-related macular degeneration. The HOME Monitoring of the Eye (HOME) study design - HOME study report number 1. 2014. Contemporary Clinical Trials; 37(2):294-300.

AREDS2-HOME Study Research Group (**Park SS** for UC Davis), Chew EY, Clemons TE, Bressler SB, Elman MJ, Danis RP, Domalpally A, Heier JS, Kim JE, Garfinkel R. Randomized trial of a home monitoring system for early detection of choroidal neovascularization home monitoring of the Eye (HOME) study. 2014. Ophthalmology; 121(2):535-544.

The Age-Related Eye Disease Study 2 (AREDS2) Research Group (**Park SS** for UC Davis), Chew EY, Clemons TE, Sangiovanni JP, Danis RP, Ferris FL 3rd, Elman MJ, Antoszyk AN, Ruby AJ, Orth D, Bressler SB, Fish GE, Hubbard GB, Klein ML, Chandra Sr, Blodi BA, Domalpally A, Friberg T, Wong WT, Rosenfeld PJ, Agron E, Toth CA, Bernstein PS, Sperduto RD. Secondary analyses of the effects of Lutein/Zeaxanthin on age-related macular degeneration progression: AREDS2 report No. 3. 2014. The Journal of the American Medical Association, Ophthalmology; 132(2):142-149.

Writing Group for the AREDS2 Research Group (**Park SS** for UC Davis), Bonds DE, Harrington M, Worrall BB, Bertoni AG, Eaton CB, Hsia J, Robinson J, Clemons TE, Fine LJ, Chew EY. Effect of long-chain ω -3 fatty acids and lutein + zeaxanthin supplements on cardiovascular outcomes: results of the Age-Related Eye Disease Study 2 (AREDS2) randomized clinical trial. 2014. The Journal of the American Medical Association Internal Medicine; 174(5):763-771.

EDWARD N. PUGH, JR., PH.D.

DEPARTMENT OF CELL BIOLOGY AND HUMAN ANATOMY
COLLEGE OF BIOLOGICAL SCIENCES
DEPARTMENT OF PHYSIOLOGY AND MEMBRANE BIOLOGY
COLLEGE OF BIOLOGICAL SCIENCES
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Haeri M, Calvert PD, Solessio E, **Pugh EN Jr**, Knox BE. Regulation of rhodopsin-eGFP distribution in transgenic xenopus rod outer segments by light. 2014. PLoS One; 8(11):e80059. PMID: PMC3829889.

Kessler C, Tillman M, Burns ME, **Pugh EN Jr**. Rhodopsin in the rod surface membrane regenerates more rapidly than bulk rhodopsin in the disc membranes in vivo. 2014. The Journal of Physiology; 592(13):2785-2797. PMID: PMC4221820.

Levine ES, Zam A, Zhang P, Pechko A, Wang X, FitzGerald P, **Pugh EN Jr**, Zawadzki RJ, Burns ME. Rapid light-induced activation of retinal microglia in mice lacking Arrestin-1. 2014. Vision Research; 102:71-79. PMID: PMC4162662.

Zam A, Zhang P, Levine E, **Pugh EN Jr**, Burns ME, Zawadzki RJ. Evaluation of OCT for quantitative in-vivo measurements of changes in neural tissue scattering in longitudinal studies of retinal degeneration in mice. 2014. SPIE Proceedings; 8934: 893422.

GREGG H. RECANZONE, PH.D.

DEPARTMENT OF NEUROBIOLOGY, PHYSIOLOGY AND BEHAVIOR
COLLEGE OF BIOLOGICAL SCIENCES

Cooke DF, Goldring AB, Baldwin MK, **Recanzone GH**, Chen A, Pan T, Simon SI, Krubitzer L. Reversible deactivation of higher-order posterior parietal areas. I. Alterations of receptive field characteristics in early stages of neocortical processing. 2014. Journal of Neurophysiology; 112(10):2529-2544. PMID: PMC4233270.

Goldring AB, Cooke DF, Baldwin MK, **Recanzone GH**, Gordon AG, Pan T, Simon SI, Krubitzer L. Reversible deactivation of higher-order posterior parietal areas. II. Alterations in response properties of neurons in areas 1 and 2. 2014. Journal of Neurophysiology; 112(10):2545-2560. PMID: PMC4233279.

Engle JR, Gray DT, Turner H, Udell JB, **Recanzone GH**. Age-related neurochemical changes in the rhesus macaque inferior colliculus. 2014. Frontiers in Aging Neuroscience; 6:73. PMID: PMC4001037.

Gray DT, Engle JR, **Recanzone GH**. Age-related neurochemical changes in the rhesus macaque cochlear nucleus. 2014. The Journal of Comparative Neurology; 522(7):1527-1541. PMID: PMC407925.

CHRISTOPHER M. REILLY, MAS, DVM.

CLINICAL PATHOLOGY, MICROBIOLOGY AND IMMUNOLOGY
SCHOOL OF VETERINARY MEDICINE

Raghunathan VK, Dreier B, Morgan JT, Tuyen BC, Rose BW, Reilly CM, Russell P, Murphy CJ. Involvement of YAP, TAZ and HSP90 in contact guidance and intercellular junction formation in corneal epithelial cells. 2014. PLoS One; 9(10):e109811. PMID: PMC4188597.



Wiggins KT, Skorupski KA, Reilly CM, Frazier SD, Dubielzig RR, Maggs DJ. Presumed solitary intraocular or conjunctival lymphoma in 7 dogs and 3 cats (1985-2013). 2014. *Journal of the American Veterinary Medical Association*; 244 (4):460-470.

Thomasy SM, Raghunathan VK, Winkler M, Reilly CM, Sadeli AR, Russell P, Jester JV, Murphy CJ. Elastic modulus and collagen organization of the rabbit cornea: epithelium to endothelium. 2014. *Acta Biomaterials*; 10(2):785-791. PMID: PMC4280096.

SUSAN M. RIVERA, PH.D.

DEPARTMENT OF PSYCHOLOGY
CENTER FOR MIND AND BRAIN

Grigsby J, Cornish K, Hocking D, Kraan C, Olichney JM, Rivera SM, Schneider A, Sherman S, Wang JY, Yang JC. The cognitive neuropsychological phenotype of carriers of the FMR1 premutation. 2014. *Journal of Neurodevelopmental Disorders*; 6(1):28. PMID: PMC4135346.

Gallego PK, Burris JL, Rivera SM. Visual motion processing deficits in infants with the fragile X permutation. 2014. *Journal of Neurodevelopmental Disorders*; 6(1):29. PMID: PMC4121307.

Wong LM, Goodrich-Hunsaker NJ, McLennan Y, Tassone F, Zhang M, Rivera SM, Simon TJ. Eye movements reveal impaired inhibitory control in adult male fragile X permutation carriers asymptomatic for FXTAS. 2014. *Neuropsychology*; 28(4):571-584. PMID: PMC4172343.

Leow A, Harvey D, Goodrich-Hunsaker NJ, Gadelkarim J, Kumar A, Zhan L, Rivera SM, Simon TJ. Altered structural brain connectome in young adult fragile X permutation carriers. 2014. *Human Brain Mapping*; 35(9):4518-4530. PMID: PMC4106982.

Kim SY, Tassone F, Simon TJ, Rivera SM. Altered neural activity in the 'when' pathway during temporal processing in fragile X permutation carriers. 2014. *Behavioral Brain Research*; 261:240-248.

PAUL RUSSELL, PH.D.

DEPARTMENT OF SURGICAL AND RADIOLOGICAL SCIENCES
SCHOOL OF VETERINARY MEDICINE

Garland SP, McKee CT, Chang YR, Raghunathan VK, Russell P, Murphy CJ. A cell culture substrate with biologically relevant size-scale topography and compliance of the basement membrane. 2014. *Langmuir*; 30(8):2101-2108. PMID: PMC3983385.

Morgan JT, Wood JA, Walker NJ, Raghunathan VK, Borjesson DL, Murphy CJ, Russell P. Human trabecular meshwork cells exhibit several characteristics of, but are distinct from, adipose-derived mesenchymal stem cells. 2014. *Journal of Ocular Pharmacology and Therapeutics*; 30(2-3):254-266. PMID: PMC399198.

Morgan JT, Raghunathan VK, Thomasy SM, Murphy CJ, Russell P. Robust and artifact-free mounting of tissue samples for atomic force microscopy. 2014. *Biotechniques*; 56(1):40-42.

Garland SP, McKee CT, Chang YR, Raghunathan VK, Russell P, Murphy CJ. A cell culture substrate with biologically relevant size-scale topography and compliance of the basement membrane. 2014. *Langmuir*; 30(8):2101-2108. PMID: PMC3983385.

Raghunathan VK, Dreier B, Morgan JT, Tuyen BC, Rose BW, Reilly CM, Russell P, Murphy CJ. Involvement of YAP, TAZ and HSP90 in contact guidance and intercellular junction formation in corneal epithelial cells. 2014. *PLoS One*; 9(10):e109811. PMID: PMC4188597.

Chang Y, Raghunathan VK, Garland SP, Morgan JT, Russell P, Murphy CJ. Automated AFM force curve analysis for determining elastic modulus of biomaterials and biological samples. 2014. *Journal of the Mechanical Behavior of Biomedical Materials*; 37:209-216.

Murphy KC, Morgan JT, Wood JA, Sadeli A, Murphy CJ, Russell P. The formation of cortical actin arrays in human trabecular meshwork cells in response to cytoskeletal disruption. 2014. *Experimental Cell Research*; 328(1):164-171. PMID: PMC4178168.

NAOKI SAITO, PH.D.

DEPARTMENT OF MATHEMATICS

Zhang Z, N. Saito N. Polyharmonic Local Sine Transform (PHLST) with adaptive tiling and its application to Antarctic remote sensing image approximation. 2014. *Inverse Problems and Imaging*; 8(1):321-337.

Irion J, N. Saito N. Hierarchical graph Laplacian eigen transforms. 2014. *The Japan Society for Industrial and Applied Mathematics*; 6:21-24.

Irion J, Saito N. The generalized Haar-Walsh transform. 2014. *Institute of Electrical and Electronics Engineers Workshop on Statistical Signal Processing*; 488-491.

IVAN R. SCHWAB, M.D., EMERITUS

DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Sugar A, Sugar J, Schwab I, Perry H, de Luise V, Soong HK, Weiss J. Do it right the first time: advice for cornea authors. 2014. *Cornea*; 33(9):879.

Yañez-Soto B, Mannis MJ, Schwab IR, Li JY, Leonard BC, Abbott NL, Murphy CJ. Interfacial phenomena and the ocular surface. 2014. *The Ocular Surface*; 12(3):178-201.

TONY J. SIMON, PH.D.

DEPARTMENT OF PSYCHIATRY AND BEHAVIORAL SCIENCES
SCHOOL OF MEDICINE

Wong LM, Riggins T, Harvey D, Cabaral M, Simon TJ. Children with chromosome 22q11.2 deletion syndrome exhibit impaired spatial working memory. 2014. *American Journal of Intellectual and Developmental Disabilities*; 119(2):115-132. PMID: PMC4036086.

Quintero AI, Beaton EA, Harvey DJ, Ross JL, Simon TJ. Common and specific impairments in attention functioning in girls with chromosome 22q11.2 deletion, fragile X, or Turner syndromes. 2014. *Journal of Neurodevelopmental Disorders*; 6:5.

Kim S-Y, Tassone F, Simon TJ, Rivera SM. Altered neural activity in the 'when' pathway during temporal processing in fragile X permutation carriers. 2014. *Behavioral Brain Research*; 261:240-248.

Wong LM, Goodrich-Hunsaker NJ, McLennan Y, Tassone F, Zhang M, Rivera SM, Simon TJ. Eye movements reveal impaired inhibitory control in adult male fragile X permutation carriers asymptomatic for FXTAS. 2014. *Neuropsychology*; 28(4):571-584. PMID: PMC4172343.

Wong LM, Goodrich-Hunsaker NJ, McLennan YA, Tassone F, Rivera SM, Simon TJ. A cross-sectional analysis of orienting of visuospatial attention in child and adult carriers of the fragile X permutation. 2014. *Journal of Neurodevelopmental Disorders*; 6(1):4.

Alice F. Tarantal, Ph.D.

Department of Pediatrics
School of Medicine
Department of Cell Biology and Human
Anatomy
College of Biological Sciences

Bakkour S, Baker C, Tarantal AF, Wen L, Busch MP, Lee T-H, McCune JM. Analysis of maternal microchimerism in rhesus monkey (*Macaca mulatta*) using real-time quantitative PCR amplification of MHC polymorphisms. 2014. *Chimerism*; 5 (1):6-15. PMID: PMC3988117.

Batchelder CA, Duru N, Lee CCI, Baker CAR, Swainson L, McCune JM, Tarantal AF. Myeloid-lymphoid ontogeny in the rhesus monkey (*Macaca mulatta*). *Anatomical Record (Hoboken)*; 297:1392-1406. PMID: PMC4120262.

Stewart JM, Tarantal AF, Chen Y, Appleby NC, Fuentes TI, Lee CC, d'Apice AJ, Cowan PJ, Kearns-Jonker M. Anti-non-Gal-specific combination treatment with an anti-idiotypic Ab and an inhibitory small molecule mitigates the xenobody response. *Xenotransplantation*; 21(3):254-266. PMID: PMC4056685.

Stewart JM, Tarantal AF, Hawthorne WJ, Salvaris EJ, O'Connell PJ, Nottle MB, d'Apice AJ, Cowan PJ, and Kearns-Jonker M. Rhesus monkeys and baboons develop clotting factor VIII inhibitors in response to porcine endothelial cells or islets. 2014. *Xenotransplantation*; 21(4):341-352. PMID: PMC4126849.

Tarantal AF, Berglund L. Obesity and lifespan health – Importance of the fetal microenvironment. 2014. *Nutrients*; 6(4):1725-1736. PMID: PMC4011063.

Nicol LE, O'Brien TD, Dumesic DA, Tarantal AF, Abbott DH. Abnormal infant islet morphology precedes insulin resistance in PCOS-like monkeys. *PLoS One*; 9(9):e106527. PMID: PMC4160158.

CHARLES E. THIRKILL, PH.D, EMERITUS

DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Thirkill CE. Antibody-mediated inhibition of Pigment Epithelium-Derived Factor. 2014. *Journal for Autoimmunity and Research*; 1(1):1003-1005.

LIN TIAN, PH.D.

BIOCHEMISTRY AND MOLECULAR MEDICINE
PSYCHIATRY AND BEHAVIORAL SCIENCES
SCHOOL OF MEDICINE

Broussard G, Liang R, Tian L. Monitoring activity in neural circuits with genetically encoded indicators. 2014. *Frontiers in Molecular Neuroscience*; 5; 7:97. PMID: PMC4256991.

Liang R, Broussard G, Tian L. Imaging chemical neurotransmission with genetically encoded fluorescent sensors. *ACS Chemical Neuroscience*, Jan, 2015.

JAMES S. TRIMMER, PH.D.

DEPARTMENT OF PHYSIOLOGY AND MEMBRANE BIOLOGY
SCHOOL OF MEDICINE
DEPARTMENT OF NEUROBIOLOGY, PHYSIOLOGY AND
BEHAVIOR
COLLEGE OF BIOLOGICAL SCIENCES

Specia DJ, Ogata G, Mandikian D, Bishop HI, Wiler SW, Eum K, Wenzel HJ, Doisy ET, Matt L, Campi KL, Golub MS, Nerbonne JM, Hell JW, Trainor BC, Sack JT, Schwartzkroin PA, Trimmer JS. Deletion of the Kv2.1 delayed rectifier potassium channel leads to neuronal and behavioral hyperexcitability. 2014. *Genes Brain and Behavior*; 13(4):394-408. PMID: PMC4077602.



Baek JH, Rubinstein M, Scheuer T, **Trimmer JS**. Reciprocal changes in phosphorylation and methylation of mammalian brain sodium channels in response to seizures. 2014. *The Journal of Biological Chemistry*; 30; 289(22):15363-15373. PMID: PMC4140893.

King AN, Manning CF, **Trimmer JS**. A unique ion channel clustering domain on the axon initial segment of mammalian neurons. 2014. *The Journal of Comparative Neurology*; 522(11):2594-608. PMID: PMC413399.

Mandikian D, Bocksteins E, Parajuli LK, Bishop HI, Cerda O, Shigemoto R, **Trimmer JS**. Cell type-specific spatial and functional coupling between mammalian brain Kv2.1 K⁺ channels and ryanodine receptors. 2014. *The Journal of Comparative Neurology*; 522(15):3555-3574. PMID: PMC4139460.

Trimmer JS. Ion channels and pain: important steps towards validating a new therapeutic target for neuropathic pain. 2014. *Experimental Neurology*; 254:190-194. PMID: PMC4118296.

W. MARTIN USREY, PH.D.

DEPARTMENT OF NEUROBIOLOGY, PHYSIOLOGY AND BEHAVIOR
COLLEGE OF BIOLOGICAL SCIENCES
DEPARTMENT OF NEUROLOGY
SCHOOL OF MEDICINE

Moore BD 4th, Rathbun DL, **Usrey WM**, Freeman RD. Spatiotemporal flow of information in the early visual pathway. 2014. *The European Journal of Neuroscience*; 39 (4):593-601. PMID: PMC4005889.

Bastos AM, Briggs F, Alitto HJ, Mangun GR, **Usrey WM**. Simultaneous recordings from the primary visual cortex and lateral geniculate nucleus reveal rhythmic interactions and a cortical source for γ -band oscillations. 2014. *The Journal of Neuroscience*; 34(22):7639-7744. PMID: PMC4035524.

JOHN. S. WERNER, PH.D.

DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE

Jonnal RS, Kocaoglu OP, Zawadzki RJ, Lee SH, **Werner JS**, Miller DT. The cellular origins of the outer retinal bands in optical coherence tomography images. 2004. *Investigative Ophthalmology and Visual Science*; 55(12):7904-7918. PMID: PMC4261632.

Schwartz DM, Fingler J, Kim DY, Zawadzki RJ, Morse LS, Park SS, Fraser SE, **Werner JS**. Phase-variance optical coherence tomography: A technique for non-invasive angiography. 2014. *Ophthalmology*; 121:180-187.

Poddar R, Kim DY, **Werner JS**, Zawadzki RJ. In vivo imaging of human vasculature in the chorioretinal complex using phase-variance contrast method with phase-stabilized 1 μ m swept-source optical coherence tomography (pv-SSOCT). (2014) *Journal of Biomedical Optics*; 19:126010-1-12.

Kim BG, **Werner JS**, Siminovitch M, Papamichael K, Han J, Park S. Spectral reflectivity recovery from tristimulus values using 3D extrapolation with 3D interpolation. 2014. *Journal of the Optical Society of Korea*; 18(5):507-516.

Zawadzki RJ, Capps AG, Kim DY, Panorgias A, Stevenson SB, Hamann B, **Werner JS**. Progress on developing adaptive optics-optical coherence tomography for in vivo retinal imaging: Monitoring and correction of eye motion artifacts. 2014. *Institute of Electrical and Electronics Engineers, Journal of Selected Topics in Quantum Electronics*; 20(2):7100912. PMID: PMC4276343.

Poddar R, Kim DY, **Werner JS**, Zawadzki RJ. Improved in vivo imaging of human blood circulation in the chorioretinal complex using phase variance method with new phase stabilized 1 μ m swept-source phase-variance optical coherence tomography (pvSSOCT). *Proceedings of SPIE*; 8567: 89300X-1- 8.

Park SS, Bauer G, Abedi M, Pontow S, Panorgias A, Jonnal R, Zawadzki RJ, **Werner JS**, Nolta J. Intravitreal autologous bone marrow CD34⁺ cell therapy for ischemic and degenerative retinal disorders: Preliminary phase 1 clinical trial findings. 2014. *Investigative Ophthalmology and Visual Science*; 9; 56(1):81-89. PMID: PMC4288143.

Werner JS, Chalupa LM. A decade of progress and new directions in the visual neurosciences. 2014. In: Chalupa LM, Werner JS (Eds.). *The new visual neurosciences*; 1-4. Cambridge, MA: The MIT Press.

Devinck F, Pinna B, **Werner JS**. Chromatic assimilation in visual art and perception. 2014. In: Geremek A, Greenlee M, Magnussen S (Eds.). *Perception beyond gestalt: Progress in vision research*; 172-184. London: Psychology Press/Taylor & Francis.

Glenn C. Yiu, MD, Ph.D.

Department of Ophthalmology and Vision Science
School of Medicine

Yiu G, Pecan P, Sarin N, Chiu SJ, Farsiu S, Mruthyunjaya P, Toth CA. Characterization of the choroid-scleral junction and suprachoroidal layer in healthy individuals on enhanced-depth imaging optical coherence tomography. 2014. *Journal of the American Medical Association Ophthalmology*. 2014; 132(2):174-181.

Yiu G, Itty S, Toth CA. Ocular safety of recreational lasers. 2014. *Journal of the American Medical Association Ophthalmology*; 132(3):245-246.

Andreoli M, **Yiu G**, Hart L, Andreoli C. B-scan Ultrasonography Following Open Globe Repair. 2014. Eye; 28(4):381-385. PMID: PMC3983623

Todorich B, **Yiu G**, Hahn P. Current and investigational pharmacotherapeutic approaches for modulating retinal angiogenesis. 2014. Expert Review of Clinical Pharmacology; 7(3):375-391.

Yiu G, Manjunath V, Chiu SJ, Farsi S, Mahmoud TH. Effect of anti-vascular endothelial growth factor therapy on choroidal thickness in diabetic macular edema. 2014. American Journal of Ophthalmology; 158(4):745-751.

Yiu G, Fekrat S, Hahn P. Spontaneous peripheral migration of subfoveal perfluorocarbon. 2014. Retina; 34(11):2315-2316.

Yiu G, Cummings TJ, Mruthyunjaya P. Choroidal metastasis from a neuroendocrine tumor masquerading as choroidal melanoma. 2014. Ophthalmic Surgery, Lasers and Imaging Retina; 45(5):456-458.

Yiu G, Mahmoud TH. Subretinal hemorrhage. 2014. Developments in Ophthalmology; 54:213-222.

Yiu G, Cummings TJ, Mruthyunjaya P. Conjunctival melanoma. 2014. Journal of the American Medical Association Ophthalmology; 132(12): 1432.

Yiu G. Advances in choroidal imaging with EDI-OCT. 2014. Retina Today; 82-85.

Yiu G, Mahmoud T. Subretinal hemorrhage. 2014. In: Oh H, Oshima Y. (Eds). Micro-incision vitrectomy surgery – Emerging techniques and technology. In: developments in ophthalmology; 54:213-222. Basel: Karger Publishers.

ROBERT J. ZAWADSKI, PH.D.

**DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE
DEPARTMENT OF CELL BIOLOGY AND HUMAN ANATOMY
COLLEGE OF BIOLOGICAL SCIENCES**

Zawadzki RJ, Capps AG, Kim DY, Panorgias A, Stevenson SB, Hamann B, Werner JS. Progress on developing adaptive optics-optical coherence tomography for in vivo retinal imaging: Monitoring and correction of eye motion artifacts. 2014. Institute of Electrical and Electronics Engineers, Journal of Selected Topics in Quantum Electronics; 20(2):7100912. PMID: PMC4276343.

Poddar R, Kim DY, Werner JS, **Zawadzki RJ**. In vivo imaging of human vasculature in the chorioretinal complex using phase-variance contrast method with phase-stabilized 1 μ m swept-source optical coherence tomography (pv-SSOCT). 2014 Journal of Biomedical Optics; 19:126010-1 - 126010-12.

Park SS, Bauer G, Abedi M, Pontow S, Panorgias A, Jonnal R, **Zawadzki RJ**, Werner JS, Nolta J. Intravitreal autologous bone marrow CD34+ cell therapy for ischemic and degenerative retinal disorders: Preliminary phase 1 clinical trial findings. 2014. Investigative Ophthalmology and Visual Science; 9; 56(1):81-89. PMID: PMC4288143.

Jonnal RS, Kocaoglu OP, **Zawadzki RJ**, Lee SH, Werner JS, Miller DT. The cellular origins of the outer retinal bands in optical coherence tomography images. 2004. Investigative Ophthalmology and Visual Science; 55(12):7904-7918. PMID: PMC4261632.

Levine ES, Zam A, Zhang P, Pechko A, Wang X, FitzGerald P, Pugh EN Jr, **Zawadzki RJ**, Burns ME. Rapid light-induced migration of retinal microglia in mice lacking Arrestin-1. 2014. Vision Research; 102:71-79. PMID: PMC4162662.

Shi AJ, Morrissey BM, Durbin-Johnson B, Pilli S, **Zawadzki RJ**, Cross CE, Park SS. Macular pigment and macular volume in eyes of patients with cystic fibrosis. 2014. Free Radical Research; 48(7):740-748.

Jian Y, Xu J, Gradowski MA, Bonora S, **Zawadzki RJ**, Sarunic MV. Wavefront sensorless adaptive optics optical coherence tomography for in vivo retinal imaging in mice. 2014. Biomedic Optics Express; 5(2):547-559. PMID: PMC3920883.

Pilli S, **Zawadzki RJ**, Telander DG. The dose-dependent macular thickness changes assessed by fd-oct in patients with retinitis pigmentosa treated with ciliary neurotrophic factor. 2014. Retina; 34(7):1384-1390.

MIN ZHAO, MD, PH.D.

**DEPARTMENT OF DERMATOLOGY
DEPARTMENT OF OPHTHALMOLOGY AND VISION SCIENCE
SCHOOL OF MEDICINE**

Zhao S, Zhu K, Zhang Y, Zhu Z, Xu Z, **Zhao M**, Pan T. ElectroTaxis-on-a-Chip (ETC): an integrated quantitative high-throughput screening platform for electrical field-directed cell migration. 2014. Lab Chip; 14(22):4398-4405.

Cao L, McCaig CD, Scott RH, Zhao S, Milne G, Clevers H, **Zhao M**, Pu J. Polarizing intestinal epithelial cells electrically through Ror2. 2014. Journal of Cell Science; 127(15):3233-3239. PMID: PMC4117229.

Luxardi G, Reid B, Maillard P, **Zhao M**. Single cell wound generates electric current circuit and cell membrane potential variations that requires calcium influx. 2014. Integrative Biology: Quantitative Biosciences from Nano to Macro; 6(7):662-672.

Reid B, **Zhao M**. The electrical response to injury: Molecular mechanisms and wound healing. 2014. Advance Wound Care (New Rochelle); 3(2):184-201. PMID: PMC3928722.

JIE ZHENG, PH.D.

**DEPARTMENT OF PHYSIOLOGY AND MEMBRANE BIOLOGY
COLLEGE OF BIOLOGICAL SCIENCES**

Zheng J, Ma L. Structure and function of the thermoTRP channel pore. 2014. In: Islas LD, Qin F. (Eds.). Thermal Sensors: 233-257. Academic Press, Massachusetts.

Tang YQ, Zhou JH, Yang F, **Zheng J**, Wang K. 2014. The tetramerization domain potentiates Kv4 channel function by suppressing closed-state inactivation. 2014. Biophysical Journal; 107(5):1090-1104. PMID: PMC4156681.

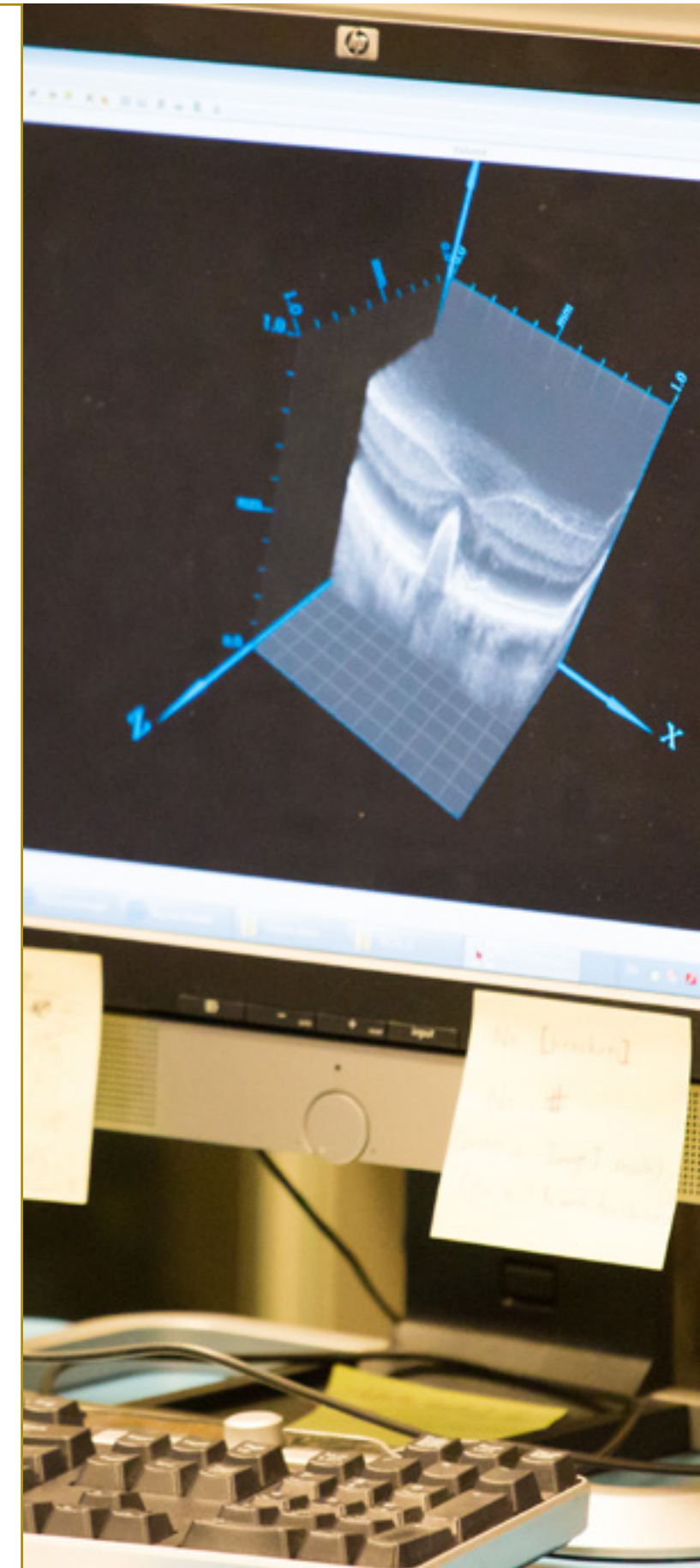
Yang F, **Zheng J**. High temperature sensitivity is intrinsic to voltage-gated potassium channels. 2014. Elife; 3:e03255. PMID: PMC4123715.

Ma L, Lee BH, Mao R, Cai A, Jia Y, Clifton H, Schaefer S, Xu L, **Zheng J**. Nicotinic acid activates the capsaicin receptor TRPV1: Potential mechanism for cutaneous flushing. 2014. Arteriosclerosis, Thrombosis, and Vascular Biology; 34(6):1272-1280. PMID: PMC4063526.

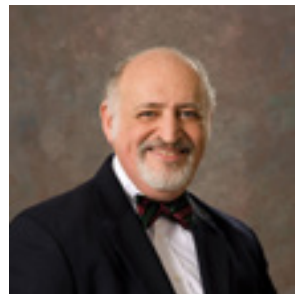
Ma L, Yang F, **Zheng J**. Application of fluorescence resonance energy transfer in studies of biomolecules. 2014. Journal of Molecular Structure; 1077:87-100.

Yang F, Ma L, Cao X, Wang K, **Zheng J**. Divalent cations activate TRPV1 through promoting conformational change of the extracellular region. 2014. Journal of General Physiology; 43(1):91-103. PMID: PMC3874565.

Cao X, Ma L, Yang F, Wang K, **Zheng J**. Divalent cations potentiate TRPV1 channel by lowering the heat activation threshold. 2014. Journal of General Physiology; 143(1):75-90. PMID: PMC3874569.



LEADERSHIP

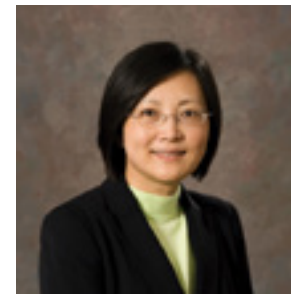


Mark J. Mannis, M.D., F.A.C.S.
Professor, Cornea, External Disease, Chair
Research Interests: Corneal transplant technology, eye & skin diseases, and artificial corneas



Michele C. Lim, M.D.
Professor, Glaucoma
Vice-Chair, Medical Director
Research Interests: Glaucoma patient compliance focusing on medication adherence

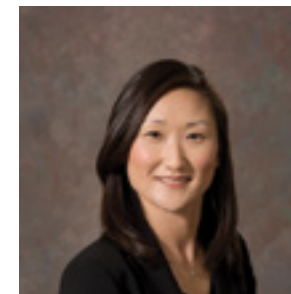
Esther S. Kim, M.D.
Professor, Comprehensive Ophthalmology Director, Optometric Services
Research Interests: Improvement of technology in cataract surgery



Jennifer Li, M.D.
Assistant Professor, Cornea, External Disease and Refractive Surgery
Research Interests: Endothelial keratoplasty and keratoprosthesis surgery



Lily Koo Lin, M.D.
Associate Professor, Oculoplastic Surgery
Research Interests: Improvement of aging eyelids and the relationship between the orbital globe and trauma



Linda J. Margulies, M.D.
Professor, Vitreo-retinal Disease, Veterans Administration, Martinez
Research Interests: New treatments for age-related macular degeneration



FACULTY

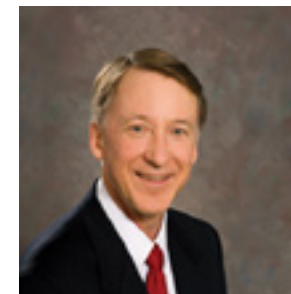


Annie K. Baik, M.D.
Associate Professor, Glaucoma
Veterans Administration, Mather
Research Interests: Emerging glaucoma surgical techniques, patient education

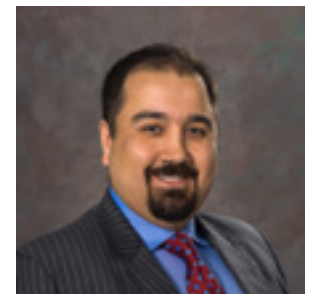


James D. Brandt, M.D.
Professor, Glaucoma,
Vice Chair of International Programs and Innovative Technology
Director, Glaucoma Service
Research Interests: Nanotechnology for innovation in glaucoma treatments

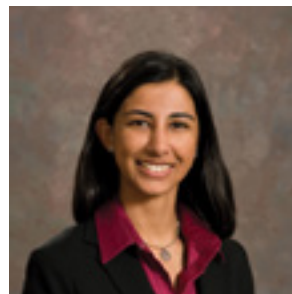
Lawrence S. Morse, M.D., Ph.D.
Professor, Vitreo-retinal Surgery and Uveitis
Director, Retina Service
Research Interests: Treatments for diabetic retinopathy, age-related macular degeneration and retinal degeneration



Ala Moshiri, M.D., Ph.D.
Assistant Professor, Vitreoretinal Surgery
Research Interests: Genetic Disease.

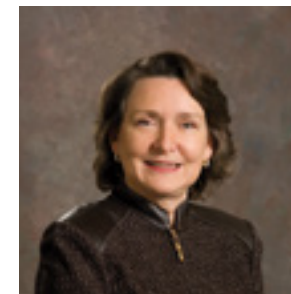


Jeffrey J. Caspar, M.D.
Professor, Comprehensive Ophthalmology and Refractive Surgery
Director, Residency Program
Research Interests: Cataract surgery after refractive surgery and new techniques for cataract extraction

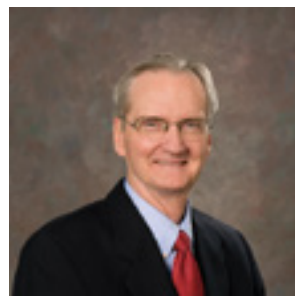


Nandini Gandhi, M.D.
Assistant Professor, Pediatric Ophthalmology and Strabismus
Research Interests: International ophthalmology and curriculum development abroad

Mary A. O'Hara, M.D., F.A.C.S., F.C.A.P.
Professor, Director, Pediatric Ophthalmology and Strabismus Service
Research Interests: Development of new technology in pediatric strabismus



Susanna S. Park, M.D., Ph.D.
Professor, Vitreo-retinal Surgery
Research Interests: Age-related macular degeneration, proton beam treatments, and stem cell therapies

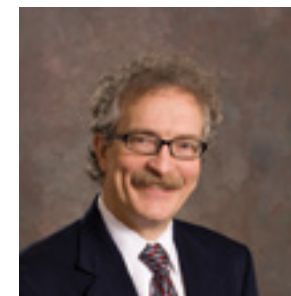


John L. Keltner, M.D.
Distinguished Professor, Chair Emeritus, Neuro-Ophthalmology
Research Director
Research Interests: The effects of multiple sclerosis and cancer on vision

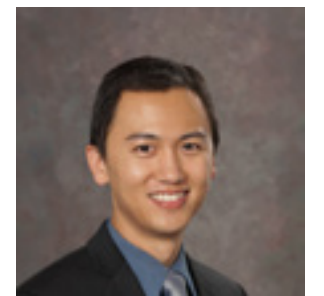


Syed Khizer Khaderi, M.D., M.P.H.
Assistant Professor, Neuro-Ophthalmology
Research Interests: Genetic diseases of the optic nerve and visual psychophysics

Ivan R. Schwab, M.D., F.A.C.S.
Professor Emeritus, Cornea, External Disease and Uveitis
Director, Cornea, External Disease Service
Research Interests: Limbal stem cell transplants and comparative anatomy



Glenn C. Yiu, M.D., Ph.D.
Assistant Professor, Vitreo-retinal Surgery
Research Interests: Neuro-regeneration, retinal cell biology, ocular imaging



OPTOMETRISTS



Thomas B. Barnes, O.D., M.S., F.A.A.O.
Principal Optometrist



Melissa Barnett Erickson, O.D., F.A.A.O.
Principal Optometrist



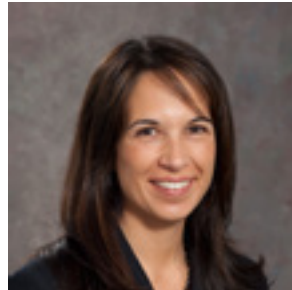
Brooke S. Chang, O.D.
Senior Optometrist



Larisa Johnson-Tong, O.D., F.A.A.O.
Senior Optometrist



Hai Tong, O.D.
Senior Optometrist



Marcia Nearing, O.D., F.A.A.O.
Senior Optometrist



Kaaryn Pederson-Vanbuskirk, O.D., F.A.A.O.
Senior Optometrist

ORTHOPTIST



Tania Hashmi, B.Med.Sci.
Orthoptics

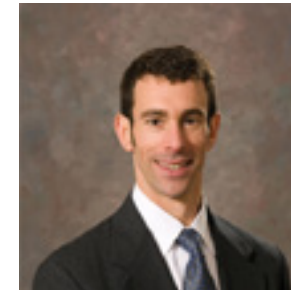
VISION SCIENCES



Marie E. Burns, Ph.D.
Professor, Retinal Physiology
Research Interests: Photo transduction, photoreceptor adaptation, and protein movement



Paul FitzGerald, Ph.D.
Professor, Cell Biology and Human Anatomy
Director, Center for Visual Sciences
Research Interests: The role of intermediate filaments in the biology of the ocular lenses of the retina



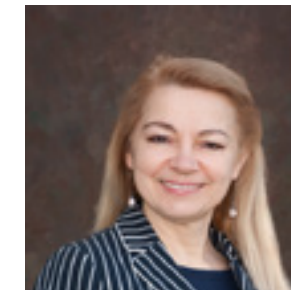
Mark S. Goldman, Ph.D.
Associate Professor, Neuroscience
Research Interests: Computer models of eye movement



Leonard Hjelmeland, Ph.D.
Professor, Molecular & Cellular Biology; Ophthalmology
Research Interests: Senescence of retinal pigment epithelium



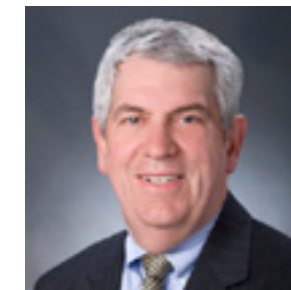
Andrew T. Ishida, Ph.D.
Professor, Neurobiology, Physiology, & Behavior
Research Interests: Modulation of retinal ganglion cell excitability



Zeljka Smit-McBride, Ph.D.
Research Scientist
Vitreoretinal Research Lab
Research Interests: Genomics and epigenetics of aging and age-related eye diseases, age related macular degeneration and diabetic retinopathy



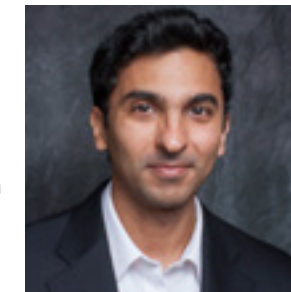
Christopher J. Murphy, D.V.M., Ph.D.
Professor, Comparative Ophthalmology
Research Interests: Bio-physical cueing and modulation of cell behaviors



Gary D. Novack, Ph.D.
Visiting Professor of Pharmacology and Ophthalmology
Research interests: Development of new therapeutics, Patient adherence and performance, Regulatory Affairs



Edward N. Pugh, Jr., Ph.D.
Professor, Cell Biology and Human Anatomy; Physiology and Membrane Biology; Ophthalmology
Research Interests: Retinal photoreceptors and color vision



Vivek J. Srinivasan, Ph.D.
Assistant Professor, Biomedical Engineering
Research Interests: Retinal and Optic Nerve Imaging, Blood Flow and Metabolism

VISION SCIENCES CONTINUED

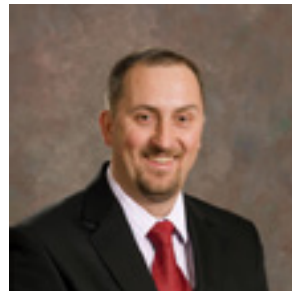
Charles E. Thirkill, Ph.D.
Adjunct Professor Emeritus,
Immunology & Biology
Research Interests:
Ocular immunology, retinal
and optic nerve imaging
techniques



John S. Werner, Ph.D.
Distinguished Professor,
Visual Psychophysics.
Research Interests: Color
and spatial vision, normal
aging and age-related
disease, retinal and optic
nerve imaging



Robert J. Zawadzki, Ph.D.
Associate Researcher,
High Resolution Retinal
Imaging
Research Interests:
Retinal and optic nerve imaging
techniques



Min Zhao, M.D., Ph.D.
Professor, Regenerative Cures
Research Interests:
The role of endogenous
electric fields to stimulate
cell migration, corneal wound
healing and regeneration
of retinal degeneration



FELLOWS



J. Edie DeNiro, M.D.
Clinical Glaucoma Fellow



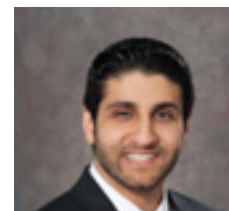
Mazen Y. Choulakian, M.D.
Clinical Cornea Fellow



Elad Moisseiev, M.D.
Clinical Retina Fellow



Senad Osmanovic, M.D.
Clinical Retina Fellow



Sumeer Thinda, M.D.
Clinical Retina Fellow

RESIDENTS



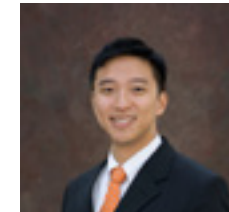
Annamieka Leary, M.D.
Third Year Resident



Shabnam Taylor, M.D.
Third Year Resident



**Jeffrey Willis, M.D.,
Ph.D.**
Third Year Resident



Peter Wu, M.D.
Third Year Resident



Nathaniel Gebhard, M.D.
Second Year Resident



**Kimberly Gokoffski,
M.D., Ph.D.**
Second Year Resident



Natasha Kye, M.D.
Second Year Resident



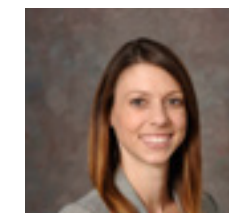
Kingsley Okafor, M.D.
Second Year Resident



Sam Abbassi, M.D.
First Year Resident



Jolene Rudell, M.D., Ph.D.
First Year Resident



Rachel Simpson, M.D.
First Year Resident



Ilana Traynis, M.D.
First Year Resident