



Neuroscience Research Institute Newsletter

Issue 5

July 2023

2023 NRI Seed Grant Proposal Winners

The Neuroscience Research Institute just finished the 3rd year of another successful Seed Grant review process! Thank you to the 16 scientific teams that submitted grants as well as our 18 grant reviewers. Our hope is that these grants help catalyze new collaborations and lead to future funded grants.



Diana Acosta, PhD

Postdoctoral Scholar - Neuroscience (Fu Lab)

"Uncovering the role of cholesterol transporter, GRAMD1B, in the development and spread of tau pathology"



Jeff Atkinson, PhD

Postdoctoral Scholar - Neurology (Segal Lab)

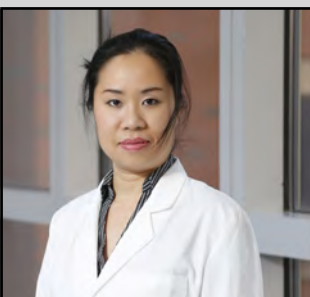
"Age-associated glial cell dysregulation in CNS autoimmune disease"



Mark Hester, PhD

Assistant Professor - NCH Institute of Genomic Medicine

"Investigating molecular mechanisms underlying neurodevelopmental deficits in a patient caused by biallelic variants in SPATA5"



Nhat Le, PhD

Assistant Professor - Cancer Biology & Genetics

"Employ nanobody-based proteolysis targeting chimera to therapeutically target neurodegenerative disease"

Recap of the NRI Summer Symposium

Peripheral Neuroimmune Interactions in Health and Disease

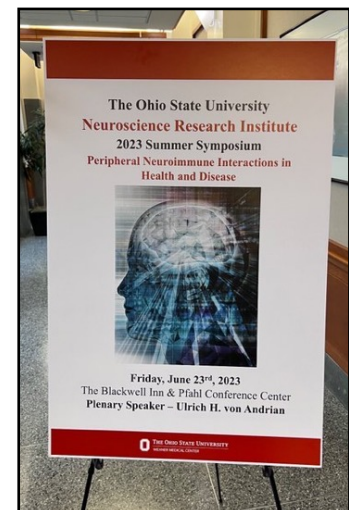
June 23, 2023

Blackwell Inn & Pfahl Conference Center

We held our first Neuroimmunology symposium with over 100 attendees to showcase cutting-edge research in peripheral neuro-immune interactions nationwide and at OSU/NCH. The event included external speakers, internal speakers and a flash talk session highlighting many of our graduate students and postdoctoral fellows.

External speakers included:

- **Ulrich von Andrian, MD - Keynote Speaker**
(Harvard University & The Ragon Institute)
Multimodal control of dendritic cell functions by nociceptors
- Isaac Chiu, PhD (Harvard)
Neuronal regulation of barrier immunity and host defense
- Rocky Barilla (Harvard - Vijay Kuchroo's Lab)
Enteric neurons in inflammation and host defense
- Sébastien Talbot, PhD (Queen's University)
Pain neurons control cancer immunosurveillance
- Grace Shin, PhD (Columbia)
Neuron-macrophage interactions in models of chemotherapy-induced peripheral neuropathy



Flash Talk Award Winners

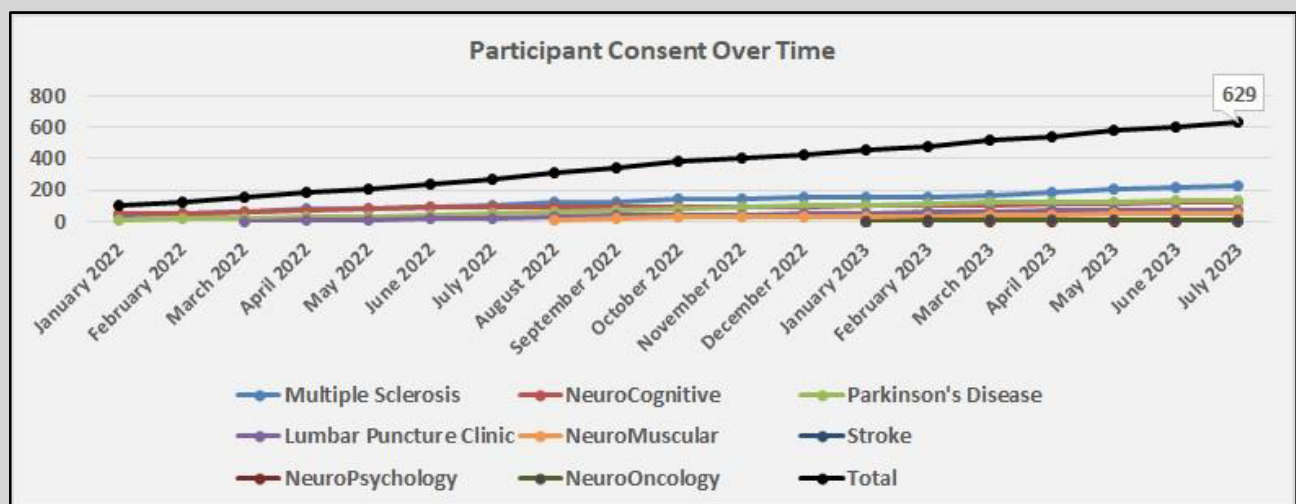
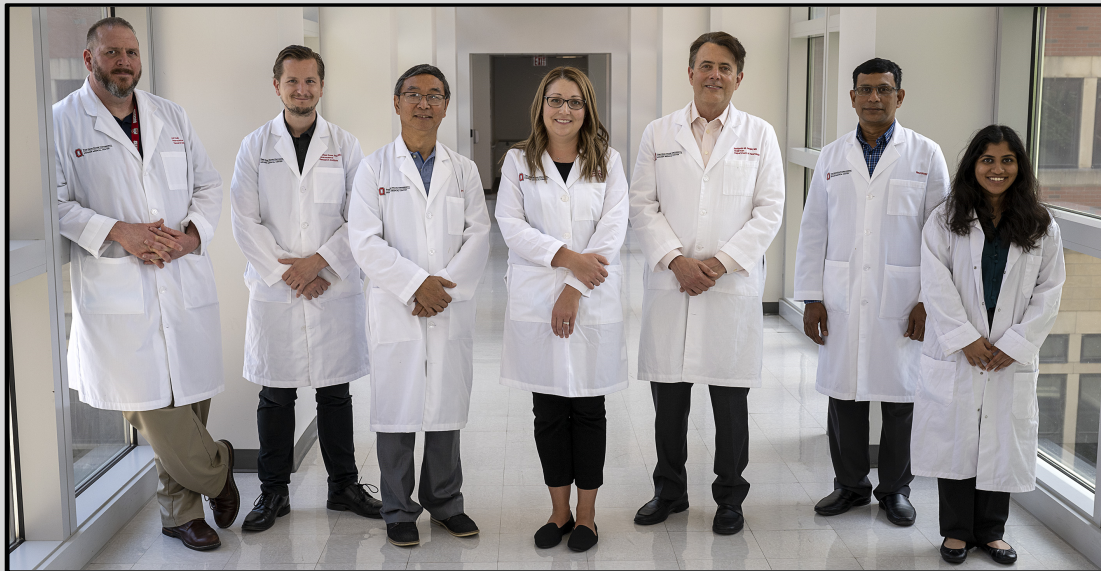
- Stephen Vidman (Neuroscience PhD Student - Andrea Tedeschi's Lab)
A versatile pipeline for high-fidelity imaging and analysis of vascular networks across the body
- Shane Perelman (Research Assistant - Lihua Ye's Lab)
Indole-3-Aldehyde's Contributions to Gut Physiology



NRI - Brain Bank and Biorepository Update

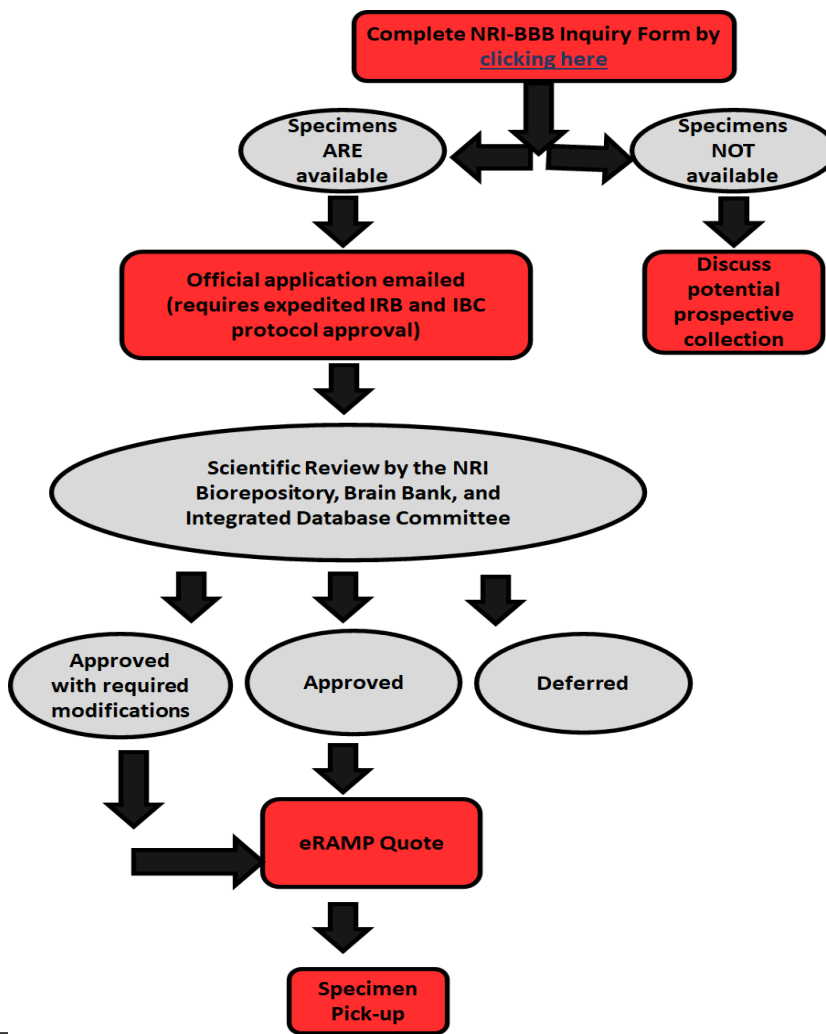
The primary purpose of the Neuroscience Research Institute Brain Bank and Biorepository (NRI- BBB) is to provide a robust biospecimen bank collected from individuals with a neurological disease as a resource for translational neuroscience research community at The Ohio State University (OSU). The technology for profiling biospecimens continues to evolve. It is of utmost importance that OSU maintains an extensive and well-characterized brain bank and biorepository to support research at the cutting-edge of neuroscience. A number of significant milestones have been achieved since the start of the year 2023 for the NRI-BBB including:

- NRI-BBB is now on eRAMP for billing specimen distributions.
- Began research-only blood collections from the Lumbar Puncture clinic at Martha Morehouse Pavilion
- Pursuing retaining raw data for research from genetic testing
- Two distribution events so far this year (total of 32 specimens)
- Routine collection of peripheral blood mononuclear cells (PBMCs), plasma, sera, and cerebral spinal fluid (cells and supernatant) across neurological disorders.
- Specimens in the bank include: PBMCs, cerebral spinal fluid cell pellet and supernatant, plasma, serum, muscle biopsy, DNA, and brain autopsy tissue
- Enrollment of over 620 participants since July 2021



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

Biospecimen Request Workflow & Fee Schedule




Neuroscience Research Institute Biorepository Fee Structure (previously collected samples)	
Specimen Type	Cost
Plasma (500µL)	\$25
Serum (500µL)	\$25
PBMCs (vial ~4E^6 cells)	\$65
CSF Supernatant (500µL)	\$50
CSF Cell Pellet	\$200
DNA Aliquot (1µg)	\$40
Sample storage fee -80 (box) per year	\$35
Technologist time per hour (15min intervals)	\$30
Please reach out to the NRI-BBB for prospective sample banking	

Neuroscience Research Institute	
Specimen Type	Cost
Frozen brain tissue request (slice, approximately 1 cm)	\$225
*If macro-dissection is needed, price will vary and depend on neuropath availability	



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 the 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

NRI 2023 Annual Retreat & Translational Neuroscience Short Course

NEW! - Translational Neuroscience Short Course

Thursday, October 26, 2023

1:00 p.m. - 5:30 p.m.

NRI Annual Retreat

Friday, October 27, 2023

8:00 a.m. - 6:00 p.m.

Retreat Abstract Deadline – Sept. 1st

Registration Deadline – Oct. 1st



Retreat Keynote Speaker

Staci Bilbo, PhD

Professor - Dept of Psychology & Neuroscience
Duke University

The registration site for our 2023 NRI Annual Retreat (October 27, 2023) and a new Translational Neuroscience Short Course (October 26, 2023) is now open. There is no fee for either event and you can register for one event or both.

- The goal of the short course is to provide multi-disciplinary translational research foundational training. Experts from various areas will speak on topics including: IRB101, Consenting, Building a Clinical Database, Biospecimen/Biomarker Research, Common Statistical Pitfalls, and Tech Transfer. All are welcome to attend, however the short course is geared towards trainees and junior faculty.
- The goal of the retreat is to highlight Neuroscience research across OSU and to foster internal collaborations. The Keynote Speaker will be **Staci Bilbo, PhD**, Professor of Psychology & Neuroscience at Duke University. This year's program will also include two poster sessions selected from submitted abstracts (including a category for undergraduates), plenary sessions, trainee flash talks (chosen from abstracts), and lunchtime networking. A reception will be held at the end of the day approximately from 5:00p.m.-6:00p.m.

[Register Here!](#)

NRI Committees - Open Call

- Faculty members are needed to serve on 3 working NRI committees
 - (each term is 2-3 years and members can serve consecutive terms)
- **Committees with open seats:**
 - Translational & Cross-Collaborations Committee
 - oversees Seed Grant program, collaboration tool
 - Brain Bank & Biorepository Committee
 - oversees Biorepository infrastructure and data/specimen requests
 - Education & Mentorship Committee
 - oversees Annual Retreat & contributes to educational symposia
- **Email - OSU-NRI@osumc.edu if interested**
 - include CV and short statement why interested



Recent Achievements

within last 6 months

Grants

- **Mohamed H. Abdel-Rahman** received a grant from Southern California Transplantation Institute Research Foundation for “Climate change and increased risk for liver cancer; a renewed interest in Aflatoxin B1 exposure”.
- **Elisabetta Babetto and Bogdan Beirowski** were awarded a NIH/NINDS R01 (R01NS123450) for “Energizing and Protecting Axons Through Metabolic Coupling to Schwann Cells”.
- **Xiaodong Chen** was awarded a grant for “Use of artificial intelligence based real-time coaching to improve quality and efficiency of patient care and surgical workforce training in inguinal hernia repair” from Agency for Healthcare Research and Quality and another grant from the National Institutes of Health for “Smart atlas of surgical operations: An intraoperative image- navigation system”.
- **David Ellsworth** was awarded a grant for “The direct support professional workforce: empowering Ohio” from Administration for Community Living.
- **Raymond Gao** received a grant from the National Institutes of Health for “Polygenic risk prediction of intraocular pressure for glaucoma management” and “Genetic basis of glaucoma in Latinos”.
- **Jessie Green** received grants from the US Department of Education for “(COVID-19) Pathways to careers” and “Subminimum Wage to Competitive Integrated Employment Innovative Model Demonstration Project “Works4Me””.
- **Nagaraj Kerur** received grants from NIH for “Decoding the biology of cGAS-NAD signaling axis” and “The role of cGAS in retinal pigment epithelium degeneration”.
- **Stephen Kolb** was awarded grants as from the ALS Association for “Study of axonal contents in mice expressing ALS-associated KIF5A mutation.” and “Trial Capacity Award, OSU ALS/MND Multidisciplinary Clinic & Research Program”.
- **Kris Martens** received an award from the Army Medical Research Acquisition Activity for “Pre- and pro-biotic interventions for treatment of TBI-induced microbiome dysfunction”.
- **Thomas Mendel** received grants from Knights Templar Eye Foundation, Inc for “Gene Therapy for Pediatric Retinopathy from Batten Disease” and from CCTS Path to K Mentored Career Development Grant for “Gene Therapy for Children with Retinopathy Associated with Neuronal Ceroid Lipofuscinosis”.
- **Sayoko E. Moroi** awarded a grant for “Biomechanical interactions of the perilimbal sclera and aqueous veins with intraocular pressure regulation (NEI)” from the University of Michigan.
- **Rajiv Ramnath** received a NSF grant for “SCH: Democratizing high-resolution imaging for detection, diagnosis, and prediction for age-related macular degeneration”.
- **Katelyn Swindle E Reilly** received a grant for “Evaluation of new anti-inflammatory treatments for age-related macular degeneration” from the National Institutes of Health as well as a grant from the US Department of Defense for “VR220024: Sustained therapeutic protein cocktail delivery to prevent vision loss after ocular trauma”
- **Cynthia Roberts** received a grant from the National Eye Institute, R01EY027399 for “Corneal Biomechanics in Ocular Disease” and a grant from Wright State Applied Research Corporation for “Predicted ocular outcomes in microgravity.”
- **Shigeo Tamiya** awarded a grant from University of Louisville for “Cannabinoid receptors as novel therapeutic targets for PVR.”
- **Kristy Townsend** received the W.M.Keck Foundation Award of \$1.2 million, the first biomedical Keck award in OSU history for “Uncovering the Feedback Loop Between the Central Nervous System and Adipose Tissue”.
- A new National Institutes of Health/National Eye Institute (NEI) P30 Core Grant was awarded to The Ohio State University’s Department of Ophthalmology and Visual Sciences (DOVS). It will provide shared resources and facilities for vision science researchers across campus. Called The Ohio State University Vision Sciences Research Core Program (OSU-VSRCP), the P30 grant funds three research cores: a) structural and functional assessments, b) biostatistics, bioinformatics, and genetic analysis, and c) image analysis and data science. Priority for use is given to NEI R01-funded clinicians and scientists working across several Ohio State colleges. The award is one of approximately 40 such core grants in the nation.

High-impact Publications

- Arnold L.E., Arns A., Barterian J., Connor S., deBeus R., Hollway J., Kerson C., Kraemer H.C., Lightstone H., Lubar J., McBurnett K., Monastra V., Mulligan A., Buchan-Page K., Pan X(J), Rice R., Roley-Roberts M., Schrader C., Tan Y., Williams C.E. "Neurofeedback for ADHD: 25-month follow-up of double-blind randomized controlled trial" *Journal of American Academy of Child & Adolescent Psychiatry* (2022)
- Butler M.J., Sengupta S., Muscat S.M., Amici S., Deems N.P., Dravid P., Biltz B., Alfonso-Mackey S., Iljaz H., Bettes M.N., Godbout J.P., Kapoor A., Guerau M., Barrientos R.M. "CD8+ T cells contribute to diet-induced memory deficits in aged male rats." *Brain Behav Immun* (2023)
- Campbell, W.A., El-Hodiri, H.M., Torres, D., Hawthorn, E.C., Kelly, L., Volkov, L., Akanonu, D., and Fischer, A.J.. "Chromatin access regulates the formation of Muller glia-derived progenitors in the retina." *Glia* (in press, 2023)
- Costabile J.D., Balakrishnan K.A., Schwinn S., Haesemeyer M. "Model discovery to link neural activity to behavioral tasks." *Elife* (2023)
- Doulames V., Weimann J., Palmer T.D., "Human deep cortical neurons promote regeneration and recovery after cervical spinal cord injury." *Brain* (submitted March 2023).
- Doulames V.M., Marquardt L.M., Hefferon M.E., Baugh N., Suhar R.A., Wang A.T., Dubbin K., Weimann J., Palmer T.D., "Custom-engineered hydrogels for delivery of human iPSC-derived neurons into the injured cervical spinal cord." *Advanced Science* (2023)
- Fenn, J.D., Li, Y., Julien, J.-P., Jung, P. & Brown, A. "The mobility of neurofilaments in mature myelinated axons of adult mice." *eNeuro* (2023)
- Harrington E.P., Catenacci R.B., Smith M.D., Heo D., Miller C.E., Meyers K.R., Glatzer J., Bergles D.E., Calabresi P.A. "MHC class I and MHC class II reporter mice enable analysis of immune oligodendroglia in mouse models of multiple sclerosis." *Elife* (2023)
- Kopp M.A., Meisel C., Liebscher T., Watzlawick R., Cinelli P., Grittner U., Schweizerhoff O., Blex C., Lübstorff T., Prillipp E., Niedeggen A., Druschel C., Schaser K.D., Wanner G.A., Curt A., Fehlings M.G., Vajkoczy P., Dengler J., Ertel W., Ekkernkamp A., Martus P., Volk H.D., Unterwalder N., Kölsch U., Brommer B., Hellmann R.C., Baumgartner E., Rind J., Geurtz L.C., Ossami Saidy R.R., Laginha I., Prüss H., Failli V., Dirnagl U., Schwab, J.M. "The Spinal Cord Injury-Induced Immune Deficiency Syndrome (SCI-IDS)." *Brain, in press.* (2023)
- Lawrenson J.G., Shah R., Huntjens B., Downie L.E., Virgili G., Dhakal R., Verkicharla P.K., Li D., Mavi S., Kernohan A., Li T., Walline J.J. "Interventions for myopia control in children: a living systematic review and network meta-analysis." *Cochrane Database Syst Rev* (2023)
- Li Y.J., Nuytemans K., La J.O., Jiang R., Slifer S.H., Sun S., Naj A., Gao X.R., Martin E.R. "Identification of novel genes for age-at-onset of Alzheimer's disease by combining quantitative and survival trait analyses." *Alzheimers Dement* (2023)
- Maynard G., Kannan R., Liu J., Lam T.K., Wang X., Adamson C., Hackett C., Schwab J.M., Liu C., Leslie D.P., Chen D., Marino R., Zafonte R., Flanders A., Block G., Smith E., Strittmatter S.M. "Soluble Nogo-Receptor-Fc decoy (AXER-204) for neural repair in chronic spinal cord injury: a first-in-human and randomized clinical trial." *Lancet Neurol, in press* (2023)
- Rich, K.A., Pino, M.G., Yalvac, M.E., Fox, A., De, M., Dunaway, Harris, H., Balch, M.H., Arnold, A.D. and Kolb, S.J. "Impaired motor unit recovery and maintenance in a knock-in mouse model of ALS-associated Kif5a variant." *Neurobiol* (2023)
- Schwab J.M., Haider C., Kopp M.A., Zrzavy T., Endmayr V., Ricken G., Kubista H., Haider T., Liebscher T., Lübstorff T., Blex C., Serdani-Neuhaus L., Curt A., Cinelli P., Scivoletto G., Fehlings M.G., May C., Guntermann A., Marcus K., Meisel C., Dirnagl U., Martus P., Prüss H., Popovich P.G., Lassmann H., Höftberger R. "Lesional antibody synthesis and complement deposition associate with de novo antineuronal antibody synthesis after spinal cord injury." *Neurol Neuroimmunol Neuroinflamm.* (2023)
- Willows, J.W., Robinson, M., Alshahal, Z., Morrison, S.K., Mishra, G., Cyr, H., Blaszkiewicz, M., Gunsch, G., DiPietro, S., Paradie, E., Tero, B., Harrington, A., Ryzhova, L., Liaw, L., Reifsnnyder, P.C., Harrison, D.E., Townsend, K.L. "Age-related changes to adipose tissue and peripheral neuropathy in genetically diverse HET3 mice differ by sex and are not mitigated by rapamycin longevity treatment." *Aging Cell* (2023)

Awards

- **Dr. Gene Arnold** received the Elaine Schlosser award for research in ADHD at the October AACAP meeting in Toronto. Dr. Gene Arnold will also receive the American Psychiatric Association's 2023 Frank J. Menolascino Award for Psychiatric Services for Persons with Intellectual Disability/Developmental Disabilities. This award will be presented at the APA Annual Meeting.
- **Mara Bahri**, a 2nd year OSU medical student, was awarded the Futures in Neurology Research Scholarship from AAN.
- **Dr. Stephen Beetstra**, DDS received the *Golisano Health Leadership Award* from Special Olympics Ohio on Friday, June 23rd, 2023.
- **Dr. Boyd** wrote and published the book "Nicotinic Acetylcholine Receptors in Health and Disease. Associated Press, March 14, 2023.
- **Marc Tassé** was elected to become President of the American Psychological Association's Division 33.
- JP Morgan Chase has pledged \$198,000 to fund program fees for 14 Ace! and 6 TOPS students for the Fall 2023 and Spring 2024 semesters. This is part of an ongoing partnership with *JPMC's Autism at Work Emerging Talent Intern Program*.

REMINDER- Current funding opportunities can be found on [NRI website here](#).

Upcoming Events

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

- 08/01/23 ... Catherine Albin, MD (Emory)
- 08/08/23 ... Jose Suarez, MD (Johns Hopkins)
- 08/15/23 ... Mario Suva, MD, PhD (Johns Hopkins)
- 08/22/23 ... Kevin Kerber, MD (The Ohio State University)
- 08/29/23 ... Mohamed Ridha, MD (The Ohio State University)
- 10/31/23 ... Rodney Hayward, MD (University of Michigan)
- 11/07/23 ... Marc Diamond, MD (University of Texas Southwestern)
- 11/14/23 ... William Renthall, MD, PhD (Brigham and Women's Hospital)
- 12/12/23 ... Emmanuelle Waubant, MD, PhD (University of California, San Francisco)

ViSOR – Vision Sciences OSU Research- contact Colleen.Cebulla@osumc.edu for more details

- 10/12/23 ... Guan X PhD (University of Michigan)

Registration is now open for Neurology DEI Symposium

- 10/13/23 - 8am-6pm; Blackwell Inn & Pfahl Conference Center
- Speakers include: Gretchen Tiejn, MD, Chyke Doubeni, MBBS, MPH, Joanee Lynn, MD, Kristy Townsend, PhD
- [Register Here](#)

Registration is now open for Advanced Computational Neuroscience Network (ACNN) Big Data Workshop 2023!

- [Register Here](#) (abstracts due August 18th)
- https://neurosciencenetwork.org/ACNN_Workshop_2023.html

Registration is now open for TechSummit 2023!

- 2023 marks the 5th annual TechSummit. You can register and learn more by following the links below.
- [Register Here](#)
- go.osu.edu/techsummit

Announcements

NIH Data Management and Sharing Policy - Now Active since January 25th

o [AAMC information](#)

o [OSU Data Management Policy Website](#)

REMINDER - to inquire about press releases for your upcoming manuscripts please email Eileen.Scahill@osumc.edu

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