As we begin the New Year, many people will take time to reflect on the year that has passed with all of its surprises, disappointments and the new hopes that naturally come with the advent of spring. During the last year, the Vanderbilt Brain Institute (VBI) has lost some dear colleagues and gained some new friends. We have continued to make tremendous scientific discoveries and a few experimental setbacks, as the pace of change in science and academia marches inevitably forward. The neuroscience community has seen recent changes in leadership for the Department of Neurology and the Vanderbilt Kennedy Center and we are in the process of identifying new leaders for the VBI and the Department of Molecular Physiology & Biophysics. It is likely that all of these changes will have significant effects upon neuroscience research at Vanderbilt for the near future and provide new opportunities for both collaboration and scientific advancement.

With all of these ongoing activities, I am reminded, "the only thing that is constant is change". A more inspiring quotation about change however, comes from Margaret Meade, the famous cultural anthropologist, who said, "Never doubt that a small group of thoughtful, committed, citizens can change the world. Indeed, it is the only thing that ever has". Consider this my challenge to the citizens of the Vanderbilt neuroscience community for the upcoming year; simply change the world! I hope that you and your families had a great holiday season.....welcome to 2018!

Ronald Emeson, Ph.D.
Joel G. Hardman Professor of Pharmacology, Biochemistry, Molecular Physiology & Biophysics and Psychiatry & Behavioral Sciences
Interim Director, Vanderbilt Brain Institute
The first edition of the **Neuroscience Extravaganza!**, a one-of-a-kind event organized by the Middle Tennessee Chapter of the Society for Neuroscience in association with the Vanderbilt Brain Institute Outreach Committee for young scientists, happened on October 20th. The meeting gathered ca. 50 students and postdoctoral fellows of the Middle Tennessee area, including Lipscomb University and Austin Peay State University in Clarksville.

Ron Emeson, Suzana Herculano-Houzel and Laura Mariani spoke to the public about different career paths in science (academia, science communication and recruiting); Ariel Deutch, David Sweatt and Isabel Gauthier talked about issues that remain unknown in cellular, molecular and cognitive neuroscience; Jessica Murray, a PhD candidate at Lipscomb University, avoided the gong and won the $100 cash prize for best three-minute presentation; Ron Emeson beat all but two of ten contenders who tried to keep a straight face at his flurry of neuroscience jokes; and the event concluded with the premier of the song *Dopamine*, composed and performed by David “Stickman” Zald.

The second edition of the **Neuroscience Extravaganza!** is scheduled for March 19th, 2018, from 1 to 5 pm, again in Light Hall room 208. Come sit in the audience and enjoy a fun and science-filled afternoon, or sign up and become part of the program: students are invited to try to beat the gong and compete for best 3-minute talk; faculty are welcome to stand up to the challenge and deliver a 2-minute presentation of their current research interests (followed by a match-making poster session by the refreshments during the break); and all are invited to Sing Your Science with new lyrics on your research sung to the tune of your favorite song. Save the date!
**Shilpy Dixit, Ph.D.**, postdoctoral fellow in Dr. Fiona Harrison's laboratory, won a Young Investigator's Award at the Diet and Optimum Health conference at the Linus Pauling Institute, OHSU, Corvallis, Oregon. Her success was based on a poster presentation and personal career statement, and she also was selected to be one of five trainees who gave lightening talks.

**Christopher Sundby**, graduate student in Dr. Geoffrey Woodman's laboratory, has earned a $50,000 graduate research fellowship from the National Institute of Justice. A student from the nation's first joint law and neuroscience J.D. and Ph.D. program, Christopher's research project is titled “The Neuroscience of Evidentiary Rules: The Case of the Present Sense Impression.” In it, he employs neuroscience to propose evidentiary rules based on actual human cognition instead of assumptions about how people perceive and process information. He's specifically interested in the rule of Present Sense Impression and in better detecting lies.

The NIJ’s Graduate Research Fellowship in Science, Technology, Engineering and Mathematics recognizes innovative doctoral dissertation research relevant to ensuring public safety, preventing and controlling crime and ensuring the fair and impartial administration of criminal justice.

Sundby is affiliated with the MacArthur Foundation Research Network on Law and Neuroscience, a group that aims to guide the legal profession through the implications of brain science. The network was founded by Owen Jones, the Joe B. Wyatt Distinguished University Professor, New York Alumni Chancellor’s Professor of Law, and professor of biological sciences.

In 2013, Sundby became one of the first two students admitted to Vanderbilt’s joint law and neuroscience program.

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**The new VBI wordmark is available for**

The square of brain with the wiggly green and purple curves that we have all come to recognize as a symbol of the Vanderbilt Brain Institute has been updated to conform to the standards of the University. Several examples of the Vanderbilt log and how to use it along with the name of the Brain Institute and/or the new wordmark (in colors or gray scale) are available for download in the restricted area of the NGP page at [www.braininstitute.vanderbilt.edu](http://www.braininstitute.vanderbilt.edu). Feel free to use one of the approved wordmarks provided in your next title slide or poster and show that you are a proud member of the VBI!
Alumni Spotlight

Dr. Martin Schmidt
graduated from Vanderbilt in 2014 (defended in Fall 2013) with a Ph.D. in neuroscience. He's currently serving as Director of Clinical Development for Kypha, Inc. in St. Louis, Missouri. Kypha is a small company developing technology to improve immune system diagnostics that have potential clinical applications ranging from neurology to hematology and nephrology. Complement has been studied for nearly 100 years, but its impact has been limited in analytic instability. However, recent pharmaceutical advancements such as Alexion’s blockbuster drug clearance for Soliris and new clinical research showing the role of complement in synapse elimination (Beth Stevens at Harvard and others), complement in synapse elimination could enable physicians to intervene soon after an event also engages adult community, and transplant rejection have demonstrated the need for more reliable and faster complement diagnostics across several medical disciplines. The team hopes that monitoring complement activation quickly and dynamically will enable physicians to intervene sooner in relapsing/remitting conditions as well as acute situations like immune complex-associated adverse events in clinical trials. Kypha was awarded an NIH small business grant (SBIR) in collaboration with Dr. Alp Ikizler’s lab at Vanderbilt in June 2016, somewhat ironically making Martin an NIH-funded Principle Investigator much faster in industry than if he had stayed in academia. The collaboration produced three new diagnostic test prototypes and demonstrated the ability to monitor complement activation in near real time during hemodialysis in a technical proof of concept study conducted at the Vanderbilt Dialysis Clinic. Martin is currently managing Kypha’s R&D program, collaborating with pharmaceutical companies on multiple projects, and supporting regulatory and commercial activities. He credits the IGP, the VBI, and the Vanderbilt TechVenture Challenge with preparing him for the constant learning and multidisciplinary communication required in biomedical technology development. He also encourages students and postdocs interested in "alternative" careers to start talking to as many people outside academia as they can while thinking about the best mix of roles and responsibilities that fits their skills and interests.

Dr. Pete Vollbrecht

graduated from Vanderbilt in 2014 with a Ph.D. in neuroscience. He worked as a post-doctoral fellow in the Pharmacology Department at the University of Michigan where he studied the effects of diet and obesity on nucleus accumbens brain chemistry. In 2015, he accepted a position as a Visiting Assistant Professor in the Biology Department at Hope College, where he is primarily teaching Human Physiology. He has also formed his own research group which is exploring the effects of diet and/or obesity on prefrontal cortex function. Specifically, the group is utilizing standard outbred rat models along with selectively-bred obesity-prone and obesity-resistant rats to better understand the relationship between obesity development and observed cognitive deficits, and exploring possible underlying mechanisms including alterations to CRF-signaling pathways. In addition, he has secured funding through the Society for Neuroscience to develop a Brain Awareness Week event at Hope College, which aims to engage underrepresented minority K-12 students from the local area. The event also engages adult community members in discussions about topics with a broad interest including neurolaw and aging. Finally, during his time at Hope College he has been involved in the development of a new Neuroscience major that hopefully will be approved in time for the upcoming academic calendar.

Upcoming Events

- January 5th – Neuroscience Graduate Program Dissertation Defense, Elaine Ritter, 10:00 a.m., 512 LH
- January 10th – Neuroscience Graduate Program Research Forum/Nano-Symposium, 4:10 p.m., U1220 MRBIII
- January 24th – Neuroscience Graduate Program Research Forum/Nano-Symposium, 4:10 p.m., U1220 MRBIII
- February 7th – Seminars in Neuroscience: Brain, Mind, and Society, Hugh Garavan, Ph.D., 4:10 p.m., U1220 MRBIII
- February 21st – Neuroscience Graduate Program Research Forum/Nano-Symposium, 4:10 p.m., U1220 MRBIII
- February 28th – Neuroscience Graduate Program Research Forum/Nano-Symposium, 4:10 p.m., U1220 MRBIII
- March 7th - Neuroscience Graduate Program Research Forum/Nano-Symposium, 4:10 p.m., U1220 MRBIII
- March 14th - Seminars in Neuroscience: Brain, Mind, and Society, Helen Burgess, Ph.D., 4:10 p.m., U1220 MRBIII
- March 17th – BRAIN BLAST! 9:00 a.m. – 1:00 p.m., Martin Professional Development Center
- March 19th – Neuroscience Extravaganza! 1:00 p.m. – 5:00 p.m., 208 LH
Communicating with the public is a way not only to engage and give back to the public that funds the continuity of science but also to gain invaluable experience in thinking about your research in new ways, and in learning to convey the main points of your work. The VBI has a number of outreach initiatives that its training faculty, affiliate members and also students and postdoctoral fellows are welcome to become a part of. We encourage you to participate in Brain Blast, the VBI’s signature event during Brain Awareness Week (March 2018), organized by the VBI Outreach Committee; partner with school teachers in visits as guest lecturer to Metropolitan Nashville Public Schools throughout the school year; join the Middle Tennessee Chapter of the Society for Neuroscience and be a part of Neuroscience Extravaganza; or consider speaking to the general public at Osher Lifelong Learning lecture series.

Becoming savvy in science communication contributes to your own research, too. Talks and papers improve in clarity, and your chances of securing funding from public agencies increases: In grant applications to the National Science Foundation, for example, the broader impacts of a research proposal are worth half of the evaluation score.

Text that can be added to your grant proposal on your involvement in the outreach activities of the VBI can be found in the secure page of the NGP on the VBI website. Contact Rebecca Ihrie or Suzana Herculano-Houzel to volunteer to participate.

Neuroscience Graduate Students Conduct Sheep Brain Dissections at Local Middle Schools
by Salma Omer

During the week of November 27th, VBI PhD students, post-doctoral fellows, and medical students conducted sheep brain dissection lessons at Bellevue Middle School and HG Hill Middle School for students in the ENCORE program. The goal of the outreach event was to give students the opportunity to dissect sheep brains, as well as gain an appreciation for the complexity of the brain. Students were able to learn about brain region structure and function, and white and gray matter. In this photo Jennifer Quinde, a first year NGP student is providing a demo for 5th grade Bellevue Middle School students on how to perform the sheep brain dissections.
Select Recent Publications of the VBI


Let us know when you publish! Send a Pubmed link of your new publication to suzana.herculano@vanderbilt.edu if you would like them to appear in the next Connections Newsletter.