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Teaching Modules: Analytical chemistry (BP12203/ BPAZ0012); Analytical chemistry laboratory (BP12204); Fundamental chemistry laboratory (BP12103); Pharmacokinetics of Chinese medicines (ME1012); Instrumental analysis (ME1002); Individual studies in Chinese medicine (DCMSZ02); Pharmaceutical analysis

Dr. Wei Zhang obtained his PhD from China pharmaceutical university in 2008. He proceeded to his post-doctoral training at Department of pharmacology from Yale University School of Medicine during 2008-2012. In the Yale University, He has published several well-recognized research articles including identification of Chinese Medicine ingredients and their metabolites in patient plasma. He also joined the study of mechanism of PHY906 and published research article in the journal of Science Translational Medicine as a co-author, which has been reported by the Nature News & Comment and Science Daily News. In 2012, he moved to Macau university of science and technology as an assistant professor and was promoted to associate professor in 2017. In 2024, he was promoted to a full professor.

Dr. Zhang's major research interests and areas include: 1) phytochemical analysis and quality assessment of traditional Chinese medicines by modern instruments together with chemometric methods; 2) profiling of RNA/DNA modifications at single-base resolution, comprehensive epitranscriptome mapping and development of mechanism-based combination therapy for

overcoming nucleotide analogs resistance; 3) nano porous materials for active compounds screening in traditional Chinese medicine and cancer therapy.

Dr. Zhang has published more than 110 research articles in SCI journals including Analytical Chemistry, Environment International, Journal of Pharmaceutical Analysis, Food Chemistry, Advanced Functional Materials, Advanced Energy Materials and Science Translational Medicine , and his H-index is 23 (Web of Science, 2023). He has already been granted 6 international patents and 1 Chinese patent. Since 2014, Dr. Zhang achieved the Bank of China Excellent Research Award (2014 and 2023), Zhongzhu Awards for Life Science Recognizing First Prize in Research (2016 and 2018) and Zhongzhu Awards for Life Science Recognizing second Prize in Research (2017). As principal investigator, Dr. Zhang has obtained more than 10 research grants including FDCT Key R & D research project (PI of the third subproject on “Integrated multi-omics technology and quality marker theory for quality control of four Chinese herbal medicines”), FDCT- NSFC and FDCT-GDST Joint Fund. As a coinvestigator, he also participated in various research projects of national natural science foundation of china, special fund for research on national major research instrument, national institutes of health (NIH) funding and open project of the state key laboratory of natural medicines.

Academic Qualifications:

2000.7 **B.S.** China pharmaceutical university, Nanjing, China

2008.7 **PhD.** China pharmaceutical university, Nanjing, China

Working Experiences

2024/8 -Present	Professor, State Key Laboratory for Quality Research in Chinese Medicines, Macau University of Science and Technology
2017/8 -2024/7	Associate professor, State Key Laboratory for Quality Research in Chinese Medicines, Macau University of Science and Technology
2012/8-2017/7	Assistant Professor, State Key Laboratory for Quality Research in Chinese Medicines, Macau University of Science and Technology
2011/8-2012/8	Manager of core lab of Yale Cancer Center, School of Medicine, Yale University
2012/1-2012/8	Associate Research Scientists, School of Medicine, Yale University

2008/8-2011/12 Post-Doctoral Associate, School of Medicine, Yale University

Selected articles published in the recent past years: (* Corresponding author)

1. R. Wang, G. Huang, , S. Li, H. Huang, G. Zhu, L. Wang, J. Yang, S. Yang*, Z. Jiang*, **W. Zhang***.
Blueberry extract for the treatment of ischaemic stroke through regulating the gut microbiota and kynurenine metabolism. *Phytotherapy Research*, 38(2024) 4792-4814. (IF 2023: 6.1, Q1)
2. Z. Li*, Q. Cao, H. Chen, J. Yang, Z. Wang, X. Qu, Y. Yao, Z. Zhou, **W. Zhang**, Dual
Phytochemical/Activity-Guided Optimal Preparation and Bioactive Material Basis of *Orthosiphon*
Stamineus Benth. (Shen Tea) against Nonalcoholic Fatty Liver Disease, *Journal of Agricultural and*
Food Chemistry, 72(2024) 18561-72. (IF 2023: 5.7, Q1)
3. J. Liu, T. Xu, J. Ding, H. Wen, J. Meng, Q. Liu, X. Liu, **W. Zhang**, G.-Y. Zhu, Z.-H. Jiang*, J. Gao*, L.-
P. Bai*, Discovery of anti-melanogenic components in persimmon (*Diospyros kaki*) leaf using LC-
MS/MS-MN, AlphaFold2-enabled virtual screening and biological validation, *Food Chemistry*,
455(2024) 139814. (IF 2023: 8.5, Q1)
4. L. Fu, C.-C. Wang, W. Tian, Z. Liu, M.-Y. Bao, J. Liu, **W. Zhang**, L.-P. Bai*, Z.-H. Jiang*, G.-Y. Zhu*,
NMR-Guided Isolation of Anti-inflammatory Carabranolides from the Fruits of *Carpesium abrotanoides*
L, *Journal of Natural Products*, 87(2024) 1786-97. (IF 2023: 3.2, Q2)
5. L. Fu, W. Tian, M.-Y. Bao, Z. Liu, W.-J. Ren, J. Liu, **W. Zhang**, Z. Zhang, J. Gao, L.-P. Bai*, Z.-H.
Jiang*, G.-Y. Zhu*, Cevanine-type alkaloids from the bulbs of *Fritillaria unibracteata* var. *wabuensis* and
their antifibrotic activities in vitro, *Phytochemistry*, 220(2024) 114018. (IF 2023: 3.3, Q1)
6. F.-L. Chen, D.-L. Liu, W.-J. Ren, H.-M. Xiong, L.-P. Bai, **W. Zhang**, C. Hon, Z.-H. Jiang*, G.-Y. Zhu*,
Atrachinenins D-S, novel meroterpenoids with geranyl hydroquinone moiety from *Atractylodes*
chinensis by the LC/MS-based molecular decoy and targeted isolation, *Bioorganic Chemistry*, 144(2024)
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7. Z.-R. Lin, M.-Y. Bao, H.-M. Xiong, D. Cao, L.-P. Bai, **W. Zhang**, C.-Y. Chen, Z.-H. Jiang*, G.-Y. Zhu*,
Boswellianols A–I, Structurally Diverse Diterpenoids from the Oleo-Gum Resin of *Boswellia carterii*
and Their TGF- β Inhibition Activity, *Plants*, 13(2024) 1074. (IF 2023: 4.0, Q1)
8. L. Zeng, C. Zhang, M. Yang, J. Sun, J. Lu, H. Zhang, J. Qin, **W. Zhang**, Z. Jiang*, Unveiling the
Diversity and Modifications of Short Peptides in *Buthus martensii* Scorpion Venom through Liquid
Chromatography-High Resolution Mass Spectrometry, *Toxins*, 16(2024) 155. (IF 2023: 3.9, Q1)
9. L. Yang, C. Zi, Y. Li, J. Huang, Z. Gu, C. Wang, J.M. Hu*, Z. Jiang*, **W. Zhang***, An in-depth

- investigation of molecular interaction in zeaxanthin/corn silk glycan complexes and its positive role in hypoglycemic activity, *Food Chem*, 438(2024) 137986. (IF 2022: 8.8, Q1)
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 11. M. Zhou, Z. Yang, T. Yin, Y. Zhao, C.Y. Wang, G.Y. Zhu, L.P. Bai, Z.H. Jiang*, **W. Zhang***, Functionalized Fe-Doped Carbon Dots Exhibiting Dual Glutathione Consumption to Amplify Ferroptosis for Enhanced Cancer Therapy, *ACS Appl Mater Interfaces*, 15(2023) 53228-41. (IF 2022: 9.5, Q1)
 12. H.Y. Lyu, M.Y. Bao, C.C. Io, H.M. Xiong, F.L. Chen, L.P. Bai, **W. Zhang**, Z.H. Jiang*, G.Y. Zhu*, Sesquiterpenoids from the roots of *Aucklandia costus* and their anti-inflammatory activities, *Fitoterapia*, 169(2023) 105604. (IF 2022: 3.4, Q2)
 13. Q.B. Liu, J. Liu, J.G. Lu, M.R. Yang, **W. Zhang**, W.J. Li, Z.M. Qian, Z.H. Jiang*, L.P. Bai*, Quantitative (1)H NMR with global spectral deconvolution approach for quality assessment of natural and cultured *Cordyceps sinensis*, *J Pharm Biomed Anal*, 235(2023) 115603. (IF 2022: 3.4, Q1)
 14. W.J. Ren, C.C. Io, R. Jiang, K.F. Ng, J.Z. Liu, L.P. Bai, **W. Zhang**, Z.H. Jiang, Y.H. Liu*, G.Y. Zhu*, Di- and Triterpenoids from the Rhizomes of *Isodon amethystoides* and Their Anti-inflammatory Activities, *J Nat Prod*, 86(2023) 1230-9. (IF 2022: 5.1, Q1)
 15. C.H. Deng, T.Q. Li, **W. Zhang**, Q. Zhao, Y. Wang*, Targeting Inflammasome Activation in Viral Infection: A Therapeutic Solution?, *Viruses*, 15(2023). (IF 2022: 4.7, Q1)
 16. H.M. Xiong, H.Y. Li, Z.R. Lin, X.M. Liu, L.P. Bai, **W. Zhang**, Z.H. Jiang*, G.Y. Zhu*, Chemical Constituents from the Fruits of *Amomum kravanh* and Their Role in Activating Alcohol Dehydrogenase, *Molecules*, 28(2023). (IF 2022: 4.6, Q1)
 17. H.X. Zhang, J.F. Qin, J.F. Sun, Y. Pan, T.M. Yan, C.Y. Wang, L.P. Bai, G.Y. Zhu, Z.H. Jiang*, **W. Zhang***, Selective Chemical Labeling Strategy for Oligonucleotides Determination: A First Application to Full-Range Profiling of Transfer RNA Modifications, *Anal Chem*, 95(2023) 686-94. (IF 2022: 7.4, Q1)
 18. Q.H. Liu, Y.D. Zhang, Z.W. Ma, Z.M. Qian, Z.H. Jiang, **W. Zhang***, L. Wang*, Fractional extraction and structural characterization of glycogen particles from the whole cultivated caterpillar fungus *Ophiocordyceps sinensis*, *Int J Biol Macromol*, 229(2023) 507-14. (IF 2022: 8.2, Q1)
 19. H.X. Zhang, D. Yu, J.F. Sun, L. Zeng, C.Y. Wang, L.P. Bai, G.Y. Zhu, Z.H. Jiang*, **W. Zhang***, An

- integrated approach to evaluate acetamiprid-induced oxidative damage to tRNA in human cells based on oxidized nucleotide and tRNA profiling, *Environ Int*, 178(2023) 108038. (IF 2022: 11.8, Q1)
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 23. X.J. Wu, D. Cao, F.L. Chen, R.S. Shen, J. Gao, L.P. Bai, **W. Zhang**, Z.H. Jiang*, G.Y. Zhu*, Chlorfortunones A and B, Two Sesquiterpenoid Dimers, Possessing Dispiro[4,2,5,2]pentadecane-6,10,14-tren Moiety from *Chloranthus fortunei*, *ACS Omega*, 7(2022) 35063-8. (IF 2021: 4.132, Q2)
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29. R.S. Shen, D. Cao, F.L. Chen, X.J. Wu, J. Gao, L.P. Bai, **W. Zhang**, Z.H. Jiang*, G.Y. Zhu*, New Monoterpene-Conjugated Phenolic Constituents from Nutmeg and Their Autophagy Modulating Activities, *J Agric Food Chem*, 70(2022) 9684-93. (IF 2021: 5.895, Q1)
30. L.B. Bai, L.F. Yau, T.T. Tong, W.H. Chan, **W. Zhang***, Z.H. Jiang*, Improvement of tissue-specific distribution and biotransformation potential of nicotinamide mononucleotide in combination with ginsenosides or resveratrol, *Pharmacol Res Perspect*, 10(2022) e00986. (IF 2021: 2.963, Q3)
31. X. Chen, W. Li, J. Chen, X. Zhang, **W. Zhang**, X. Duan, B. Lei*, R. Huang*, Transcriptomics Integrated with Metabolomics Reveals 2-Methoxy-1, 4-Naphthoquinone-Based Carbon Dots Induced Molecular Shifts in *Penicillium italicum*, *J Fungi (Basel)*, 8(2022). (IF 2021: 5.724, Q1)
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34. J. Liu, J. Meng, R. Li, H. Jiang, L. Fu, T. Xu, G.Y. Zhu, **W. Zhang**, J. Gao, Z.H. Jiang*, Z.F. Yang*, L.P. Bai*, Integrated network pharmacology analysis, molecular docking, LC-MS analysis and bioassays revealed the potential active ingredients and underlying mechanism of *Scutellariae radix* for COVID-19, *Front Plant Sci*, 13(2022) 988655. (IF 2021: 6.627, Q1)
35. R. Wang, J. Ren, S. Li, X. Bai, W. Guo, S. Yang*, Q. Wu*, **W. Zhang***, Efficacy evaluation of Buyang Huanwu Decoction in the treatment of ischemic stroke in the recovery period: A systematic review of randomized controlled trials, *Front Pharmacol*, 13(2022) 975816. (IF 2021: 5.988, Q1)
36. T.P. Yin, Y. Yu, Q.H. Liu, M.Y. Zhou, G.Y. Zhu, L.P. Bai, **W. Zhang***, Z.H. Jiang*, 2D NMR-based MatchNat Dereplication Strategy Enables Explosive Discovery of Novel Diterpenoid Alkaloids†, *Chinese Journal of Chemistry*, 40(2022) 2169-78. (IF 2021: 5.560, Q1)
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38. F.-L. Chen, D.-L. Liu, J. Fu, L. Fu, J. Gao, L.-P. Bai, **W. Zhang**, Z.-H. Jiang*, G.-Y. Zhu*, Atrachinenynes A–D, four diacetylenic derivatives with unprecedented skeletons from the rhizomes of

- Atractylodes chinensis, New Journal of Chemistry, 46(2022) 15530-7. (IF 2021: 3.925, Q2)
39. M. Zhou, Y. Li, C. Huang, C. Wang, Q. Liu, Q. Deng, H. Zhang, T. Yin, G. Zhu, C. Wang, Y. Zhao*, **W. Zhang***, Oriented Layered Graphene Oxide Pad Favoring High Loading Capacity and Stability for High-Throughput Chemical Screening, Advanced Materials Technologies, 7(2022). (IF 2021: 8.856, Q1)
 40. P. Zhu, W. Luo, J. Qian, C. Meng, W. Shan, Z. Xu, **W. Zhang**, X. Liu*, Y. Ling*, GSH/ROS Dual-Responsive Supramolecular Nanoparticles Based on Pillar[6]arene and Betulinic Acid Prodrug for Chemo-Chemodynamic Combination Therapy, Molecules, 26(2021). (IF 2020: 4.411, Q1)
 41. K. Chen, J. Qu, H. Chen, J. Wang, H. Hua, J. Li, L. Zhou, **W. Zhang***, Z. Li*, Investigating the medicinal potential, material basis and mechanism of Polygoni Orientalis Fructus based on multi-technology integrated network pharmacology, Phytomedicine, 91(2021) 153685. (IF 2020: 5.340, Q1)
 42. T. Yin, J. Lu, Q. Liu, G. Zhu, **W. Zhang***, Z. Jiang*, Validated Quantitative (1)H NMR Method for Simultaneous Quantification of Indole Alkaloids in Uncaria rhynchophylla, ACS Omega, 6(2021) 31810-7. (IF 2020: 3.512, Q2)
 43. C.R. Wang, H.W. Chen, Y. Li, M.Y. Zhou, V.K. Wong, Z.H. Jiang*, **W. Zhang***, Network Pharmacology Exploration Reveals Anti-Apoptosis as a Common Therapeutic Mechanism for Non-Alcoholic Fatty Liver Disease Treated with Blueberry Leaf Polyphenols, Nutrients, 13(2021). (IF 2020: 5.717, Q1)
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 45. C.Y. Wang, J.G. Lu, D.X. Chen, J.R. Wang, K.S. Che, M. Zhong, **W. Zhang***, Z.H. Jiang*, Comprehensive chemical study on different organs of cultivated and wild Sarcandra glabra using ultra-high performance liquid chromatography time-of-flight mass spectrometry (UHPLC-TOF-MS), Chin J Nat Med, 19(2021) 391-400. (IF 2020: 3.000, Q1)
 46. W. Zhang, C. Peng, X. Shen, Y. Yuan, **W. Zhang**, C. Yang*, M. Yao*, A Bioactive Compound from Sanguisorba officinalis L. Inhibits Cell Proliferation and Induces Cell Death in 5-Fluorouracil-Sensitive/Resistant Colorectal Cancer Cells, Molecules, 26(2021). (IF 2020: 4.411, Q1)
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51. X. Wu, **W. Zhang**, N. Wu, S.S. Pang, Y. Ding, G. He*, Structural Evolution upon Delithiation/Lithiation in Prelithiated Foil Anodes: A Case Study of AgLi Alloys with High Li Utilization and Marginal Volume Variation, *Advanced Energy Materials*, 11(2021). **(IF 2020: 29.368, Q1)**
52. J.-G. Lu, C.-Y. Wang, D.-X. Chen, J.-R. Wang, K.-S. Che, M. Zhong, **W. Zhang***, Z.-H. Jiang*, Ultra-high-performance liquid chromatograph with triple-quadrupole mass spectrometer quantitation of twelve phenolic components in different parts of *sarcandra glabra*, *World Journal of Traditional Chinese Medicine*, 7(2021). **(IF 2022: 4.4, Q3)**
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57. H.X. Zhang, Y. Li, Z. Li, C.W.K. Lam, H.W. Chen, W.D. Luo, C.Y. Wang, Z.H. Jiang, Z.Y. Du, **W. Zhang***, Rapid and sensitive determination of four bisphosphonates in rat plasma after MTBSTFA derivatization using liquid chromatography-mass spectrometry, *J Pharm Biomed Anal*, 190(2020)

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Book Chapter Publication

Wing Lam , Scott Bussom , Zaoli Jiang , **Wei Zhang** , Fulan Guan , Shwu-Huey Liu , and Yung-Chi Cheng , “Inflammation, Oxidative Stress and Cancer: Dietary Approaches for Cancer Prevention” CRC press, INC.,(ISBN 9781466503700), Chapter Number 29, ”PHY906,a cancer adjuvant therapy,differentially affects inflammation of different tissues”

Patents

1. Composition for preventing and treating non-alcoholic fatty liver disease , Australian Innovation Patent No: 2014100434 (first inventor).
2. Use of karanjin in anti-cancer treatment, Australian Innovation Patent No: 2014101242 (first inventor).
3. Method for using artificial neural network to predict effects of nucleoside analogues , Australian Innovation Patent No: 2015100975 (first inventor).
4. Method of treating or preventing liver injury induced by acetaminophen , Australian Innovation Patent No: 2015101749 (first inventor).
5. Synergistic combination of a Phyllanthus Amarus extract and 5-Fluorouracil for treatment of subject with cancer, Australian Innovation Patent No: 2016101447 (first inventor).
6. Treatment of non-small cell lung cancer and pharmaceutical composition for treatment, Australian Innovation Patent No: 2018100431 (first inventor).
7. A composition of aloe vera extract and its application 一种含芦荟提取物的组合物及其应用, Chinese Patent No. ZL202010693083.2 (first inventor).
8. A method for producing composite material and its application 一种复合材料及其制备方法和应用 Chinese Patent Application Publication No. 116763759 A (first inventor).
9. A method for producing corn silk glucan and its application 一种玉米须葡聚糖及其制备方法和应用 Chinese Patent Application Publication No. 116535539 A (first inventor).
10. A method for producing nanoporous bismuth and its application 一种纳米多孔铋及其制备方法和应用 Chinese Patent Application Publication No. 114226709 A (first inventor).

11. A method for producing porous carbon and its application in ligand fishing 一种多孔碳载体及其制备方法和在配体垂钓中的应用 Chinese Patent Application Publication No. 114236023 A (first inventor).

Research Projects

1. 2024-2027 The development and application of an innovative platform for the analysis of mitochondrial mRNA modifications based on the magnetic carbon-based nanomaterials and chemical labeling, Macao Science and Technology Development Fund (project number 0054/2024/RIA1), MOP 1,733,600.00, PI
2. 2023-2026 Development of Next-Generation Anti-Aging Products Based on Synergistic Enhancement Techniques with Edible TCMs, FDCT Key R & D research project (project number 0001/2023/AKP, PI: Professor JIANG Zhi-Hong), MOP 11,916,000.00, Co-PI. (PI of the third subproject on “Development of NMN delivery system”)
3. 2022-2024 Research on Quality Evaluation and Product Development of Cultivated Cordyceps Sinensis, FDCT-GDST Joint Fund (project number 0040/2021/AGJ), MOP 865,000, PI.
4. 2020-2023 Study on multi-dimensional quality control of six Chinese herbal medicines by combining artificial intelligence and multi-omics technologies, FDCT Key R & D research project (project number 0023/2019/AKP, PI: Professor JIANG Zhi-Hong), MOP 8,000,000.00, Co-PI. (PI of the third subproject on “Integrated multi-omics technology and quality marker theory for quality control of four Chinese herbal medicines”)
5. 2019-2022 Synergistic antitumor activity of 5-fluorouracil in colorectal cancer based on the targeted-regulation of nucleotide metabolism, Macao Science and Technology Development Fund (project number 0077/2019/A2), MOP 1,434,400.00, PI
6. 2018-2021 Integrative patterns of efficient components recognition of Aloe based on Wnt/ β -Catenin Signaling Pathway, Macao Science and Technology Development Fund (project number 0052/2018/A2), MOP 1,112,100.00, PI
7. 2018-2021 Reduction of CO₂ into Energy Products through Electro- and Photo-Catalysts Using Nanoporous Functional Materials, FDCT-MOST Joint Fund (FDCT project number 002/2017/ AFJ) MOP 1,772,100, PI
8. 2016-2018 Using nucleotide metabolomics to investigate the impacts of tonic Chinese Herbs on DNA damage and Repair, Macao Science and Technology Development Fund

(project number 006/2015/A1), MOP 2,820,000, PI

9. 2013-2015 The Profiling of Bioactive Compounds of *Phyllanthus urinaria* and Mechanism of Toxicity Reducing and Efficacy enhancing in Combination with Nucleoside Analogues, Macao Science and Technology Development Fund (project number 091/2012/A3) MOP 1,963,000, PI
10. 2013-2015 Metabolism and pharmacokinetics of *Phyllanthus urinaria* in the mouse, open project of Guangxi Key Laboratory of Traditional Chinese Medicine Quality Standards (project number Guizhongzhongkai201301) , PI
11. 2012-2014 Metabolomic study of Huang Qin decoction to decrease chemotherapy toxicities, open project of the State Key Laboratory of Natural Medicines (project number SKLNMKF201220), RMB 40,000, PI
12. 2013-2013 In-depth study on the metabolism process of flavonoids in Huangqin decoction, Macao Foundation (#0272), MOP 98,000, Principal Investigator, PI
13. 2014-2016 Huangqin Decoction Attenuates CPT-11-Induced Gastrointestinal Toxicity by Regulating Brain-gut axis of tryptophan metabolism National Natural Science Foundation of China(project number 81307949) RMB 230,000,Co-I
14. 2019-2023 Living single-cell analyzer based on light beam control and manipulation, Special Fund for Research on National Major Research Instrument (project number 61827819), RMB 7,769,600,Co-I

Membership and community services:

1. Member of the Macau Laboratory Technologist Association (MLTA, Macao)
2. Member of the Association for Promotion of Science & Technology of Macau
3. Executive Council Member of the Board of Specialty Committee of Immunology of Traditional Chinese Medicine of the World Federation of Chinese Medicine Societies

Academic Awards:

1. Bank of China (BOC, Macau Branch) Excellent Research Award 2014 中銀(澳門)學術研究優秀獎 2014
2. Zhongzhu Awards for Life Science Recognizing First Prize in Research 中珠醫療生命科學科研一等獎 2016

3. Zhongzhu Awards for Life Science Recognizing second Prize in Research 中珠醫療生命科學科研二等獎 2017
4. Zhongzhu Awards for Life Science Recognizing First Prize in Research 中珠醫療生命科學科研一等獎 2018
5. Bank of China (BOC, Macau Branch) Excellent Research Award 2023 中銀(澳門)學術研究優秀獎 2023