MINGMING ZHAO

Postdoctoral Researcher; University of Mississippi

Oxford, MS, The United States | +662-7150714 | Yb87509@.um.edu.mo

EDUCATION

University of Macau — **Macao, China**
PHD; Biomedical sciences — Aug 2018-Jan 2023

Chengdu University of Traditional Chinese Medicine — **Chengdu, China**
MSc; Pharmacognosy — Aug 2015-Jun 2018

Chengdu University of Traditional Chinese Medicine — **Chengdu, China**
BSc; Tibetan Medicine — Aug 2011-Jun 2015

RESEARCH EXPERIENCE

University of Mississippi — **Oxford, United States**
Postdoctoral Research Associate — Aug 2024-present

Develop mass spectrometry-based radical protein footprinting (RPF) approach to study the structural pharmacology of protein pharmaceuticals in whole blood.

- Characterize protein conformation and interactions within the native biomedical matrix of whole blood from type 2 diabetes models using mass spectrometry integrated with RPF.

University of Macau — **Macao, China**
PhD Researcher — Aug 2018 – Jan 2023

Develop and apply Mass spectrometry (GC-MS, LC-MS)-based Targeted/Untargeted metabolomics for marker compounds discovery for phytochemical products.

- Conducted a multidisciplinary project incorporating targeted metabolomics with GC-MS, untargeted metabolomics with UPLC-Q-TOF/MS and in vitro anti-inflammation effect evaluation for quality consistency assessment of traditional Chinese herbal medicine *Bupleuri Radix*.
- Revealed metabolomic profile of *camellias* with GC-MS, UPLC-Q-TOF/MS based metabolomics, leading to a development of quality control standards for three *yellow camellias* using okicamelliaside as bio-marker.

Natural products discovery using in vitro/vivo models integrating with downstream medicinal chemistry technics.

- Comparatively Investigated the in vitro anti-inflammatory and in-vivo antipyretic effects of Chinese medicine *Bupleuri. chinense* DC. and *B. scorzonerifolium* Willd., leading to the fractionation and purification of 18 for the former and 21 compounds for the latter as the bioactive equivalent combinatorial components with HPLC-HRMS and preparative HPLC approaches.

Develop and apply analytical methods for quality control of innovative pharmaceutical formulations.

- Participated in the development of European quantitative standards of the Chinese herbal *medicine Ophiopogon japonicus* , which has been adopted and promulgated by the European Pharmacopoeia (EP10.1).

Chengdu University of Traditional Chinese Medicine — **Chengdu, China**
Master's Researcher — Aug 2015-Jun 2018

- Developed quality control methods for Tibetan medicine *Shilajit* with NMIR ,ICP-MS and GC-MS approaches.

MINGMING ZHAO

AWARDS & HONORS

- **4th *SINO-CPLP* Symposium on natural medicine and Biodiversity Resources** — **Macao, China**
  1st runner for Student and Young Scientist Oral Presentation Award — 2022

International Invention Salon — **Geneva, Switzerland**
Gold medal — 2019

HKUST One-Million-dollar Entrepreneurship grand Final Competition — **Hongkong, China**
Elevator Speech Excellence Award — 2019

Hong Kong and Macau Youth Innovation and Entrepreneurship Competition — **Hongkong, China**
Second prize — 2019

Innovation & Entrepreneurship Contest for PHD candidate of CMS — **Macao, China**
First prize — 2019

14th "Challenge Cup" Sichuan Academic Science and Technology Competition — **Chengdu, China**
Gold medal — 2017

INTERNATIONAL SYMPOSIUM & FORUM

Presentation

- **4th *SINO-CPLP* Symposium on natural medicine and Biodiversity Resources** — **2022, Macao, China**
- **6th International Symposium on Phytochemicals in Medicine and Food** — **2022, Hangzhou, China**

Poster

- **4th International Symposium on Phytochemicals in Medicine and Food** — **2020, Xian, China**
- **Traditional Medicine International Development Forum (Euro-Africa)** — **2019,Lisbon, Portugal**

TEACHING EXPERIENCE

Chengdu University of Traditional Chinese Medicine — **Chengdu, China**
Graduate Teaching Assistant, Faculty of ethnic medicine — 2016-2017
Led laboratory sessions on Pharmacognosy for 2 semesters (lectured, prepared syllabus, graded exams.)

SERVICE

Journal of Frontiers in Pharmacology
Guest Associate Editor — 2024-present

Science/Technology Week and Exhibition of Innovation and Technology Results — **Macao, China**
Served as an interpreter for a week — 2019

Chengdu University of Traditional Chinese Medicine — **Chengdu, China**
President of the Psychological Association — 2017

PROFESSIONAL SKILLS

- **Analytical chemistry:** LC-MS/MS, QTOF-MS, orbitrap MS, GC-MS, ICP-MS, UPLC,NMIR, Preparative HPLC
- **Metabolomics：** Targeted/untargeted metabolomics, metabolic pathways, metabolomics data interpretation.
- **Biochemical skills：** Cell Culture, Cell Proliferation, ELISA, Western Blot, Animal handling, Organ collection.
- **Medicinal chemistry:** Extraction, fractionation, purification, structure elucidation, bioactive characterization.
- **Other skills:** Fluent in Chinese, English; International car driving license holder.

FUNDINGS

- Quality consistency assessment of traditional Chines medicine *Bupleuri. chinense* DC. and *B. scorzonerifolium* Willd. **MYRG, 2022**, (*0.45 million MOP)* ,Participation
- Investigation on the protection effects of *Siegesbeckia*e Herba on postoperative cognitive dysfunction, **Medical and Health Research Fund of Hong Kong Department of Health, 2019, No. HMRF16171711** (*1.18 million HKD*), Participation

MINGMING ZHAO

RESEARCH OUTPUTS

SELECTED PUBLICATIONS (JOURNAL)

- **Zhao, M.M**; Linghu, K. G; Xiao, L.X; Zhao, G. D., Chen, Q.L; Xiong S.H; Shen, L.Y; Yu, J.Y; Hou, X.T; Hao, E.W; Du, Z.C; Deng, J.G; Bai, G; Chen, X.J; Li, L; & Li, p; & Yu, H. (2022). Anti-inflammatory/anti-oxidant properties and the UPLC-QTOF/MS-based metabolomics discrimination of three yellow camellia species, *Food Research International*,: 160 ,111628, 0963-9969. https://doi.org/10.1016/j.foodres.2022.111628
- **Zhao, M.M**; Xiao, L.X; Linghu, K. G; Zhao, G. D., Chen, Q.L; Shen, L.Y; Dar, P; Chen, M.W; Hu, Y; Zhang, J.M; & Yu, H. (2022). Comprehensive comparison on the anti-inflammation and GC-MS-based metabolomics discrimination between Bupleuri chinense DC. and B. scorzonerifolium Willd. *Frontiers in pharmacology*. https://doi.org/10.3389/fphar.2022.1005011
- Ding, R#., **Zhao, M.M# (***Co-first, author*)., Fan, J., Hu, X., Wang, M., Zhong, S., & Gu, R. (2020). Mechanisms of generation and exudation of Tibetan medicine Shilajit (Zhaxun). *Chinese medicine*, 15, 65. https://doi.org/10.1186/s13020-020-00343-9
- Luo, H#., **Zhao, M.M#** (*Co-first, author*)., Tan, D., Liu, C., Yang, L., Qiu, L., Gao, Y., & Yu, H. (2020). Anti-COVID-19 drug screening: Frontier concepts and core technologies. *Chinese medicine*, 15, 115. https://doi.org/10.1186/s13020-020-00393-z
- **Zhao, M. M.**, Wang, K. R., Gu, R., & Zhong, S. H. (2019). A comparative study on shared-use medicines in Tibetan and Chinese medicine. *Journal of ethnobiology and ethnomedicine*, 15(1), 43. https://doi.org/10.1186/s13002-019-0320-5
- Linghu, K. G, Zhang, T; Zhang, G.T; Lv, P; Zhang, W.J; Zhao, G.D; Xiong, S.H; Ma, Q.S; **M.M, Zhao**; Chen, M.W; Hu, Y.J; Zhang, C.C; Yu,H.(2023)Small molecule deoxynyboquinone triggers alkylation and ubiquitination of Keap1 at Cys489 on Kelch domain for Nrf2 activation and inflammatory therapy, *Journal of Pharmaceutical Analysis*, https://doi.org/10.1016/j.jpha.2023.07.009.
- Xiao, L., **Zhao, M.**, Linghu, K.-G., Wu, G., Zhang, T., Chen, C., . . . Yu, H. (2024). Ganweikang extract protects hepatocytes from oxidative injury by activating Nrf2/HO-1 and MAPKs pathways. Fitoterapia, 178, 106146. doi:https://doi.org/10.1016/j.fitote.2024.106146
- J.Q, Xu, S.B, Su; C. Y, Chen; J. Gao; Z. M; **M.M, Zhao**, H, Yu; Y.J. Hu, "Mechanisms of Ganweikang Tablets against Chronic Hepatitis B: A Comprehensive Study of Network Analysis, Molecular Docking, and Chemical Profiling", (2023)*BioMed Research International*, Article ID 8782892, 17 pages. https://doi.org/10.1155/2023/8782892
- Linghu, K. G., Ma, Q., Xiong, S. H., **Zhao, M. M**; Chen, Q., Xu, W., Chen, M., Zhang, J. Y., Hu, Y., Xu, W., & Yu, H. (2022). The "whole ingredients extract" of *Astragali Radix* improves the symptoms of dextran sulfate sodium-induced ulcerative colitis in mice through systemic immunomodulation. *Chinese medicine*, 17(1), 109. https://doi.org/10.1186/s13020-022-00661-0
- Chu, J., Abulimiti, A., Wong, B., Zhao, G. D., Xiong, S. H., **Zhao, M. M.**, Wang, Y., Chen, Y., Wang, J., Zhang, Y., Chang, R., Yu, H., & Wong, G. (2022). Sigesbeckia orientalis L. Derived Active Fraction Ameliorates Perioperative Neurocognitive Disorders Through Alleviating Hippocampal Neuroinflammation. *Frontiers in pharmacology*, 13, 846631. https://doi.org/10.3389/fphar.2022.846631
- Linghu, K. G., Xiong, S. H., Zhao, G. D., Zhang, T., Xiong, W., **Zhao, M.M**, Shen, X. C., Xu, W., Bian, Z., Wang, Y., & Yu, H. (2020). Sigesbeckia orientalis L. Extract Alleviated the Collagen Type II-Induced Arthritis Through Inhibiting Multi-Target-Mediated Synovial Hyperplasia and Inflammation. *Frontiers in pharmacology*, 11, 547913. https://doi.org/10.3389/fphar.2020.547913
- Luo, H., Vong, C. T., Chen, H., Gao, Y., Lyu, P., Qiu, L., **Zhao, M.M.**, Liu, Q., Cheng, Z., Zou, J., Yao, P., Gao, C., Wei, J., Ung, C., Wang, S., Zhong, Z., & Wang, Y. (2019). Naturally occurring anti-cancer compounds: shining from Chinese herbal medicine. Chinese medicine, 14, 48. https://doi.org/10.1186/s13020-019-0270-9
- Liu, G., Tang, G., Liang, W., Wang, Z., Xu, W., Fan, G., Wang, Y., & **Zhao, M. M.** (2021). PK-PD Correlation of Erigeron Breviscapus Injection in the Treatment of Cerebral Ischemia-Reperfusion Injury Model Rats. Journal of molecular neuroscience : MN, 71(2), 302–324. https://doi.org/10.1007/s12031-020-01651-3

BOOK CHAPTER

- **Zhao, M.M.**, Xiong, S.H., Zhao, G.D., Yu, H. (2021). Organosulfur Compounds in Food. In: Xiao, J., Sarker, S.D., Asakawa, Y. (eds) Handbook of Dietary Phytochemicals. Springer, Singapore. https://doi.org/10.1007/978-981-15-4148-3_41

INTERNATIONAL CONFERENCE REPORT

- **Zhao, M.M**; Xiao, L.X; Linghu, K. G; et,al. (2022). *Bioactive Equivalent Combinatorial Components for quality consistency assessment for multi-originated Chinese herbal medicine Bupleuri Radix*. Presented at the meeting of 4th SINO-CPLP Symposium on natural medicine and Biodiversity Resources. Macao, China. [Conference Oral Presentation]
- **Zhao, M.M**; Xiao, L.X; Zhao, G. D et,al.(2022). *Comprehensive comparison on the anti-inflammation and GC-MS-based metabolomics discrimination between Bupleuri. chinense DC. and B. scorzonerifolium Willd* . Presented at the meeting of 6th International Symposium on Phytochemicals in Medicine and Food (6-ISPMF), Hangzhou, China. [Conference Oral Presentation]
- **Zhao, M.M**; Linghu, K. G; Xiao, L.X; et,al. (2020*). Structural characterization and discrimination of three yellow camellia species with UPLC-QTOF-MS/MS based metabolomics and their anti-inflammatory /anti-oxidant activity on RAW264.7 cells.* Presented at meeting of 4th International Symposium on Phytochemicals in Medicine and Food (4-ISPMF), Xian, China. [Conference Poster]
- **Zhao, M.M**, Luo Hua, Chen Z.J., et,al. (2019) *An innovative solid-liquid capsules of sea buckthorn*. Poster session presented at the meeting of Traditional Medicine International Development Forum (Euro-Africa), Lisbon, Portugal. [Conference Poster]

UNDER REVIEW (JOURNAL)

- **Zhao, M.M**; Xiao, L.X; Linghu, K. G; Zhao, G. D., Chen, Q.L; Shen, L.Y; Dar, P; Chen, M.W; Hu, Y; Zhang, J.M; & Wang, Y; & Yu, H. (2025). Anti-inflammatory and anti-pyretic effects guided bioactive equivalent combinational compounds discovered in Screening *of B. chinense* DC. and *B. scorzonerifolium* Willd. (submitted)