

## Christine M. (Dengler) Crish, Ph.D

Northeast Ohio Medical University  
Department of Pharmaceutical Sciences  
4209 State Route 44  
Rootstown, OH 44272

### EDUCATION

- August 2008**      **Ph.D in Neuroscience**, Vanderbilt University, Nashville, TN
- December 2003**    **M.A. in Psychology**, University of Illinois at Chicago, Chicago, IL
- May 1999**        **B.A. in Psychology with Honors**, summa cum laude, Baldwin-Wallace College (now University), Berea, OH

### POSITIONS

- 2016-present**      **Affiliate Faculty**, Baldwin Wallace University, Berea Ohio.
- 2013- present**      **Assistant Professor**, Department of Pharmaceutical Sciences  
**Adjunct Assistant Professor**, Department of Anatomy and Neurobiology, Northeast Ohio Medical University (NEOMED), Rootstown OH
- 2012- 2013**        **Research Assistant Professor**, Department of Pharmaceutical Sciences  
**Adjunct Research Assistant Professor**, Department of Anatomy and Neurobiology, NEOMED
- 2011-2012**        **Research Manager, Neuromarketing Initiative**, Suarez Applied Marketing Research Laboratories at the University of Akron
- Oversaw the experimental design, data collection, and analysis of human neurophysiological experiments using dense-array electroencephalography (EEG) and eye tracking
- 1/2011-7/2011**      **Research Consultant, Division of Adolescent Medicine**, Vanderbilt University Medical Center (Offsite)
- 2008-2010**        **Post-Doctoral Fellow, Biobehavioral Interventions Training Program**  
Vanderbilt Kennedy Center for Research on Human Development  
Division of Adolescent Medicine, Vanderbilt University Medical Center
- Recipient of competitive fellowship from the National Institutes of Health T32 training grant
  - Clinical research focused on how biopsychosocial stressors affect health outcomes in pediatric patients with functional abdominal pain.
- 2003-2008**        **Graduate Research Assistant**, Neuroscience Program and Department of Biological Sciences, Vanderbilt University: Laboratory of Dr. Ken Catania

- *Doctoral thesis research: Caste transformation and reproduction in naked mole-rats*

- 2000-2003**      **Graduate Research Assistant**, Departments of Psychology and Biological Sciences, University of Illinois at Chicago: Laboratories of Dr. Dave Wirtshafter and Dr. Chris Comer
- *Masters thesis research: Neuronal population coding in the somatosensory system of the naked mole-rat*
- 1999-2000**      **Laboratory Director**, Department of Psychology, Baldwin-Wallace College Neuroscience and Animal Learning & Behavior Labs

### TEACHING EXPERIENCE

- 2016-present**      **Course Director and Lecturer** in *Foundational Neuroscience* (1<sup>st</sup> year pharmacy students), College of Pharmacy, NEOMED
- 2015-present**      **Co-Course Director and Lecturer** in *Transitions to Pharmaceutical Medicine* (1<sup>st</sup> year graduate students), College of Graduate Studies, NEOMED
- 2013-present**      **Course Director and Lecturer** in *Human Anatomy & Physiology for Pharmacy* (1<sup>st</sup> year pharmacy students), College of Pharmacy, NEOMED
- 2015- present**      **Lecturer** in *Pharmacotherapeutics* on pathophysiology of headache (3<sup>rd</sup> year Pharmacy students), College of Pharmacy, NEOMED
- 2013-present**      **Lecturer** in *Medical Neuroscience* on neurobiology of anxiety, depression, bipolar disorder, & schizophrenia (1<sup>st</sup> year medicine pharmacy students interprofessional course), College of Medicine, NEOMED
- 2013-present**      **Lecturer** in *Prologue* on impact of obesity and diabetes on anatomical systems (1<sup>st</sup> year pharmacy students; interprofessional course), NEOMED
- 2009**              **Lecturer** in *Animal Behavior: An introduction to evolutionary psychology* (undergraduate students), Vanderbilt University Department of Psychology
- 2005-2006**      **Research Assistant Mentor**, (undergraduate students), Vanderbilt University Department of Biological Sciences
- 2004**              **Teaching Assistant** for *Neurobiology of Behavior*, (undergraduate students), Vanderbilt University Department of Biological Sciences
- 2002-2003**      **Part-Time Instructor** for *Drugs and Society* (undergraduate students), Science and Mathematics Department, Columbia College of Chicago
- 2000-2003**      **Teaching Assistant** for courses: *Abnormal Psychology, Physiological Psychology, Psychology of Women and Gender, Learning and Conditioning, and Laboratory in Learning* (undergraduate students)

## MENTORSHIP

### Graduate Dissertation/Thesis Committees

Emily Plyler, Biomedical Sciences Graduate Program, Kent State University. 2016-present.  
 Gina Wilson, Biomedical Sciences Graduate Program, Kent State University. 2015-present.  
 Rebecca Curry, Biomedical Sciences Graduate Program, Kent State University. 2014-present.  
 Matthew Smith, Integrative Pharmaceutical Sciences Graduate Program, NEOMED. 2013-present.  
 Qiwen Shi, Biomedical Sciences Graduate Program, Kent State University. 2014-2015.

### Introductory Pharmacy Practice Experience (IPPE) Academic Preceptorship

Jennifer Barringer, P3. IPPE in pharmacy neuroscience education. Spring 2017.  
 Jennifer Toth, P3. IPPE in pharmacy neuroscience education. Spring 2017.  
 Jordan Worthington, P3. IPPE in pharmacy neuroscience education. Spring 2017.

### Professional & Undergraduate Student Research

#### Summer Research Program

Jonathon Meier, Summer Research Fellow. College of Medicine, NEOMED. 2017.  
 Sriharsha Voleti, undergraduate research intern. University of Akron. 2017.  
 Adam Schuller, undergraduate research intern. University of Akron. 2016-present.  
 Jenna Stralka, undergraduate research intern. University of Akron. 2016.  
 Meghan Onder, undergraduate research intern. Kent State University. 2016.  
 Albert Manudhane, medical student Summer Research Fellow, College of Medicine, NEOMED. 2015.  
 Skylar Scala, undergraduate research intern. Baldwin-Wallace University. 2015, 2016.  
 Michelle Whittlesy, high school research volunteer. 2015.  
 Susan Seeden, undergraduate research intern. Stark Stark University. 2015.

#### Pharmacy Student Research

NEOMED College of Pharmacy  
 Suzie Abdeljalil, Fall 2017.  
 Kelsey Siedel. Fall 2016.  
 Allyn Walkama. Fall 2015.  
 Stephanie Wonnell. Fall 2015.  
 Katie Knudsen. Fall 2015.  
 Samantha Hanna. Fall 2014.  
 Eric Fela. Fall, 2014.

#### Pharmacist Residency Research Program

College of Pharmacy, NEOMED  
 Benjamin King. 2014-2015.

## PUBLICATIONS

Publication surname is Dengler-Crish. Asterisk denotes corresponding author.

**Dengler-Crish CM\***, Smith MA, Wilson GN. 2017. Early evidence of low bone density and decreased serotonergic synthesis in the dorsal raphe of a tauopathy model of Alzheimer's disease. *Journal of Alzheimer's Disease*, 55(4):1605-1619.

Wilson GN, Matthew A. Smith MA, Inman DM, **Dengler-Crish CM**, Crish SD. 2016. Early cytoskeletal protein modifications precede overt structural degeneration in the DBA/2J mouse model of glaucoma. *Frontiers in Neuroscience*, 10:494. doi: 10.3389/fnins.2016.00494.

Smith MA, Xia CZ, **Dengler-Crish CM**, Fening KM, Inman DM, Schofield BR, Crish SD. 2016. Persistence of intact retinal ganglion cell terminals after axonal transport loss in the DBA/2J mouse model of glaucoma. *J Comp Neurol*. Apr 12. doi: 10.1002/cne.24012. [Epub ahead of print]

Soric MM, Moorman JM, Boyle JA, **Dengler-Crish CM**. 2016. Prevalence and predictors of metformin prescribing in adults with type 2 diabetes mellitus: a national cross sectional study. *Pharmacotherapy*, DOI: 10.1002/phar.1772.

Wilson GN, Inman DM, **Dengler Crish CM**, Smith MA, Crish SD. 2015. Early pro-inflammatory cytokine elevations in the DBA/2J mouse model of glaucoma. *J Neuroinflammation* 12:176.

**Dengler-Crish CM**, Smith MA, Inman DM, Young JW, Wilson GN, Crish SD. 2014. Anterograde transport blockade precedes deficits in retrograde transport in the visual projection of the DBA/2J mouse model of glaucoma. *Frontiers in Neuroscience*, 8, 290: 1-12.

DeToma AS, **Dengler-Crish CM**, Deb A, Braymer JJ, Penner-Hahn JE, van der Schyf CJ, Lim MH & Crish SD. 2014. Abnormal metal levels in the primary visual pathway of the DBA/2J mouse model of glaucoma. *Biometals*, 27(6):1291-301.

Crish SD and **Dengler-Crish CM**. 2014. Glaucoma. In *Metabolism of Human Diseases: Organ Physiology and Pathophysiology*, Lammert E & Zeeb M, (eds). Springer International: NY.

Van der Schyf CJ, Crish SD, **Crish CM**, Inman DM, and Geldenhuys WJ. 2014. ADME and Ocular Therapeutics: Retina. In *Methods in Pharmacology and Toxicology*, Kang, YJ (ed). Springer Science+Business Media: NY.

**Dengler-Crish CM**, Bruehl S, Walker LS. 2011. Increased temporal summation of heat pain in women with a history of pediatric functional abdominal pain. *Pain*, 152, 802-808.

**Dengler-Crish CM**, Horst SN, Walker LS. 2011. Somatic complaints in childhood functional abdominal pain are associated with functional gastrointestinal disorders in adolescence and adulthood *Journal of Pediatric Gastroenterology and Nutrition*, 52, 162-165.

Walker LS, **Dengler-Crish CM**, Rippel S, Bruehl S. 2010. Functional abdominal pain in childhood and adolescence increases risk for chronic pain in adulthood. *Pain*, 150, 568-72.

Bruehl S, **Dengler-Crish CM**, Smith CA, Walker, LS. 2010. Hypoalgesia related to elevated resting blood pressure is absent in adolescents and young adults with a history of functional abdominal pain. *Pain*, 149, 57-63.

**Dengler-Crish CM\***, Catania, KC. 2009. Cessation of reproduction-related spine elongation after multiple breeding cycles in female naked mole-rats. *Anat Rec (Hoboken)*, 292, 131-137.

**Dengler-Crish CM\***, Catania, KC. 2007. Phenotypic plasticity in female naked mole-rats after removal from reproductive suppression. *J Exp Biol.*, 210, 4351-4358.

Henry EC, **Dengler-Crish CM**, Catania, KC. 2007. Growing out of a caste--reproduction and the making of the queen mole-rat. *J Exp Biol.*, 210, 261-268.

**Dengler-Crish CM**, Crish SD, Catania, KC. 2006. The organization of the somatosensory system of elephant shrews (*E. edwardii*). *Anat Rec A Discov Mol Cell Evol Biol.*, 288A, 859-866.

Crish SD, **Dengler-Crish CM**, Comer, CM. 2006. Population coding strategies and involvement of the superior colliculus in the tactile orienting behavior of naked mole-rats. *Neuroscience*, 139, 1461-1466.

Crish SD, **Dengler-Crish CM**, & Catania KC. 2006. Central visual system of the naked mole-rat (*Heterocephalus glaber*). *Anat Rec A Discov Mol Cell Evol Biol.*, 288, 205-12.

Mickley GA, Kenmuir CA, McMullen CA, Yocom AM, Valentine EL, **Dengler-Crish CM**, Weber B, Wellman JA, Remmers-Roeber DR. 2004. Dynamic processing of taste aversion extinction in the brain. *Brain Res.*, 1016, 79-89.

Mickley GA, Kenmuir CL, **Dengler-Crish C**, McMullen CM, McConnell A, and Valentine E. 2004. Repeated exposures to gustatory stimuli produce habituation or positive contrast effects in perinatal rats. *Dev Psychobiol.*, 44, 176-88.

**Dengler-Crish CM**. 2003. Population Coding in the Somatosensory System of the Naked Mole-Rat (*Heterocephalus glaber*). Master's thesis, University of Illinois at Chicago, Chicago IL.

Reilly S, Bornavalova M, **Dengler C**, & Trifunovic R. 2003. Effects of excitotoxic lesions of the gustatory thalamus on latent inhibition and blocking of conditioned taste aversion in rats. *Brain Res Bull.*, 62. 117-28.

Mickley GA, Remmers-Roeber DR, **Dengler CM**, McMullen CA, Kenmuir CL, Girdler B, Crouse C, Walker C. 2002. Simple behavioral methods to assess the effect of drugs or toxins on sensory experience. *J Neurosci Methods*, 115, 85-92.

Mickley GA, Remmers-Roeber DR, **Dengler CM**, Kenmuir CL, and Crouse C. 2001. Paradoxical effects of ketamine on the memory of fetuses at different ages. *Brain Res Dev Brain Res.*, 127, 71-76.

Mickley GA, Remmers-Roeber D, Crouse C, Walker C, & **Dengler C**. 2000. Detection of novelty by perinatal rats. *Physiol Behav.*, 70, 217-25.

### INVITED PRESENTATIONS/SEMINARS

Dengler-Crish CM. June 2017. *Seeing the world through rose-colored glasses: connections between the retina and areas of the brain that control mood*. Platform presentation at the Aging Eye Summit, sponsored by Prevent Blindness Ohio. Rootstown, OH.

Dengler-Crish, CM. Spring 2017. *The neurobiology of MDMA; psilocybin; LSD; and cannabis; evidence for or against therapeutic potential*. Four-part seminar series sponsored by professional student organization Students for Sensible Drug Policy. Rootstown, OH.

Dengler-Crish CM & Crish SD. April 2016. *The anatomy of success: A few “bones” of advice on life and career plans from two neuroscientists*. Keynote address at the Social Sciences Honor Society Induction Ceremony, Baldwin Wallace University, Berea OH.

Dengler-Crish CM. January 2016. *Brain; the only organ that studies itself*. Keynote address at the Northeast Ohio Brain Beer Competition, NEOMED.

Dengler-Crish CM. June 2014. *The changing role of intraocular pressure in glaucoma*. Platform presentation at the Aging Eye Summit sponsored by Prevent Blindness Ohio. Akron, OH.

Dengler-Crish CM. May 2013. “*Social status, sex, and the skeleton—phenotypic transformations in the world’s most interesting mammal, the naked mole-rat.*” Invited talk. Dept. of Anatomy & Neurobiology Seminar Series, NEOMED.

### SELECTED PRESENTATIONS

Aultman J, Baughman K, & Dengler-Crish, CM. 2017. *Intent, design, and generalizability: defining human subjects research*. IRB educational session & member panel. Rootstown, OH.

Smith MA, Wilson GN, Dengler-Crish CM, Richardson JR, Crish SD. 2016. Sodium channel redistribution in the DBA/2J mouse model of glaucoma. Society for Neuroscience meeting in San Diego, CA.

Wilson GN, Smith MA, Dengler-Crish CM, Richardson JR, Crish SD. 2016. *Effects of IL-4 on inflammation in the visual projection in DBA/2J glaucomatous mice*. Society for Neuroscience meeting in San Diego, CA.

Crish SD, Smith MA, Wilson GN, Dengler-Crish CM. 2016. *Exogenous tau produces sectorial degeneration in the murine retinal projection*. Presentation at Jax Axonopathy conference in Bal Harbor, ME.

Smith MA, Wilson GN, Crish SD, Dengler-Crish CM. 2016. *Sectorial axonopathy in the 3xTg mouse model of Alzheimer’s disease*. Presentation at Jax Axonopathy conference in Bal Harbor, ME.

Smith MA, Margevicius D, Dengler-Crish CM. 2015. *Bone loss as a predictor for brain disease? Decreased bone mineral density and osteoporosis early in the lifespan of htau Alzheimer’s disease mice may be associated with pathology in the dorsal raphe*. Society for Neuroscience meeting in Chicago, IL.

Crish SD, Geldenhuys WJ, Dengler-Crish CM, Wilson GN. 2015. *Phosphorylated tau has increased binding affinity to dynactin*. Society for Neuroscience meeting in Chicago, IL.

Schofield BR, Smith MA, Xia CZ, Fening KM, Dengler-Crish CM, Inman DM, Crish SD. 2015. *Three-dimensional ultrastructure of retinocollicular synapse mitochondria in early glaucoma*. Society for Neuroscience meeting in Chicago, IL.

Smith MA, Xia CZ, Fening KM, Nakamoto KT, Dengler-Crish CM, Schofield BR, & Crish SD. 2015. *Three-dimensional ultrastructure of retinal ganglion cell synapses in the DBA/2J mouse model of glaucoma*. Presented at the Association for Research in Vision and Ophthalmology (ARVO) conference in Denver CO.

Wilson G N, Smith MA, Dengler-Crish CM, Inman DM, Crish SD. 2015. Characterization of cytokine levels in the DBA/2J mouse model of glaucoma. Presented at ARVO meeting in Denver CO.

Crish SD, Lepp JK, Smith MA, Dengler-Crish CM, Wilson GN. 2015. Cytoskeletal changes in the visual system of DBA/2J mouse model of glaucoma. Presented at ARVO meeting in Denver CO.

Mbimba T, Geldenhuys WJ, Safadi F, Lin L, Dengler-Crish, CM. 2015. *Parkin, A link between Parkinson's disease and bone homeostasis*. American Society for Bone and Mineral Research Annual Meeting, Seattle WA.

Dengler-Crish CM, Wilson GN, Smith MA, Crish SD. 2014. *Phosphorylated tau levels in the brains of naked mole-rats are differentially elevated based on reproductive status*. Society for Neuroscience meeting in Washington DC.

Smith MA, Nakamoto KT, Dengler-Crish CM, Schofield BR, and Crish SD. 2014. *Three-dimensional ultrastructure of retinal ganglion cell synapses in the DBA/2J mouse model of glaucoma*. Society for Neuroscience meeting in Washington DC.

Wilson GN, Dengler-Crish CM, Crish SD. 2013. *Characterization of cytokine levels in the DBA/2J mouse model of glaucoma*. Society for Neuroscience meeting in Washington DC.

Crish, SD, Wilson GN, Smith MA, Dengler-Crish CM. *Cytoskeletal alterations and abnormal protein accumulation in the primary visual projection of the DBA/2J mouse model of glaucoma*. Society for Neuroscience meeting in Washington DC.

Dengler-Crish, CM & Crish, SD. 2013. *Postnatal Development of Subcortical Structures in the Central Visual Pathway in Naked Mole-Rats*. Society for Neuroscience meeting in San Diego, CA.

Wilson, GN, Dengler-Crish, CM, Crish, SD. 2013. *Age-related elevation of hyperphosphorylated neurofilament-heavy in the retina and optic nerve of the DBA/2J mouse model of glaucoma*. Society for Neuroscience meeting in San Diego, CA.

Dengler-Crish, CM, Balaram, P, Kaas, JH, & Crish, SD. 2011. *Cortical lamination and reduced VGlut2 levels in primary visual cortex of the DBA/2J mouse*. Society for Neuroscience Abstracts #798.02.

Dengler-Crish, CM. 2011. *The University of Akron Neuromarketing Initiative*. Platform presentation. Advanced Marketing Research Conference "Understanding the Consumer Mind." College of Business Administration, The University of Akron.

Horst SN, Dengler-Crish CM, & Walker LS. 2010. *Non-gastrointestinal symptoms in children with functional abdominal pain are risk factors for persistence of functional GI disorders*. Poster presentation. Digestive Disease Week, New Orleans, LA.

Sherman A, Shelby G, Dengler-Crish CM, & Walker LS. 2010. *Pain catastrophizing as a predictor of current abdominal pain severity and functional disability in individuals with a history of pediatric chronic abdominal pain*. Poster presentation. 31st Annual Meeting & Scientific Sessions of the Society of Behavioral Medicine, Seattle, WA.

Dengler-Crish CM, Bruehl S, & Walker LS. 2009. *Enhanced perception of painful stimuli in adolescents and young adults with a history of functional gastrointestinal disorders*. Poster presentation. Neurogastroenterology and Motility Joint International meeting, Chicago IL.

Dengler-Crish CM, & Walker LS. 2009. *Temporal summation of pain in former pediatric chronic abdominal pain patients*. Poster presentation. Vanderbilt Kennedy Center Science Day.

Dengler-Crish CM & Catania KC. 2007. *A pubertal growth spurt initiates vertebral lengthening in adult female naked mole-rats*. Society for Neuroscience Abstracts #518.2.

Dengler-Crish CM, Crish SD, & Catania KC. 2004. *Central visual system of the naked mole-rat*. Poster presentation. Society for Neuroscience Abstracts #749.12.

Dengler-Crish CM, Crish SD, & Comer CM. 2003. *Multiple computational strategies for orienting behavior: naked mole rats can use either averaging or winner-take-all strategies depending upon stimulus context*. Society for Neuroscience Abstracts # 79.8.

Crish SD, Dengler-Crish CM, Baba Y, & Comer CM. 2003. *The superior colliculus and orienting behavior in the naked mole rat*. Society for Neuroscience Abstracts # 187.14.

## AWARDS AND FUNDING

### AWARDS

*Nu Rho Psi National Honor Society in Neuroscience*. March 2016.

*Ohio Magazine's Excellence in Education 2016 Honoree* for teaching anatomy and physiology. December 2015.

### UNFUNDED PROPOSALS

*R15 Serotonin-tau interactions and bone loss in Alzheimer's disease*. Submitted to NIH NIA February 2017. (PI)

*R01 Retinofugal degeneration in Alzheimer's disease*. Submitted to NIH NEI October 2016. Discussed but not funded. (PI)

*R01 Axonopathy in Glaucoma*. Competitive renewal. Submitted to NIH National Eye Institute (NEI) October 2016. (Co-I)

*Bone loss and serotonergic pathology in Alzheimer's disease*. Submitted to Alzheimer's Association, January 2016. (PI)

*SERMs, bone and brain pathology in Alzheimer's disease*. Submitted to the Bright Focus Foundation, October 2014. (PI)

*Magnesium supplementation in glaucoma*. Submitted to the Bright Focus foundation November 2014. (Co-PI)

*R01 Central regulation of bone in neurodegenerative disease*. Submitted to the NIH National Institute of Aging (NIA) June 2014. Discussed but not funded. (PI)

*Bone loss as an early indicator of brain pathology in Alzheimer's disease*. Submitted to the Alzheimer's Association October 2014. (PI)



## FUNDED PROPOSALS

2013-2014: *Orthodenticle homeobox 2 as a novel neuroprotectant in glaucoma*. Northeast Ohio Medical University College of Pharmacy Competitive Research Funds, \$15,000 (PI)

2013-2014: *Indicators of osteogenesis during puberty-induced skeleton growth in naked mole-rats*. Northeast Ohio Medical University College of Pharmacy Competitive Research Funds, \$10,000 (PI)

2009: *Cytokine response to acute stress in chronic pain syndromes*. Vanderbilt Institute for Clinical and Translational Research Funding award, \$2000 (Co-PI)

## ACADEMIC SERVICE

**College of Pharmacy Admissions Committee**. NEOMED. 2017.

**Faculty Advisor, Association of Catholic Medical Students (ACMS)**. NEOMED. 2017.

**Faculty Advisor, Students for Responsible Drug Policy (SSDP)**. NEOMED. 2016-present.

**Vice Chair, Institutional Review Board (IRB)**. NEOMED. 2016-present.

**Executive Committee on Academic and Professional Progress (CAPP)**. NEOMED. 2015-present.

**Learning Analytics Task Force**. College of Pharmacy, NEOMED. 2015-2017.

**Graduate Faculty**. Kent State University Biomedical Sciences Program. 2013- present.

**Outcomes Assessment Committee**. College of Pharmacy, NEOMED. 2013- 2017.

**Integrated Pharmaceutical Sciences Graduate Program Advisory Committee**. College of Graduate Studies, NEOMED. 2013- present.

**Search Committee for Executive Director of Academic Services**. College of Medicine, NEOMED. 8/2015- 11/2015.

**Faculty Search Committee for Department of Pharmaceutical Sciences**. NEOMED. 2014-2015.

**Review Committee for the Department of Anatomy & Neurobiology**. College of Medicine, NEOMED. 1/2015-7/2015.

**RGE Move Coordinator**. Department of Pharmaceutical Sciences, NEOMED. 4/2013-8-2013.

**Brain Blast Outreach: Exhibit Demonstrator**. Vanderbilt Brain Institute. 2005-2007.

**Neuroscience Student Organization Secretary**. Vanderbilt University. 2006.

**Graduate Student Council Secretary.** University of Illinois at Chicago. 2002-2003.

**Institutional Animal Care and Use Committee (IACUC) Member.** University of Illinois at Chicago. 2001-2003.

### PROFESSIONAL SERVICE

**Associate Editor, Journal of Alzheimer's Disease.** January 2017-present.

**Topic Editor, Frontiers in Neuroscience.** Axonopathy in neurodegenerative disease. September 2016-present.

**Grant Reviewer, Alzheimer's Association International Research Program.** May 2016-present.

**Aging Eye Summit Planning Committee.** Prevent Blindness Ohio. 2014, 2015, 2017.

**Vice President, Northeast Ohio Chapter of the Society for Neuroscience.** 2015-present.

**Secretary/Treasurer, Northeast Ohio Chapter of the Society for Neuroscience.** 2013-2015.

#### **Ad-Hoc Reviewer**

BMC Geriatrics

American Journal of Alzheimer's Disease and Other Dementias

Journal of Behavioral Medicine

Journal of Experimental Biology

### PROFESSIONAL MEMBERSHIP

Alzheimer's Association International Society to Advance Alzheimer's Research and Treatment (ISTAART). 2016- present.

Northeastern Ohio Chapter of Society for Neuroscience Chapter. 2011- present.

Society for Neuroscience. 2000-present.

International Association for the Study of Pain. 2009-2011.

Animal Behavior Society. 2006-2008.

Middle Tennessee Chapter of Society for Neuroscience. 2004-2008.

J.B. Johnston Society in Comparative Neurobiology. 2002-2016.