

ERI ANNOUNCEMENTS & COMING EVENTS

ERI Membership Surpasses the 100 Mark!

The nine new members who have become part of the ERI in recent months have put total Institute membership over one hundred, expanding the multidisciplinary community of scholars working to gain critical knowledge about the science and art of vision. We appreciate their insights, involvement, and expertise!

Members: **M. Deric Bownds, PhD** (Zoology; Cell and Molecular Biology)
C. Shawn Green, PhD (Psychology)
Sara Liliensiek, PhD (Chemical & Biological Engineering)
Cameron Parsa, MD (Ophthalmology & Visual Sciences)
Rodney Schreiner, PhD (Chemistry)

Associate Members: **Doris Dubielzig** (Certified Mentor to new teachers; retired science teacher)
Donna Weihofen, RD, MS (Senior Clinical Nutritionist, UW Hospital and Clinics)

Trainee Members: **Felicia Duke** (Veterinary Medicine, graduate student)
Erin Scott, VMD (Veterinary Medicine, Fellow in Comparative Ocular Pathology)

The ERI welcomes applications from faculty and staff doing vision-related work and research at UW-Madison and at other UW System campuses, from community members who have vision-related interests and involvements, and from postdoctoral fellows, graduate students, and advanced undergraduates with faculty sponsors. Application forms are available at the ERI website: <http://www.vision.wisc.edu/>

Poster Session Best Student Presentation Award Winners

Outstanding undergraduate, graduate student and postdoctoral trainee poster presentations were recognized with awards at the October 18th *Vision Science & Visual Art Poster/Gallery Session*, at which 40 posters were displayed by ERI members and students. Award recipients were as follows:

Best Student Contribution, Vision Science & Visual Art to **Michelle Wilson**, Chemical & Biological Engineering (**Paul Nealey**, advisor); poster title: *Hydrogels with well-defined peptide-hydrogel spacing and concentration: Impact on epithelial cell behavior*; poster authors: Michelle Wilson, Sara Liliensiek, Christopher Murphy, William Murphy, Paul Nealey.

Honorable Mention to **Bader Aldalali**, Electrical & Computer Engineering (**Hongrui Jiang**, advisor); poster title: *A micro camera utilizing a microlens array for multiple viewpoint imaging*; poster authors: Bader Aldalali, Chenhui Li, Li Zhang, Hongrui Zhang.

Honorable Mention to **Erica Rosenbaum**, Ophthalmology & Visual Sciences (**Nansi Colley**, advisor); poster title: *XPORT, an eye-specific chaperone for Rhodopsin and TRP, is essential for photoreceptor cell survival*; poster authors: Erica Rosenbaum, Kimberley Brehm, Eva Vasiljevic, Roger Hardie, Nansi Colley.

We are fortunate to again have award support from these generous sponsors: Nikon Instruments, Inc. for donation of a Nikon Coolpix camera; UW General Library System (private gift funds held at UW Foundation) for vision-related books; and the University Book Store-Health Sciences Learning Center for UBS gift certificates.

Capital Campaign Note

Thank you to all of the ERI members who have helped us connect with prospective company sponsors and donors to our capital campaign. Your connections to scientific companies and the people who work in them are valuable for ERI. We have quality proposals out to 20 companies/foundations who have specific ongoing relationships with members of the ERI, or a relationship with a member of the Advisory Board. Being able to reference the name of a working scientist who knows about the company is very helpful in a first approach letter. We then follow up to see if we can move the process along and toward the decision maker at the company. Please be aware of the need to connect ERI to these scientific firms and [call Susan Linck \(265-0690\)](tel:265-0690) with any possible referrals. She will be glad to discuss it with you and determine the best way/time to approach the company. Thank you in advance for "opening the door" for ERI with these firms.

COMING EVENTS

How to Give Effective Scientific Presentations, an ERI lecture on November 18, 2011

H. Adam Steinberg, from *artforscience* and former Artist & Scientist at the Department of Biochemistry, will share his 20 years of experience regarding effective ways to present scientific information in open lecture format. Attend this valuable seminar to

learn dynamic, professional, successful techniques that will capture an audience—techniques that will enhance understanding and retention of your scientific information. This opportunity is for graduate students and post-docs in ERI member lab groups, as well as for ERI member faculty and staff.

How to Give Effective Scientific Presentations

Friday, November 18, 3:00pm to 4:00pm

Biochemistry Addition Room 175 (in Biochemistry Addition, 433 Babcock Drive)

Seats are still open; RSVP by November 16: gmstirr@wisc.edu

ERI Seminar Noon to 1:00pm, December 13, 2011

Degenerative Retinal Diseases: from Genetics to Detection

Nansi J. Colley, PhD (Ophthalmology & Visual Sciences) *Retinal degeneration through the eye of the fly*

Yijun Huang, PhD (Ophthalmology & Visual Sciences) *Advanced imaging methods to detect age-related eye diseases*

Room 3001A WIMR (Wisconsin Institutes for Medical Research)

RSVP for pizza lunch by Monday, December 12: gmstirr@wisc.edu

*Full 2011-12 ERI Seminar Series schedule: <http://www.vision.wisc.edu/seminars.html>

RESEARCH NEWS

BrainPort® Vision Device in Multi-site Clinical Trial

ERI member **Aimee Arnoldussen** of biomedical company Wicab, Inc. is serving as study manager for a year-long FDA clinical study to evaluate the safety and efficacy of the BrainPort® vision device at seven sites within the United States and Canada. This visual prosthetic device enhances perception by translating visual information into tactile stimulation to the tongue. The multi-site clinical trial will demonstrate device safety in sustained use over a full year's time, and will also demonstrate improved object recognition, word identification, and ambulation in subjects who have no useful vision. Dr. Arnoldussen is confident that many of the subjects who complete the study will achieve a high success rate, advancing steps to make the device commercially available. In addition, Wicab has completed the first of a three-year grant via the Defense Medical Research and Development Program of the Department of Defense (DMRDP) in conjunction with UPMC and Carnegie Mellon. The enrolled subjects, including veterans blinded in recent conflicts, are steering future device development by participating in clinical assessments and providing feedback following their use of the device both at home and in the clinic.

Thorough Review of Feline Glaucoma Aids Diagnosis and Treatment

In a comprehensive review published in the September 2011 issue of *Veterinary Ophthalmology*, veterinarians and ERI members **Dr. Gillian McLellan** and **Dr. Paul Miller** consider the clinical features, pathophysiology, and classification of feline glaucomas and provide current evidence to direct selection of appropriate treatment strategies for feline glaucoma patients. Unlike dogs, cats with glaucoma typically present late in the course of disease. It is likely that glaucoma in cats is under-diagnosed due to its gradual onset and progression, as well as limitations of some commonly used instruments that measure intraocular pressure in this species. Treatment of glaucoma in feline patients presents a clinical challenge, particularly as glaucoma is often secondary to other ocular and/or systemic disease processes in cats. This overview will assist clinicians with diagnosis and treatment.

Using Two Hands: Gaining Insight into Motor System Coordination

Task-switching paradigms have generally been used to investigate how we reconfigure cognitive processes, such as decision making and allocating attention, when we switch from one task to another. ERI member **Andrea Mason** (Kinesiology) designed an experimental protocol to extend the task-switching paradigm into the motor domain. Subjects performed simple, one-handed reach-to-grasp movements. Randomly, a second reach-to-grasp goal took precedence, requiring subjects to quickly abort the first movement in favor of a second movement performed by the opposite limb. As an example, imagine reaching out to grasp your keys with your right hand and inadvertently knocking into a drinking glass. In order to save the drinking glass and its contents, you must quickly abort your original motor plan and instead reach out with the left hand to grasp the glass. Results indicated that reaction times for switch trials were faster when the “new” target was located at the same distance as the “original” target – suggesting that people store movement parameter information, such as movement distance, and are able to capitalize on that stored parameter information to reduce reaction time when creating subsequent motor programs. Mason also found that when subjects were required to perform a task switch, the primary hand stopped moving part-way toward the target and returned toward the start position as the secondary hand simultaneously completed its reach-to-grasp goal. Interestingly, the “return” movement of the primary hand had a strong influence on the movement time of the secondary hand, causing it to either speed up or slow down. These results suggest that even if a movement with one hand is aborted in mid-execution, it can still influence the performance of the other hand during a task switch. This suggests that bimanual coordination can affect reach-to-grasp performance even though only one hand has a goal to achieve. [Bernardin BJ, Mason AH. Bimanual coordination affects motor task switching. *Experimental Brain Research*. 2011 Oct 9. Epub]

Brilliance and Quackery in Early Ocular Treatment: The Oculist Who Blinded Handel and Bach

With co-author Sarah Atzen, **ERI Director Dr. Daniel Albert** tells the story of Chevalier John Taylor, an English oculist famously known as the man who purportedly blinded both Johann Sebastian Bach and Georg Frederic Handel. Published in October by Parallel Press, their book – titled *Chevalier John Taylor, England's Early Oculist: Pretender or Pioneer?* – explores these allegations and also presents lesser-known evidence that Taylor was a well-trained surgeon and that his skills and knowledge of ophthalmic disease were

unusually good for the time. As a book collector and medical history expert, Dr. Albert first encountered Taylor's works in the 1960's and became fascinated by Taylor's mix of intelligence, talent, and fraud. Parallel Press describes this work as "a lively, engrossing examination of a flamboyant "ophthalmiater" who served the crowned heads of 18th-century Europe—with sometimes devastating results."

NEW PUBLICATIONS/CURRENT LITERATURE

These are among recent publications by ERI members, including Epubs and print publications from September through October 2011. The list is organized alphabetically by first-listed ERI author name, highlighted in bold. If we have missed one of your publications, please accept our apologies and send us your citations for inclusion in the next issue.

Vokoun CR, Jackson MB, **Basso MA**. Circuit dynamics of the superior colliculus revealed by in vitro voltage imaging. *Ann NY Acad Sci*. 2011 Sep;1233(1):41-7.

Basso MA, Sommer MA. Exploring the role of the substantia nigra pars reticulata in eye movements. *Neuroscience*. 2011 Aug 19. [Epub ahead of print]

Espinheira Gomes F, **Bentley E**, Lin TL, **McLellan GJ**. Effects of unilateral topical administration of 0.5% tropicamide on anterior segment morphology and intraocular pressure in normal cats and cats with primary congenital glaucoma. *Vet Ophthalmol*. 2011 Sep;14 Suppl 1:75-83.

Tsai S, **Bentley E**, **Miller PE**, Gomes FE, Vangyi C, Wiese A, Almazen A, Li H, Conforti P, Lee SS, Robinson MR. Gender differences in iridocorneal angle morphology: a potential explanation for the female predisposition to primary angle closure glaucoma in dogs. *Vet Ophthalmol*. 2011 Oct 17. [Epub ahead of print]

Jones JC, Settles EW, **Brandt CR**, Schultz-Cherry S. Virus aggregating peptide enhances the cell-mediated response to influenza virus vaccine. *Vaccine*. 2011 Oct 13;29(44):7696-703. Epub 2011 Aug 10.

Kolb AW, Adams M, Cabot EL, Craven M, **Brandt CR**. Multiplex sequencing of seven ocular herpes simplex virus type-1 genomes: Phylogeny, sequence variability and SNP distribution. *Invest Ophthalmol Vis Sci*. 2011 Oct 20. [Epub ahead of print]

Duncan ID, Kondo Y, Zhang SC. The myelin mutants as models to study myelin repair in the leukodystrophies. *Neurotherapeutics*. 2011 Oct 7. [Epub ahead of print]

Mayer JA, Larsen EC, Kondo Y, **Duncan ID**. Characterization of a PLP-overexpressing transgenic rat, a model for the connatal form of Pelizaeus-Merzbacher disease. *Neurobiol Dis*. 2011 Nov;44(2):231-8.

Chamberlain CS, Crowley EM, Kobayashi H, **Eliceiri KW**, Vanderby R. Quantification of collagen organization and extracellular matrix factors within the healing ligament. *Microsc Microanal*. 2011 Oct;17(5):779-87. Epub 2011 Sep 13.

Kouris NA, Squirrell JM, Jung JP, Pehlke CA, Hacker T, **Eliceiri KW**, Ogle BM. A nondenatured, noncrosslinked collagen matrix to deliver stem cells to the heart. *Regen Med*. 2011 Sep;6(5):569-82.

O'Connor SL, Becker EA, Weinfurter JT, Chin EN, Budde ML, Gostick E, Correll M, **Gleicher M**, Hughes AL, Price DA, Friedrich TC, O'Connor DH. Conditional CD8+ T cell escape during acute simian immunodeficiency virus infection. *J Virol*. 2011 Oct 19. [Epub ahead of print]

Griep AE, John MC, **Ikeda S**, **Ikeda A**. Gene targeting in the mouse. *Methods Mol Biol*. 2011;770:293-312.

Hajipour AR, **Guo LW**, Pal A, Mavlyutov T, **Ruoho AE**. Electron-donating para-methoxy converts a benzamide-isoquinoline derivative into a highly Sigma-2 receptor selective ligand. *Bioorg Med Chem*. 2011 Oct 20. [Epub ahead of print]

Chandler CS, Gangaputra S, **Hubbard LD**, **Ferrier NJ**, Pauli TW, Peng Q, Thayer DW, **Danis RP**. Suboptimal image focus broadens retinal vessel caliber measurement. *Invest Ophthalmol Vis Sci*. 2011 Nov 1;52(12):8558-61. Epub Sep 24 2011.

Kalyani PS, Fawzi AA, Gangaputra S, van Natta ML, **Hubbard LD**, **Danis RP**, Thorne JE, Holland GN; Studies of the Ocular Complications of Aids Research Group. Retinal vessel caliber among people with acquired immunodeficiency syndrome: Relationships with visual function. *Am J Ophthalmol*. 2011 Oct 22. [Epub ahead of print]

Gangaputra S, Kalyani PS, Fawzi AA, van Natta ML, **Hubbard LD**, **Danis RP**, Thorne JE, Holland GN; Studies of the Ocular Complications of Aids Research Group. Retinal vessel caliber among people with acquired immunodeficiency syndrome: Relationships with disease-associated factors and mortality. *Am J Ophthalmol*. 2011 Oct 22. [Epub ahead of print]

Lo C-W, Li C, **Jiang H**. Direct solar energy conversion and storage through coupling between photoelectrochemical and ferroelectric effects. *AIP Advances*. 2011 Oct 3;(1):doi: 10.1063/1.3651084.

Weinreb KN, **Kaufman PL**. Glaucoma research community and FDA look to the future, II: NEI/FDA Glaucoma Clinical Trial Design and Endpoints Symposium: measures of structural change and visual function. *Invest Ophthalmol Vis Sci*. 2011 Oct 4;52(11):7842-51.

Tocce EJ, Broderick AH, Murphy KC, **Liliensiek SJ**, **Murphy CJ**, Lynn DM, **Nealey PF**. Functionalization of reactive polymer multilayers with RGD and an antifouling motif: RGD density provides control over human corneal epithelial cell-substrate interactions. *J Biomed Mater Res A*. 2011 Oct 4. [Epub ahead of print]

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Bosch TC, **McFall-Ngai MJ**. Metaorganisms as the new frontier. *Zoology (Jena)*. 2011 Sep;114(4): 185-90.

Heath-Heckman EA, **McFall-Ngai MJ**. The occurrence of chitin in the hemocytes of invertebrates. *Zoology (Jena)*. 2011 Sep;114(4):191-8.

Krasyty BC, Troll JV, Weiss JP, **McFall-Ngai MJ**. LBP/BPI proteins and their relatives: conservation over evolution and roles in mutualism. *Biochem Soc Trans*. 2011 Aug 1;39(4):1039-44.

Sigle KJ, Camaño-Garcia G, Carriquiry AL, Betts DM, Kuehn MH, **McLellan GJ**. The effect of dorzolamide 2% on circadian intraocular pressure in cats with primary congenital glaucoma. *Vet Ophthalmol*. 2011 Sep;14 Suppl 1:48-53.

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Wood JA, McKee CT, Thomasy SM, Fischer ME, Shah NM, **Murphy CJ**, Russell P. Substratum compliance regulates human trabecular meshwork cell behaviors and response to latrunculin B. *Invest Ophthalmol Vis Sci*. 2011 Nov 7. [Epub ahead of print]

Watari S, Hayashi K, Wood JA, Russell P, **Nealey PF**, **Murphy CJ**, Genetos DC. Modulation of osteogenic differentiation in hMSCs cells by submicron topographically-patterned ridges and grooves. *Biomaterials*. 2011 Oct 7. [Epub ahead of print]

Nork TM, **Murphy CJ**, Kim CB, **Ver Hoeve JN**, Rasmussen CA, **Miller PE**, Wabers HD, Neider MW, **Dubielzig RR**, McCulloh RJ, Christian BJ. Functional and anatomic consequences of subretinal dosing in the cynomolgus macaque. *Arch Ophthalmol*. 2011 Sep 12. [Epub ahead of print]

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Lewis-Peacock JA, Drysdale AT, Oberauer K, **Postle BR**. Neural evidence for a distinction between short-term memory and the focus of attention. *J Cogn Neurosci*. 2011 Sep 29. [Epub ahead of print]

Czuba TB, **Rokers B**, Guillet K, Huk A, Cormac LK. Three-dimensional motion aftereffects reveal distinct direction-selective mechanisms for binocular processing of motion through depth. *J Vis*. 2011 Sep 26;11(10):18. Doi: 10.1167/11/10/18.

Tu Z, Li Y, Smith DS, **Sheibani N**, Huang S, Kern T, Lin F. Retinal pericytes inhibit activated T cell proliferation. *Invest Ophthalmol Vis Sci*. 2011 Oct 14. [Epub ahead of print]

Perone S, **Simmering VR**, Spencer JP. Stronger neural dynamics capture changes in infants' visual working memory capacity over development. *Dev Sci*. 2011 Nov;14(6):1379-92. Epub 2011 Sep 17.

About ERI *InSights*

The UW Eye Research Institute will distribute *InSights* every other month. Its purpose is to build ERI community, advancing member connections and collaborations by sharing research and educational activities as well as member accomplishments and honors (including those of their lab associates and students). We welcome news of research advances, scholarly publications, grant awards, educational and professional honors, available lab positions, or shared equipment/services. If you have an item you wish to submit for possible inclusion, please send it to Gail Stirr at gmstirr@wisc.edu

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