



Neuroscience Research Institute Newsletter

Issue 2

January 2022

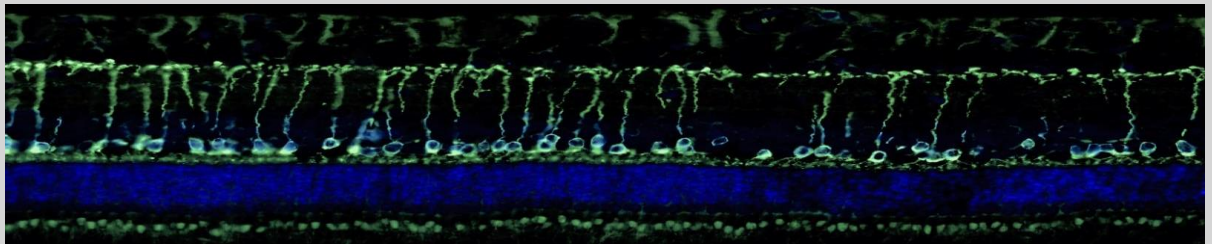
Recap from NRI Inaugural Annual Retreat

The inaugural Neuroscience Research Institute Annual Retreat hosted at the Fawcett Center and held on November 19th, 2021 was an absolute success! Thank you to everyone that participated. We had approximately 175 people attend in-person throughout the day and it felt great to be able to have an in-person event focused on Neuroscience! We hope that all of you enjoyed the chance to network with new and old colleagues. Our hope is that these events help catalyze new collaborations.

A few highlights from the day :

- Keynote Speaker - Dr. Stephen Korn - NINDS - Director of Office of Training & Workforce Development
- Poster session with ~60 posters across many departments and disciplines
- Two plenary sessions (including ~15 talks from faculty and trainees)
- Breakout/Networking sessions
- 8 Trainee Award Winners

Best Scientific Image
"Cool Retina" image
submitted by Maura
Schwartz



NRI Retreat Award Winners

Scientific Image Award

- Maura Schwartz, PhD Candidate (Kathrin Meyer's Lab)

Best Oral Presentation Award

- Jeff Atkinson, PhD (Postdoc - Ben Segal's Lab)

Best Poster Awards

- Magdalena Blaszkiewicz, PhD (Kristy Townsend's Lab)
- Annalisa Hartlaub, PhD Candidate (Nicolas Wein's Lab)
- Kaitlyn Kray, PhD Candidate (Arthur Burghes' Lab)
- Jonathan Packer, PhD Candidate (Jon Godbout's Lab)
- Zoe Tapp, PhD Candidate (Niki Kokiko-Cochran's Lab)
- Wenyuan Yin, PhD Candidate (John Sheridan's Lab)



SAVE THE DATE - 2022 NRI Annual Retreat
Friday, November 4th, 2022
FAWCETT CENTER

NRI - Brain Bank and Biorepository Update

The primary purpose of the Neuroscience Research Institute Brain and Biorepository Bank (NRI-BBB) is to provide a robust specimen bank as a resource for the neuroscience research community at The Ohio State University (OSU). The technology for profiling biospecimens continues to evolve, and it is of utmost importance that OSU maintains a robust and well-characterized brain bank and biorepository to stay at the forefront of translational research in the field of neuroscience. A number of significant milestones have been made over the past year for the NRI-BBB including:

- IRB protocol approval in January 2019
- Implementation of eConsenting through REDCap
- Initiation of enrollment in June 2021 beginning with two divisions: Neuroimmunology and Neurocognitive
- Expansion to enrolling patients within the Parkinson's disease group
- Enrollment of over 95 participants as of January 2022



The NRI-BBB maintains a digital paperless record on REDCap and also allows for remote consenting. The NRI-BBB continues to expand having added the Parkinson's disease group in October and we are looking forward to and planning to add more divisions. Participant recruitment for the NRI-BBB takes place with both inpatient and outpatient subjects at multiple point of care facilities. Currently, the NRI-BBB participant recruitment is occurring at Martha Morehouse Pavilion, 2006 Kenny Road, and the Brain and Spine Hospital. The NRI-BBB is broadening recruitment to other facilities as well including Davis, Gahanna, and New Albany. The NRI-BBB now houses all specimen procured by the Buckeye Brain Bank at our main freezer farm facility located at the West Campus Science Village building on Kinnear Road. All further brain specimen samples will be obtained under the NRI-BBB protocol and stored at this location as well. Our main processing lab is located on the sixth floor of the BRT. To date, the NRI-BBB has enrolled over 95 participants and is storing over 1,700 specimen aliquots including PBMCs, CSF cells, CSF supernatant, serum, plasma, and brain tissue. The overall goal is to enhance translational research for a variety of neurological disorders through the infrastructure of a robust and expansive brain bank and biorepository at OSU while simultaneously using best practices for patient privacy and specimen/data utilization. The next phase is to implement a robust clinical database with direct data feeds from IHIS which is currently in development in collaboration with the OSUCOM Research IT Office.

To request or inquire about specimens please access our [REDCap request form here](#).

Michael Rose, BS MB(ASCP)^{CM} - Message from NRI-BBB Lab Supervisor

In September 2021 I joined the NRI where I began my role as Laboratory Supervisor for our biorepository. I received my Bachelors of Science in Cell and Molecular Biology from Kent State University. After graduating, I spent 9 years at Nationwide Children's Hospital where I was a lead team member for their own biorepository and later transitioned to a role on the clinical genetics team where I performed genetic testing for a variety of genetic inherited diseases and cancer. During this time, I also received my certification in Molecular Biology from the American Society for Clinical Pathology. I later joined the next generation sequencing team in the Institute for Genomic Medicine at Nationwide Children's Hospital. In this role, I performed a variety of library constructions for sequencing, loaded and maintained the sequencers, and investigated NGS findings. I am passionate about improving processes for the better of the laboratory and building relationships across work groups. I am looking forward to continuing to grow here at Ohio State University while bringing my own experience and skill sets to the NRI.



Jonathan Roell, MBBS - Message from NRI-BBB Research Associate

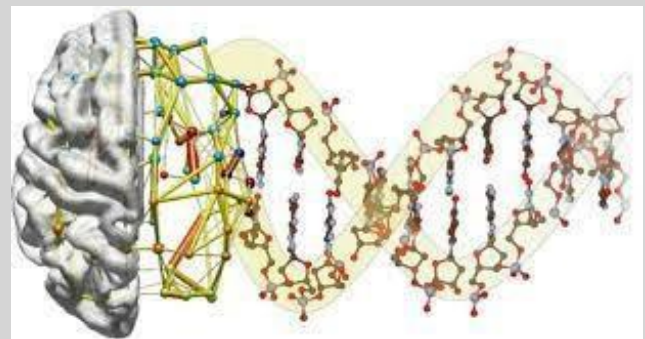
I joined the NRI at The Ohio State University in September of 2021 as a Research Associate and currently handle the processing of samples submitted to the NRI-BBB biorepository. I received my B.S. from the University of Florida in Engineering Sciences before working at the CDC investigating foamy virus as a potential vaccine vector. I then spent six years in Beijing where I received an MBBS from China's Capital Medical University. My most recent position prior to joining OSU was as a molecular technologist at OSF St. Francis Medical Center in Peoria, IL where we were tasked with developing large scale COVID-19 testing at the outset of the pandemic. It has been a professional dream to work with such incredible colleagues here at OSU and to help expand the NRI-BBB to meet the needs of the talented physicians and research collaborators.



NRI Neurogenetics Symposium

September 2021

- We held our first Neurogenetics Symposium on September 23rd-24th via Zoom to showcase breakthroughs in the field of Neurogenetics at Ohio State, Nationwide Children's and across the country.
- The symposium included talks on the genetics of dementia, whole exome sequencing in Parkinson's Disease, Genetic variants that cause Epilepsy, Genome-wide association studies of Multiple Sclerosis and Hereditary Dystonias. In addition to OSU faculty and trainees, speakers represented Nationwide Children's Hospital, Baylor, Yale, UCSF, Northwestern and University of North Carolina.



2022 NRI SEED Grant RFA

Eligibility

The PI for the proposal must be a full-time faculty member or post-graduate trainee (resident, clinical fellow, or post-doctoral fellow). Priority will be given to projects submitted by junior faculty and/or trainees not previously funded. Trainee applications are required to have a faculty mentor.

Evaluation Criteria

Applications will be reviewed by a NRI Seed Funding Panel (overseen by both the NRI Director and Associate Director; and will be reviewed by the NRI Translational and Cross-collaborations Committee and other experts deemed necessary). Panelists will be representative of NRI affiliated-departments. Applications with a focus on neuroimmunology or neurobiology of aging will be prioritized.

Selections will be made based on the following criteria:

- New/unfunded project
- Relevance to neuroscience/NRI mission
- Scientific merit/innovation
- Likelihood of future extramural funding
- Collaborative/interdisciplinary projects
- Translational projects/use of human samples
- Use of NRI biorepository (strongly encouraged)



The full instructions can be found for the 2022 NRI Seed Grant at this [link](#).

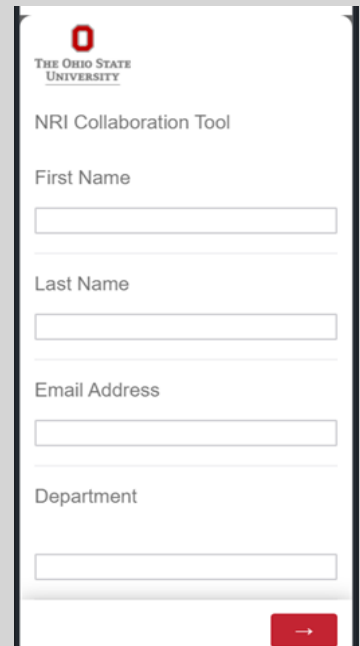
Please submit your application as a PDF file via email to the NRI Associate Director at OSUNRI@osumc.edu on or before Friday, April 1st, 2022.

The NRI expects to fund 3-4 Seed grants in 2022.

All funded PIs will be required to submit progress reports, present at a NRI-sponsored event, and acknowledge the NRI in all associated publications and presentations.

NRI Collaboration Tool

- Based on survey, NRI-affiliated faculty requested assistance with making connections and collaborations
- An additional identified need is in support of experimental design of translational projects
- Given this feedback the NRI Collaboration Tool was created and is currently on NRI website
- All requests will go to faculty that serve on the NRI Translational & Cross-Collaborations Committee
- Visit: [OSU-NRI website](#)



THE OHIO STATE UNIVERSITY

NRI Collaboration Tool

First Name

Last Name

Email Address

Department

Recent Achievements

within last 6 months

Grants

- **Drs. Daniel Gallego Perez, Dave Arnold, and Amy Moore** received a 4-year grant from the DOD titled, "Nonviral Gene and Reprogramming-Based Cell Therapies for Peripheral Nerve Injury.
- **Dr. Bin Gu** received a 3-year grant from the DOD for his project titled "Define Genetic Basis and Pathologic Network of Post-Traumatic Epilepsy Using Collaborative Cross Mice". This grant will be used to further the collaborative work of Dr. Gu and **Dr. Niki Kokiko-Cochran** defining the genetic basis and pathologic network of post-traumatic epilepsy using Collaborative Cross mice.
- **Dr. Jan Schwab** (Co-I) received DOD funding in collaboration with Battelle to improve hand function in tetraparetic patients.
- **Dr. Jacy Wagnon** was awarded a two-year research grant from the Dravet Syndrome Foundation to look at targeting molecular responses to seizures in Dravet Syndrome.
- **Dr. Erica Glasper** awarded NIH R01 to study how social bond disruption, in a pair bonding species, translates into compromised mental and physical health
- **Dr. Dana McTigue** awarded NIH R01 to study connection between liver inflammation and spinal cord injury outcomes.
- **Dr. Phil Popovich** awarded Third Frontier grant funding. This grant will support the development of custom probiotic interventions to treat spinal cord injury and establish an advanced analytics platform for human spinal cord injury microbiome research.
- **Zoe Tapp** received a F31 fellowship grant from NINDS (Co-mentors: Drs. Kokiko-Cochran and Godbout).
- **Dr. Steve Kolb** received a grant from Novartis: "Validation of CSF and plasma neurofilament levels in a postnatal porcine model of SMA".

High-impact Publications

- **Bedrosian, T.**, Houtman, J., Eguiguren, J., Ghassemzade, S., Rund, N., Novaresi, N. Hu, L., Parylak, S., Denli, A., Randolph-Moore, L., Namba, T. Gage, F., and Toda, T. "Lamin B1 decline underlies age-related loss of adult hippocampal neurogenesis." *The EMBO Journal* (2021)
- Beslow, L. A., and **Lo, W. D.** "Key Metrics Are Required to Refine Guidelines for Pediatric Mechanical Thrombectomy." *Stroke* (2021)
- Feigin, V. L., Vos, T., Alahdab, F., Amit, A. M. L., Bärnighausen, T. W., Beghi, E., . **Lo, W.D.** . . . Murray, C. J. L. "Burden of Neurological Disorders across the US from 1990-2017: A Global Burden of Disease Study." *JAMA Neurology* (2021)
- Fontanella, C., Brock, G., **Fristad, M.** "Cannabis Use and Suicidal Behavior and Long-term Harms—Reply" *JAMA Pediatr.* (2021)
- Fouad, K., **Popovich, P.G.**, Kopp, M. A., and **Schwab, J.M.** "The neuroanatomical-functional paradox in spinal cord injury" *Nature Reviews Neurology* (2021)
- Friedman, G. K., Johnston, J. M., Bag, A. K., Bernstock, J. D., Li, R., Aban, I., . . . **Leonard, J.** . . . Markert, J. M. "Oncolytic HSV-1 G207 immunovirotherapy for pediatric high-grade gliomas." *New England Journal of Medicine* (2021)
- Humeidan, M. L., Reyes, J. C., Mavarez-Martinez, A. **Nguyen, C. M.**, Sheridan, E., Zuleta-Alarcon, A., Otey, A., Abdel-Rasoul, M., Bergese, S. D. "Effect of Cognitive Prehabilitation on the Incidence of Postoperative Delirium Among Older Adults Undergoing Major Noncardiac Surgery" *JAMA Surg.* (2021)
- Jiang, B., **Koboldt, D.**, Miller, K., Miller, A., Bush, J., McGrath, S., Leraas, K., Crist, E., Fair, S. Schwind, W., Wijeratne, S., Fitch, J., **Leonard, J.**, **Shaikhouni, A.**, **Hester, M.**, Magrini, V., Ho, M., Pierson, C., **Wilson, R.**, **Ostendorf, A.**, **Mardis, E.** **Bedrosian, T.** "PTEN somatic mutations contribute to spectrum of cerebral overgrowth." *Brain, In Press* (2021)
- Jiang, B., Hills, N. K., Forsyth, R., Jordan, L. C., Slim, M., Pavlakis, S. G., . . . **Lo, W. D.** "Imaging Predictors of Neurologic Outcome After Pediatric Arterial Ischemic Stroke." *Stroke* (2021)
- Madison, A. A., Belury, M. A. Andridge, R., Renna, M. E., ShROUT, M. R., Malarkey, W. B., Lin, J., Epel, E. S., and **Kiecolt-Glaser, J. K.** "Omega-3 supplementation and stress reactivity of cellular aging biomarkers: An ancillary substudy of a randomized, controlled trial in midlife adults." *Molecular Psychiatry* (2021)
- Motelow, J. E., Povysil, G., Dhindsa, R. S., Stanley, K. E., Allen, A. S., Feng, Y. C. A., . . . **Lo, W. D.** . . . Goldstein, D. B. "Sub-genic intolerance, ClinVar, and the epilepsies: A whole-exome sequencing study of 29,165 individuals." *American Journal of Human Genetics* (2021)
- **Ostendorf A. P.**, Ahrens S. M., Lado F. A., Arnold S. T., Bai S., Bensalem Owen M. K., Chapman K. E., Clarke D. F., Eisner M., Fountain N. B., Gray J. M., Hopp J. L., Riker E., Schuele S. U., Small B. V., Herman S. T. "United States Epilepsy Center Characteristics: A Data Analysis From the National Association of Epilepsy Centers." *Neurology.* (2021)
- Pearson, T. S., Gupta, N., San Sebastian, W., Imamura-Ching, J., Viehoveer, A., Grijalvo-Perez, A., . . . **Bankiewicz, K.S.** "Gene therapy for aromatic amino acid decarboxylase deficiency by MR-guided direct delivery of AAV2-AADC to midbrain dopaminergic neurons." *Nature Communications* (2021)
- Petrosino JM, Hinger SA, Golubeva VA, Barajas JM, Dorn LE, Iyer CC, Sun HL, **Arnold WD**, He C, Accornero F. "The m6A methyltransferase METTL3 regulates muscle maintenance and growth in mice." *Nat Commun.* (2022)
- Pilotto A, Romagnolo A, Scalvini A, Masellis M, S... **Merola A.** "Association of Orthostatic Hypotension with Cerebral Atrophy in Patients with Lewy Body Disorders" *Neurology* (2021)
- Pramey, S. L., DeLuca, S. C., Stevenson, R. D., Conaway, M., Darragh, A. R., & **Lo, W. D.** "Constraint-induced movement therapy for cerebral palsy: A randomized trial." *Pediatrics* (2021)
- **Sas, A.R.**, Carbajal, K. S., Jerome, A. D., Menon, R., Yoon, C., Kalinski, A. L., Giger, R. J., and **Segal, B.M.** "A new neutrophil subset promotes CNS neuron survival and axon regeneration" *Nature Immunology* (2021)
- Schieffer, K. M., Feldman, A. Z., Kautto, E. A., McGrath, S., Miller, A. R., Hernandez-Gonzalez, M. E., . . . **Boué, D.R.** "Molecular classification of a complex structural rearrangement of the RB1 locus in an infant with sporadic, isolated, intracranial, sellar region retinoblastoma." *Acta Neuropathologica Communications* (2021)
- Shatara, M., Schieffer, K. M., Klawinski, D., Thomas, D. L., Pierson, C. R., **Sribnick, E. A.**, . . . Osorio, D. S. "Clinically aggressive pediatric spinal ependymoma with novel MYC amplification demonstrates molecular and histopathologic similarity to newly described MYCN-amplified spinal ependymomas." *Acta Neuropathologica Communications* (2021)
- Simmons, T. R., Vetter, T. A., Huang, N., Vulin-Chaffiol, A., Wein, N., & **Flanigan, K. M.** "Pre-clinical dose-escalation studies establish a therapeutic range for U7snRNA-mediated DMD exon 2 skipping." *Molecular Therapy - Methods and Clinical Development* (2020)
- Tan, K., Kim M. E., Song, H., Skarbrevik, D., Babajanian, E., **Bedrosian, T.**, Gage, F., Wilkinson, M. "The RhoX gene cluster suppresses germline LINE1 transposition" *Proceedings of the National Academy of Sciences, In Press* (2021)
- Wang, T., Rashida Gnanaprakasam, J. N., Chen, X., Kang, S. Xu, X. Sun, H., Liu, L., Rodgers, H., Miller, E., Cassel, T., Sun, Q., Vicente-Muñoz, S., Warmoes, M. O., Lin, P., Piedra-Quintero, Z. L., **Guerau, M.**, **Cassady, K.A.**, Zheng, S. G., Yang, J., Lane, A. N., Song, X., Fan, T. W. M., and Wang, R. "Inosine is an alternative carbon source for CD8-T-cell function under glucose restriction" *Nature Metabolism.* (2020)
- Warner, F. M., Cragg, J. J., Jutzeler, C. R., Grassner, L., Mach, O., Maier, D. D., Mach, B., **Schwab, J.M.**, Kopp, M., Kramer, J. L. K., "Association of timing of gabapentinoid use with motor recovery after spinal cord injury" *Neurology* (2020)
- Xu L, Zhang C, Li H, Wang P, Gao Y, Mokadam NA, Ma J, **Arnold WD**, Han R. Efficient precise in vivo base editing in adult dystrophic mice. *Nat Commun.* (2021)
- Zrzavy, T., Schwaiger, C., Wimmer, I., Berger, T., Bauer, J., Butovsky, O., **Schwab, J.M.**, Lassmann, H., Höftberger, R., "Acute and non-resolving inflammation associate with oxidative injury after human spinal cord injury" *Brain* (2021)
- Zambon, A. A., Waldrop, M. A., Alles, R., Weiss, R. B., Conroy, S., Moore-Clingenpeel, M., Previtali S, **Flanigan, K. M.** "Phenotypic Spectrum of Dystrophinopathy Due to Duchenne Muscular Dystrophy Exon 2 Duplications" *Neurology* (2021).

Awards

- Dr. Bin Gu was chosen as winner of the 2021 Grass Foundation Young Investigator Award.
- Dr. Dana McTigue has been appointed Associate Dean for Foundational Research for the OSU College of Medicine.
- Dr. Candice Askwith has been appointed the new Department of Neuroscience Vice Chair of Research.
- Dr. Jorge Vidaurre received the Gold Humanism award from CNS.
- Dr. Doug Scharre manuscript Behavioral Approaches and Management in Dementia Care was named one of "The Year's Best from Practical Neurology" of 2021.
- Kelly Rich, MS, CRC was awarded an Ohio State University Presidential Fellowship. She is a Graduate Research Associate in the Neuroscience Graduate Program in Dr. Steve Kolb's lab.

Upcoming Events

Neurology Grand Rounds - contact Delisa.Watkins@osumc.edu for more details

- 2/08/2022 ... Dean Perry Halkitis, PhD, MS, MPH (Rutgers Univ, NJ) - DEI speaker
- 2/15/2022 ... Natalie Rost, MD (Harvard Medical School) - Chief of Stroke Division
- 2/22/2022 ... Tae Chung, MD (John Hopkins) - Neuromuscular/EMG
- 3/01/2022 ... Brett Morrison MD, PhD (John Hopkins) - Neuromuscular

NI Seminar Series - contact Phoebe.Long@osumc.edu for more details

- 01/31/22 ... Gyorgy Buzsaki, MD, PhD (NYU) - Neural syntax
- 02/28/22 ... Beth Stevens, PhD (Harvard) - Neuron-glia communication
- 03/07/22 ... Alexis Stranahan, PhD (Augusta University) - Hippocampal function in metabolic disorders
- 03/21/22 ... Yang Dan, PhD (Berkeley) - Neural circuits and sleep

Dr. Stephen Korn (Director - NINDS Office of Training & Workforce Development)
NRI-sponsored In-person Visit: March 4, 2022 (more details to come soon)

NRI Neuroimaging Symposium - Fall 2022 - Date TBD

Announcements

- Welcome to newly hired Dept of Neuroscience faculty members: Drs. Giles Plant, Erica Glasper, and Lihua Ye.
- Welcome to the newly hired Dept of Neurology Faculty: Drs. Nandini Acharya, Billur Akkaya, Soumya Bouchachi, Jim Burke, Erica Dawson, Emily Harrington, Michael Isfort, Kevin Kerber, Stephanie Kielb, Victoria Klee, Alicia Zha, Yinan Zhang.
- The NRI is excited to announce two new initiatives (will be highlighted in the next NRI Newsletter):
 - Division of Health Services Research (Department of Neurology)
Co-Directors: Drs. Kevin Kerber and Jim Burke
 - NRI - Center for Neurobiology of Aging and Resiliency - Director: Dr. Dave Arnold

Other Funding Announcements

- OSU President's Research Excellence Catalyst and Accelerator proposals now being accepted
 - Accelerator Proposal Due Date: February 4, 2022
 - Catalyst Concept Papers Due Date: June 24, 2022Learn More: <https://erik.osu.edu/oke-presidents-research-excellence>
- Robert Wood Johnson Foundation
 - The Harold Amos Medical Faculty Development Program
 - \$420,000
 - Deadline: March 16, 2022
 - RFA: <https://www.amfdp.org/about>
 - This program was created to increase the number of faculty from historically disadvantaged backgrounds who can achieve senior rank in academic medicine, dentistry, or nursing and who will encourage and foster the development of succeeding classes of such physicians, dentists, and nurse-scientists. Four-year postdoctoral research awards are offered to historically disadvantaged physicians, dentists, and nurses who are committed to developing careers in academic medicine and to serving as role models for students and faculty of similar background.
- Information for Other Foundation Grants with Upcoming Deadlines (NRI website) can be found [here](#).

To submit announcements for future newsletters, please email OSU-NRI@osumc.edu.