

Brain Waves

Volume 9, Issue 1
August 2011

WELCOME, IBS STUDENTS!

Being a graduate student is one of the best jobs around – as long as you can handle its challenges. The best is it's a wonderful time to explore all the careers possible in the sciences and find what you will truly enjoy doing for the rest of your life. You will have both intellectual freedom and the luxury of time to think. Science is not only a way of thinking; it is a way of life. Here you are with other students who are learning not only the skills to conduct research, but also the ethics and integrity needed to make advances in knowledge that will benefit humankind. The challenges – the pay is low, the hours are long and the work is hard. Again, welcome! ~ **Don M. Gash, Chair**



DON MARSHALL GASH, PH.D.
CHAIR,
ANATOMY & NEUROBIOLOGY



We are one of the top ranked Anatomy departments in the nation with regard to external research support such as funding from the National Institutes of Health. In addition, in 2007, the department achieved a ranking of 3rd in the nation of all Anatomy departments in terms of faculty productivity, as reported in the Chronicle of Higher Education. Our graduate students are an integral force in achieving such rankings by contributing to our numerous publications and grants. The neuroscience research interests of our faculty run from nanotechnology to molecular and cellular approaches, to systems neuroscience, to behavioral and cognitive studies; and from basic to translational to clinical studies. The research resources available to our graduate students are numerous and diverse. In addition, our commitment to education is evidenced by our strong teaching role in the medical center and our continued national prominence as leaders in educational technology development.

In addition, our support staff is critical in helping the department accomplish its research, teaching and service missions. You will find that the staff are always helpful and make many of the administrative details of graduate school bearable. ~ **Dr. Wayne Cass, Professor, Director of Graduate Studies**

Welcome! Graduate studies represents a major transition in your education and career. It is a transition from receiving information to producing new knowledge, from lab experiments with known results to studies in which the results are often not what was predicted. As faculty, our role is not only to provide instruction in experimental methods but also in how to think—how to ask interesting questions, design experiments to answer those questions, troubleshoot problems, and interpret those unexpected results. Choosing a laboratory for your research is much like dating, trying to determine if it is a good fit for both you and the lab. This transition is exciting, but accompanied by anxiety and uncertainty. The faculty, students, postdocs, and staff in Anatomy and Neurobiology are here to help and look forward to working with you. ~ **Dr. Jim Geddes, Professor, Director, IBS Orientation Committee**



INSIDE THIS ISSUE:

EMPLOYEE OF THE QUARTER	3
PROFESSIONAL ANNOUNCEMENTS	4
AND IN THE NEWS...	6
BIRTHDAYS	6
TRAINING OPPORTUNITIES	7

ANATOMY'S NEW GRADUATE STUDENTS

Please join us in welcoming our new graduate students from the IBS program!



Heather Yonutas
Sullivan Lab



Carolyn Crowdus
Geddes Lab



Dustin Brown
Gerhardt Lab



Mallory Stenslik
Gash Lab



Johnny Cebak
Hall Lab

SPECIAL POINTS OF INTEREST:

- The next Faculty Meeting will be held on Wednesday August 8 at 12pm in Combs 102.
- Employee of the 2nd Quarter nominations needed (see page 6).

EDITOR'S NOTE: This volume of Brain Waves opens the 2011-2012 academic year. The format for the newsletter will now be quarterly with special issues as required. If you have any suggestions for the newsletter please email them to avalon.sandoval@uky.edu. ~ **Avalon Sandoval**

EMPLOYEE SERVICE AWARDS

We would like to congratulate the following employees for their years of service: Robin Lindsay (20 Years); Dr. Yi Ai (15 years); Laura Peters (10 years); François Pomerleau (10 years); Dalene Rice (10 years); Angel Schumacher (10 years); and Avalon Sandoval (10 years).

Below are some pictures at the recognition ceremony for the College of Medicine:



Laura Peters (left), Angel Schumacher (right),
Dalene Rice (top left) , Yi Ai (top right)



(from left to right) Avalon Sandoval,
François Pomerleau and Robin Lindsay

EMPLOYEE OF THE QUARTER



Julie Poole, Melissa Jones, Dr. Don Gash
(left to right)

Congratulations to Melissa Jones in the Anatomy Administrative Office for receiving the Employee of the Quarter Award for the first quarter of the calendar year. Julie Poole and Dr. Don Gash presented the award. Melissa is always willing to assist others and has great energy! Well done, Melissa!

Remember, you can nominate any regular full-time Anatomy employees using the form on page 3. Nominations for the third quarter are due **Monday, September 12, 2011**. Remember, if the person you nominated did not win, please re-submit their nomination for the next quarter!

COMPLIANCE CHANGES

Employee Health is creating a new tracking system to maintain medical compliance for UKHealthcare and College of Medicine employees. Two weeks prior to your birth month you will be contacted to make an appointment to be seen to have TB tests updated, vaccinations if needed, etc. The email example is below:

"We appreciate your patience with us as we are converting to a new tracking schedule beginning July 1, 2011... According to our records, your birth month is coming up in two (2) weeks. This means that as a UK HealthCare employee you are required to visit Employee Health for a compliance review sometime within your birth month. Appointments are required. You may schedule a compliance appointment by calling 323-APPT (2778). If you arrive at Employee Health without an appointment scheduled you will be given the next available opening. Wait times for an appointment scheduled at the check-in window could be long. Employees must bring their UK badge to every visit. If this is your first time to Employee Health, please bring your immunization records for evaluation. For questions or clarification please call Leslie Hargis at 218-3254 or send an e-mail to laharg3@uky.edu."

These appointments pertain to any laboratory personnel who are required to have TB testing or personnel that have direct patient/subject contact for research studies.

EMPLOYEE OF THE QUARTER NOMINATION FORM

The Quarterly Employee Awards are will be announced in **May** (for nominations submitted January through March); **August** (April through June); **October** (July through September) and **December** (October through December). The Employee of the Year Award will be selected from the winners throughout the year and will be announced the following January.

Please submit nominations to Stacey Reid or Kim Wilkerson by September 1, 2011.

When considering someone for the award, think of the individual who has made your job easier or assisted you in performing your job. To complete the nominations please complete the following questions. Use additional paper or the back of this if necessary.

Date: _____ Candidate: _____

Nominator: _____

Is this individual a regular full-time employee in the Department of Anatomy & Neurobiology?

_____ Yes _____ No

1. Briefly describe the normal job duties of the nominee. Give specifics.

2. Give specific examples of the nominee going above and beyond their normal job duties.

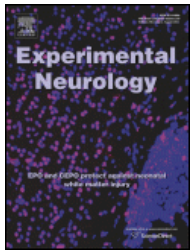
3. How do you see the nominee's impact on the department as a whole? Give examples.

4. How have you seen this individual contribute to the UK and/or greater community? Give examples.

Submit to Stacey Reid or Kim Wilkerson in 305 Whitney-Hendrickson MRISC 0098 Phone: 323-6926

PROFESSIONAL ANNOUNCEMENTS

PUBLICATIONS



Santos RM, Lourenço CF, **Gerhardt GA**, Cadenas E, Laranjinha J, Barbosa RM. Evidence for a pathway that facilitates nitric oxide diffusion in the brain. *Neurochem Int.* 2011 Aug;59(1):90-6. Epub 2011 Jun 6.

Quintero JE, Pomerleau F, Huettl P, Johnson KW,

Offord J, **Gerhardt GA**. Methodology for rapid measures of glutamate release in rat brain slices using ceramic-based microelectrode arrays: Basic characterization and drug pharmacology. *Brain Res.* 2011 Jul 15;1401:1-9. Epub 2011 May 18.

Nevalainen N, Af Bjerkén S, Lundblad M, **Gerhardt GA**, Strömberg I. Dopamine release from serotonergic nerve fibers is reduced in L-DOPA-induced dyskinesia. *J Neurochem.* 2011 Jul;118(1):12-23. doi: 10.1111/j.1471-4159.2011.07292.x. Epub 2011 May 25.

Quintero JE, Dooley DJ, Pomerleau F, Huettl P, Gerhardt GA. Amperometric Measurement of Glutamate Release Modulation by Gabapentin and Pregabalin in Rat Neocortical Slices: Role of Voltage-Sensitive Ca²⁺{alpha}2{delta}-1 Subunit. *J Pharmacol Exp Ther.* 2011 Jul;338(1):240-5. Epub 2011 Apr 4.

Hascup KN, Hascup ER, Stephens ML, **Glaser PE**, Yoshitake T, Mathé AA, **Gerhardt GA**, Kehr J. Resting glutamate levels and rapid glutamate transients in the prefrontal cortex of the flinders sensitive line rat: a genetic rodent model of depression. *Neuropsychopharmacology.* 2011 Jul;36(8):1769-77. doi: 10.1038/npp.2011.60. Epub 2011 Apr 27.

Morris JK, Bomhoff GL, Gorres BK, Davis VA, Kim J, Lee PP, Brooks WM, **Gerhardt GA**, Geiger PC, Stanford JA. Insulin resistance impairs nigrostriatal dopamine function. *Exp Neurol.* 2011 Jun 15. [Epub ahead of print]

Talauliker PM, **Price DA**, Burmeister JJ, Nagari S, **Quintero JE, Pomerleau F, Huettl P, Hastings JT, Gerhardt GA**. Ceramic-based microelectrode arrays: Recording surface characteristics and topographical analysis. *J Neurosci Methods.* 2011 Jun 15;198(2):222-9. Epub 2011 Apr 12.

Opri I, Hampson RE, Stanford TR, **Gerhardt GA**, Deadwyler SA. Neural activity in frontal cortical cell layers: evidence for columnar sensorimotor processing. *J Cogn Neurosci.* 2011 Jun;23(6):1507-21. Epub 2010 Aug 9.

Hall ED. Antioxidant therapies for acute spinal cord injury. *Neurotherapeutics.* 2011 Apr;8(2):152-67.

PUBLICATIONS

Jin Y, Zhang C, Ziemba KS, Goldstein GA, **Sullivan PG**, Smith GM. Directing dopaminergic fiber growth along a preformed molecular pathway from embryonic ventral mesencephalon transplants in the rat brain. *J Neurosci Res.* 2011 May;89(5):619-27. doi: 10.1002/jnr.22575. Epub 2011 Feb 17.

Pandya JD, Sullivan PG, Pettigrew LC. Focal cerebral ischemia and mitochondrial dysfunction in the TNF α -transgenic rat. *Brain Res.* 2011 Apr 12;1384:151-60. Epub 2011 Feb 26.

McEwen ML, **Sullivan PG**, Rabchevsky AG, Springer JE. Targeting mitochondrial function for the treatment of acute spinal cord injury. *Neurotherapeutics.* 2011 Apr;8(2):168-79.

Readnower RD, Sauerbeck AD, Sullivan PG. Mitochondria, Amyloid β , and Alzheimer's Disease. *Int J Alzheimers Dis.* 2011 Mar 22;2011:104545.

Mustafa AG, Wang JA, Carrico KM, **Hall ED**. Pharmacological inhibition of lipid peroxidation attenuates calpain-mediated cytoskeletal degradation after traumatic brain injury. *J Neurochem.* 2011 May;117(3):579-88. doi: 10.1111/j.1471-4159.2011.07228.x. Epub 2011 Mar 22.

Onifer SM, Smith GM, Fouad K. Plasticity after spinal cord injury: relevance to recovery and approaches to facilitate it. *Neurotherapeutics.* 2011 Apr;8(2):283-93.

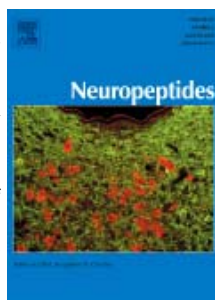
Smith GM, **Onifer SM**. Construction of pathways to promote axon growth within the adult central nervous system. *Brain Res Bull.* 2011 Mar 10;84(4-5):300-5. Epub 2010 Jun 8. Review.

Onifer SM, Zhang O, Smith L, Raza K, O'Dell CR, Lyttle TS, Rabchevsky AG, Kitzman PH, Burke DA. Horizontal Ladder Task-Specific Retraining in Adult Rats with Contusive Thoracic Spinal Cord Injury. *Restorative Neurology and Neuroscience*, in press.

Kelps KA, Turchan-Cholewo J, Hascup ER, Taylor TL, **Gash DM, Gerhardt GA, Bradley LH**. Evaluation of the physical and in vitro protective activity of three synthetic peptides derived from the pro- and mature GDNF sequence. *Neuropeptides.*

2011 Jun;45(3):213-8. Epub 2011 Apr 19.

Quintero JE, Wang XM, Zhang Z. "Developing an MRI-based Biomarker for Early Diagnosis of Parkinson's Disease" has been accepted for publication in the book "Parkinson's Disease / Book 6 (working title).

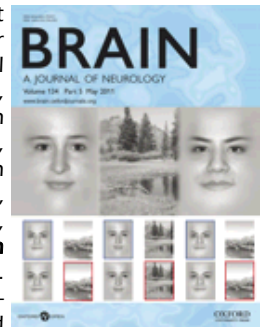


PUBLICATIONS

Nelson PT, Head E, Schmitt FA, Davis PR, Neltner JH, Jicha GA, Abner EL, Smith CD, **Van Eldik LJ**, Kryscio RJ, **Scheff SW**. Alzheimer's disease is not "brain aging": neuropathological, genetic, and epidemiological human studies. *Acta Neuropathol.* 2011 May;121(5):571-87. Epub 2011 Apr 24.

Bachstetter AD, Xing B, de Almeida L, Dimayuga ER, Watterson DM, **Van Eldik LJ**. Microglial p38alpha MAPK is a key regulator of proinflammatory cytokine up-regulation induced by toll-like receptor (TLR) ligands or beta-amyloid (Abeta). *J Neuroinflammation.* 2011 Jul 6;8(1):79. [Epub ahead of print].

Nelson PT, Schmitt FA, Lin Y, Abner EL, Jicha GA, Patel E, Thomason PC, Neltner JH, Smith CD, Santacruz KS, Sonnen JA, Poon LW, Gearing M, Green RC, Woodard JL, **Van Eldik LJ**, Kryscio RJ. Hippocampal sclerosis in advanced age: clinical and pathological features. *Brain.* 2011 May;134(Pt 5):1506-18.



Ikonomovic MD, Klunk WE, Abrahamson EE, Wu J, Mathis CA, **Scheff SW**, Mufson EJ, Dekosky ST. Precuneus amyloid burden is associated with reduced cholinergic activity in Alzheimer disease. *Neurology.* 2011 Jul 5;77(1):39-47. Epub 2011 Jun 22.

Ansari MA, **Scheff SW**. NADPH-oxidase activation and cognition in Alzheimer disease progression. *Free Radic Biol Med.* 2011 Jul 1;51(1):171-8. Epub 2011 Mar 30.

Hunt RF, **Scheff SW**, Smith BN. Synaptic reorganization of inhibitory hilar interneuron circuitry after traumatic brain injury in mice. *J Neurosci.* 2011 May 4;31(18):6880-90.

Saijo E, **Scheff SW**, Telling GC. Unaltered prion protein expression in Alzheimer disease patients. *Prion.* 2011 Apr 1;5(2). [Epub ahead of print].

Kim C, Johnson NF, Cilles SE, Gold BT. Common and distinct mechanisms of cognitive flexibility in prefrontal cortex. *J Neurosci.* 2011 Mar 30;31(13):4771-9.

Kim C, Cilles SE, Johnson NF, Gold BT. Domain general and domain preferential brain regions associated with different types of task switching: A Meta-Analysis. *Hum Brain Mapp.* 2011 Mar 9.

PROFESSIONAL ANNOUNCEMENTS

ANNOUNCEMENTS



Jonathan Clark successfully defended his thesis "Functional Connectivity for Configurational and Feature-based Face Processing in the Broad Autism Phenotype" on March 29, 2011. Congratulations, Dr. Clark!

Ryan Readnower passed his thesis defense on "Traumatic Brain Injury: Cyclophilin D as a Therapeutic Target and the Neuropathology Caused by Blast. Great job, Dr. Readnower!



*What is fame?
The advantage of being known by people
of whom you yourself know nothing,
and for whom you care as little.
~ Lord Byron ~*

Drs. Jonathan Lifshitz and **Bruce O'Hara** (Biology) were awarded an R21 from NIH NINDS for \$398,773 on "Post-Traumatic Sleep: An Individualized Indicator of Severity and Recovery." Drs. Lifshitz and O'Hara are serving as dual PI's. Drs. James Pauly (Pharmacy) and Kevin Donohue (Computer & electrical Engineering) are also part of the grant.



Jonathan Lifshitz, Ph.D.



Bruce O'Hara, Ph.D.

ANNOUNCEMENTS



Dr. Luke Bradley received an R03 from the National Institute of Neurological Disorders and Stroke (NINDS) for "Mitochondrial protection of a GDNF propeptide." for \$148,500.

Dr. Hansruedi Bueler received a \$105,000 grant from the Parkinson Schweiz foundation for research on "Combining Pink1 gene deletion and mutant LRRK2 overexpression in mice."



PRESENTATIONS

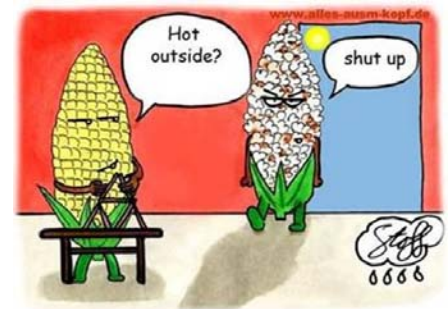
Dr. April Richardson had the following presentations this year:

- "Progress Toward a New Anatomy Course for Undergraduates in Second Life™" at the Virtual Worlds Best Practices in Education (VWBPE) conference in Second-Life on March 18, 2011.
- Poster presentation and was an invited speaker for roundtable discussion entitled "The Anatomy Mentor Program: a reflection of student-directed learning" at the annual American Association of Anatomists (AAA) in Washington, D.C., April 9-13, 2011.
- Roundtable discussion entitled "Progress Toward a New Anatomy Course for Undergraduates in Second Life™" at the *Second Annual STEM Education Conference* on UK's campus on April 29, 2011.

PRESENTATIONS

Below are presentations from the 29th Annual National Neurotrauma Symposium in Ft. Lauderdale, Florida, July 10th-14th, 2011

- **Thomas, TC, JM Hinzman, GA Gerhardt, J Lifshitz.** (2011) "Diffuse Brain Injury-Induced Increases in Glutamate Neurotransmission Parallel the Development of Late-Onset Behavioral Morbidity in Rats." *J. Neurotrauma*, 28(6): A-90.
- **Rowe, RK, M Striz, B O'Hara, J Lifshitz.** (2011) "Effects of Diffuse Traumatic Brain Injury on Sleep in the Mouse." *J. Neurotrauma*, 28(6): A-87.
- **Marti, F, A Bachstetter, RK Rowe, G Ellis, L van Eldik, J Lifshitz.** (2011) "Systemic Loss of Peripheral Regulatory T-Cell Differentiation after Diffuse Brain Injury in the Mouse." *J. Neurotrauma*, 28(6): A-87.
- **Cao, T, A Lisembee, J Lifshitz.** (2011) "Microglia in the Somatosensory Barrel Cortex Align Perpendicular to the Dural Surface after Diffuse Brain Injury in Rats." *J. Neurotrauma*, 28(6): A-87.
- **Learoyd, A, J Lifshitz.** (2011) "Comparison of Rat Sensory Behavioral Tests to Detect Somatosensory Morbidity after Diffuse Brain Injury." *J. Neurotrauma*, 28(6): A-88.
- **Hinzman, J, TC Thomas, J Quintero, G Gerhardt, J Lifshitz.** (2011) "Diffuse Brain Injury Disrupts Glutamate Regulation in the Rat Striatum." *J. Neurotrauma*, 28(6): A-90.
- **Singh R, Benson A, Saatman K and Geddes J.** (2011) "Calpain5 is expressed in Neurons and may contribute to neurodegeneration following Traumatic Brain Injury." *J Neurotrauma*, 28(6): A-86.



AND IN THE NEWS...



The department would like to congratulate and bid farewell to Ramsey Edwards, of the Grondin lab, on his new adventure as a graduate student at the College of Dentistry. Ramsey has been with the department for over 2 years and will be sorely missed. We also want to congratulate him and his wife, Jacklyn on the birth of their son, Simon, on June 18, 2011. Good luck and best wishes, Ramsey!



Congratulations to Drs. Greg Gerhardt and Reny de Leeuw who were wed on April 29, 2011.



Congratulations to Peter Huettl and Becky Thompson Huettl who were wed on June 17, 2011 at the Bell House. The wedding was lovely and unique—the groom wore shorts! We wish you the best!

DEPARTMENTAL BIRTHDAYS



July

7/1 ~ Eric Forman

7/3 ~ Dr. Greg Gerhardt

7/28 ~ Dr. Zhiming Zhang

7/30 ~ Dr. Peter Hardy

August

8/10 ~ Avalon Sandoval

8/14 ~ Dr. Anders Andersen

8/14 ~ Dr. Luke Bradley

8/27 ~ Dr. Don Gash

8/27 ~ Kristen Kelps

8/28 ~ Erin Miller



October

10/5 ~ Jordan Revlett

10/10 ~ Dr. Andrew Deane

10/14 ~ Dr. David Price

10/16 ~ Dr. Jorge Quintero



SEPTEMBER

9/6 ~ Jonny Cebak

9/24 ~ D. Grant Bolt



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Please send comments & submissions to Avalon Sandoval at avalon.sandoval@uky.edu or call 859-257-5036.

The Next Deadline is November 1, 2011.

AVAILABLE TRAINING

LABORATORY TRAINING

The University requires safety training classes to be completed before beginning certain types of work. The requirements apply to all individuals involved in the covered work, including faculty, staff, students, postdoctoral scholars and fellows, visiting researchers and volunteers. To find out what classes you need to take, consult the [Training Checklist](#).

NOTE: Anyone who works with chemicals in a laboratory **must** complete the following three classes: **Chemical Hygiene Plan/Laboratory Safety**, **Hazardous Waste**, and **Fire Extinguisher Use**.

Chemical Hygiene Plan/Lab Safety
This class is available [online](#).

Bloodborne Pathogens This class is available upon request and [online](#).

Hazardous Waste This class is available [online](#).

Initial Radiation Safety: Initial Radiation Safety (~ 15 minutes total) is offered every day at 1:30 pm at the Radiation Safety Office, 102 Animal Pathology Building (other times can be arranged). You must bring two completed forms with you: On-Site Radiation Safety Training Form and Radiation Worker Registration Form, both signed by your Authorized User or unit supervisor. If you have questions, contact Tracy Cayson at 323-6777.

Basic Radiation Safety You may register by contacting Erica Ray at (859) 323-6276.

Advanced Radiation Safety is only available [online](#).

Fire Extinguisher Use is available [online](#).

NOTE: Online courses can only be taken using a UK computer.

Mandatory Training

CORPORATE COMPLIANCE and PREVENTING DISCRIMINATION AND HARASSMENT

These are **mandatory** training courses. Not completing these courses can result in dismissal from employment at the University of Kentucky.

The two training courses may be found online by logging into the **myUK portal**, go to the **Employee Self-Service tab** and then the **Training Tab**. In the "Search Term" type the name of each course. Once you have finished each course print the transcript showing your successful completion. Turn the transcript into Dalene Rice in 305 Whitney-Hendrickson.

*The scientist is not a person
who gives the right answers,
he's one who asks the right
questions*

~Claude Lévi-Straus~

HUMAN RESOURCES DEVELOPMENT COURSE OFFERINGS

<http://hr.uky.edu/TandD/>

- 8/04 ~ Mediating Workplace Conflict
- 8/04 ~ Flash CS5: Introduction
- 8/08 ~ Turning Around the Worst Performers
- 8/09 ~ Research Admin (RATE I)
- 8/10 ~ Email Etiquette
- 8/10 ~ Word: Introduction
- 8/11 ~ Developing a Winning Image
- 8/12 ~ Managing Staff Conflict
- 8/16 ~ Understanding Muslim Culture
- 8/16 ~ Lync: Transforming Communication
- 8/17 ~ Creating an Effective Team
- 8/17 ~ Outlook: Managing Email Effectively
- 8/19 ~ Travel Program
- 8/19 ~ Concur
- 8/22 ~ Group Problem Solving
- 8/23 ~ Acrobat 9 Pro: Introduction
- 8/24 ~ Principles of Effective Writing
- 8/24 ~ Access: Introduction
- 8/26 ~ Leading from a Distance

