Yu Zhu

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EDUCATION

Soochow University, Suzhou, China   Aug 2018 - Present

Bachelor of Science in Bioinformatics   GPA: 3.7/4.0

Major courses: Genome Informatics, Transcriptome Informatics, Proteome Informatics, Epigenomics and Metabonomics, Biochemistry, Molecular Biology, Bioinformatics Algorithms, BioPerl, Database System Principle and Experiment,Programming and Application (Python), Network Management and Web Programming

PUBLICATION

Zhu, Y., Ye, F., Zhou, Z., Liu, W., Liang, Z., Hu, G. (2021). Insights into Conformational Dynamics and Allostery in DNMT1-H3Ub/USP7 Interactions. *Molecules, 26,* 5153. (https://doi.org/10.3390/molecules26175153)

Bi, C., Zhou, S., Liu, X., **Zhu, Y.**, Yu, J., Zhang, X., Shi, M., Wu, R., He, H., Zhan, C., Lin, Y., Shen, B. (2021). NDDRF: a risk factor knowledgebase for personalized prevention of neurodegenerative diseases. *Journal of Advanced Research.* (https://doi.org/10.1016/j.jare.2021.06.015)

Liang, Z., **Zhu, Y.**, Long, J., Ye, F., & Hu, G. (2020). Both intra and inter-domain interactions define the intrinsic dynamics and allosteric mechanism in DNMT1s. *Computational and Structural Biotechnology Journal, 18*, 749–764. (https://doi.org/10.1016/j.csbj.2020.03.016)

Liang, Z., **Zhu, Y.**, Liu, X., & Hu, G. (2020). Role of protein-protein interactions in allosteric drug design for DNA methyltransferases. *Advances in Protein Chemistry and Structural Biology, 121*, 49–84. (https://doi.org/10.1016/bs.apcsb.2019.12.005)

RESEARCH EXPERIENCES

School of Biology and Basic Medicine Sciences, Soochow University, Suzhou, China

Supervisors: Prof. Hu Guang, Liang Zhongjie

Allosteric Drug Design Targeting DNMT1 Protein-Protein Interactions (PPIs)   May 2020 - Present

- Utilized SWISS-MODEL, Modeller and I-TASSER to realize the modeling of the complex structure, and used Gromacs to complete the sampling of dynamics data.
- Constructed the biological network of the complex, and developed indicators that quantitatively characterize the characteristics of the mutant residues.
- Predicted the allosteric site and allosteric path of the complex based on perturbation response scanning (PRS) analysis.
- Explored pocket information in the trajectory of DNMTs, evaluated their targetability, and determined potential allosteric sites combining mutation information.

Structural and Functional Analysis of Non-Small Cell Lung Cancer Disease Modules   Oct 2019 - Oct 2020

- Obtained the NSCLC-related disease network module from the pre-omics analysis.
- Carried out research in five aspects, including functional enrichment analysis, structural modeling of protein interactions, mapping of mutation and post-translational modification information and druggability based on drug pockets.
- Verified the pathogenic function of the NSCLC network module at the two levels of pathway and structure.

Frontiers Science Center for Disease-related Molecular Network, Sichuan University, Chengdu, China
Supervisor: Prof. Shen Bairong
Medical Research on Glycobiology, Glycomics and Glycobioinformatics   Jul 2020 - Aug 2020
- Investigated the obtained literature from PubMed database with the keyword bioinformatics[ta] (glyco*[ti] OR glycogen[ti]).
- Sorted out the subject development process of glycomics, glycobiology, and glycobioinformatics, and learned about the forefront progress of the subject.
- Participated in several summit forums discussing frontier science in bioinformatics.

Institutes for Systems Genetics, West China Hospital, Sichuan University, Chengdu, China
Supervisor: Prof. Shen Bairong
Construction of NDDRF Knowledgebase: A Knowledgebase of Risk Factors for Neurodegenerative Diseases
(http://sysbio.org.cn/NDDRF/index.html)   Jul 2019 - Aug 2019
- Learned about the application of bioinformatics-related tools and database, and the data processing method of Multi-Omics analysis.
- Joined Prof. Shen Bairong's research group, and took charge of data mining and cleaning for more than ten neurodegenerative diseases, including Alzheimer's disease (AD), amyotrophic lateral sclerosis (ALS), frontotemporal lobe degeneration (FTLD), etc.
- Established the risk factors database for neurodegenerative diseases (NDDRF) together with other group members.
- Followed up with the latest research progress in bioinformatics, and participated in academic conferences.

HONORS/AWARDS

The Third Prize for Band C, 2021 National English Competition for College Students   May 2021

The Second Prize, The First "Zhaoyin" Cup Financial Mathematical Modeling Competition, School of Mathematical Sciences, Soochow University   Apr 2021

The First Prize Scholarship for Academic Excellence, **Comprehensive Scholarship**, **The Special Scholarship for Innovation and Entrepreneurship**, **Merit Student**, Soochow University   Dec 2020

Scientific and Technological Innovation Star, Medical College of Soochow University   Dec 2020

The First Prize for Academic Excellence, **Comprehensive Prize**, **Merit Student**, **Special Prize for Spiritual Civilization**, Soochow University   Dec 2019

Excellent Volunteer Team, **Excellent Summer Social Practice Team**, Soochow University   Aug 2019

SKILLS

Experienced in omics data processing, protein structure and dynamics, biological network analysis
Good at Python, R, Linux Shell
Familiar with Perl, SQL, PHP
Proficient in Microsoft Office, Photoshop