

Xiao-Ming ZHU



Position:	Associate Professor
Faculty:	State Key Laboratory of Mechanism and Quality of Chinese Medicine, Macau Institute for Applied Research in Medicine and Health
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Teaching Modules: Fundamental Pharmacology, Pharmacology & Toxicology, Toxicology & Drug Abuse, Herbal Pharmacology, Advanced Pharmaceutics, Current Topics in Research of Chinese Medicines, Current Topics in Integrated Chinese and Western Medicine, Genetic Engineering, Biochemistry & Molecular Biology.

Research Areas: Oncological pharmacology and targeted drug delivery, Biomaterials and nanomedicine, Drug discovery targeting protein degradation, Vascular active drug screening.

Dr. Zhu obtained the Bachelor degree from Zhejiang University in 2003. He got his Ph. D degree from Peking Union Medical College in 2008. His Ph. D dissertation focused on high-throughput drug screening and vascular active agent discovery from natural products. After graduation, he had one year postdoctoral training in School of Chemical and Biomedical Engineering in Nanyang Technological University in Singapore. His research focused on developing a fluorescence resonance energy transfer (FRET)-based biosensor for tumor angiogenesis inhibitors discovery. In 2010, he worked as a Research Associate in Prince of Wales Hospital in The Chinese University of Hong Kong. His research direction was using nanomaterials for biomedical applications including drug delivery, cell imaging, cancer diagnostics and therapy. In January of 2014, he joined Macau University of Science and Technology (MUST). He has published more than 60 papers in SCI journals.

Academic Qualifications

2008.7 Ph. D, Peking Union Medical College, Beijing, China
2003.7 B. Sc. , Zhejiang University, Hangzhou, China

Teaching Experience

2020.9 – Present Associate Professor, State Key Laboratory of Mechanism and Quality of Chinese Medicine, Macau University of Science and Technology
2014.1 – 2020.8 Assistant Professor, State Key Laboratory of Mechanism and Quality of Chinese Medicine, Macau University of Science and Technology
2010.7 – 2013.12 Research Associate, Department of Imaging and Interventional Radiology, Prince of Wales Hospital, The Chinese University of Hong Kong
2009.5 – 2010.7 Research Fellow, School of Chemical and Biomedical Engineering, Nanyang Technological University, Singapore

Representative Publications

1. Yin D, Wu X, Chen JL, An K, Fang YN, Xiong HM, Wang L, Huang C, Zhu GY, Cheng L, Wang JF*, **Zhu XM***. Spatiotemporal activation of unfolded protein response by combined sonodynamic therapy and proteasome inhibition with bortezomib-conjugated TiN nanoparticles. *Bioactive Materials*, 2026, 61, 774-795.
2. Wang MY, Deng XN, Dong H, Feng XY, Zhu FR, Yin D, Hong C, Chen ZY, Wang L, **Zhu XM***. Enhancing the efficacy of sonodynamic therapy through modulation of autophagy. *Ultrasonics Sonochemistry*, 2025, 121, 107527.
3. Yin D, Wu X, Chen X, Chen JL, Xia X, Wang J, Chen X, **Zhu XM***. Enhanced anticancer effect of carfilzomib by codelivery of calcium peroxide nanoparticles targeting endoplasmic reticulum stress. *Materials Today Bio*, 2025, 32, 101649.
4. Gu ZY, Chen GH, Gao N, Zhang XR, Xu QG, Xiong W, Liu L, Liu Q, Yin D, **Zhu XM***, Huang YZ*. In-situ trichosanthin-IL2/pectin dynamic hydrogel activates dendritic cells and reverses T cell exhaustion for post-operative cancer therapy. *Chemical Engineering Journal*, 2025, 505, 159426.
5. Xu YN, Bai X, Chen JL, Wu X, Yin D, Yuan G, Dai R, **Zhu XM***, Wang JF*. Tracing sentinel lymph nodes and inhibiting lymphatic metastasis with TiN nanobipyramids through photothermal therapy. *International Journal of Nanomedicine*, 2024, 19: 13579-13592.
6. Chen JL, Jia XH, Wu X, Yuan MH, Xia XY, Yin D, Chen X, Gu ZY, Liu JZ, Bai LP, Luo KQ, Wang JF, **Zhu XM***. Kidney-targeted antioxidant salvianolic acid B nanoparticles

restoring lysosome homeostasis for acute kidney injury therapy. *Chemical Engineering Journal*, 2024, 490, 151811.

7. Chen X, Wu X, **Zhu XM***. Development of proteasome inhibitors for cancer therapy. *International Journal of Drug Discovery and Pharmacology*, 2024, 3(1): 100004.
8. Chen JL, Jia XH, Xia XY, Wu X, Xu YN, Yuan G, Gu ZY, Luo KQ, Yuan MH, Jiang RB, Wang JF, **Zhu XM***. Co-delivery of vorinostat and chloroquine by autophagy-inhibitory hollow ZrO₂ nanoshells for synergistic combination chemotherapy. *Chemical Engineering Journal*, 2023, 471, 144740.
9. Chen JL, Wu X, Yin D, Jia XH, Chen X, Gu ZY, **Zhu XM***. Autophagy inhibitors for cancer therapy: small molecules and nanomedicines. *Pharmacology & Therapeutics*, 2023, 249, 108485.
10. Yuan G, Xu YN, Bai XP, Wang WM, Wu X, Chen JL, Li J, Jia XH, Gu ZY, Zhang X, Hu W, Wang JF, Liu Y*, **Zhu XM***. Epirubicin-loaded polyacrylic acid/calcium phosphate nanoparticles for chemoembolization treating hepatocellular carcinoma. *ACS Applied Materials & Interfaces*, 2023, 15(9): 11431-11443.
11. Wu X, Wang L, Xu YN, Chen JL, *et al*, **Zhu XM***, Jiang RB*. Chemo-phototherapy with carfilzomib-encapsulated TiN nanoshells suppressing tumor growth and lymphatic metastasis. *Small*, 2022, 18(29): 2200522.
12. Yan GY, Li J, Chen SS, Liu Y, Wu JL, **Zhu XM***, Li N*. New limonoids from the fruits of *Melia toosendan* and their autophagic activities. *Phytochemistry Letters*, 2020, 35: 15-22.
13. Chen JL, Zhang H, Huang XQ, Wan HY, Li J, Fan XX, Luo KQ, Wang JH, **Zhu XM***, Wang JF*. Antiangiogenesis-combined photothermal therapy in the second near-infrared window at laser powers below the skin tolerance threshold. *Nano-Micro Letters*, 2019, 11(1):93.
14. Zhang H, Chen JL, Li NN, Jiang RB, **Zhu XM***, Wang JF*. Au nanobottles with synthetically tunable overall and opening sizes for chemo-photothermal combined therapy. *ACS Applied Materials & Interfaces*, 2019, 11(5): 5353-5363.
15. Wan HY, Chen JL, Zhu XZ, Liu L, Wang JF*, **Zhu XM***. Titania-coated gold nano-bipyramids for blocking autophagy flux and sensitizing cancer cells to proteasome inhibitor-induced death. *Advanced Science*, 2018, 5: 1700585.
16. Fang CH*, Ding Q, Bi T, Xu XX, Chen JL, **Zhu XM***, Geng BY*. Plasmonic band tunable (Au nanocrystal)/SnO₂ core/shell hybrids for photothermal therapy. *Particle & Particle Systems Characterization*, 2018, 1800238.

17. Wan HY, Chen JL, Yu XY, **Zhu XM***. Titania-coated gold nanorods as an effective carrier for gambogic acid. *RSC Advances*, 2017, 7: 49518-49525.
18. **Zhu XM***, Wan HY, Jia H, Liu L, Wang JF*. Porous Pt nanoparticles with high near-infrared photothermal conversion efficiencies for photothermal therapy. *Advanced Healthcare Materials*, 2016, 5:3165-3172.
19. **Zhu XM**, Fang CH, Jia HL, Huang Y, *et al.* Cellular uptake behaviour, photothermal therapy performance, and cytotoxicity of gold nanorods with various coatings. *Nanoscale*, 2014, 6: 11462-11472.
20. Wang YX*, **Zhu XM**, Liang Q, Cheng CH, Wang W*, Leung KC*. In vivo chemoembolization and magnetic resonance imaging of liver tumors by using iron oxide nanoshell/doxorubicin/poly(vinyl alcohol) hybrid composites. *Angewandte Chemie International Edition*, 2014, 53(19): 4812-5.
21. Wang DW, **Zhu XM (Co-first)**, Lee SF, *et al.* Folate-conjugated Fe₃O₄@SiO₂@gold nanorods@mesoporous SiO₂ nanocomposite: a theranostic agent for magnetic resonance imaging and photothermal therapy. *Journal of Materials Chemistry B*, 2013, 1: 2934-42.
22. **Zhu XM**, Yuan J, Leung KC, Lee SF, *et al.* Hollow superparamagnetic iron oxide nanoshells as a hydrophobic anticancer drug carrier: intracellular pH-dependent drug release and enhanced cytotoxicity. *Nanoscale*, 2012, 4(18): 5744-54.
23. **Zhu XM**, Wang YX, Leung KC, Lee SF, *et al.* Enhanced cellular uptake of aminosilane coated superparamagnetic iron oxide nanoparticles in mammalian cell lines. *International Journal of Nanomedicine*, 2012, 7: 953-64.
24. **Zhu XM**, Fu AF, Luo KQ*. A high-throughput fluorescence resonance energy transfer (FRET)-based endothelial cell apoptosis assay and its application for screening vascular disrupting agents. *Biochemical and Biophysical Research Communications*, 2012, 418(4): 641-646.
25. **Zhu XM**, Fang LH, Li YJ, Du GH*. Endothelium-dependent and -independent relaxation induced by pinocembrin in rat aortic rings. *Vascular Pharmacology*, 2007, 46(3): 160-5.