
Zhiwen Zhong

(86) 13035064134 | zwzhong@mail.ustc.edu.cn | <https://zhiwenzhong.github.io/>

ACADEMIC OBJECTIVES

Structural Biology, Computational Biology and Synthetic Biology

EDUCATIONAL BACKGROUNDS

University of Science and Technology of China

09/2017-Present

Master's Degree in Biochemistry and Molecular Biology

Core courses: Research Techniques in Neuroscience (87/100), Advanced Neurobiology Experiments (93/100), Molecular Biology (89/100)

Dissertation: *Biochemical Properties and Binding Protein Identification of TRIM46 and Structure of MAGI2-PDZ4/ARMS-PBM Complex*

Anhui University, China

09/2013-06/2017

Bachelor's Degree in Biotechnology

Core courses: Biostatistics (95/100), Chemistry of Natural Drugs (94/100), Basic Biological Experiment (90/100), Immunology (90/100), Developmental Biology (94/100)

Dissertation: *Research on Selenium-enriched Spirulina Platensis on Chronically Alcohol-Induced Liver Injury in Mice*

ABILITIES & SKILLS

Software Skills: proficient in HKL2000, CCP4, COOT, Phenix, PyMOL, SPSS, GraphPad Prism 5, Image J, CorelDRAW X8, Zen and ASTRA6

Techniques: Western blot, Protein purification, Culture hippocampus cells, Yeast two-hybrid

PUBLICATIONS

Jin Ye, **Zhiwen Zhong (Co-first author)**, Yanshen Zhang and Chao Wang. Crystal structure of MAGI2-PDZ4/ARMS-PBM complex reveals a canonical PDZ/PBM interaction. *Journal of Structural Biology* (Under reviewing)

Xiang Fu, **Zhiwen Zhong (Co-first author)**, Feng Hu, Yi Zhang, Chunxia Li, Peng Yan, Lixue Feng, Jinglian Shen and Bei Huang. *The Protective Effects of Selenium-enriched Spirulina Platensis on Chronic Alcohol-induced Liver Injury in Mice*. *Food & function* 2018 DOI: 10.1039/c8fo00477c

RESEARCH EXPERIENCES

Researcher

Supervisor: Chao Wang

Crystal Structure of MAGI2-PDZ4/ARMS-PBM Complex

08/2019-10/2020

- Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 2 (MAGI2) is a scaffold protein that plays a critical role in synaptic junction by assembling neurotransmitter receptors and cell adhesion proteins
- We characterized the binding between MAGI2 and ARMS (ankyrin repeat-rich membrane spanning) through multiple biochemical assays and solved the crystal structure of MAGI2/ARMS complex.
- Our structure shows the binding interface lies between the canonical $\alpha B/\beta B$ groove from MAGI2-PDZ4 and the C-terminal PBM from ARMS
- Structure analysis combining with mutagenesis studies revealed the molecular basis of MAGI2-PDZ4/ARMS-PBM complex formation, which remained highly similar to canonical PDZ/PBM interaction

Crystal Structure of HCFC2 FN3 Domain

10/2018-07/2019

- Designed truncation according to biochemical properties and constructed into a pET32a vector to express the truncation protein in *Escherichia Coli*
- Further purified the structure by AKTA pure system after preliminary purification in Ni-column and

obtained protein sample by high-speed centrifugation

- Preliminarily processed the diffraction data by HKL3000 and carried out molecular replacement through CCP4
- Got the high resolution 1.8 Å HCFC2 FN3 domain structure with Phenix refining after COOT manual modification

TRIM46 and HCFC2 Co-localized in the AIS with Ankyrin-G in Hippocampus 10/2018-04/2019

- Carefully minimized contaminating cell types (i.e. astrocytes) from newborn C57 mice and cultured in Glibo CNB medium for four days
- Co-transfected Flag-TRIM46 and GFP-HCFC2 plasmids to hippocampus cells using calcium phosphate transfection and cultured for another three days
- Observed the TRIM46 and HCFC2 in ZEISS LSM 710 confocal laser scanning microscope and found co-localization in AIS where ankyrin-G exists as a marker
- Found Co-localization also existing in HeLa cells and HCFC2 form fibres in cytoplasm overlapped with TRIM46 while only expressed in nuclear when transfected alone

Use Yeast Two-hybrid to Screen Protein that Can Bind with TRIM46 09/2017-9/2018

- Prepared competent cells of Y2H and transferred pGBKT7-TRIM46 to it using Yeastmaker Yeast Transformation System growing for a week
- Hybridized Y2H strain and Y187 strain from Takara's mouse brain library
- Verified their interaction by co-transferring pGBKT7-TRIM46 and pGADT7-HCFC2 to Y187 strain and found it can activate reporter genes
- Detected TRIM46 overlapping with HCFC2 via immunofluorescence co-localization in HeLa cells

Researcher

Supervisor: Bei Huang

The Protective Effects of Selenium-Enriched Spirulina Platensis on Chronic Alcohol-Induced Liver Injury in Mice 04/2014-06/2017

- Force-fed the control group with distilled water and the alcohol group with alcohol for six weeks to establish a model of chronic alcoholic liver injury
- Detected the content of alanine aminotransferase (ALT), aspartate aminotransferase (AST), total cholesterol (TC), and Triglyceride (TG) of two groups
- Divided 60 mice from the alcohol group into six groups, each containing ten mice as follows: the model group, the control group, the low-, middle-, high-dose Se-SP, and SP groups
- Found that liver cells in the group with different concentrations of Se-enriched spirulina were healthier than those in the alcohol group, and the repair effect of Se-enriched spirulina in medium concentration was the best
- Conducted immunohistochemical experiment to explore the mechanism of repairing the chronic liver injury in mice and found that the repair of chronic alcoholic liver injury by Se-enriched spirulina was mainly conducted by apoptosis and supplemented by autophagy.

SELECTED HONORS & CERTIFICATES

Academic Scholarship, University of Science and Technology of China 2017-2019

(For three consecutive years)

Outstanding Scholarship of Anhui University 12/2015

Coursera Certificates: Neural Networks and Deep Learning, Structuring Machine Learning Projects, Python Data Structures, Applied Machine Learning in Python

EXTRACURRICULAR ACTIVITIES

Leader, Hefei Botanical Garden Nameplate Activity, Anhui University 11/2015

Project Leader, Anhui Province Entrepreneurship Simulation Training, Anhui University 03/2015

Minister, the Publicity Department of Baidu Encyclopedia Club, Anhui University 07/2014-07/2015