

Curriculum Vitae of Yi Zhun Zhu



Dr. Yi Zhun Zhu is a licensed physician and Chair Professor of Pharmacology, dean of School of Pharmacy, Associate Vice President of Macau University of Science and Technology. Dr. Zhu got his Bachelor of Medicine at Shanghai Jiaotong University in 1989 and M.D./Ph.D. from Faculty of Medicine, University of Heidelberg, Germany in 1995. He joined as a faculty member of the Department of Pharmacology, National University of Singapore (NUS) in 1998 after postdoc training at Kiel University and industrial experience at Hoechst Marion Roussel (now Sanofil). Dr. Zhu has more than 2 decades teaching and research in world class universities (NUS and Fudan) and published more than 330 peer-reviewed papers with 14,968 citations (H index 66, i10 index 227 as dated on May 26, 2022) and edited 6 books for his work (2 from World Scientific Publishing) for his work. He is/was an editor-in-chief for *Cardiovasc. Regenerative Med.* and associate editor for *J Alzheimer Diseases*, *Biosci. Reports* academic editor for *PLoS One* and editorial board member of *CNS Neuroscience & Therapeutics*, *Journal of Pharmacology and Drug Metabolism*, *Frontiers in Neurotrauma*, etc. Dr. Zhu has extensive experience in teaching management, is also editor-in-chief for the national text book of Pharmacology (7th and 8th edition [Chinese version] and 1st edition [English version], People's Medical Publishing House), Dr. Zhu was awarded 'Lee Kuan Yew' Research fellowship from Singapore in 1998, 'National Distinguished Young Scientist from Natural Science Foundation of China (NSFC) in 2008 and Chief Scientist of National Key Basic Research Program (973) and Chief-PI for the National Platform of Drug Discovery in 2009. Dr. Zhu further received National Award for Innovative Research Work of the Returnees in 2009 from the State Council and Magnolia Golden Award from Shanghai Government in 2019. Dr. Zhu was awarded Cheung Kong Chair Professorship in 2012 by the Ministry of Education, China.

In 2014, Dr. Zhu was awarded 'Health China' top 10 figures of the year and Natural Science Research Award (ranked first among the Second Class of 3, top award of the year) from Macau in 2018. His research focuses on drug developments especially for heart and brain. The original research of motherwort (transferred to the enterprise for 150 million RMB) received 2 clinical approvals for CFDA as a novel candidate drug and started clinical phase II trials. Phase I clinical trial as first-in-class will be started in US as well with the final approval by the FDA. Another candidate drug (ZYZ-802) innovated from Dr. Zhu was also recently tech-transferred for 101 million RMB. In September 2012, the US 'Science' magazine reported that Professor Zhu was the one of the most successful Chinese returnees scientists (September 2, 2012, p. 1692). In 2017, the American Chemical Society's news journal 'C&EN' featured Professor Zhu's experience in drug development and praised him as one of the pioneers of life science research in China (April 3, 2017, 27-29). Based on his successes in drug discovery, Dr. Zhu was continuously awarded three times Macau Natural Science Awards (2018, 2022), which is the highest recognition for those scientists in Macau.

Awards: (Aug 18, 2022)

1. The Lee Kuan Yew Postdoctoral Research Fellowship, Singapore (1998)
2. The National Natural Science Fund for Distinguished Young Scholars (2008)
3. The leading figure in Shanghai for Science and Research (2008)
4. The teaching excellence award of Fudan University (2008)
5. National Teaching Excellent for Pharmacology (2009)
6. The Outstanding Graduate Tutor of Fudan University (2009)
7. The National Outstanding Innovation Award for 100 Overseas Chinese by the Overseas Chinese Affairs Office of the State Council (2010)
8. Second Prize of WuXi-Tech Life Science and Chemistry Research Award (2010)
9. Cheung Kong Distinguished Professor of the Ministry of Education, China (2011)
10. The Outstanding Undergraduate Tutor of Fudan University (2013)
11. The WuXi-tech Life Science and Chemistry Research Award Scholar Award (2014)
12. The 7th Healthy China Top Ten Figures of the Year (2014)
13. The Second Prize of China Pharmaceutical Science and Technology Award (2017)
14. The 3rd Canadian International Innovation and Invention Gold Award (2018)
15. The Second Prize of the Macao Natural Science Award (the first prize is vacant, 2018)
16. Special Prize of ZhongZhu Medical Research Award (2018)
17. The 22nd Moscow 'Archimedes' International Invention Gold Award (2019)
18. Shanghai Magnolia Honor Award (the highest award) (2019)

19. Second Prize of the Macao Natural Science Award (2020)
20. 2021 Guangdong-Hong Kong-Macao Greater Bay Area High-value Patent Competition Gold Award (first place in the Biomedical Group) (2021)
21. 2021 1st prize (Hong Kong and Macau Division) of the 10th China innovation & entrepreneurship Competition
22. 2021 Champion of the 8th Fudan Star Entrepreneurship Competition
23. 3rd Prize of the Macao Natural Science Award (2022)

Major scientific achievements:

1. Dr. Zhu discovered first-in-class single compound Leonurine as a possible new target (Stroke 41, 2661; Free Radic Bio Med. 54, 93; Pharmacol & Therapeutics 188: 26) for the treatment of atherosclerosis (Atherosclerosis 224, 43, it was commented by Professor Catapano ‘Leonurine: a new comer in the natural compounds affecting atherosclerosis’ at the same issue of page 37). The patents have been tech-transferred for about 17 million £. It is now in Phase II clinical trial in China and the U.S. supported by the novel mechanism from clinical trials (Clin Transl Med. 11: e535).
2. Dr. Zhu discovered a potential novel target of cystathionine γ -lyase (CSE, coincidentally, it was interestingly rated as one of the top 10 new drug targets by Science in 2021, Science 372 (6547): 1169), CSE was the first reported by Dr Zhu’s group 20 years ago (GenBank #AY879312.1). Subsequently, Dr Zhu proposed a new theory of CSE targets as a treatment for the rheumatoid disease (RA, Redox Biol. 10: 157; Cell Mol Immunol. 16: 694; Clin Transl Med. 11(11): e591; Clin Transl Med. 11(4): e376, Cell Mol Immunol. 18: 2288; Signal Transduction and Targeted Therapy 7: 209). Professor Dinkova-Kostova of Dundee University published in Nature Reviews Drug Discovery (2019;18:301) described the work as a new attempt in RA therapy.
3. Dr Zhu disclosed new mechanisms of HDAC4 in vascular inflammation (Cardiovas. Res. 114: 1016), which was commented in the same issue (page 928) as creating a new era; Dr. Zhu further clarified the novel relationship between vascular injury and JMJD3 (Cardiovas. Res. 114: 1894) and was also commented on the same issue (page 1825) as unlocked the emperor's new clothes. New mechanisms of SMYD3 in vascular aging and drug development were also first time reported by Dr Zhu (Aging Cell 19 (9): e13212; Aging 12(21): 21423 and Arterioscler. Thromb. Vasc. Biol. 41:1901).
4. Fifty-eight Ph.D., twenty-two MSc. students, and tens of postdoc. fellows were trained in Dr Zhu’s group, and five of them have become full professors in reputable academic institutions.

5. Dr Zhu has also had an international impact in his research area who served as the 8th president of the International Society for the Development of Natural Products (ISDNP) and actively involved in the international research, e.g., he is/was editor-in-chief (Cardiovascular Regenerative Medicine), associate editor (Journal of Alzheimer Disease, Life Sciences, Biosciences Reports), academic editor (PLoS One), guest editor (Antioxidants) and editorial board member for some decent scientific journals (CNS Neuroscience & Therapeutics, Frontiers in Neurotrauma and Acta Pharmacologica Sinica, etc.).

Selected 10 publications in the last 5 years: (Total Publications 407 peer-reviewed papers with H index 67, i10 index 233 as dated on Aug 18 2022)

1. Wang R, Cai JH, Chen KY, Zhu ML, Li ZY, Liu H, Liu TT, Ding Q, Mao JC, **Zhu Y.Z.*** STAT3-NAV2 axis as a new therapeutic target for rheumatoid arthritis via activating SSH1L/Cofilin-1 signaling pathway. *Signal Transduction and Targeted Therapy* 7, Article number: 209 (2022) (IF: 38.1)
2. Wu WJ, Wang JH, Xiao CX, Su HB, Zhong W, Mao JC, Liu XH, **Zhu, Y. Z.*** SMYD2-mediated TRAF2 methylation promotes the NF- κ B signaling pathways in inflammatory diseases. *Clin. Transl. Med.* 2021;11:e591. (IF: 11.492)
3. Wang, R., Li, M., Ding, Q., Cai, J., Yu, Y., Liu, X., Mao, J., and **Zhu, Y. Z.*** (2021) Neuron navigator 2 is a novel mediator of rheumatoid arthritis. *Cellular & Molecular Immunology*, 2021, 18: 2288–2289 (IF: 11.53)
4. Wang R, Li M, Wu WJ, Qiu YY, Hu W, Li ZY, Wang Z, Yu Y, Liao JY, Sun WY, Mao JC, **Zhu, Y. Z.*** NAV2 positively modulates inflammatory response of fibroblast-like synoviocytes through activating Wnt/ β -catenin signaling pathway in rheumatoid arthritis. *Clin Transl Med.* 2021, 11(4): e376. (IF: 11.492)
5. Liao, JY, Suguro, R, Zhao, X, Yu, Y, Cui, YM, **Zhu, Y. Z.***.(2021) Leonurine affected homocysteine-methionine metabolism based on metabolomics and gut microbiota studies of clinical trial samples. *Clin Transl Med.* 2021 Oct; 11(10): e535. (IF: 11.492)
6. Yang, D., Wei, G., Long, F., Nie, H. B., Tian, X. L., Qu, L. F., Wang, S. X., Li, P., Qiu, Y., Wang, Y., Hong, W. J., Ni, T., Liu, X. H., and **Zhu, Y. Z.*** Histone methyltransferase Smyd3 is a new regulator for vascular senescence. *Aging Cell* 2020, 19:1-13. (IF: 9.304)
7. Rose, P., Moore, P. K., and **Zhu, Y. Z.*** Garlic and Gaseous Mediators. *Trends Pharmacol Sci* 2018, 39, 624-634. (IF: 14.819)
8. Yang, D., Xiao, C. X., Long, F., Su, Z. H., Jia, W. W., Qin, M., Huang, M. W., Wu, W. J., Suguro, R., Liu, X. H., and **Zhu, Y. Z.*** HDAC4 regulates vascular inflammation via activation of autophagy. *Cardiovascular Research* 2018, 114,

1016-1028. **with an editorial:** The era of cardiovascular epigenetics: histone deacetylases and vascular inflammation on the same issue pages 928–93. (IF: 10.787)

9. Luo, X. L., Yang, D., Wu, W. J., Long, F., Xiao, C. X., Qin, M., Law, B. Y., Suguro, R., Xu, X., Qu, L. F., Liu, X. H., and **Zhu, Y. Z.*** Critical role of histone demethylase Jumonji domain-containing protein 3 in the regulation of neointima formation following vascular injury. *Cardiovascular Research* 2018, 114, 1894-1906. **with an editorial:** JMJD3 and vascular injury: the Emperor's new clothes on the same issue pages 1825–1827. (IF: 10.787)
10. Rose, P., Moore, P. K., and **Zhu, Y. Z.*** H2S biosynthesis and catabolism: new insights from molecular studies. *Cell Mol Life Sci* 2017, 74, 1391-1412. (IF: 9.261)

Grants:

Dr. Zhu received various grants in total amount of 200 millions RMB.

Genes :

1. Rat heart cystathionine gamma lyase (Genbank)

<http://www.ncbi.nlm.nih.gov/entrez/viewer.fcgi?db=nucleotide&val=50059578>

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2. *Macaca fascicularis* cystathionine gamma-lyase mRNA, complete cds (Genbank)

(<http://www.ncbi.nlm.nih.gov/entrez/viewer.fcgi?db=nucleotide&val=58373387>).

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