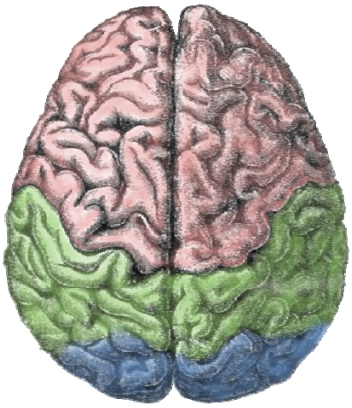
The Neurotransmitter

Newsletter of the Western North Carolina Chapter of the Society for Neuroscience

May, 2010 – Issue #7

Inside this issue



WNCSfN Officers:

President:
Brian McCool, Ph.D.

Secretary/Treasurer:
Christos Constantinidis, Ph.D.

Councilors:
Allyson Bennett, Ph.D.
Michelle Nicolle, Ph.D.
Wayne Silver, Ph.D.

Clinical Councilor:
Michael Cartwright, M.D.

Postdoctoral Councilor:
Colleen Hanlon, Ph.D.

Student Councilor:
John Graef

Administrative Assistant:
Jody Dedo

Opportunities to Travel and Serve

by Brian McCool, Ph.D., WNCSfN President

Every year the WNCSfN nominates two pre-doctoral trainees and one post-doctoral fellow to the national Society for travel awards to the annual meeting – this year in San Diego. We have been remarkably successful getting our nominees approved in the past. Last year, **Carson Dobrin** and **Eric Huggins** were nominated and received Graduate Student Travel Awards to the 2009 SFN meeting in Chicago. **Dr. Colleen Hanlon** received a Postdoctoral Travel Award to this same meeting. To insure this level of success continues, nominees for both awards should submit electronic copies of a current Curriculum Vitae and their SFN abstract, as well as brief descriptions of their research interests, the funds available to support their travel, and their neuroscience-related outreach activities during 2009-2010 to Brian McCool (bmccool@wfubmc.edu) by ***Monday May 17th, 2010***. The WNCSfN executive committee will select nominees based on the quality and content of these documents.

Speaking of the executive committee, we have three vacancies to fill for 2010-2011! The current Student and Postdoctoral Councilors, **John Graef** (now Dr. Graef) and **Dr. Colleen Hanlon**, have fulfilled their year-long commitment. **Dr. Christos Constantinidis**, our current Secretary/ Treasurer, is also stepping down to help improve the continuity of the Chapter's leadership – his departure will permit the Chapter to elect a President and a Secretary/Treasurer for two-year terms on alternate years. Please join me in thanking Drs. Graef, Hanlon, and Constantinidis for their dutiful service to the WNCSfN. These individuals have been intimately involved in almost every aspect of the Chapter's business over this last year. I am truly grateful for their tireless efforts. To fill these 'shoes', please email your nominations for Graduate Student Councilor, Postdoctoral Councilor, or Secretary/Treasurer to Jody Dedo (jdedo@wfubmc.edu) by ***Monday May 17th, 2010***. Nominees should provide a brief description (≤300 words) of their vision for advancing the Chapter and Chapter Activities during 2010-2011. The Chapter is looking forward to great year – come and join the fun!

Highlights from Annual WNCSfN Spring Symposium

by Brian McCool, Ph.D., WNCSfN President

On Wednesday, April 14th, the Western North Carolina Chapter of the Society for Neuroscience hosted their annual spring research symposium as part of the Neuroscience community's celebration of Brain Awareness Season. WNCSfN's very own Drs. **Colleen Hanlon** and **Christos Constantinidis**, along with the tireless **Jody Dedo**, organized ***"Windows to the Brain: Connecting Minds and Machines."*** These exceptionally well-attended seminars were delivered by four nationally-recognized experts who presented their current research or clinical utilization of machines that interface with the brain. **Nicholas Hatsopoulos Ph.D.**, Professor in the Department of Organismal Biology & Anatomy at the University of Chicago, presented his ground-breaking research on technologies that might someday be used to treat spinal cord injury by mechanically integrating sensory processing, proprioception, and movement. Dr. Hatsopoulos described the decoding of motor cortex activity that ultimately allowed spinal cord-injury patients to control

continued on page four

Brain Awareness Season 2010: A Great Success!

by Scott Dobrin, Neuroscience Graduate Student

Illuminating minds, one brain at a time can be dirty work, but somebody has to do it and we at the BAC couldn't be happier to be that somebody. In celebration of the 2010 Brain Awareness Season, neuroscience-themed outreach events were held throughout the Triad during the months of March and April. In all, over 1,500 people attended events, ranging in age from pre-school to the elderly. It was a greatly successful season and I thank everyone who volunteered for helping make it so.

Kicking off the Season was the annual Brain Awareness Day at SciWorks. Nearly 400 middle and high school students toured the museum and visited interactive brain stations such as Visual Plasticity, Build a Neuron, and 2 Point Discrimination. As the most volunteer demanding event of the year, it is always a pleasure to have so many BAC members come together in the name of the brain. Shortly following was *Brain Power! Family Fun with Neuroscience* at the Children's Museum of Winston-Salem. Families with children aged 2 – 7 visited age-appropriate brain stations such as Brain Coloring, Comparative Brains, and Build a Neuron. Seeing the face of a 5 year old as she touches a brain for the first time is unforgettable – next year you can see for yourself!

There were also two symposia organized in collaboration with our partners. Our local SfN chapter hosted research and clinical leaders during *Windows to the Brain: Connecting Minds and Machine*. The room was packed with an eager and excited audience for another great WNCSfN symposium. Targacept also held a symposium entitled *Is There New Hope for Depression?* This event highlighted novel approaches to treating the disease which will affect 1 in 5 people during their lifetime. Both symposia emphasize the importance of bringing neuroscience to the public, which is what Brain Awareness Season is all about. Targacept also hosted a "Careers in Neuroscience" day. Local students took a tour of their downtown facilities, including offices and labs, and were able to discuss potential career paths in a biopharmaceutical company such as Targacept. The event was a great opportunity for students interested in science as a career, but who may not want to enter academia.

The BAC had a team of 11 in the Walk and Roll-a-thon to help raise awareness and support for those who have been impacted by traumatic brain injury. Nearly 150 total participants heard stories from TBI patients, emphasizing their experience of continued rehabilitation. After traversing the short trail, everyone gathered for a BBQ lunch and raffle. To supplement the walk, the bimonthly Neuroscience and a Movie featured *Post Concussion* followed by a lively panel discussion with local experts. We increased community knowledge about the nature of brain injury and reached out to individuals that needed advice and guidance concerning rehabilitation. One attendee emphasized the effectiveness of the event by saying "People's lives were changed that night. Patients were paired with appropriate doctors and their lives will improve."

The 3rd Annual Children's Art Contest emphasized the creativity that is necessary in science. Students were encouraged to create hand drawn art entries on one of several brain-related themes. Judging was cut-throat – each referee championing their favorite. But eventually winners were chosen and were put on display during the event at the Children's Museum. An award ceremony was held in their honor in the lobby of Targacept.

This year's Brain Awareness Season was a great success. Reaching so many people in two short months is an outstanding achievement. Thanks to all that participated and volunteered. Without your help we could not continue bringing these great activities to the public.

WFU Brain Awareness Council

Illuminating Minds, One Brain at a Time

What is the WFU **Brain Awareness Council** (**BAC**)? We are a group of graduate student and faculty volunteers from different science-related disciplines with a love for neuroscience and education. We visit local schools and other venues to teach K-12 students about their brains. During a typical visit, students are divided into groups and rotate through a variety of age-appropriate stations where they have the opportunity to participate in exciting, hands-on activities to learn about neuroscience. Volunteering is fun and easy! Our most popular stations include:

Human Brains
Comparative Brains
Drugs of Abuse
Build a Neuron
Hearing
Visual Adaptation
Visual Illusions
Careers in Science
Memory
Multisensory Integration

For more information, check out our website: http://graduate.wfu.edu/bac.

The WNCSfN Hotlist

by John Graef, Ph.D.
Neurobiology & Anatomy

Share the latest and greatest publications from your lab! This is a great opportunity for feedback, discussion, and future collaboration.

Perceptual decision making in less than 30 milliseconds

Terrence R Stanford, Swetha Shankar, Dino P Massoglia, M Gabriela Costello & Emilio Salinas. Nature Neuroscience, March 2010

How quickly can we make a decision about a sensory stimulus? Recent work by Dr. Stanford and colleagues from the department of Neurobiology and Anatomy intended to answer just that question. The results from their study, published in *Nature Neuroscience*, revealed that simple perceptual decisions can be made in as little as 30 milliseconds. To accomplish this, the researchers trained monkeys to fixate on a colored spot (either red or green), and then once it disappeared, make a lateral eye movement to a target on either the left or right that matched the color of the fixation spot. However, in order to decouple processing times associated with motor execution and working memory from the actual time it takes to make a perceptual judgment, Stanford et al. needed to design the task so that the sensory cues were revealed only after the monkeys were trained to respond. This was done by having both targets appear yellow at the time of the "go" signal (disappearance of the fixation spot), and then varying the amount of time before the sensory cues appeared. Therefore, the percentage of correct trials varied with this delay, while reaction time remained relatively unchanged. The researchers were then able to directly measure sensory processing speed, providing evidence that the evaluation of sensory stimuli can be performed at speeds much faster than may have been previously thought.

Summer BAC Outreach Opportunities

by Scott Dobrin, Neuroscience Graduate Student

The summer is here, but you brain doesn't go on vacation. The Brain Awareness Council has plenty of great events coming up. Start your popcorn poppin' now because on June 14th Neuroscience and a Movie is back. The topic will be post traumatic stress disorder. The panelists are still to be determined, but I have it on good authority that the movie will feature Adam Sandler. What movie is it? Check our website soon to find out (http://graduate.wfu.edu/bac). While you're there you'll notice we are in the process of a complete redesign with the help of the graduate school. Some of the kinks are still being ironed out, but we hope the new streamlined organization will make it a more useful site to both members and visitors. Speaking of computers, check out the BAC on facebook or follow us on twitter @WFU_BAC.

We have lots of other new exciting ways for reaching the community. In an effort to increase our outreach towards the Triad's adult population, the BAC has begun planning senior living visits. These are designed for the caregivers and families of patients with special emphasis on the neurobiology of diseases like Parkinsons, Alzheimers, multiple sclerosis, and stroke. We think this is going to be a great new event. Also, since the establishment of the BAC Lending Library (thanks to a recent grant from the DANA Alliance for Brain Initiatives), a motivated group of BAC volunteers have been working tirelessly to create "BAC in a Box" – a self-contained, volunteer-less BAC visit that teachers can borrow from us and use in their classrooms. By the start of next school year we anticipate having 5 full stations that will teach students about the brain using fun, interactive activities. Finally, on August 12th the BAC will be holding its inaugural Brain Academy. Science teachers will be invited to this half-day workshop for a short neuroscience primer followed by instruction on how to run several of our favorite BAC activities in their classroom. We will be especially emphasizing activities which are inexpensive or use materials available in the Lending Library. Since the BAC now receives far more school visit requests than our time allows, the Brain Academy will serve as a way for teacher's to cover neuroscience material on their own.

As you can see, the BAC has plenty of great new ways to share your excitement with the community about neuroscience. We are always looking for the next great project. Please feel free to contact us at bac@wfu.edu or send any steering committee member an email via the addresses found on the website.

Sixth Annual SYNAPSE Conference

by Wayne Silver, Ph.D., WNCSfN Councilor

The Undergraduate Neuroscience Program on the Reynolds Campus hosted the 6th Symposium for Young Neuroscientists and Professors of the South East (SYNAPSE) on March 26th and 27th. Sixteen schools from 6 states were represented. There were 45 poster presentations and 5 oral presentations by undergraduates. The Symposium began with a dinner at Winston-Salem State University. Our speaker for the evening was Dr. Azeez Aileru from WSSU. The keynote speaker for Saturday was Dr. Linda Bartoshuk from the University of Florida, who is the current president of the American Psychological Society. Students participated in a number of lunch workshops on topics such as Animal Rights, How to Make a Good Looking Poster, Brain Awareness Week Activities You Can Do at Home, Tips for Getting into Medical and Graduate School, Confocal Microscopy, and Research Ethics. The closing address was by Dr. Sharon Letchworth of Targacept. Wake Forest will again be hosting the 2011 SYNAPSE on March 25th and 26th.

Better Know a Lab: Dr. Ashok Hegde, WFUSM

by Jonathan Morgan, Neuroscience Graduate Student

The laboratory of Dr. Ashok Hegde, associate professor of Neurobiology and Anatomy, studies the fundamental basis of memory—specifically investigating what influences the synaptic plasticity events that underlie long term memory formation and how this knowledge can be used to either improve or worsen memory. Synaptic plasticity forms a crucial component of normal long term memory formation. And this plasticity is an on-going and malleable process, as evidenced by the fact that long term memory can only be formed following repeated sensory stimulation. And particularly strong memories are formed under extremely happy or tragic situations, with a likely role of norepinephrine release in this induction. See http://www.msnbc.msn.com/id/33508976/ns/health-behavior/ for an MSNBC article featuring one of the Hegde lab's projects regarding this phenomenon. As can be expected, abnormalities at the synapse can have drastic effects on the brain's ability to form memory. Consider the detriment of diseases such as Alzheimer's and schizophrenia, both "diseases of the synapse." Future multi-disciplinary work in the Hegde lab will study the latest questions on normal synaptic function to form the basis of investigations into translational work with great relevance to human disease.

Work of this importance will require the sophisticated use of molecular, biological, electrophysiological, and behavioral approaches. Dr. Hegde's lab uses genomics approaches such as oligonucleotide microarrays in combination with bioinformatics studies of the mouse and human genome, as well as the latest proteomics approaches. Patch-clamp and extracellular recordings are used for electrophysiological studies. They are also developing strategies to overexpress proteins through small interfering RNA by means of viral vectors. Dr. Hegde is also interested in working with someone for drug discovery, specifically screening for small molecules that modulate specific targets in the nervous system.

The Hegde lab strives for a friendly, cooperative dynamic—a place where people help each other and newcomers are welcome. Lab members make themselves available to teach students new experimental techniques. The lab is currently comprises Dr. Sudarshan Upadhya who has been recently promoted to the position of Instructor, Ms. Thuy Smith, lab manager and Research Assistant, Dr. Chenghai Dong, Research Fellow, and Ms. Svitlana Nesterova, a Neuroscience graduate student. A laboratory technician will be joining the lab in about a month and another graduate student will be joining the lab in Fall 2010. In his own words, Dr. Hegde's mentoring style is "one of nurturing the student to grow to be a successful and productive scientist. I generally choose a project that is exciting but has a high chance of success for the student to pursue. I individualize my mentoring to suit the need and the personality of the student. I am looking for students with high degree of motivation and enthusiasm for science."

Highlights From Annual WNCSfN Spring Symposium

(continued from page one)

computer cursors by merely thinking about them. **Craig Buchanan M.D.**, Professor of Otolaryngology and Director of the Ear and Hearing Center at the University of North Carolina Medical School, gave a summary of the incredibly successful cochlear implant program for the hearing-impaired. He also highlighted future technologies that would increase the utility of existing implants and would be applicable for patients born with cochlear nerve deficiencies. **Sam Deadwyler Ph.D.**, Professor of Physiology and Pharmacology at Wake Forest University Medical School, presented his most recent research on the development of neural prostheses for learning and memory. His research showed that neural decoding of hippocampal neuron activity followed by direct stimulation can improve performance on learned tasks by transferring 'memory' from one individual to another. **Richard Murrow M.D.**, Associate Professor of Neurology at the University of North Carolina Medical School, summarized the development and use of deep-brain stimulation to treat Parkinson's disease and other movement disorders. Following these amazing examples of the brain-machine interface, the speakers were engaged as a panel and answered questions from the audience. Discussion topics included the biocompatibility between devices and human tissues as well as the road-blocks and opportunities for translation of emerging technologies to humans. These presentations and the discussions that followed highlighted an amazing future for some remarkable brain-machine partnerships.

TED

Ideas worth spreading

TED (Technology, Entertainment and Design) is a nonprofit organization that started out as an annual conference in 1984. Since then, it has grown in size and scope to include topics in science, arts and global issues, and consistently brings together top thinkers in every discipline. Check out great neuroscience related talks by Oliver Sacks, VS Ramachandran, Michael Merzenich, Rebecca Saxe and more! www.ted.com

FACULTY OF 1000 BIOLOGY

This site compiles research articles that have been evaluated and scored by expert faculty in the field of neuroscience. This is a great place to find hot topics and exciting recent articles.

Pro-Test for Science

AMP Americans for Medical Progress

Speaking of research

Science and the Community

by Katie Gill, Physiology & Pharmacology Graduate Student

Obama's New Drug Control Strategy

Recently, *Newsweek Magazine* obtained a leaked copy of the National Drug Control Strategy to be published by the Office of National Drug Control Policy (ONDCP). According to ONDCP director Gil Kerlikowske, the new Strategy offers a balanced approach of "evidence-based prevention, treatment, and enforcement." There is strong emphasis on basic science and research as a key player in understanding, preventing, and treating substance abuse. Specifically, funding organizations such as National Institute of Drug Abuse (NIDA) are charged with expanding research on understudied substances, collecting further data on the consequences of drugged driving, and supporting the development of new medications for addiction, among others. The Strategy also focuses on incorporating addiction prevention and treatment into the health care system, increasing the prevalence of drug abuse and addiction screenings in clinics and emergency departments. Another notable feature is the increased effort to promote celebration of recovery. ONDCP has established a recovery team that regularly engages the recovering community and initiated campaigns such as the new Life after Meth posters that are intended to instill hope for recovery, even in cases of severe addiction.

A Pro-evolution Rapper

Ever felt like you needed a new outlet for your scientific energies? A way to spread your ideas other than through scholarly articles? You could take a cue from hip-hop artist Baba Brinkman, a man with an evolution mission: spread Darwin's word through rap. He is currently touring throughout Europe and in major cities in the US, performing his "Rap Guide to Evolution." Listen to a sample of his music and hear songs such as "Natural Selection", "Survival Theory", "DNA", and "Darwin's Acid." Read Olivia Judson's review of the show here.

The 40th Annual Meeting of the Society for Neuroscience will be held in San Diego, CA, November 13-17, 2010. San Diego's great climate and wealth of attractions affords a wide variety of things to do. Don't forget to mark your calendars for the important deadlines listed below!

- Student members receive discount opportunities on registration fees, air fare, lodging, and more.
- Check http://sfn.org/am2010/ for more details about the 2010 program in June!

Abstracts	
Deadline for changes to submitted abstracts, 5pm	May 17
Notification of session assignments e-mailed	Early July
Meeting and Hotel Registration	
Bonus Day for Members whoe renewed membership by Jan.15, 2010	July 13
Advance member meeting registration and hotel reservation	July 14
Advance nonmember meeting registration and hotel reservation	July 20
Last day for students to make hotel reservations from student block	Sept. 7
Last day to cancel hotel reservations online	Oct. 4
Deadline for online meeting registration, 11:59pm	Sept. 24
Travel Awards	
Graduate Student Travel Awards	June 1
Postdoctoral Travel Awards	June 1
FUN Undergraduate Student Travel Award	May 20
Chapters Postdoctoral Travel Awards ($1000 + registration fees)	June 1
Chapters Graduate Student Travel Awards ($750 + registration fees)	June 1
Achievement Awards	
Scientific Achievement Awards	May 29
Next Generation Award	June 25
Science Educator Award	June 25
Young Investigator Award	June 11

Breaking News: Neanderthals Aren't Extinct! They are…Us.

by Dwayne Godwin, Ph.D., Neurobiology & Anatomy

A recent article in Science provides evidence that Homo Sapiens and Neanderthals might have shared a cave or two, with a few flakes of DNA (about 1-4% by some estimates) making its way into modern humans.

Well, that could explain a lot, including the important question of where those Geico cave men came from.

Neanderthal fossils last appeared in the fossil record about 40,000 years ago. Almost since the first members were recognized 150 years ago from fossils from a cave in the Neandertal valley in Germany, two questions have been asked: 1) what happened to them? and 2) did H. sapiens and H. neanderthalensis rub more than sticks together (or to restate, was Jean Auel right)?

Both questions appear to be answered to a important level of detail in the study by Green et al. (2010) in which DNA was successfully recovered from fossilized material and compared with modern human DNA. It's an interesting read overall, but one of the more interesting analyses had to do with detection of common genes that were preserved in H. sapiens. Selection for a new allele that is more adaptive from an evolutionary perspective can cause a "selective sweep". As the new mutant increases in frequency, regions that are close by on the chromosome (even neutral ones) can also be promoted by "hitchhiking" along with these adaptive sequences. An interesting set of genes linked to cognitive processes was illuminated with analysis of these sweeps, including several linked to genes associated with human brain disorders, suggesting that "multiple genes involved in cognitive development were positively selected during the early history of modern humans" and reminding us that a so-called "disease gene" is sometimes just a good gene, gone bad.

With such an (heavy) eye brow raising discovery as this, there's bound to be intense introspection and renewed existential angst as we speculate upon what it means. Is my tendency to stare unblinkingly at campfires owed to some fragment of DNA passed down for tens of thousands of years? (Figure 1).

(Image: Encyclopedia Britannica)

So until Craig Venter comes up with a genetic test to determine whether you possess these Neanderthal genes, I am providing this quick behavioral guide as a public service in the spirit of amateur anthropologist Jeff Foxworthy:

Figure 1. Is this fellow lurking in your family tree? (Image: ABCnews.com `

You might be a Neanderthal* if:

- You run around in a circle flailing your arms and screaming that the sun is "put out" when there's an eclipse or the sun goes down.
- The museum of anthropology has offered you a royalty to display your hair.
- You own a "homemade" fur coat.
- You feel a nearly overwhelming urge to knuckle walk when going up stairs.
- Any sort of manual labor causes you to grunt inarticulately.
- You need a "scope of work" estimate for your barber before you get a haircut.
- Instead of wrap around shades you use clip ons - to your massive brow ridges.
- You've ever been kicked out of a zoo for heckling monkeys - or throwing poo.
- You trim your nails (finger or toe) with pruning shears.
- You grow a beard because it looked *so good* when your sister did it.

Any one of these might not be cause for concern (I take that back – certainly any of these would be great cause for concern), but if you find yourself answering yes to 3 or 4, you might well be a Neanderthal. More seriously from a cognitive neuroscience perspective, with even a small percentage of Neanderthal DNA, you just might be thinking like one right now, if even a little bit.

Find out more:

1) Green et al., A Draft Sequence of the Neandertal Genome. Science 7 May 2010: 710-722.
2) NPR story http://www.npr.org/templates/story/story.php?storyId=126611419
3) New York Times coverage http://www.nytimes.com/2010/05/07/science/07neanderthal.html?pagewanted=1

Become a member of the WNCSfN!

by Christos Constantinidis, Ph.D.
WNCSfN Secretary/Treasurer

The Western North Carolina Chapter of the Society for Neuroscience (WNCSfN), a division of SfN, is dedicated to promoting education in the Neurosciences, facilitating Neuroscience outreach in the western North Carolina area, and encouraging interaction among Neuroscience professionals within our research community. The WNCSfN sponsors numerous events including a fall poster session, an annual research symposium, and multiple Brain Awareness Council activities in the community. Student and postdoctoral members are eligible for the Mary A. Bell Awards for outstanding posters presented in the fall forum. You can view all our current and past activities on the web at http://www1.wfubmc.edu/SfN/.

Last year, we were remarkably successful raising funds in the form of chapter grants from the national society. It is unlikely we will consistently enjoy such success. This means that membership dues will always make a significant and consistent contribution to our annual budget. We are therefore inviting all faculty, staff, graduate students, postdoctoral fellows, and medical residents with interest in the Neurosciences to join the Chapter. If you become a member or renew your membership right now, your membership 'clock' won't start until the Fall. Please send us your name, title, department, and email address, along with your dues (cash or check made payable to WNCSfN) to Dr. Brian McCool, Department of Physiology & Pharmacology, Wake Forest University School of Medicine, Medical Center Blvd, Winston-Salem, NC 27157.

Membership Dues:

One Year		Three Years	
Regular	$30	Regular	$75
Postdoc	$20	Postdoc	$50
Student	$15	Student	$35

WFU Graduate Student Research Day & Hot Topics Forum

by Erin Caulder, Neurobiology & Anatomy Graduate Student

On March 23, 2010, graduate students and post-docs from all departments and schools at Wake Forest were provided the opportunity to participate in the 10th annual Graduate Student Research Day. A record 124 posters were presented in a variety of categories to showcase the wide variety of research being performed at this institution. Neuroscience student Lindsey Hamilton won overall in her category, Integrative Sciences, with her work on impulsivity and cocaine administration in male and female monkeys.

The Hot Topics Community Forum focused on WFU's own Neuroscience program, and three students in particular were asked to give short talks on their own research. Carson Dobrin, David "Lazer" Klorig, and Scott Dobrin were all pleased to be able to participate in this arena. These talks were preceded by an overview of the great successes and interdisciplinary breadth of the Neuroscience program, given by the program Director, Dr. Ronald Oppenheim.

"It was awesome! I appreciated the opportunity to present my research and I enjoyed the excellent and thought-provoking questions. There was a really good turnout too!" David Klorig said of his experience.

The forum was open to all, and a wide range of disciplines were represented in the crowd. Scott Dobrin noted the variety of interests: "Being able to represent the Neuroscience program was a great honor. Speaking to people with such diverse research interests about my work was fantastic."

This annual event is always a pleasant occasion for graduate students and post doctoral fellows alike to engage scientists outside of their field and to learn what other things are being done at Wake Forest. Too often, we are captives of our subfields and specialties; it is nice to get out of those boxes once in a while and see the whole forest beyond the trees!

Show Me the Money!

by Lindsey Pattison, Neuroscience Graduate Student

Not only faculty members need apply for funding, but post-docs and even graduate students need to reach out and find opportunities to fund research and travel. Do you know start to find the support you need? Try some of these sites we found helpful to all levels of researchers.

- Search NIH Grants straight from the source! Find out what all the codes mean and which types of funding best suite you. Plus, find lots of tips and tutorials on the grant application process. This is a great resource for all levels of scientists.
- ScanGrants lists hundreds of funding opportunities for graduate students, post-docs, faculty and medical professionals. Deadlines and available funds are readily displayed and grants can be narrowed by category or searched for by keywords. You can also subscribe for email updates.
- Society for Neuroscience fellowships aren't just for traveling to annual SfN meetings. Here you can also find opportunities for scientific awards and prizes in various branches of neuroscience from SfN recognized organizations.
- Also try these funding opportunity search engines where you can save searches and subscribe for email updates for opportunities fitting your criteria:
  - WFU School of Medicine's eRA Portal for Electronic Grants Admission allows you to sign in (on campus) using your Wake username and password and find funding opportunities using SPIN.
  - GrantsNet from *Science* Careers is a great resource for funding at various levels and also a good resource for finding post-graduation positions. Try their funding search feature today!

To assess the effects of experience on learning, this bee has been trained to extend its proboscis in response to light projected in front of her. This image is courtesy of Scott Dobrin, Neuroscience Graduate Student working in the laboratory of Dr. Susan Fahrbach.

LOOK AT ALL THIS EMPTY SPACE! You could be using this space to advertise openings in your lab, share exciting findings, cool images and hot new articles, or even publish a creative scientific piece of your own design. We would love to hear from you! Contact stwillar@wfubmc.edu with questions/comments.

The Neurotransmitter Staff:

Co-editors:

Stephanie Willard, Graduate Student
Neuroscience Program

Dwayne Godwin, Ph.D.
Neurobiology & Anatomy

Contributors:

Scott Dobrin, Graduate Student
Neuroscience Program

Erin Caulder, Graduate Student
Neurobiology & Anatomy

Katie Gill
Physiology & Pharmacology

John Graef, Ph.D.
Neurobiology & Anatomy

Katie Martucci, Graduate Student
Neurobiology & Anatomy

Brian McCool, Ph.D.
WNCSfN President

Jonathan Morgan, Graduate Student
Neuroscience Program

Lindsey Pattison, Graduate Student
Neuroscience Program

Interested in contributing to *The Neurotransmitter?* Please contact Stephanie Willard at: stwillar@wfubmc.edu.

WAKE FOREST UNIVERSITY
SCHOOL of MEDICINE

facebook

Become a fan of the WNCSfN on facebook!