

NEURO NEWS

News from the Director: Kristen A. Keefe

Welcome everyone, especially our new students and faculty, to another great year of U of U Neuroscience! Our new students, who already are well ensconced in their first year of the program are: Rishi Alluri (Univ. of Utah), Sarah Anderson (Univ. of Idaho), Brian Curtis (Univ. of Utah), Tiffanie Dahl (Brigham Young Univ.), Tyler Hanak (Ohio Univ.), Jaycie Loewen (Northern Arizona Univ.), Sarah Redmon (St. Lawrence Univ.), Marshall Roedel (Brigham Young Univ.), Punitha Subramaniam (Boise State Univ.), Tony Umpierre (Westminster College), and Donn Van Daren (San Diego State Univ.). Be on the lookout for these new students rotating in laboratories about the campus. If you haven't already had a chance to meet them during Frontiers in Neuroscience, other classes, or at the New Student Reception that was held on Sept. 13th, make sure to introduce yourself to them at the Snowbird Symposium on Nov. 2nd!

Kudos are due to our admissions committee last year for all their hard work in reviewing student applications, interviewing students and evaluating faculty reports of interviews, and making admissions decisions. A big thanks to Ning Tian (Ophthalmology and Visual Sciences) for chairing the committee this past year, as well as to the members of the committee: Yingbin Fu (Ophthalmology and Visual Sciences), Rick Rabbitt (Bioengineering), Gary Rose (Biology), Sharif Taha (Physiology), David Krizaj (Ophthalmology and Visual Sciences), Chris Gregg (Neurobiology and Anatomy), Yong Wang (Otolaryngology), Jason Watson (Psychology), and Karen Wilcox (Pharmacology and Toxicology). Also, immense thanks to the student volunteers who helped make this past year's recruitment so successful; especially Leo Parra, Rebecca Pfeiffer, Lance Petersen, and Greg Remigio for overseeing the organizing of the recruiting weekends. Your service to the program is greatly appreciated!

As we all know, times are a bit tough for research funding, with additional threats to support looming on the horizon. I encourage you all to become involved in advocacy for support for neuroscience research nationally, as well as for support for our graduate program locally. In the coming

year, the University administration will be revising the model on which they distribute budgets to interdisciplinary graduate programs on campus. Therefore, any chance you have to sing the praises of our program to members of the administration will be most appreciated! In case you need some facts, you could comment on these points: We currently have 47 students enrolled. Two of those students are in the HHMI-funded Med-into-grad-program; two students are on the Developmental Biology Training grant; two students have Univ. of Utah Graduate Research Fellowships; and three students have individual pre-doctoral NRSA awards. For students entering the program between 2002-2012, the average time to degree is 5.7 years (same as national average) and our current 6-year completion rate (for classes entering in 2002-2006) is 60% (national average is 46.2). Finally, for students who entered our program between 2000-2006, 96% are in science-related careers. Keep up the good work everyone!

Finally, over the past year, as funding constraints have increased and new faculty have joined the program, it has become apparent that we're perhaps due for a refresher on the structure of the Interdepartmental Program in Neuroscience. Like the other interdisciplinary programs, we receive our annual budget from the University administration. This budget covers administrative expenses, first-year student stipends and health insurance, recruiting, the Snowbird symposium and fall/spring student symposia, and the seminar series. This budget is currently supplemented with our T32 training grant that has six stipend slots associated with it (which typically cover two first-year and four second-year students). Note that the Neuroscience program does not receive any of the tuition money generated by teaching in our courses. That money is given by the administration to home departments based on the proportion of teaching done by the faculty from those departments. At times, we have had the luxury of some extra stipends due to lower numbers of students entering the program; however, these are sporadic, and thus it cannot be assumed that the program will be able to provide any stipend support for students beyond the first year. Because of this budget model, all students and faculty sign an agreement form

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indicating that the faculty member is responsible for providing the student's stipend beyond the first year. Furthermore, as a condition of participation by a Department in the Interdisciplinary Program in Neuroscience, Departments Chairs agree to provide bridge funding to cover students if the PI loses grant funding. Chairs reaffirm this Departmental commitment when they sign each student's "Joining the Lab" form. In the past year, the central administration has re-confirmed their commitment to this model. Thus, as decisions are being made about students joining labs for dissertation work toward the end of the coming year, be sure that necessary discussions about funding sources are being held!

Finally, I would be remiss in not giving a big thanks to students and faculty generally for your service to the program. The teaching and committee work that make this program so successful can only be done by you. So thank you for your dedication to the program and to ensuring its continued success! Those of you out there who would like to be more involved, please contact me (k.keefe@utah.edu) so we can discuss needs of the program that you might be able to fill!

****STUDENT AWARDS****

Jason Cooperrider (Lainhart lab) has been selected as a University of Utah Graduate Research Fellow. This award covers \$15,000 of his stipend, tuition benefit and 80% of his health insurance. He gave a talk at the 2012 International Meeting for Autism Research in Toronto in May and will give a talk at Neuroscience 2012 in New Orleans this October (Jason was notified by the SfN that his talk will be advertised to the press before and during the conference). Jason was one of twenty students and professors chosen to attend an fMRI training course at the University of Michigan in August, all expenses paid by the NIH.

Andrea Schwager (Taha lab) has been selected as a University of Utah Graduate Research Fellow. This award covers \$15,000 of her stipend, and 80% of her health insurance. She was also awarded tuition coverage from the Med-2-Grad program.

Judd Cahoon (Ambati lab) received an International Travel Grant to attend the FEBS Workshop in Molecular and Cellular Mechanisms in Angiogenesis. The conference will be held in October in Capri, Italy.

Jared Nielsen (Lainhart lab) gave a poster presentation at the Human Brain Mapping conference in Beijing in July.

Nikko Cecino (Baehr lab) has been awarded an NRSA. His award is for 3 years for his dissertation work examining the role of nephrocystin-5 in senior-loken syndrome.

Jaycie Loewen (1st year) has been awarded a \$5,000 Willits Foundation Scholarship.

The Neuroscience Training Grant recipients for 2012-2013 are: **Feliks Furmanov**, **Meredith Gibbons**, **Lance Petersen**, and **Greg Remigio** (2nd years) and **Brian Curtis** and **Anthony Umpierre** (1st years).

****NEW FACULTY****

Since the last issue of NeuroNews we have added the following new faculty:

Ayako Yamaguchi, Ph.D., Assistant Professor of Biology. Research: Neural Mechanisms Underlying Sexually Distinct Behavior.

Peter West, Ph.D., Research Assistant Professor of Pharmacology & Toxicology. Research: Neuropharmacology of synaptic plasticity, learning, and memory in epilepsy, Alzheimer's disease, and Down syndrome.

Adam Douglas, Ph.D., Assistant Professor of Neurobiology & Anatomy. Research: Functional anatomy of neuromodulatory circuits; learning and memory in the larval zebrafish; imaging technique development.

Jason Shepherd, Ph.D., Assistant Professor of Neurobiology & Anatomy. Research: Cellular and molecular mechanisms of synaptic plasticity and information storage; pathogenesis of cognitive disorders.

****Other Important Dates****

Oct. 13-17: The Society for Neuroscience Annual Meeting held this year in New Orleans, LA.

Nov. 2: Annual Neuroscience Program Symposium @ Snowbird
"Super-Glue: Roles for Glia in the Nervous System"
<http://neuroscience.med.utah.edu/Snowbird>.

This year's invited speakers:

Angelique Bordey, Ph.D., Yale U.
Bruce Appel, Ph.D., U. of Colorado School of Medicine
3rd invited guest speaker: TBA
David Krizaj, Ph.D., U. Utah
Monica Vetter, Ph.D., U. Utah

Plan to submit a poster for the SfN Intermountain Chapter Poster session that will be incorporated into the Snowbird Symposium. \$\$Cash Prizes! Look for abstract submission deadline at: <http://brain.utah.edu/portal/site/brain/>

Feb. 15, 2013: Neuroscience Program Recruitment Weekend.

****SEMINAR SERIES 2011-2012****

October 16: Tom Glaser, M.D., Ph.D., UC, Davis
November 20: R. Mark Wightman, Ph.D., North Carolina U.
January 15: Randy Buckner, Ph.D., Harvard U
February 19: Thomas Südhof, M.D., Stanford U
March 19: Nephi Stella, Ph.D., U Washington
April 16: Michela Marinelli, Ph.D., Rosalind Franklin U

see more details at:
<http://neuroscience.med.utah.edu/Meetings.html>

ACADEMIC DEFENSES

Since the last issue of NeuroNews, the Neuroscience Program congratulates the following students on successfully defending their dissertations: **Renee Bend (Chien/Fuhrmann lab)**, **Ryan Constantine (Baehr lab)**, **Molly DuBray Prigge (Lainhart lab)**, **Sean Flynn (White lab)**, **Scott Lauritzen (Marc lab)**, **Rebecca Parker (Greger lab)**, **Crystal Sigulinsky (Levine lab)**, **James Tucker (Marc lab)** and **Andrew Zayachkivsky (Dudek lab)**.

Also, since the last issue of NeuroNews, the Neuroscience Program congratulates the following students on successfully passing their qualifying exams: **Judd Cahoon (Ambati lab)**, **Andrew Haack (Taha lab)** and **Rebecca Pfeiffer (Korenberg lab)**.

and dissertation proposals; **Jason Cooperrider (Lainhart lab)**, **Jared Nielsen (Lainhart lab)**, **Daniel Ryskamp (Krizaj lab)**, and **Lingyan Xing (Bonkowsky lab)**.

NEWS WORTHY

Robert Fujinami was received a Challenge grant from CURE (Citizens United for Research in Epilepsy). "New Treatments for Epilepsy that Regulate Complement Activity"

Janet Lainhart gave a talk at the 2012 International Meeting for Autism Research in Toronto in May.

Tao Zhang (**Fu lab**) has received the 2012 Career Initiation Research Grant Award from Knights Templar Eye Foundation (\$60K) for her study on Leber Congenital Amaurosis.

Intermountain Chapter for the Society for Neuroscience: Jeff Edwards from BYU is taking over as Chapter President, and **Richard Dorsky** is taking over as Faculty Representative for the Intermountain SfN chapter. Amy Davis will serve as Treasurer. We will once again sponsor a poster session at Snowbird isyear - stay tuned for details!

Josh Bonkowsky was awarded the NIH Director's New Innovator Award. He will study a genetic method for visualizing and manipulating circuits in the brain. This method, TCAT (Trans-Cellular Activation of Transcription), is an innovative approach for understanding how the brain functions.

Nikko Ronquillo, MD/PhD student (**Baehr Lab/Ophthalmology/Neuroscience**), co-founded start-up company with wife and Chemistry postdoctoral fellow, Jacqueline Siy-Ronquillo, PhD. <http://www.deseretnews.com/article/865556745/University-of-Utah-tech-team-heading-to-White-House.html>

For researchers in the University of Utah studying or using semiconductor nanocrystals (e.g. quantum dots), Navillum Nanotechnologies is looking for potential collaborators. If interested, please contact Nikko or Jacqueline at navillum@gmail.com

****ALUMNI NEWS****

Benedict C. Albensi, St-Boniface Hospital researcher and associate professor, Pharmacology and Therapeutics at the University of Manitoba gave a presentation at West Point Military Academy on July 26-27, 2012. Dr. Albensi's presentation was entitled, Models of Brain Injury: Applications for Studies in Synaptic Plasticity and Memory Dysfunction. He has also been asked to speak to the 17th Wing of the Royal Canadian Air Force in Winnipeg, Manitoba, Canada on similar topics.

Ben also received the Hoeschen Award and \$1,000.

Chu, S., Xiong, W., Zhang, D., Soylyu, H., Sun, C., **Albensi, B.C.**, and Parkinson, F.E. (2012) Regulation of adenosine levels during cerebral ischemia. *Acta Pharm Sinica*, review.

Oikawa, K., Odero, G.L., Platt, E., Neuendorff, M., Hatherell, A., Bernstein, M.J., and **Albensi, B.C.** (2012) NF- κ B p50 subunit knockout impairs late LTP and alters long term memory in the mouse hippocampus. *BMC Neuroscience*, 13:45.

Zhang, D., Xiong, W., Chu, S. Sun, C. **Albensi, B.C.**, and Parkinson, F.E., (2012) Inhibition of Hippocampal Synaptic Activity by ATP, Hypoxia or Oxygen-Glucose Deprivation Does Not Require CD73. *PLoS One*, 7(6):e39772.

Renee Bend: Kruse-Bend, R., Rosenthal, J., Quista, T.S., **Veien, E.S.**, **Fuhrmann, S.**, **Dorsky, R.I.**, and **Chien, C-B.** (2012) Extraocular ectoderm triggers dorsal retinal fate during optic vesicle evagination in zebrafish. *Developmental Biology*, accepted.

Sean Flynn: is working as a post-doc in the Department of Neurology at the Geisel School of Medicine at Dartmouth College with Gregory Holmes.

Arik Hone: Hone, A.J., Scadden, M., Gajewiak, J., Christensen, S., Lindstrom, J., and **McIntosh, J.M.** (2012) α -Conotoxin PeIA[S9H,V10A,E14N] potently and selectively blocks $\alpha 6\beta 2\beta 3$ vs. $\alpha 6\beta 4$ nicotinic acetylcholine receptors. *Molecular Pharmacology*, in press.

Arie Sitthichai Mobley: has been awarded an R03: Activity dependent mechanisms of axon targeting. Start date: July 1, 2012.

Shushruth, S., Mangapathy, P., Ichida, J.M., **Bressloff, P.C.**, Schwabe, L., and **Angelucci, A.** (2012) Strong Recurrent Networks Compute the Orientation Tuning of Surround Modulation in the Primate Primary Visual Cortex. *J Neurosci*, Jan; 32(1):308-321.

RECENTLY PUBLISHED

Froehlich, A.L., **Anderson, J.S.**, Bigler, E.D., Miller, J.S., Lange, N.T., **Dubray, M.B.**, **Cooperrider, J.R.**, Carillo, A., **Nielsen, J.A.**, and **Lainhart, J.E.** (2012) Intact Prototype Formation but Impaired Generalization in Autism. *Res Autism Spectr Disord*, Spring;6(2):921-930.

Jeffs, J., **Federer, F.**, Ichicda, J.M., **Angelucci, A.** (2012) High-Resolution Mapping of Anatomical Connections in Marmoset Extrastriate Cortex Reveals a Complete Representation of the Visual Field Bordering Dorsal V2. *Cereb. Cortex*, Apr 20. [Epub ahead of print] doi: 10.1093/cercor/bhs088

Mazefsky, C.A., Oswald, D.P., Day, T.N., Eack, S.M., Minshew, N.J., and **Lainhart, J.E.** (2012) ASD, a Psychiatric Disorder, or Both? Psychiatric Diagnoses in Adolescents with High-Functioning ASD. *J Clin Child Adolesc Psychol*, Jul;41(4):516-523. Epub 2012 May 29.

Ronquillo, C.C., Bernstein, P.S., and **Baehr, W.** (2012) Senior-Løken syndrome: A syndromic form of retinal dystrophy associated with nephronophthisis. *Vision Res*, Jul 20. [Epub ahead of print]

Saund, R.S., Kanai-Azuma, M., Kanai, Y., Kim, I., **Lucero, M.T.**, and **Saijoh, Y.** (2012) Gut endoderm is involved in the transfer of left-right asymmetry from the node to the lateral plate mesoderm in the mouse embryo. *Development*, 139:2426-2435.

Scoles, D.R., Pflieger, L.T., Thai, K.K., Hansen, S.T., Dansithong, W., and **Pulst, S.-M.** (2012) ETS1 regulates expression of ATXN2. *Human Molecular Genetics*, in press.

Theriot, J.J., Toga, A.W., Prakash, N., Ju, Y.S., and **Brennan, K.C.** (2012) Cortical sensory plasticity in a model of migraine with aura. *J Neurosci*, accepted.

Travers, B.G., Adluru, N., Ennis, C., Tromp, D.P., Destiche, D., Doran, S., Bigler, E.D., Lange, N., **Lainhart, J.E.**, and Alexander, A.L. Diffusion Tensor Imaging in Autism Spectrum Disorder: A Review.

Xing, L., Hoshijima, K., **Grunwald, D.J.**, Fujimoto, E., Quist, T.S., Sneddon, J., **Chien, C.-B.**, Stevenson, T.J., and **Bonkowsky, J.L.** Zebrafish *foxP2* Zinc Finger Nuclease Mutant Has Normal Axon Pathfinding. *Plos One*, 7(8): e43968. doi:10.1371/journal.pone.0043968.

Zhang, T., **Baehr, W.**, and **Fu, Y.** (2012) Chemical chaperone TUDCA preserves cone photoreceptors in a mouse model of Leber congenital amaurosis. *Invest Ophthalmol Vis Sci.*, 53(7):3349-3356.

POSTDOCTORAL POSITION

Postdoctoral position in vocal motor production University of Utah

A postdoctoral position is available at the University of Utah to perform electrophysiological experiments to understand neural mechanisms underlying vocal rhythm generation in African clawed frogs. A background in cellular electrophysiology is required. In addition to receiving a strong training in cellular and systems neuroscience, the collaborative nature of the research program provides an opportunity to pursue various directions of research including computational neuroscience, optical imaging, and molecular neuroscience. Please send CV and a list of references to:

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Assistant Professor
a.yamaguchi@utah.edu
<http://www.biology.utah.edu/people/details.php?id=1727>

*Do you have something to submit in the next issue of NeuroNews?
Send your information to: Tracy Marble, Program in Neuroscience
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