JESSICA M. CARPENTER

Department of Physiology and Pharmacology, University of Georgia, Athens, GA
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EDUCATION

Doctor of Philosophy, Neuroscience — August 2016 – present
Department of Physiology and Pharmacology
Biomedical and Translational Sciences Institute
University of Georgia, Athens, GA

Bachelor of Arts, Psychology, *cum laude* — August 2010 – May 2014
Department of Psychology
University of Mississippi, University, MS

PROFESSIONAL EXPERIENCE

Associate Research and Development Biologist — August 2014 – July 2016
National Center for Natural Products Research
University of Mississippi, University, MS
Supervisors: Dr. Ikhlas A. Khan and Dr. Kenneth J. Sufka

Focus: Conducted pre-clinical screenings of natural product extracts, fractions, and isolated constituents in rodent behavioral paradigms of addiction, nociception, motor coordination, and mood

RESEARCH EXPERIENCE

Graduate Research Assistant — January 2017 – present
University of Georgia, Athens, GA
PI: Dr. Nikolay M. Filipov

Focus: Neurological and immunological effects in rodent models of Gulf War Illness; Sex differences in aging

Undergraduate Research Assistant — August 2013 – May 2014
University of Mississippi, University, MS
PI: Dr. Kenneth J. Sufka

Focus: Development, validation, and utilization of animal models with an emphasis on chronic pain and mood disorders in rodents and domestic fowl

PROFESSIONAL AFFILIATIONS

Society of Toxicology: Graduate Student Member, Neurotoxicology Specialty Section (NTSS), Women in Toxicology (WIT)	January 2018 – present
Southeastern Regional Chapter of Society of Toxicology	January 2018 – present
Society for Neuroscience: Graduate Student Member	May 2019 – present
University of Georgia Graduate Students & Post-Docs in Science	August 2016 – present
University of Georgia Women in Science	August 2016 – present

FUNDING AWARDS

Franklin Foundation Imaging Award ($3300)	November 2020
Biomedical and Health Sciences Institute Travel Award ($600)	November 2019
Biomedical and Health Sciences Institute Travel Award ($600)	March 2018

PUBLICATIONS

** co-first authors*

1. Dockman, R.L.*, **Carpenter, J.M.*,** Diaz, A.N., Benbow, R.A., Filipov, N.M. Sex differences in behavior, response to LPS, and glucose homeostasis in middle-aged mice. *Brain Behavioral Research: Under Revisions.*
2. **Carpenter, J.M.***, Brown, K.A.*, Diaz, A.N., Dockman, R.L., Benbow, R.A., Norberg, T., Harn, D.A., Wagner, J.J., Filipov, N.M. (2021). Delayed treatment with the immunotherapeutic LNFPIII ameliorates multiple neurological

deficits in a pesticide-nerve agent prophylactic based mouse model of Gulf War Illness. Accepted for publication in *Neurotoxicology and Teratology.*

3. Brown, K.A., **Carpenter, J.M.,** Preston, C.J., Harn, D.A., Filipov, N.M., Wagner, J.J. (2021). An immunomodulatory glycan conjugate, lacto-N-fucopentaose-III (LNFPIII), ameliorates acute and persisting hippocampal synaptic plasticity and transmission deficits in a mouse model of Gulf War Illness. *Life Sciences,* 279, 119707.
4. Brown, K.A., Preston, C.J., **Carpenter, J.M.,** Harn, D.A., Filipov, N.M., Wagner, J.J. (2021). Lacto-N-fucopentaose-III (LNFPIII) ameliorates acute aberrations in hippocampal synaptic plasticity and transmission in a Gulf War Illness animal model. *Brain research,* 1766, 147513.
5. Menees, K.B., Earls, R.H., Chung, J., Jernigan, J., Filipov, N.M., **Carpenter, J.M.,** Lee, J.K. (2021). Sex- and age-dependent alterations of splenic immune cell profile and NK cell phenotypes and function in C57BL/6J mice. *Immunity and Ageing,* 18.
6. Mote, R.S.*, **Carpenter, J.M.*,** Dockman, R.L., Steinberger, A.J., Suen, G., Norberg, T., Harn, D.A., Wagner, J.J., Filipov, N.M. (2020). Assessing the Beneficial Effects of the Immunomodulatory Glycan LNFPIII on Gut Microbiota and Health in a Mouse Model of Gulf War Illness. *Int. J. Environ. Res. Public Health*, 17, 7081.
7. **Carpenter, J.M.,** Gordon, H.E., Ludwig, H.D., Wagner, J.J., Harn, D.A., Norberg, T., Filipov, N.M. (2020). Neurochemical and neuroinflammatory perturbations in two Gulf War Illness models: modulation by the immunotherapeutic LNFPIII. *Neurotoxicology,* 77, 40-50.
8. Fulenwider, H.D., Smith, B.M., Nichenko, A.S., **Carpenter, J.M.,** Nennig, S.E., Cheng, K., Rice, K.C., Schank, J.R. (2018). Cellular and behavioral effects of lipopolysaccharide treatment are dependent upon neurokinin-1 receptor activation. *Journal of Neuroinflammation*, 15, 60.
9. Harris, H.M., **Carpenter, J.M.,** Black, J.R., Smitherman, T.A., Sufka, K.J. (2017). The effects of repeated nitroglycerin administration in rats; modeling migraine-related endpoints and chronification. *Journal of Neuroscience Methods,* 284, 63-70.
10. **Carpenter, J.M.,** Jourdan, M.K., Fountain, E.M., Ali, Z., Abe, N., Khan, I.K., Sufka, K.J. (2016). The effects of Sceletium tortuosum (L.) N.E. Br. extract fraction in the chick anxiety-depression model. *Journal of Ethnopharmacology*, 193, 329-332.
11. **Carpenter, J.M.,** Criddle, K.A., Craig, H.K., Ali, Z., Zhang, Z., Khan, I.A., Sufka, K.J. (2015). Comparative effects of Mitragyna speciosa (Korth.) Havil extract, mitragynine, and opioid agonists on thermal nociception in rats. *Fitoterapia*, 109, 87-90.

SELECTED POSTERS AND PRESENTATIONS

** presenting author; [+] served as graduate student mentor*

Carpenter, J.M.*, Ludwig, H.D., Brown, K.A., Harn, D.A., Wagner, J.J., Filipov, N.M. Long-term neurobiological effects of Gulf War Illness-related chemicals are modulated by delayed treatment with the immunotherapeutic LNFPIII in mice. *Virtual Poster*, Society of Toxicology, March 2021.

Carpenter, J.M.* Delayed treatment with LNFPIII improves long-term behavioral and neurobiological effects of prior Gulf War Illness chemicals exposure. *Seminar,* Department of Physiology and Pharmacology, University of Georgia. February 2021.

Mote, R.S., **Carpenter, J.M.,** Dockman, R.L., Steinberger, A.J., Suen, G., Harn, D.A., and Filipov, N.M. The immunomodulatory glycan LNFPIII modulates the microbiota in a mouse model of Gulf War Illness. *Poster,* Society of Toxicology, Anaheim, CA. March 2020. *(cancelled due to COVID-19)*

Carpenter, J.M.* Behavioral deficits in mouse model of Gulf War Illness are ameliorated by delayed treatment with the immunotherapeutic LNFPIII. *Seminar,* Department of Physiology and Pharmacology, University of Georgia, Athens, GA. October 2019.

Carpenter, J.M.*, Dockman, R.L., Ludwig, H.D., Wagner, J.J., Harn, D.A., Filipov, N.M. Delayed treatment with the immunotherapeutic LNFPIII ameliorates Gulf War Illness-related behavioral deficits in a rodent model of the disease. *Poster,* Society of Neuroscience, Chicago, IL. October 2019.

Halbing, A., **Carpenter, J.M.[+],** Benbow, R., Filipov, N.M. Optimizing a protocol for the evaluation of hippocampal neurogenesis in middle-aged mice. *Poster,* Research Experience for Undergraduates (REU) Symposium, University of Georgia, Athens, GA. July 2019.

Dockman, R.L., **Carpenter, J.M.[+],** Diaz, A.N., Filipov, N.M. Sex-Related differences exhibited by middle-aged mice in behavior and response to inflammatory stimulus. *Poster*, Center for Undergraduate Research Opportunities (CURO) Symposium, University of Georgia, Athens, GA. April 2019.

Carpenter, J.M.* One step at a time: Improving Gulf War Illness-related behavioral deficits. *Oral presentation,* Three Minute Thesis Competition, Athens, GA. March 2019.

Carpenter, J.M.*, Dockman, R.L., Diaz, A.N., Harn, D.A., Wagner, J.J., Filipov, N.M. Selective behavioral deficits months following exposure to Gulf War Illness chemicals in a mouse model: modulation by the immunological therapeutic LNFPIII. *Poster,* Society of Toxicology, Baltimore, MD. March 2019.

Diaz, A.N., **Carpenter, J.M.⁺,** Dockman, R.L., Wagner, J.J., Harn, D.A., Filipov, N.M. Effects of Gulf War-related chemical exposures on mouse motor behaviors: therapeutic modulation by LNFPIII. *Poster*, Science of Veterinary Medicine Symposium, University of Georgia, Athens, GA. October 2018.

Carpenter, J.M.* Acute neurochemical effects of Gulf War Illness-related exposures in mice: modulation by LNFPIII. *Seminar,* Department of Physiology and Pharmacology, Athens, GA. April 2018.

Carpenter, J.M.*, Wagner, J.J., Harn, D.A., Filipov, N.M. Short-term effects of Gulf War Illness-related chemical exposure on brain monoamines: modulation by the neoglycoconjugate LNFPIII. *Poster*, Society of Toxicology, San Antonio, TX. March 2018.

Gordon, H., **Carpenter, J.⁺,** Harn, D., Wagner, J., Filipov, N. Dysregulated splenic monoamine metabolism in a Gulf War Illness model with modulation by a neoglycoconjugate. *Poster*, Science of Veterinary Medicine Symposium, University of Georgia, Athens, GA. October 2017.

Harris, H.M., **Carpenter J.M.,** Black, J.R., Smitherman, T.A., Sufka, K.J. Further validation of a nitroglycerin-induced episodic migraine model in rats. Poster, Society for Neuroscience, San Diego, CA. November 2016.

Jourdan, M.K., **Carpenter, J.M.,** Fountain, E.M., Ali, Z., Abe, N., Khan, I.A., Sufka, K.J. The effects of Sceletium tortuosum extracts in the chick anxiety-depression model. Poster, Society for Neuroscience, San Diego, CA. November 2016.

SERVICE AND LEADERSHIP ROLES

Panelist, "Undergraduate Research Discussion", Women in Science, University of Georgia	September 2020
Volunteer, STEMzone Neuroscience Booth, University of Georgia	November 2019
Graduate Student Mentor, Neuroscience Summer Undergraduate Research Experience (NSURE), University of Georgia	May 2019 – July 2019
Secretary, Graduate Students & Post-Docs in Science, University of Georgia	August 2018 – May 2021
Graduate Student Mentor, Young Dawgs Program, University of Georgia	May 2018 – July 2018
Graduate Student Mentor, Georgia Veterinary Scholars Program, University of Georgia	May 2017 – July 2019
Graduate Student Mentor, Center for Undergraduate Research Opportunities (CURO), University of Georgia	March 2017 – July 2019
Program Liaison, Integrated Life Sciences (ILS) Program, University of Georgia	January 2017 – present
Mentor, Undergraduate Research Assistants, University of Mississippi	August 2014 – July 2016
Mission Chair, Ole Miss Relay for Life, University of Mississippi	August 2013 – April 2014
Sponsorship Chair, Ole Miss Relay for Life, University of Mississippi	August 2012 – April 2013

RESEARCH SKILLS

Rodent behavior (addiction, cognition, mood, motor function, nociception); administration routes (IP, SC, PO, footpad); rodent husbandry/breeding; estrous cycle staging; gross dissection; tissue sectioning; protein analysis; ELISA/multiplex; high performance liquid chromatography (HPLC-ECD); qPCR; immunohistochemistry; image analysis; cell culture

GRADUATE COURSEWORK

Immunology, Immunotoxicology, Molecular Pharmacology, Neuroanatomy, Neurophysiology, Neuroscience Journal Club, Principles of Physiology II, Statistics I and II