

Weizhe Ding

Academic Homepage: <https://weizheding.netlify.app/> **Tel.** 86-18841128665 **Email:** weizhedingphd@gmail.com

Educational Background

B.S., Biotechnology, School of Life Science, Liaoning University, China

Sept. 2018 – Jul. 2022

GPA: 3.32/4

Honors: Won the Individual Scholarship of Liaoning University in September 2020

Core Subjects: Advanced Mathematics, Biostatistics, Bioinformatics, Biochemistry

Scientific Research Experiences

State Key Laboratory of Molecular Reaction Dynamics

Dalian Institute of Chemical Physics, Chinese Academy of Sciences

Dec. 2020 - Mar. 2021

With Professor Guohui Li

Dalian

- Investigated the application of machine learning and deep learning in kinases in the past ten years, and classified my findings according to kinase inhibitors, phosphorylation sites and protein ligand affinity. Studied molecular dynamics simulation, and applied it in bioinformatics. An English review paper is expected to be published.
- Summarized the protein three-dimensional structure database information, and applied Python to download all pdb files from the Linux server, and finally applied them to the generation and classification of related databases.

Key Laboratory of Nutrition, Metabolism and Food Safety

Shanghai Institute of Nutrition and Health, CAS

Aug. 2020 - Aug. 2021

With Professor Xu Lin

Shanghai

- With the funding of the Innovation Practice Training Program for College Students held by Chinese Academy of Sciences, I completed a research on the plant-based dietary patterns and type 2 diabetes, and received a fund of CNY 40,000.
- Applied Pubmed, web of science and Cochrane to retrieve relevant literature in the past ten years. After manual screening and summary, I included the remaining documents into my references and conducted a statistical analysis with Stata and R. In the end, it is found that plant-based diet patterns could significantly improve blood sugar control. A SCI paper is expected to be published.

Key Laboratory of Growth Regulation and Transformation Research of Zhejiang Province

Westlake University

Jul. 2020 - Aug. 2020

With Professor Ju-Sheng Zheng

Hangzhou

- Participated in the subject on the intestinal microbial and nutritional distribution of the persons receiving treatment of drug addiction in cooperation with Zhejiang Drug Addiction Center, and took responsibilities for the design and compilation of psychological and dietary questionnaire.
- Assisted in the construction of a type 2 diabetes candidate molecule database, and used Python to automatically download the mol2 files of the target molecule in the CAS database.
- Participated in the subject on CMPF metabolic mechanism and new biomarker, and took responsibilities for mapping metabolites and making growth curves.

Pathogen Discovery and Big Data Center

Institute Pasteur of Shanghai, Chinese Academy of Sciences

Apr. 2020 - Jul. 2020

With Associate Professor Yihong Hu

Shanghai

- Co-authored a review of B cell immortalization, which is expected to be published in SCI review journals.
- Independently completed a meta-analysis on the drug resistance of AIDS populations in Henan Province. After collecting and collating relevant Chinese literature in the past ten years with R, I confirmed the association between drug resistance and the time of drug taking and performed a subgroup analysis. The paper is expected to be published in SCI journals of epidemiology and medicine.

Project Experiences

School of Life Sciences, Liaoning University

Sept. 2020 - Present

With Vice Dean, Professor Xiangyu Cao

Shenyang

- Completed the subject of natural active product and α -amylase. Through a virtual screening of the main components of *Dalbergia odorifera* T. Chen, eriodictyol as the best natural active component was obtained, and a molecular docking and molecular dynamics simulation research was performed. In the meantime, the exact mechanism of saccharol inhibiting α -amylase was experimentally confirmed. The paper is expected to be published on *International Journal of Biological Macromolecule*.
- Participated in the subject on the costane lactone-induced apoptosis mechanism, and took responsibilities for making molecular docking data and the writing and revising of the paper. The paper is expected to be published on *Chemistry and Biodiversity*.
- Co-published two national invention patents related to the paper: "Application of Ericoside in the Preparation of Drugs for Inhibiting Cardiovascular Diseases" and "Application of Lentinus Mycelium Polysaccharides in the Preparation of Drugs for Inhibiting Amylase Activity". One patent certificate was obtained in January 2021 and the other one is expected to be obtained in June 2021.

School of Pharmaceutical Sciences, Liaoning University

Sept. 2020 - Present

- Participate in the 2020 Innovation and Entrepreneurship Training Program for College Students. Applied machine learning to improve scoring function, and performed virtual screening of potential inhibitors of hERG channel and applied molecular dynamics simulation to analyze the top five high-score molecules.
- Applied network similarity integration algorithm to study the interaction between lncRNA and miRNA. The paper is expected to be published on *Journal of Mudanjiang Medical College*.
- Designed a subject on the molecular dynamics simulation of molecular fingerprint. After calculating the candidate molecular data with molecular dynamics simulation and Rdkit, pioneered data integration of the best features in MDFFP and 2D/3D fingerprints and applied machine learning to train the model. A SCI paper is expected to be published.

Papers

1. Jing-jing ZHANG, Wei-zhe DING, et al. Eriodictyol as α -amylase inhibitors: virtual screening, molecular docking, molecular dynamic simulation and spectroscopy, *Int J Biol Macromol*. Under Review
2. Wei-zhe DING, et al. Research on Interaction Prediction of lncRNA and miRNA based on Network Similarity Integration Algorithm, *Journal of Mudanjiang Medical College*. In Press
3. Dan LIU, Meng ZENG, Jing-Wen PI, Mei-Jia LIU, Wei-Zhe DING, et al. Exploring the Potential Mechanism of Costunolide-Induced MCF-7 Cells Apoptosis by Multi-Spectroscopy, Molecular Docking and Cell Experiments, *Chem. Biodiversity*. 18 (2021) e2001069

Activities

- | | | |
|---|-------------------|------------------------|
| 1. Ernst & Young China | Campus Ambassador | Apr. 2020 - Apr. 2021 |
| 2. KPMG China | Campus Ambassador | Dec. 2019 - Mar. 2021 |
| 3. Post-Graduation Charity Foundation | Co-founder | Jan. - Mar. 2019 |
| 4. 2018 Innovation and Entrepreneurship Training Program for College Students | | Sept. 2018 - Jul. 2020 |
- Won the Second Prize at provincial level

Language Proficiency and Skills

Language Proficiency:

CET-6 571/ 710

IELTS: 6.0

Specialized Skills: Gromacs, Shell, Python, R, Linux, Stata, Microsoft Office