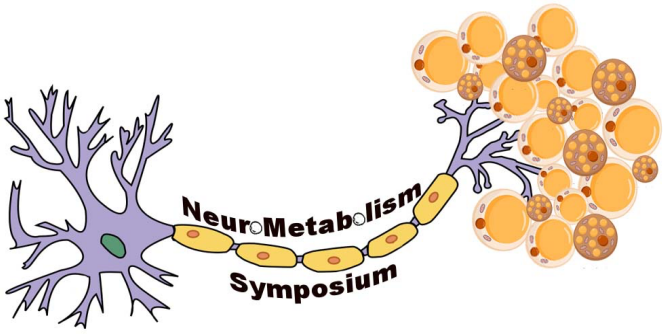
The Ohio State University (OSU) – Department of Neurological Surgery
Translational Research In NeuroMetabolism Symposium (TRINS)
Inaugural Meeting - 2023

Saturday April 15, 2023 at OSU Campus, First Floor DHLRI (473 W 12th Ave), Columbus OH
(preceded by 2nd Annual Preventative Health of Adipose Tissue (PHAT) Regional Meeting, April 14th, 2023)



Friday April 14th:

5pm: Speaker dinner TRINS/PHAT joint event; 115 Biomedical Research Tower (460 W 12th Ave)

Saturday April 15th:

8am: registration, coffee & light breakfast (hang posters)
8:30am: ***Introduction and Welcome, Dr. Russell Lonser, Chair and Professor, Dept. Neurological Surgery***
5 Short talks – invited external and internal speakers (25min + 5min Q&A)
Dr. John McGregor (OSU, Neurological Surgery) – topic: idiopathic intracranial hypertension (IIH) and obesity
Dr. Kevin Williams (UTSW) – Effects of metabolic state on the regulation of melanocortin neurons
Dr. Erica Scheller (WUSTL) - Neural regulation of bone marrow adipose tissue and implications for metabolism
Dr. Lei Cao (OSU, Cancer Metabolism) – Gene therapies targeting a brain-fat axis for cancer, obesity, and aging
Dr. Kyle Wu (OSU, Neurological Surgery) – topic: craniopharyngioma and impacts on metabolic health
11-12: Poster session – lobby of DHLRI
12:00: Keynote Address (45min + 15min Q&A)
Prof John Speakman, University of Aberdeen (via Zoom) – "High fat diet and memory"
1pm: Lunch and trainee roundtables with speakers
2pm: 5 Short talks – invited and internal speakers (25min + 5min Q&A)
Dr. Jan Schwab (OSU, Neurology) – Obesity paradox ? Neuroendocrine & Metabolic Implications after spinal cord injury
Dr. Ruth Barrientos (OSU, Neuroscience) – Dietary lipids and impacts on brain function
Dr. Magdalena Blaszkiewicz (OSU, Neurological Surgery) – Adipose Innervation, Neuroimmune Cell Trafficking, and Lymphatics
Dr. Deborah Kurrasch (University of Calgary) – The development of hypothalamic energy centres
Dr. Abdelfattah El Ouaamari (Rutgers/NY Medical College) – Sensory Neuromodulation of Pancreatic Beta Cells
4:30 Discussion; adjourn

TRINS was organized by Dr. Kristy Townsend*, Associate Professor in Neurological Surgery at The Ohio State University, and PI of the Neurobiology and Energy Balance lab, where research is focused on mechanisms of neural plasticity in the brain and peripheral nerves, impacting the regulation of metabolic health.*
https://ktownsendlab.com/ *Twitter: @neuroadipo*

Special Thank You *to the Department of Neurological Surgery for their sponsorship of this meeting, and for administrative support from Justin Feezell, Deb Crosby, Gail Ceneskie, and Maria Wolfe. Also thank you to the partnership of DHLRI, including Dr. Kristin Stanford, Penny Jones, and Jen Bennett, who ran our registration.*

Speaker Bios:

Dr. Russell Lonser

Russell R. Lonser, M.D., is Chair of Neurological Surgery at The Ohio State University. He completed his neurosurgical training at the University of Utah in 2001. During his residency, he performed a 2-year research fellowship under the mentorship of Edward H. Oldfield, M.D., in the Surgical Neurology Branch at the National Institutes of Health (NIH). Upon completion of his residency, he joined the staff of the Surgical Neurology Branch at the NIH. He was Chief of the Surgical Neurology Branch at NIH before becoming Professor and Chair of the Department of Neurological Surgery at Ohio State University in 2012. He holds the Dardinger Family Chair in Neurosurgical Oncology. Dr. Lonser's research interests include development of gene therapy delivery paradigms for the treatment of central nervous system diseases, including tumors, neurodegenerative disorders, trauma, epilepsy, metabolic disorders and addiction. Specifically, his scientific efforts are directed toward studying direct convective delivery to the brain. He is an author on over 350 scientific and clinical publications. He has given over 300 invited international talks. He received the Tumor Young Investigator Award from the American Association of Neurological Surgeons/Congress of Neurological Surgeons Section on Tumors in 2001 and Mahaley Clinical Research Award from the American Association of Neurological Surgeons/Congress of Neurological Surgeons Section on Tumors in 2013. He was the 2017 American Association of Neurological Surgeons/Congress of Neurological Surgeons Section on Tumors Bittner Lecturer and the 2018 American Academy of Neurological Surgery Edward H. Oldfield Lecturer. He was given the 2023 Distinguished Service Award from the Congress of Neurological Surgeons. He is a co-inventor on a patent for methods for imaging of convection-enhanced delivery of therapeutic agents.

Dr. John McGregor

Dr. McGregor holds an MD from University of Iowa and is currently Associate Professor in the Department of Neurological Surgery at The Ohio State University, where he was also previously interim Department Chair, and is currently Director of the Neurosurgery Trauma Division, Vice Chair of Strategic Initiatives, and Vice Chair of Clinical Operations. McGregor is a Fellow of the American Association of Neurological Surgeons and American College of Surgeons, and a member of the Royal Society of Medicine, among numerous other accolades and honors. He is a world leader in neurosurgery, with expertise in the neuropsychological effects of idiopathic intracranial hypertension, cerebrovascular complications, blood brain barrier function, and cerebrospinal fluid function, among others. McGregor is active in neurosurgical research and a prolific author of research publications.

Dr. Kevin Williams

Dr. Kevin W. Williams is an Associate Professor in the Department of Internal Medicine and the Center for Hypothalamic Research at the University of Texas Southwestern Medical Center in Dallas, Texas. He earned his Ph.D. in Neuroscience from Tulane University and has specialized expertise in mouse genetics, electrophysiology, and systems neuroscience. Dr. Williams' primary research focus is to identify novel neural circuits, neurotransmitters, as well as intracellular molecules in the brain that are crucial for regulating feeding behavior, body weight, and blood glucose control. He also aims to gain insights into the altered hormone and neurotransmitter systems in disease states and in response to nutrient availability and exercise. Ultimately, his research seeks to advance our understanding of the physiological roles of these systems in the brain and identify potential therapeutic strategies for treating metabolic disorders.

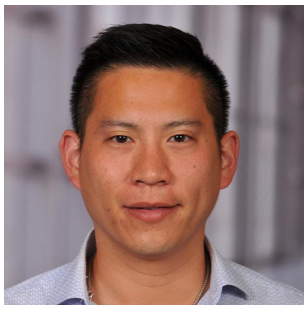
Dr. Erica Scheller

Dr. Scheller is Assistant Professor at Washington University in the Division of Bone and Mineral Diseases. She completed a PhD at University of Michigan in Oral Health Sciences, and currently runs a research program focused on the neural regulation of bone functions and bone marrow adipocytes.

Dr. Lei Cao

Dr. Cao is Professor in the Molecular Carcinogenesis and Chemoprevention program at The Ohio State University's Comprehensive Cancer Center, and holds the William C. and Joan E. Davis Cancer Research Professorship. The Cao laboratory has characterized a novel brain-fat axis underlying anti-obesity and anti-cancer phenotypes in complex physical/social environments, and is now using multidisciplinary approaches to further define molecular mediators linking immune and endocrine systems across the lifespan. Cao is a leader in gene therapy approaches targeting metabolic organs such as adipose.

Dr. Kyle Wu



Dr. Wu is Assistant Professor in the Department of Neurological Surgery at The Ohio State University, and a fellowship-trained neurosurgeon who specializes in skull base and minimally invasive procedures. He cares for patients with oncologic or benign brain tumors at the James Cancer Hospital. He completed his residency training at Brigham and Women's and Boston Children's Hospitals, as well as a two-year research fellowship in Surgical Innovation and Device Design at Harvard Medical School. After graduating, he pursued his fellowship training at The Ohio State University, where he further honed his expertise. His clinical interests include managing complex skull base tumors that require multi-disciplinary treatment.

Dr. John Speakman - KEYNOTE

Dr. Speakman is a Professor at the University of Aberdeen and at the Shenzhen Institute of Advanced Technology in Shenzhen, Chinese Academy of Sciences in China. He is a foreign member of the US National Academy of Sciences, an academician of the Chinese National Academy of Sciences and a Fellow of the UK Royal Society. He is a recent recipient of a Royal Society Wolfson merit award and is a Presidents International Professorial Fellow of the Chinese Academy of Sciences. He has been working 75% of full time in China since 2011. He has published more than 600 papers, has an h-index of 115 and has been cited more than 50,000 times.

Dr. Jan Schwab

Dr. Schwab holds a PhD from Max-Planck Research School and an MD from Eberhard-Karls University. He is currently Professor of Neurology and Neuroscience, Program Director of the Ohio Regional Spinal Cord Injury Model System and Medical Director at the Belford Center for Spinal Cord Injury (SCI), at The Ohio State University. He runs a research program focused on spinal cord injury-immune deficiency syndrome, which he discovered, and other investigations of the immune system and infection susceptibility after SCI.

Dr. Ruth Barrientos

Dr. Barrientos is an Associate Professor with Tenure in the Institute for Behavioral Medicine Research, in the Departments of Psychiatry and Neuroscience at The Ohio State University. She completed a PhD in Psychology/Cognitive Neuroscience at George Washington University, and currently runs a research program focused on lipids, neuroinflammation, memory, and neuroimmune functions.

Dr. Magdalena Blaszkiewicz

Dr. Blaszkiewicz received her Ph.D. in biomedical science from University of Maine, under the mentorship of Dr. Kristy Townsend. Her dissertation work involved the study of peripheral nerves that mediate communication between the brain and adipose tissues. Key findings from her doctoral and postdoctoral work include the discoveries that adipose tissue undergoes peripheral neuropathy under conditions of obesity/diabetes and aging; evidence that interventions such as exercise and cold exposure promote neurite outgrowth and neural plasticity in adipose, which in the case of cold exposure is mediated by recruitment of neuroimmune cells; that BDNF is required for healthy innervation of adipose tissue; and that the adipose tissue lymphatic system is highly innervated by peripheral nerves. She is currently a Senior Research Scientist in the Department of Neurological Surgery in the lab of Dr. Kristy Townsend at OSU, where her current research interests include investigating the role of the lymphatic system in adipose tissue function and health.

Dr. Deborah Kurrasch

Dr. Kurrasch is Professor in the Department of Medical Genetics at the University of Calgary and a Scientist in the Alberta Children's Hospital Research Institute and the Hotchkiss Brain Institute. Dr Kurrasch's research is focused on characterizing the genetic programs that govern hypothalamic development, and how exposure to environmental chemicals changes these programs, using zebrafish, mice and human brain organoids as model organisms. Her lab has also developed a drug screening platform to uncover therapies for children with refractory epilepsy. Her work is funded by the Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, and Canadian Foundation for Innovation, among other foundations. Dr Kurrasch received her PhD in Molecular Pharmacology from Purdue University and conducted two postdoctoral fellowships, one at the University of Texas – Southwestern Medical Center in Dallas and one at the University of California – San Francisco. Dr Kurrasch has received various awards for her scholarly work and supervision of graduate students, most recently receiving the ASTech Women in Innovation award, 2021.

Dr. Abdelfattah El Ouaamari

Dr. El Ouaamari is Associate Professor in Cell Biology and Anatomy at New York Medical College (formerly at Rutgers). He completed a PhD in molecular and cellular biology at the University of Nice, and later was promoted from postdoctoral fellow to Instructor in Medicine at Joslin Diabetes Center and Harvard Medical School. His research program focuses on the innervation of the pancreas and peripheral nerve impacts on beta cell function.