

CURRICULUM VITAE

Zhihui Zhu, PhD

Scientist III
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EDUCATION

07.2017-02.2020: Postdoctoral scholar, Department of Physiology, College of Medicine of University of Kentucky. Lexington, Kentucky, USA.

08.2015-06.2017: Postdoctoral fellow, Department of Neuroscience and Regenerative Medicine. Augusta University. Augusta, Georgia, USA.

12.2015-07.2016: Postdoctoral fellow, Department of Psychiatry. University of Alberta. Edmonton, Alberta, Canada.

09.2010-10.2014: Ph.D. in Neuro-biochemistry Otto-von-Guericke University of Magdeburg, Magdeburg, Germany.

09.2007-07.2010: M.S. in Chinese Medicine, MinZu University of China (Central University for Nationalities), Beijing, China.

09.2002-07.2006: B.S. in Chinese Pharmacy, Inner Mongolia Medical University, Inner Mongolia, China

EMPLOYMENT

01.2022-Now: Scientist III, Department of Physiology, College of Medicine of University of Kentucky. Lexington, Kentucky, USA.

03.2020-12. 2021: Scientist II, Department of Physiology, College of Medicine of University of Kentucky. Lexington, Kentucky, USA.

INSTRUCTION

2025: Rachel Ni, Lafayette High School – Mentored in lab visits and technical skills training

2020: Emily Rush, Undergraduate student (UK) – Lab technique training

PUBLICATIONS

- **PEER REVIEWED PAPERS**

1. **Zhu Z**, McClintock TS, Bieberich E. Transcriptomics analysis reveals potential regulatory role of nSMase2 (Smpd3) in nervous system development and function of middle-aged mouse brains. Genes Brain Behav. 2024 Aug;23(4):e12911. doi: 10.1111/gbb.12911.
2. **Zhu, Z**, Zhang L., Elsherbini A., Crivelli SM., Tripathi P., Harper C., Bieberich E (2023). The S1P receptor 1 antagonist Ponesimod reduces TLR4-induced neuroinflammation and increases

A β clearance in 5XFAD mice. *EBioMedicine*. 2023 Aug;94:104713. * **The research received extensive media coverage and was cited by more than 10 prominent science and news outlets. (Including ScienceAlert, Gizmodo, Health and Pharma, Daily Mail, Japan Yoo, Medical News Today, Qatar News Agency, The Mirror, Neuroscience News, Science Beta, and others).**

3. Elsherbini, A., **Zhu, Z.**, Crivelli, S. M., . . . Bieberich, E. Novel Isolation Method Reveals Sex-Specific Composition and Neurotoxicity of Small Extracellular Vesicles in a Mouse Model of Alzheimer's Disease. *Cells*. 2023 Jun 14;12(12):1623.
4. **Zhu, Z.**, Quadri Z, Crivelli SM., Elsherbini A., Tripathi, P., Zhang, L., . . . Bieberich, E. (2022). Neutral sphingomyelinase 2 mediates oxidative stress effects on astrocyte senescence and synaptic plasticity transcripts. *Mol Neurobiol*. 2022 May;59(5):3233-3253. doi: 10.1007/s12035-022-027470. Epub 2022 Mar 16.
5. Crivelli SM, Giovagnoni C, **Zhu Z**, Tripathi P, Elsherbini A, Quadri Z,... Bieberich, E. (2022). Function of ceramide transfer protein for biogenesis and sphingolipid composition of extracellular vesicles. *J Extracell Vesicles*. 2022 May. doi: 10.1002/jev.12233.
6. **Zhu, Z.**, Chen, J., Wang, G., Elsherbini, A., Zhong, L., Jiang, X., . . . Bieberich, E. (2019). Ceramide regulates interaction of Hsd17b4 with Pex5 and function of peroxisomes. *Biochim Biophys Acta Mol Cell Biol Lipids*, 1864(10), 1514-1524. doi:10.1016/j.bbalip.2019.05.017
7. Kong, J. N*, **Zhu, Z.***, Itokazu, Y., Wang, G., Dinkins, M. B., Zhong, L., . . . Bieberich, E. (2018). Novel function of ceramide for regulation of mitochondrial ATP release in astrocytes. *J Lipid Res*, 59(3), 488-506. doi:10.1194/jlr.M081877 (* Equal authorship)
8. Tripathi, P., **Zhu, Z.**, Qin, H., Elsherbini, A., Crivelli, S. M., Roush, E., . . . Bieberich, E. (2021). Palmitoylation of acetylated tubulin and association with ceramide-rich platforms is critical for ciliogenesis. *J Lipid Res*, 62, 100021. doi:10.1194/jlr.RA120001190
9. Elsherbini, A., Kirov, A. S., Dinkins, M. B., Wang, G., Qin, H., **Zhu, Z.**, . . . Bieberich, E. (2020). Association of A β with ceramide-enriched astrosomes mediates A β neurotoxicity. *Acta Neuropathol Commun*, 8(1), 60. doi:10.1186/s40478-020-00931-8
10. Elsherbini, A., Qin, H., **Zhu, Z.**, Tripathi, P., Crivelli, S. M., & Bieberich, E. (2020). In vivo evidence of exosome-mediated A β neurotoxicity. *Acta Neuropathol Commun*, 8(1), 100. doi:10.1186/s40478-020-00981-y
11. Jiang, X., **Zhu, Z.**, Qin, H., Tripathi, P., Zhong, L., Elsherbini, A., . . . Bieberich, E. (2019). Visualization of Ceramide-Associated Proteins in Ceramide-Rich Platforms Using a Cross-Linkable Ceramide Analog and Proximity Ligation Assays With Anti-ceramide Antibody. *Front Cell Dev Biol*, 7, 166. doi:10.3389/fcell.2019.00166
12. Zhong, L., Jiang, X., **Zhu, Z.**, Qin, H., Dinkins, M. B., Kong, J. N., . . . Wang, G. (2019). Lipid transporter Spns2 promotes microglia pro-inflammatory activation in response to amyloid-beta peptide. *Glia*, 67(3), 498-511. doi:10.1002/glia.23558
13. Zhong, L., Kong, J. N., Dinkins, M. B., Leanhart, S., **Zhu, Z.**, Spassieva, S. D., . . . Bieberich, E. (2018). Increased liver tumor formation in neutral sphingomyelinase-2-deficient mice. *J Lipid Res*, 59(5), 795-804. doi:10.1194/jlr.M080879
14. **Zhu, Z.**, & Reiser, G. (2018). The small heat shock proteins, especially HspB4 and HspB5 are promising protectants in neurodegenerative diseases. *Neurochem Int*, 115, 69-79. doi:10.1016/j.neuint.2018.02.006
15. Li, L., Cao, Y., Wu, H., Ye, X., **Zhu, Z.**, Xing, G., . . . Mei, L. (2016). Enzymatic Activity of the Scaffold Protein Rapsyn for Synapse Formation. *Neuron*, 92(5), 1007-1019. doi:10.1016/j.neuron.2016.10.023
16. **Zhu, Z.**, Li, R., Stricker, R., & Reiser, G. (2015). Extracellular alpha-crystallin protects astrocytes from cell death through activation of MAPK, PI3K/Akt signaling pathway and blockade of ROS release from mitochondria. *Brain Res*, 1620, 17-28. doi:10.1016/j.brainres.2015.05.011

17. **Zhu, Z.**, Stricker, R., Li, R., Zundorf, G., & Reiser, G. (2015). The intracellular carboxyl tail of the PAR-2 receptor controls intracellular signaling and cell death. **Cell Tissue Res**, 359(3), 817-827. doi:10.1007/s00441-014-2056-9
18. **Zhu, Z.**, & Reiser, G. (2014). PAR-1 activation rescues astrocytes through the PI3K/Akt signaling pathway from chemically induced apoptosis that is exacerbated by gene silencing of beta-arrestin 1. **Neurochem Int**, 67, 46-56. doi:10.1016/j.neuint.2013.12.007
19. **Zhu, Z.**, & Reiser, G. (2014). Signaling mechanism of protease activated receptor 1-induced proliferation of astrocytes: stabilization of hypoxia inducible factor-1alpha triggers glucose metabolism and accumulation of cyclin D1. **Neurochem Int**, 79, 20-32. doi:10.1016/j.neuint.2014.09.010
20. Li, R., **Zhu, Z.**, & Reiser, G. (2012). Specific phosphorylation of alphaA-crystallin is required for the alphaA-crystallin- induced protection of astrocytes against staurosporine and C2-ceramide toxicity. **Neurochem Int**, 60(6), 652-658. doi:10.1016/j.neuint.2012.02.031

Complete List of published work:

<https://www.ncbi.nlm.nih.gov/myncbi/zhihui.zhu.1/bibliography/public/>

PAPER UNDER REVIEW & PREPARATION

1. Quadri, Zainuddin ; **Zhu, Zhihui** ; Ren, Xiaojia ; Zhang, Liping; Kunjadia, P.D.; Sullivan, Patrick; Broome, Bibi B; Yamasaki, Tertia; Bieberich, Erhard. Ceramide-rich extracellular vesicles as pathogenic biomarkers in traumatic brain injury. **Acta Neuropathologica Communications**. Under review.

BOOK CHAPTERS

1. Elsherbini, A., Qin, H., **Zhu, Z.**, Tripathi, P., Wang, G., Crivelli, S. M., . . . Bieberich, E. (2021). Extracellular Vesicles Containing Ceramide-Rich Platforms: "Mobile Raft" Isolation and Analysis. *Methods Mol Biol*, 2187, 87-98. doi:10.1007/978-1-0716-0814-2_5
2. Tripathi, P., **Zhu, Z.**, Qin, H., Elsherbini, A., Roush, E. A., Crivelli, S. M., . . . Bieberich, E. (2021). Cross-Link/Proximity Ligation Assay for Visualization of Lipid and Protein Complexes in Lipid Rafts. *Methods Mol Biol*, 2187, 337-348. doi:10.1007/978-1-0716-0814-2_20

AWARDS AND HONORS:

2010, Scholarship from DFG (German Research Foundation)

2010, Scholarship from CSC (China Scholarship Council)

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- American Society for Neurochemistry (ASN, since 2017)
- International society for Neurochemistry (ISN, since 2018)
- Society for Neuroscience (*SfN* since 2018).
- American Heart Association (AHA, since 2025)