

Personal Details

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Education

Changchun Institute of Applied Chemistry, Changchun, China 2018 - 2023
Ph.D. Analytical Chemistry
Advisor: Prof. Erkang Wang (**Academician of Chinese Academy of Sciences**)

Jiangnan University, Wuxi, China 2014 – 2018
Applied Chemistry

Professional Appointments

Hong Kong Baptist University, Hong Kong, China 2024 –
Post-doctoral fellowship at Prof. Haitao Lyu Group
(**Member of European Academy of Sciences and Arts**)

Awards and Honors

First class academic scholarships, University of Science and Technology of China. 2019,2021,2022,2023

Research Interest and Expertise

1. Multimodal functional metabolomics and translational medicine research.
2. Research and development of new drugs based on the active components of Traditional Chinese Medicines.

Selected Publications

- [1] **Jiaxin Zhang**, Wenxin Zhang, Li Yang, Wenjing Zhao, Zuoqia Liu*, Erkang Wang*, Jin Wang*. Phytochemical gallic acid alleviates nonalcoholic fatty liver disease via AMPK-ACC-PPAR α axis through dual regulation of lipid metabolism and mitochondrial function. **Phytomedicine**, 2023,109,154589.
- [2] **Jiaxin Zhang**, Zuoqia Liu*, Wenjing Zhao, Xunzhe Yin, Xiliang Zheng, Chuanbo Liu, Jin Wang* and Erkang Wang*. Discovery of Small Molecule NSC290956 as a Therapeutic Agent for KRas Mutant Non-Small-Cell Lung Cancer. **Front. Pharmacol.**, 2022,12,797821.
- [3] **Jiaxin Zhang**, Xunzhe Yin, Zuoqia Liu*, Erkang Wang*, Jin Wang*. NSC48160 targets AMPK α to ameliorate nonalcoholic steatohepatitis by inhibiting lipogenesis and mitochondrial

oxidative stress. **iScience**, 2023, 27(1), 108614.

- [4] Jingjing Liu‡, Chaohui Bao‡, **Jiaxin Zhang‡**, Zeguang Han*, Hai Fang*, Haitao Lu*. Artificial intelligence with mass spectrometry-based multimodal molecular profiling methods for advancing therapeutic discovery of infectious diseases. **Pharmacol Ther.**, 2024; 263, 108712.
- [5] Jinxing Chen‡, Xiliang Zheng‡, **Jiaxin Zhang**, Qian Ma, Zhiwei Zhao, Liang Huang, Weiwei Wu, Ying Wang, Jin Wang*, Shaojun Dong*. Bubble-templated synthesis of nanocatalyst Co/C as NADH oxidase Mimic. **Natl. Sci. Rev.**, 2022, 9, nwab186.
- [6] Xunzhe Yin, **Jiaxin Zhang**, Wenjing Zhao, Zuoqia Liu*, Jin Wang*. Combined Levotetrahropalmatine and diphenyleneiodonium chloride enhances antitumor activity in hepatocellular carcinoma. **Pharmacol. Res.**, 2022, 179, 106219.
- [7] Zhixuan Yu, **Jiaxin Zhang**, Jinxing Chen, Liyi Zhao, Dengbin Yu, Ling Liu*, Shaojun Dong*. A New Fluorescent Probe Tool: ERNathG. **Anal Chem.**, 2023, 95(9), 4261-4265.
- [8] 刘作家, **张佳馨**, 汪劲, 小分子化合物NSC48160在制备治疗非酒精性脂肪性肝病的药物中的应用, 专利号: 202211660834.6

Research Introduction

1. Based on the pharmacological function of Gallic acid (GA) in the treatment of liver cancer, we think whether GA can block it and inhibit the deterioration of liver cancer at the early stage of the disease spectrum (NAFLD stage). Therefore, we verify the above conjecture in vitro and in vivo. At the same time, combined with computer simulation molecular docking, we found that GA can interact with AMPK under the matching of space and energy. Combined with GEO database, human tissue, case samples, transcriptome analysis and other experiments to explore the molecular mechanism of GA treatment of NAFLD and the regulation of lipid metabolism. This work provides a new perspective for the mechanism of drug treatment for metabolic diseases. The paper was published in the TOP journal **Phytomedicine**.
2. The small molecular compound NSC48160, which was virtually screened by computer SPA in our laboratory, showed positive and good regulatory effects in dealing with mitochondrial damage, oxidative stress and metabolic disorders in non-alcoholic fatty liver disease. Combined with transcriptome and metabonomic analysis, we screened out the key targets for significant differential genes related to lipid metabolism, inflammatory signal pathway and TCA cycle. Thus, through various cellular biological tests, it is found that NSC48160 targets AMPK to regulate ACC-PPAR α (fatty acid oxidation) and SREBP-1C-FASN (lipid synthesis) pathways. This work studies drug therapy in different dimensions to provide new ideas for

the treatment of metabolic diseases. The work was granted a patent, and the research paper was published in the journal **iScience**.

3. This paper is based on the research results of Wang Jin's energy geomorphology theory, combined with molecular dynamics simulation to find that the transition state structure of carcinogenic KRas protein plays an important role in tumor targeted therapy. Through the development and exploration of NSC290956 in our laboratory, we found that it can regulate many aspects of cell fate, such as cell cycle and cell proliferation, and the interaction between metabolic remodeling and oncogenes also plays a key role in tumors. NSC290956 promotes cancer cell death by inhibiting mitochondrial respiration, but has little effect on glycolysis. This work shortens the distance between virtual drug screening and biomedical and medical diagnosis and treatment and adds more research ideas to the molecular mechanism of cancer treatment. The study was published in the journal **Frontiers in pharmacology**.

Academic activities (Participants)

2024

27th HKSMS Annual General Meeting and HKSMS Symposium 2025

2023

The 3rd Annual Meeting of the Metabolomics Section of the Chinese Biophysical Society and the International Symposium on Metabolomics. Xiamen, China

2022

Chinese Academic Conference on Tumor Biomarker & China Congress of Integrative Oncology & The 16th Tumor Markers Young Scientists Forum. Shanghai China

2020

Chinese Academic Conference on Tumor Biomarker, The 14th Tumor Markers Young Scientists Forum. Guangzhou, China

Referees

Prof. Haitao Lyu, Member of European Academy of Sciences and Arts, Hong Kong Baptist University, haitaolyu@hkbu.edu.hk