

CURRICULUM VITAE

NAME:

Shannon Rose, PhD

EDUCATION:

University of Central Arkansas, Conway, Arkansas, B.S. Biology, summa cum laude, 2006
University of Arkansas for Medical Sciences, Little Rock, Arkansas, Ph.D., Cell Biology, 2012
Postdoctoral fellow, Arkansas Children's Research Institute, Little Rock, Arkansas, 2012-2017

HONORS/AWARDS:

Honorary Organizations:

Sigma Xi, the Scientific Research Honor Society, 2023-present
Society for Pediatric Research, 2020-present

Institutional:

Travel Award from Arkansas Children's Research Institute to attend the NIAD Research Funding Workshop at the University of Texas San Antonio, 2019
Marion B. Lyon New Scientist Development Award, Arkansas Children's Research Institute, 2016

International:

Young Investigator Award, International Society for Autism Research, 2014
Travel Award, Society for Inherited Metabolic Disorders, 2014
Travel Award, International Society for Autism Research, 2013
Travel Award, Seahorse Biosciences, for Neuroscience 2012

Graduate:

Deans Distinguished Scholar, UAMS Graduate School (2007-2012)

Undergraduate:

Barry M. Goldwater Scholar, 2005 **First and only Barry M. Goldwater Scholar at University of Central Arkansas*
Outstanding Honors Thesis, University of Central Arkansas Honors College, 2006
Outstanding Student, University of Central Arkansas, College of Natural Sciences and Mathematics, 2006

SOCIETY MEMBERSHIPS:

Society for Pediatric Research (SPR), Member, 2020 – current
Abstract reviewer for Pediatric Academic Societies 2024 meeting (2023)
American Society for Nutrition (ASN), Member, 2020 – current
Nutritional Immunology and Inflammation RIS (ASN), At-Large Delegate, 2023 – current
Sigma Xi, The Scientific Research Honor Society, Member, 2023 – current

UNIVERSITY (AND COLLEGE) APPOINTMENTS:

Associate Professor, Department of Health Promotion & Disease Prevention, The University of Tennessee Health Science Center, College of Nursing, Memphis, Tennessee, July 2024 – current
Assistant Professor, Department of Pediatrics, University of Arkansas for Medical Sciences, Little Rock, Arkansas, February 2017– June 2024

TEACHING EXPERIENCE:

University of Arkansas for Medical Sciences, Co-Instructor/Lecturer:

GRAD NBDS 5111 Cell Biology, 2020 – 2023

IMSD Summer Transition Program, 2020 – 2021

PCOL 6101 System Therapeutics, 2021

COPH EPID 6335 Molecular Epidemiology & Biomarkers, 2018

INVITED LECTURES:

1. Immunometabolism in Childhood Obesity. Shannon Rose. Arkansas Children's Research Symposia, May 17, 2023.
2. Metabolic Dysfunction and Immunometabolism in Pediatric Obesity. Shannon Rose. Center for Neuroscience and Cell Biology, University of Coimbra, Portugal, July 1, 2022.
3. Metabolic Dysfunction and Immunometabolism in Pediatric Obesity. Shannon Rose. University of New Mexico College of Pharmacy Department of Pharmaceutical Sciences, September 15, 2021.
4. Bioenergetic Profiling of Circulating Cells. Shannon Rose. Graduate Program Seminar Series, University of Central Arkansas, November 9, 2018.
5. Mitochondrial Dysfunction in Children with Autism Spectrum Disorder. Richard E. Frye and Shannon Rose. Center for Free Radical Biology Seminar. University of Alabama, Birmingham, May 7, 2014.
6. Abnormal Respiratory Function in Autism Immune Cells. Shannon Rose. Seahorse Biosciences Webinar. July 23, 2014. <https://www.agilent.com/en/training-events/eseminars/cell-analysis-abnormal-respiratory-function-in-autism-immune>

EDITORIAL APPOINTMENTS, MANUSCRIPT AND GRANT REVIEW PANELS:

Editorial Board: *Journal of Personalized Medicine*, Mechanisms of Disease Section, 2022 – current

Review Editor: *Frontiers in Clinical Diabetes and Healthcare*, Diabetes Nutrition and Dietetics specialty section, 2021 – current

Editorial Board: *Frontiers in Public Health: Child Health and Human Development*, 2013 – 2017

Guest Editor: *Journal of Personalized Medicine* Special Issue “A Personalized Medicine Approach to the Diagnosis and Management of ASD v 2.0, 2022”

Guest Editor: *Journal of Personalized Medicine* Special Issue “A Personalized Medicine Approach to the Diagnosis and Management of ASD”

Guest Associate Editor: *Frontiers in Psychiatry*, Molecular Psychiatry, Special Issue “Metabolic and Immune Disorders Associated with Psychiatric Disease: Potential Etiology and Pathway for Treatment”

Ad hoc Reviewer: *Autism Research*, *BMC Psychiatry*, *Biological Psychiatry*, *Current Drug Targets*, *Current Issues in Molecular Biology*, *Current Neuropharmacology*, *Experimental Neurology*, *Frontiers in Neuroscience*, *Frontiers in Psychiatry*, *Immunobiology*, *International Journal of Developmental Neuroscience*, *Journal of Autism and Developmental Disorders*, *Journal of Cachexia, Sarcopenia and Muscle*, *Journal of Endocrinology*, *Metabolic Brain Disease*, *Methods and Protocols*, *Molecular Diagnosis & Therapy*, *Neuropsychiatric Disease and Treatment*, *Oxidative Medicine and Cellular Longevity*, *Pharmacological Research*, *Progress in Neuropsychopharmacology*, *Redox Biology*, *Research in Autism Spectrum Disorders*, *Translational Neuroscience*

Poster Judge, Student Research Day, University of Arkansas for Medical Sciences, 2019 – 2024

Abstract Reviewer, Pediatric Academic Societies 2024 Meeting, 2023
Abstract Reviewer, The Annual Arkansas Nursing Research Conference, University of Arkansas for Medical Sciences, 2022
Grant Reviewer, Arkansas Children's Hospital Research Institute, Marion B. Lyon New Investigator Award, 2022
Grant Reviewer, Arkansas INBRE (IDeA Network of Biomedical Research Excellence) Faculty Mentored Research Program Summer Research Grants, 2021
Grant Reviewer, Health Research Council of New Zealand (HRC) Emerging Researcher First Grant, 2021
Grant Reviewer, Autism Research Institute, 2020
Grant Reviewer, Arkansas Children's Research Institute & Arkansas Biosciences Institute Post-Graduate Grant Award, 2020
Grant Reviewer, PRESTIGE Postdoctoral search Fellowships (France), 2017
Grant Reviewer, Children's University Medical Group Fund (CUMG), 2016

COMMITTEES AND OFFICES HELD:

Member, Collegiate, Appointment, Promotion and Tenure Committee, College of Nursing, The university of Tennessee health Science Center, 2024 – current
External Member, USDA-ARS-SNARC Institutional Biosafety Committee (IBC), 2022 - current
Member, Department of Pediatrics Website and Social Media Committee, University of Arkansas for Medical Sciences, 2022 – 2024
Member, Research Engagement Activity Committee, Arkansas Children's Research Institute, 2022 – 2024
Co-Chair, Shared Equipment Committee, Arkansas Children's Research Institute, 2018 – 2022
Co-Director, Flow Cytometry Core Equipment, Arkansas Children's Research Institute, 2016 – 2022
Director, Seahorse Extracellular Flux Core Equipment, Arkansas Children's Research Institute, 2012 – 2018

RESEARCH AND OTHER EXTERNAL SUPPORT:

1. The Brain Foundation. *Autoantibody and cytokine biomarker discovery in patients with autism and neurodevelopmental disorders*. Feb 1, 2024 – Jan 31, 2026; \$100,000; Role: Principal Investigator
2. National Institute of Child Health and Human Development. *Magnetoencephalography based tracking of fetal neurodevelopment in diabetic pregnancies* (1R01HD105412-01A1). Sep 1, 2021 – June 30, 2024; \$1,520,000; (PI: Eswaran) Role: Co-Investigator
3. United States-Israel Binational Science Foundation. *Transcriptomic blood biomarkers for ASD diagnostics and precision medicine prognostics*. Oct 1, 2020 – Sep 30, 2023; \$31,480; Role: Site Principal Investigator/Co-Principal Investigator
4. National Institute of General Medical Sciences. *Center for Childhood Obesity Prevention* (5P20GM109096-06). Aug 1, 2021 – July 31, 2026. \$171,000; (PI: Weber) Role: Research Project Leader
5. National Institute of General Medical Sciences. *Center for Childhood Obesity Prevention* (5P20GM109096). Aug 1, 2016 – July 31, 2021. \$175,000; (PI: Weber) Role: Research Project Leader
6. Arkansas Children's Research Institute/Arkansas Biosciences Institute. *T cells in Childhood Obesity: Immunometabolic Phenotype and Effects of Metformin*. Aug 1, 2020 – Jul 31, 20;

- \$75,000; Role: Principal Investigator
7. Arkansas Children's Research Institute/Arkansas Biosciences Institute Program Project Planning Grant. *Establishing the presence of mitochondrial dysfunction and oxidative stress and the relationships with resting energy expenditure and fatty acid oxidation in childhood obesity*. Mar 1, 2017 – Dec 31, 2019; \$99,970; Role: Co-Co-Principal Investigator
 8. GW Pharmaceuticals. *Phytocannabinoids protective effect on oxidative stress-induced mitochondrial dysfunction in control and autism cell lines*. Jul 1, 2017 – Jun 30, 2019; \$167,292; Role: Co-Principal Investigator
 9. GW Pharmaceuticals. *The effect of phytocannabinoids on mitochondrial function in chronic fatigue syndrome*. Jan 1, 2019 – Dec 31, 2021; \$57,200; Role: Co-Principal Investigator
 10. Arkansas Children's Research Institute/Arkansas Biosciences Institute. *Reprogramming obesogen-induced neurologic effects by dietary intervention*. Jan 1, 2018 – Dec 31, 2019; (PI: Blossom) Role: Co-Investigator
 11. New Jersey Governor's Counsel for Med Research and Treatment of Autism. *ASD-inflammatory subtype: biomarker analysis*. Dec 01, 2017 – June 30, 2018. (PI: Jyonouchi) Role: Site Principal Investigator
 12. Marion B. Lyon New Scientist Development Award (Arkansas Children's Research Institute). *An in vitro model of mitochondrial-dependent environmentally triggered disease*. Apr 1, 2016 – March 31, 2018; \$50,000; Role: Principal Investigator

BOOKS AND BOOK CHAPTERS:

1. **Rose, S.** and Bennuri, S.C. The Effect of N-Acetyl Cysteine on Mitochondrial Metabolism. In The Therapeutic Use of N-Acetyl Cysteine in Medicine. Eds Frye, R.E., Berk, M., Adis Books, Springer Healthcare, Auckland, New Zealand. 2019. ISBN 978-981-10-5310-8. Edition: 1
2. Bennuri, S.C., **Rose, S.** and Frye, R.E. The Effect of N-Acetyl Cysteine on Apoptosis. In The Therapeutic Use of N-Acetyl Cysteine in Medicine. Eds Frye, R.E., Berk, M., Adis Books, Springer Healthcare, Auckland, New Zealand. 2019. ISBN 978-981-10-5310-8. Edition: 1

PEER-REVIEWED JOURNAL ARTICLES:

(Google Scholar 3400+, Scopus 2200+, iCite 2100+ Citations as of July 19, 2024)

1. Mercado, L., **Rose, S.**, Escalona-Vargas, D., Dajani, N., Seigel, E. R., Preissl, H., Eswaran, H. Correlating maternal and cord-blood inflammatory markers and BDNF with human fetal brain activity recorded by magnetoencephalography. *Brain Behavior & Immunity-Health* 39 (2004) 100804; doi: 10.1016/j.bbih.2024.100804.
2. Corken, A. L., Ong, V., Kore, R., Ghanta, S. N., Karaduta, O., Pathak, R., **Rose, S.**, Porter, C., Jain, N. Platelets, Inflammation and Purinergic Receptors in Chronic Kidney Disease. *Kidney International*. 29 May 2024; doi: 10.1016/j.kint.2024.03.033
3. Mercado, L., **Rose, S.**, Escalona-Vargas, D., Bolin, E. H., Seigel, E. R., Whittington, J. R., Preissl, H., Helmich, M., Eswaran, H. Correlation of fetal heart rate dynamics to inflammatory markers and brain-derived neurotrophic factor during pregnancy. *J Perinat Med*. 27 May 2024;52(4):399-405; doi: 10.1515/jpm-2023-0413.
4. **Rose, S.**, Landes R., Vyas K., Delhey, L. M., Blossom, S. Regulatory T cells and bioenergetics of peripheral blood mononuclear cells linked to pediatric obesity. *Immunometabolism* 6(2):p e00040, April 2024; doi: 10.1097/IN9.0000000000000040
5. Frye, R.E., **Rose, S.**, Voinsky, I., Gurwitz, D. Nitrosative Stress in Autism: Supportive

- Evidence and Implications for Mitochondrial Dysfunction. *Adv. Sci.* 21 February 2024, doi: 10.1002/advs.202304439
6. Frye, R. E., McCarty, P. J., Werner, B. A., **Rose, S.**, Scheck, A. C. Bioenergetic Signatures of Neurodevelopmental Regression. *Front. Physiol. Sec. Mitochondrial Research.* 18 February 2024, doi: 10.3389/fphys.2024.1306038
 7. Santos, D., Porter-Gill, P., Goode, G., Delhey, L. M., Sørensen, A. E., **Rose, S.**, Børsheim, E., Dalgaard, L. T., Carvalho, E. Circulating miRNAs differ in the early stages of insulin resistance in prepubertal children with obesity. *Life Sciences.* 321; 1; January 2023; doi: 10.1016/j.lfs.2022.121246
 8. Frye, R. E., Cakir, J., McCarty, P. J., **Rose, S.**, Delhey, L. M., Palmer, R. F., Austin, C., Curtin, P., Yitshak-sade, M., Arora, M. Air pollution and maximum temperature are associated with neurodevelopmental regressive events in autism spectrum disorder. *J. Pers. Med.* **2022**, 12(11), 1809; doi:10.3390/jpm12111809
 9. Brister D., **Rose, S.**, Delhey, L. M., Tippett, M., Jin, Y., Gu, H., Frye, R. E. Metabolomic signatures of autism spectrum disorder. *J. Pers. Med.* 2022 October, 12(10), 1727; doi: 10.3390/jpm12101727
 10. Voinsky, I., Zoabi, Y., Shomron, N., Harel, M., Cassuto, H., Tam, J., **Rose, S.**, Mohammad, K. A., Frye, R. E., Aran, A., Gurwitz, D., Blood RNA sequencing indicates upregulated BATF2 and LY6E and downregulated ISG15 and MT2A expression in children with autism spectrum disorder. *Int. J. Mol. Sci.* 2022, 23(17), 9843; doi: 10.3390/ijms23179843
 11. Gill, P. S., Dweep, H., **Rose, S.**, Wickramasinghe, P., Vyas, K. K., McCullough, S., Porter-Gill, P. A., Frye, R. E. Integrated microRNA-mRNA expression profiling identifies novel targets and networks associated with autism. *J. Pers. Med.* 2022 June, 12(6), 920; doi: 10.3390/jpm12060920
 12. Barbosa, P., Landes, R. D., Graw, S., Byrum, S. D., Bennuri, S. C., Delhey, L., Randolph, C., Macleod, S., Reis, A., Borsheim, E., **Rose, S.**, Carvalho, E. Effect of excess weight and insulin resistance on DNA methylation in prepubertal children. *Sci Rep*, 2022 May; 12, 8430 (2022) doi: 10.1038/s41598-022-12325-y
 13. Werner, B.A., McCarty, P.J., Lane, A.L., Singh, I., Karim, M.A., **Rose, S.**, Frye, R. E. Time dependent changes in the bioenergetics of peripheral blood mononuclear cells: processing time, collection tubes and cryopreservation effects. *Am J Transl Res.* 2022 Mar 15;14(3):1628-1639 eCollection 2022.
 14. Frye RE, **Rose S**, Boles RG, Rossignol DA. A Personalized Approach to Evaluating and Treating Autism Spectrum Disorder. *J Pers Med.* 2022 Jan 24;12(2). doi: 10.3390/jpm12020147. PubMed PMID: 35207636; PubMed Central PMCID: PMC8877244.
 15. Frye, R.E., Lionnard L., Indrapal, S., Mohammad, K., Chajra, H., Frechet, M., Kissa, K., Racine, V., Ammanamanchi, A., McCarty, P.J., Delhey, L., Bennuri, S.C., Tippett, M., **Rose, S.**, Aouacheria, A. Mitochondrial morphology is associated with respiratory chain uncoupling in autism spectrum disorder. *Transl. Psychiatry.* 2021 October 13. **11**, 527 (2021). doi: 10.1038/s41398-021-01647-6
 16. Frye, R.E., **Rose, S.**, McCullough, S., Bennuri, S. C., Porter-Gill, P. A., Dweep, H., Gill, P. S. MicroRNA expression profiles in autism spectrum disorder: role for miR-181 in immunomodulation. *J. Pers. Med.* 2021 September 17, 11(9), 922. doi: 10.3390/jpm11090922
 17. Barbosa, P., Melnyk, S., Bennuri, S. C., Delhey, L., Reis, A., Moura, G., Borsheim, E.,

- Rose, S.***, Carvalho, E.* Redox Imbalance and Methylation Disturbances in Early Childhood Obesity. *Oxidative Medicine and Cellular Longevity*. 2021 Aug 18. doi:10.1155/2021/2207125 * *co-senior Authors*
18. Frye, R.E., Cakir, J., **Rose, S.**, Palmer, R., Austin, C., Curtin, P. Physiological Mediators of Prenatal Environmental Influences in Autism Spectrum Disorder. *BioEssays*. 2021 July 14; 2021;43:200307; doi: 10.1002/bies.202000307
 19. Barone, B., Bastin, J., Djouadi, F., Singh, I., Karim, M.A., Ammanamanchi, A., McCarty, P.J., Delhey, L., **Rose, S.**, Casabona, A., Rizzo, R., Frye, R.E. Mitochondrial fatty acid β -oxidation and resveratrol effect in fibroblasts from patients with autism spectrum disorder. *J. Pers. Med.* 2021 June 4. 11(6), 510; doi:10.3390/jpm11060510
 20. Frye, R.E., Cakir, J., **Rose, S.**, Delhey, L., Bennuri, S.C., Tippett, M., Melnyk, S., James, S.J., Palmer, R., Austin, C., Curtin, P. Mitochondria may mediate prenatal environmental influences in Autism Spectrum Disorder. *J. Pers. Med.* 2021 March 18. 11(3), 218. doi: 10.3390/jpm11030218
 21. Hakkak, R., **Rose, S.**, Spray, B., Kozaczek, M., Korourian, S. Effects of obesity and 10 weeks of metformin treatment on liver steatosis. *Biomedical Reports*. 2021 Feb 8. 14: 49, 2021. doi: 10.3892/br.2021.1425
 22. Frye, R.E., Cakir, J., **Rose, S.**, Delhey, L., Bennuri, S.C., Tippett, M., Melnyk, S., James, S.J., Palmer, R., Austin, C., Curtin, P., Arora, M. Prenatal air pollution influences neurodevelopment and behavior in autism spectrum disorder by modulating mitochondrial physiology. *Mol Psychiatry*. 2020 Sep 22. doi: 10.1038/s41380-020-00885-2
 23. Frye, R.E., Cakir, J., **Rose, S.**, Delhey, L., Bennuri, S.C., Tippett, M., Palmer, R., Austin, C., Curtin, P., Arora, M. Early life metal exposure dysregulates cellular bioenergetics in children with regressive autism spectrum disorder. *Transl. Psychiatry*. 2020 July 7. 10, 223 (2020). doi: 10.1038/s41398-020-00905-3
 24. Voinsky I., Bennuri S.C., Svigals J., Hadar A., Werner H., Frye R.E.*, **Rose, S.***, Gurwitz, D.* Peripheral blood mononuclear cell oxytocin and vasopressin receptor expression positively correlates with social and behavioral function in children with autism. *Sci Rep*, 2019 Sep; 9(1):13443. doi: 10.1038/s41598-019-49617-9. * *co-senior authors*
 25. Harville T., Rhodes-Clark B., Bennuri S.C., Delhey L., Slattery J., Tippett M., Wynne R., **Rose S.**, Kahler S.G., Frye R.E. Inheritance of HLA-Cw7 associated with autism spectrum disorder (ASD). *Frontiers in Psychiatry*, 2019 Sep 10; doi: 10.3389/fpsy.2019.00612.
 26. Jyonouchi H., Geng L., Toruner G.A., **Rose S.**, Bennuri S.C., Frye R.E. Serum microRNAs in ASD: association with monocyte cytokine profiles and mitochondrial respiration. *Frontiers in Psychiatry*, 2019 Sep 10; doi: 10.3389/fpsy.2019.00614
 27. **Rose S.***, Carvalho E.*, Diaz E.C., Cotter M., Bennuri S.C., Azhar G., Frye R.E., Adams S.H., Borsheim E. A comparative study of mitochondrial respiration in circulating blood cells and skeletal muscle fibers in women. *Am J Physiol Endocrinol Metab*. 2019 Sep; 317(3):E503-E512. DOI: 10.1152/ajpendo.00084.2019. * *co-first authors*
 28. Bennuri S.C., **Rose S.**, Frye R.E. Mitochondrial dysfunction is inducible in lymphoblastoid cell lines from children with autism and may involve the TORC1 pathway. *Frontiers in Psychiatry*, 2019 May 07; doi: 10.3389/fpsy.2019.00269
 29. Jyonouchi H., Geng L., **Rose S.**, Bennuri S.C., Frye R.E. Variations in mitochondrial respiration differ in IL-1 β /IL-10 ratio based subgroups in autism spectrum disorders.

- Frontiers in Psychiatry, 2019 Feb 20, doi: 10.3389/fpsyt.2019.00071
30. Vargason T., Kruger U., Roth E., Delhey L.M., Tippett M., **Rose S.**, Bennuri S.C., Slattery J.C., Melnyk S., James S.J., Frye R.E., Hahn J. Comparison of three clinical trial treatments for autism spectrum disorder through multivariate analysis of changes in metabolic profiles and adaptive behavior. *Front Cell Neuroscience*. 2018 Dec 19; 2:503. doi: 10.3389/fncel.2018.00503
 31. Connery K., Tippett M., Delhey L., **Rose S.**, Slattery J., Kahler S.G., Hahn J., Kruger U., Cunningham M.W., Shimasaki C., Frye R.E. Intravenous immunoglobulin for the treatment of autoimmune encephalopathy in children with autism. *Transl. Psychiatry*. 2018 Aug 10;8(1):148. doi: 10.1038/s41398-018-0214-7
 32. **Rose S.**, Niyazov D.M., Rossignol D., Goldenthal M., Kahler S.G., Frye R.E. Clinical and molecular characteristics of mitochondrial dysfunction in autism spectrum disorder. *Molecular Diagnosis & Therapy*. 2018 July 23. DOI: 10.1007/s40291-018-0352-x
 33. Howsman D., Vargason T., Ruben R., Delhey L., Tippett M., **Rose S.**, Bennuri S.C., Slattery J., Melnyk S., James S.J., Frye R.E., Hahn J. Multivariate techniques enable a biochemical classification of children with autism spectrum disorder versus typically-developing peers: A comparison and validation study. *Bioengineering & Translational Medicine*. 2018 May 14; 3(2):156-165. DOI: 10.1002/btm2.10095
 34. Delhey LM, Tippett M, **Rose S**, Bennuri SC, Slattery JC, Melnyk S, James SJ, Frye RE. Comparison of treatment for metabolic disorders associated with autism: Reanalysis of three clinical trials. *Front Neurosci*. 2018 February 12; 12:19. doi: 10.3389/fnins.2018.00019
 35. **Rose S.**, Bennuri S.C., Davis J., Wynne R., Slattery J., Tippett M., Delhey L., Melnyk S., Kahler S.G., MacFabe D.F., Frye R.E. Butyrate enhances mitochondrial function during oxidative stress in cell lines from boys with autism. *Transl Psychiatry*. 2018 Feb 2;8(1):42. doi: 10.1038/s41398-017-0089-z
 36. Frye RE, Slattery J, Delhey L, Furgerson B, Strickland T, Tippett M, Sailey A, Wynne R, **Rose S**, Melnyk S, James SJ, Sequeira JM, Quadros EF. Folinic acid improves verbal communication in children with autism and language impairment: A randomized double-blind placebo controlled trial. *Mol Psychiatry*. 2018 Feb; 23(2):247-256. doi: 10.1038/mp.2016.168
 37. Burger B.J., **Rose S.**, Bennuri S.C., Gill P.S., Tippett M.L., Delhey L, Melnyk S., Frye R.E. Autistic siblings with novel mutations in two different genes: Insight for genetic workups of autistic siblings and connection to mitochondrial dysfunction. *Front Pediatr*. 2017 Oct 12; 5:219. doi: 10.3389/fped.2017.00219
 38. Frye R. E., Nankova B., Bhattacharyya S., **Rose S.**, Bennuri S. C., MacFabe D. F. Modulation of immunological pathways in autistic and neurotypical lymphoblastoid cell lines by the enteric microbiome metabolite propionic acid. *Frontiers in Immunology*. 2017 Dec 22; 8:1670. doi: 10.3389/fimmu.2017.01670
 39. **Rose S.**, Bennuri S.C., Murray K. F., Buie T., Winter H., Frye R.E., Mitochondrial dysfunction in the gastrointestinal mucosa of children with autism: A blinded case-control study. *PLoS One* 2017 Oct 13; 12(10):e0186377. doi: 10.1371/journal.pone.0186377
 40. Frye RE, **Rose S**, Wynne R, Bennuri SC, Blossom S, Gilbert KM, Heilbrun L, Palmer RF. Oxidative stress challenge uncovers trichloroacetaldehyde hydrate-induced mitoplasty in autistic and control lymphoblastoid cell lines. *Sci Rep*. 2017 Jun 30;7(1):4478. doi: 10.1038/s41598-017-04821-3

41. Delhey L, Kilinc EN, Yin, L, Slattery J, Tippett M, Wynne R, **Rose S**, Kahler S, Damle S, Legido A, Goldenthal MJ, Frye RE. Bioenergetic variation is related to autism symptomatology. *Metabolic Brain Disease*. 2017 Dec; 32(6):2021-203. DOI: 10.1007/s11011-017-0087-0
42. Frye RE, Wynne R, **Rose S**, Slattery J, Delhey L, Tippett M, Kahler SG, Bennuri SC, Melnyk S, Sequeira JM, Quadros E. Thyroid dysfunction in children with autism spectrum disorder is associated with folate receptor alpha autoimmune disorder. *J. Neuroendocrinol*. 2017 Mar; 29(3). doi: 10.1111/jne.12461
43. Delhey L, Kilinc EN, Yin, L, Slattery J, Tippett M, **Rose S**, Bennuri SC, Kahler S, Damle S, Legido A, Goldenthal MJ, Frye RE. The effect of mitochondrial supplements on mitochondrial activity in children with autism spectrum disorder. *J. Clin. Med*. 2017 Feb 13; 5(2). doi: 10.3390/jcm6020018
44. **Rose S**, Bennuri SC, Wynne R, Melnyk S, James SJ, Frye RE. Mitochondrial and redox abnormalities in autism lymphoblastoid cells: a sibling control study. *FASEB*. 2017 Mar; 31(3):904-909. doi: 10.1096/fj.201601004R
45. Frye R. E., **Rose S**, Chacko J, Bennuri SC, Slattery JC, Tippett M, Delhey L, Melnyk S, Kahler SG, MacFabe DF. Modulation of mitochondrial function by the microbiome metabolite propionic acid in autism and control cell lines. *Transl Psychiatry*. 2016 Oct 25; 6(10):e927. doi: 10.1038/tp.2016.189
46. Chen J., Lazarenko O., Blackburn M., **Rose S.**, Frye R. E., Andres A., Badger T., Shankar K. Maternal obesity programs senescence signaling and glucose metabolism in osteo-progenitors from rat and human. *Endocrinology*. 2016 Nov; 157(11):4172-4183. DOI: 10.1210/en.2016-1408
47. Frye RE, Delhey L, Slattery J, Tippett M, Wynne R, **Rose S**, Kahler SG, Bennuri SC, Melnyk S, Sequeira JM, Quadros E. Blocking and binding folate receptor alpha autoantibodies identify novel autism spectrum disorder subgroups. *Front Neurosci*. 2016 Mar 9; DOI: 10.3389/fnins.2016.00080
48. Frye R.E., **Rose S.**, Slattery J., MacFabe D.F. Gastrointestinal dysfunction in autism spectrum disorder: the role of the mitochondria and the enteric microbiome. *Microb Ecol Health Dis*. 2015 May 7; 26; DOI: 10.3402/mehd.v26.27458
49. **Rose S.**, Wynne R., Frye R.E., Slattery J., Melnyk S. and James S.J. Increased susceptibility to ethylmercury-induced mitochondrial dysfunction in a subset of autism lymphoblastoid cell lines. *J.Toxicol*. 2015. DOI: /10.1155/2015/573701
50. **Rose S.**, Frye R.E., Slattery J., Wynne R., Tippett M., Pavliv O., Melnyk S. and James S.J. Oxidative stress induces mitochondrial dysfunction in a subset of autism lymphoblastoid cell lines in a well-matched case control cohort. *PLOS ONE*. 9(1):e85436. 2014 Jan 8. DOI: 10.1371/journal.pone.0085436
51. **Rose S.**, Frye R.E., Slattery J., Wynne R., Tippett M., Melnyk S., James S.J. Oxidative stress induces mitochondrial dysfunction in a subset of autism lymphoblastoid cell lines. *Transl Psychiatry* 4:e3777. 2014 Apr 1 DOI: 10.1038/tp.2014.15
52. **Rose S.**, Melnyk S., Pavliv O., Bai S., Nick T. G., Frye R. E., James S. J. Evidence of oxidative damage and inflammation associated with low glutathione redox status in the autism brain. *Transl Psychiatry* 2:e134. 2012 Jul 10. DOI: 10.1038/tp.2012.61
53. **Rose S.**, Melnyk S., Trusty T.A., Pavliv O., Seidel L., Li J., Nick T.G., James, S.J. Intracellular and extracellular redox status and free radical generation in primary immune cells from children with autism. *Autism Research and Treatment*. 2012. DOI: 10.1155/2012/986519

54. Melnyk S., Fuchs G.J., Schulz E., Lopez M., Kahler S.G., Fussell J.J., Bellando J., Pavliv O., **Rose S.**, Seidel L., Gaylor D.W. and James S.J. Metabolic imbalance associated with methylation dysregulation and oxidative damage in children with autism. *J. Autism Dev Disord.* 2012 Mar. 42(3):367-77. DOI: 10.1007/s10803-011-1260-7
55. James S. J., **Rose S.**, Melnyk S., Jernigan S., Blossom S., Pavliv O. and Gaylor D. W. Cellular and mitochondrial glutathione redox imbalance in lymphoblastoid cells derived from children with autism. *FASEB J.*, 2009 Aug. 23(8):2374-8. DOI: 10.1096/fj.08-128926
56. James S.J., Melnyk S., Jernigan S., Hubanks A., **Rose S.** and Gaylor D.W. Abnormal Transmethylation/ transsulfuration Metabolism and DNA hypomethylation among parents of children with autism. *J Autism Dev Disord.* 2008 Nov; 38(10):1976. DOI: 10.1007/s10803-008-0614-2
57. **Rose S.**, Melnyk S., Savenka A., Hubanks A., Jernigan S., Cleves M.A., and James S.J. The frequency of polymorphisms affecting lead and mercury toxicity among children with autism. *American Journal of Biochemistry and Biotechnology*, 2008, 4(2):85-94. DOI: 10.3844/ajbbbsp.2008.85.9

RECENT PRESENTATIONS

1. **Rose, S.** Autoantibody and cytokine biomarker discovery in patients with autism. Synchrony 2024, Pacific Grove, CA. July 2024 **oral presentation*
2. **Rose, S.**, Landes, R., Blossom, S. Regulatory T cells and PBMC bioenergetics are linked to pediatric obesity. Pediatric Academic Societies 2024, Toronto, CA. May 2024. **oral presentation*
3. Stringfellow, K., Vyas, K., **Rose, S.** Cytokine Profiling in Pediatric Obesity. Arkansas INBRE Conference, Fayetteville, AR, October 2022.
4. Santos, D., Porter-Gill P., Bennuri, S., Goode, G., Delhey, L., Sørensen, A., Dalgaard, L. T., **Rose, S.**, Borhseim. E., Carvalho, E. Circulating microRNAs signatures in prepubertal children with obesity and insulin resistance. 58th EASD Annual Meeting European Association for the study of Diabetes, Stockholm, September 2022. **oral presentation*
5. **Rose, S.**, Landes, R., Borsheim, E., Carvalho. PBMC mitochondrial ATP production is increased in pre-pubertal obese insulin resistant children and associated with metabolic dysfunction and inflammation. Translational Immunometabolism, Basel, Switzerland, June 2022. **oral presentation*
6. Barbosa, P., Melnyk, S., Benuri, S., Delhey, L., Reis, A., Moura, G.A., Børshheim, E., **Rose, S.**, Carvalho, E. One-carbon metabolism perturbation in early-age obese children. 25^o Congresso Português de Obesidade, November 2021. **oral presentation*
7. Santos, D., Porter-Gill P., Bennuri, S., Goode, G., Delhey, L., Sørensen, A., Dalgaard, L. T., **Rose, S.**, Borhseim. E., Carvalho, E. Circulating microRNAs as biomarkers from paediatric obesity and insulin resistance. Presented at 25^o Congresso Português de Obesidade, November 2021. **oral presentation*
8. Santos, D., Porter-Gill P., Bennuri, S., Goode G., Delhey, L., Sørensen A., Dalgaard, L. T., **Rose, S.**, Borhseim. E., Carvalho, E. Distinguishing obese healthy from obese unhealthy prepubertal children – the importance of microRNAs. A Scientific Symposium: In celebration of the 100th anniversary of the University of Toronto’s discovery of insulin (Insulin100), virtual meeting, April 2021. ** oral presentation*
9. Carvalho, E., **Rose, S.**, Cotter, M., Bennuri, S. C., Delhey, L. M., Goode, G. A., **Beebe, A.**, and Børshheim, E. Increased spare respiratory capacity in circulating cells and decreased serum

antioxidant defense mechanisms in obese children. American Diabetes Association 79th Scientific Sessions, San Francisco, CA, June 2019.

10. **Rose, S.**, Bennuri, S. C., **Beebe, A.**, Delhey, L. M., Guy, E. A., Goode, G. A., Cotter, M., Pavliv, O., Melnyk, S., and Carvalho, E.. PBMC from obese insulin resistant children prefer mitochondrial over glycolytic ATP production. Immunometabolism: Fundamentals to Prospective New Therapies, Boston, US, June 2019.
11. **Rose, S.**, Bennuri, S. C., **Beebe, A.**, Delhey, L. M., Guy, E. A., Goode, G. A., Cotter, M., Pavliv, O., Melnyk, S., and Carvalho, E. Mitochondrial ATP production is increased in PBMC from obese insulin resistant children and associated with metabolic dysfunction and inflammation. Keystone Symposia: Immunometabolism, Metaflammation and Metabolic Disorders. Vancouver, BC, Canada. April 2019.