

PROMOTION RECOMMENDATION  
The University of Michigan-Dearborn  
College of Arts, Sciences, and Letters

Zhi Zhang, assistant professor of biology, Department of Natural Sciences, College of Arts, Sciences, and Letters, is recommended for promotion to associate professor of biology, with tenure, Department of Natural Sciences, College of Arts, Sciences, and Letters.

Academic Degrees:

Ph.D.	2008	Wesleyan University, Middletown, CT
M.S.	2001	Beijing Institute of Neuroscience, Beijing Center for Neural Regeneration and Repairing, Beijing, China
M.D.	1998	Capital Medical University, Beijing, China

Professional Record:

2018-present	Assistant Professor, Department of Natural Sciences, University of Michigan-Dearborn
2017-2018	Assistant Professor, Department of Anesthesiology and Critical Care Medicine, Johns Hopkins, School of Medicine, Baltimore, MD
2015-2018	Adjunct Professor, Biology Department, Notre Dame of Maryland University, Baltimore, MD
2014-2017	Research Associate, Department of Anesthesiology and Critical Care Medicine, Johns Hopkins, School of Medicine, Baltimore, MD
2013-2014	Post-doctoral Fellow, Department of Anesthesiology and Critical Care Medicine, Baltimore, MD
2011-2013	Post-doctoral Fellow, Laboratory of Neurosciences, National Institute on Aging/National Institute of Health, Baltimore, MD
2008-2011	Post-doctoral Fellow, Department of Zoology and Physiology University of Wyoming, Laramie, WY

Summary of Evaluation:

Teaching: Professor Zhang's teaching is rated excellent. She has taught eight different courses, including several of her own conception, ranging from introductory laboratory courses to advanced courses in neurobiology and physiology. She has developed two new Dearborn Discovery Courses, helping the biology and behavioral and biological science majors to meet the capstone and upper-level writing requirements with more flexibility, and developed a practice-based learning course in nanomedicine in collaboration with faculty from other disciplines in natural sciences to promote practice-based learning. She has also re-designed upper-level neurobiology courses with her expertise and developed two new advanced upper-level biology laboratory courses using cutting edge techniques. She received outstanding evaluations by students, with an average 4.7 to 5 rating. Students praise her enthusiasm and knowledge, her ability to create a positive and inclusive learning environment, and her sincere interest in students' success. She has participated in over 20 teaching seminars and tutorials offered by the campus' Hub for Teaching and Learning and has earned certificates for the Reflective Teaching Recognition and Online Course Design Weekly Challenges.

Research: Professor Zhang's research is rated excellent. Professor Zhang is a neurobiologist; her main research interest is focused on the field of pediatric brain injuries that resulted from head trauma and/or genetic mutations. She has discovered novel pathogenic pathways and has also developed new nano-device-guided therapeutics for the treatment of pediatric brain injuries. Her research projects are novel and cutting edge and have significant impact in the field of neurotrauma. She has published fifteen peer-reviewed scientific articles in high impact journals, such as *Brain, Behavior, and Immunity–Health* and *Science Advances*. She has established interdisciplinary collaborations and has been awarded nine intramural grants (over \$100,000). She has mentored twenty-eight UM-Dearborn undergraduate students, nine of them were the co-authors on her peer-reviewed scientific research publications, and twelve of them were co-authors on her peer-reviewed conference abstracts that are published in the *Journal of Neurotrauma*. Thirteen students were recipients of awards, such as Chancellor's Medallion, Distinguished Research Award, and Honors Scholars, and many of them have been accepted into prestigious medical and graduate programs. Her research group was also featured in *Legacy Magazine*, "The new face of research," University of Michigan-Dearborn (2019).

#### Recent and Significant Publications:

- Hamood Y\*, Abdullah M\*, El Ghouli H\*, Saad N\*, Dysko RC, Zhang Z. "Sex specific effects of buprenorphine on behavior, astrocytic opioid receptor expression and neuroinflammation after pediatric traumatic brain injury in mice." *Brain Behav Immun Health*. 13;22:100469. doi: 10.1016/j.bbih.2022.100469. (2022).
- Tallon C, Sharma A, Zhang Z, Thomas AG, Ng J, Zhu X, Donoghue A, Schulte M, Joe TR, Kambhampati SP, Sharma R, Liaw K, Kannan S, Kannan RM, Slusher BS. "Dendrimer-2PMPA Delays Muscle Function Loss and Denervation in a Murine Model of Amyotrophic Lateral Sclerosis." *Neurotherapeutics*. 19(1):274-288. doi:10.1007/s13311-021-01159-7. (2022).
- Zhang Z, Nam HK, Crouch S, Hatch NE. "Tissue nonspecific alkaline phosphatase function in bone and muscle progenitor cells: control of mitochondrial respiration and ATP production." *Int. J. Mol. Sci.* 22(3):1140. (2021).
- Rizk M\*, Vu J\*, Zhang Z. "Impact of pediatric traumatic brain injury on hippocampal neurogenesis." *Neural Regen Res*. 16(5):926-933. Review (2021).
- Arteaga O, Zhang Z, Khoury E, Sheldon RA, Sharma A, Zhang F, Slusher B, Kannan RM, Kannan S, Ferriero DM. "Neuroprotective effects of a dendrimer-based glutamate carboxypeptidase inhibitor on superoxide dismutase transgenic mice after neonatal hypoxic-ischemic brain injury." *Neurobiol Dis*. 148:105201. (2021).
- Zhang Z, Lin YA, Kim SY, Su L, Liu J, Kannan RM, Kannan S. "Systemic dendrimer-drug nanomedicines for long-term treatment of mild-moderate cerebral palsy in a rabbit model." *J Neuroinflammation*. 17(1):319. (2020).
- Zhang Z, Ishrat S\*, O'Bryan M\*, Klein B\*, Saraswati M, Robertson CL, Kannan S. "Pediatric traumatic brain injury causes long-term deficits in adult hippocampal neurogenesis and cognition". *J Neurotrauma*. 37(14):1656-1667. (2020).
- Sharma A, Sharma R, Zhang Z, Liaw K, Kambhampati SP, Porterfield JE, Lin KC, DeRidder LB, Kannan S, Kannan RM. "Dense hydroxyl polyethylene glycol dendrimer targets activated glia in multiple CNS disorders." *Sci Adv*. 22;6(4): ezy8514. (2020).
- (\*undergraduate student)

Service: Professor Zhang's service is rated excellent. She is engaged in a wide variety of service at the department, college, campus, and university levels. At the department level, she is keeping the animal facility certified which is mission-critical to the biology discipline of the Department of Natural Sciences. She has coordinated the required animal facility inspections, prepared, and obtained certifications for all the standard operating procedures (SOPs) for the operation of the facility and for animal husbandry care. Her other departmental service includes (but is not limited to): member-at-large of the Department Executive Committee (DEC), member of the search committee (for human physiology), member and chair of the Poster Committee, and faculty secretary for Natural Sciences. Her College of Arts, Sciences, and Letters (CASL) service includes a member of the Behavioral and Biology Sciences Major (BBS), the CASL Retention and Student Success committee, CASL Faculty Research Slam, BBS Faculty Panel on Research, faculty advisor for the Undergraduate Society of Psychology and Neuroscience, and a faculty judge for the Undergraduate Writing Awards (2021). Her university-wide level of service includes member of the Institutional Animal Care & Use Committee (IACUC), chair in the IACUC Program Review Subcommittee (2021 and 2022), participation in the Assessment and Accreditation of Laboratory Animal Care (AALAC) inspection, and Michigan Association of State Universities program reviewer as requested by the Office of the Provost (2019). Her professional service includes member of the National Institutes of Health Early Career Reviewer in the Drug Discovery for the Nervous System meeting in 2022; board member of the Chinese Neurotrauma Scholar Association; peer reviewer for a multitude of scientific journals from *Nature/Communications Biology* to *Integrative Neuroscience* and many more.

External Reviewers:

Reviewer A: "Undoubtedly. Dr. Zhang has excellent potential to continue to be successful and active in research, education, and services. I expect her promising future contributions to the neuroscience field and the UMich Dearborn community...."

Reviewer B: "However, the strongest impact to me is in Dr. Zhang's involving undergraduate students in her research. She is providing students with life-changing and highly meaningful experiences in the laboratory—the ripple effects of her getting the students involved cannot be underestimated."

Reviewer C: "Collectively, Dr. Zhang has an excellent level of scholarly productivity for a newer faculty member within the field of traumatic brain injury."

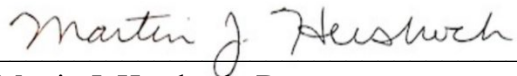
Reviewer D: "Scholarly activities and research are definitely Dr. Zhang's biggest strength, and her dual clinical and basic research training shines through most of her publications."

Reviewer E: "In my opinion, she has proven herself as a strong scientist with a clear direction for her future research."

Reviewer F: "She has taken on significant amount of didactic teaching and student mentoring activities, as well as course development"

Summary of Recommendation:

Professor Zhang is a highly valued member of the Department of Natural Sciences. She is an outstanding scholar and a gifted teacher. She is a leader in the field of neurobiology and has strengthened the biology discipline. Her service to the university is exemplary. With the strong support of the College of Arts, Sciences, and Letters Executive Committee, we are very pleased to recommend Zhi Zhang for promotion to associate professor of biology, with tenure, Department of Natural Sciences, College of Arts, Sciences, and Letters.



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Martin J. Hershock, Dean  
College of Arts, Sciences, and Letters



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Domenico Grasso, Chancellor  
University of Michigan-Dearborn

May 2023