Weiyi Yang

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Education

Huazhong University of Science and Technology (HUST)		2022-Present
Biophysics	GPA 3.89/5	Master's candidate
China University of Geosciences (CUG)		2018-2022
Life Sciences	GPA 3.67/5 (Top 9%)	Bachelor of Science

Research Experiences *(Please find details on my website.)*

College of Life Science and Technology, HUST **2022-Present**

Independent study, Professor Jianke Gong's group

LITE-1 is an efficient short-wavelength light sensor in *Caenorhabditis elegans* (*C. elegans)*. Using *C. elegans* as a model animal, which has been widely used for sensory transduction and aging studies, to uncover the role of LITE-1 in thermosensory.

The *lite-1* deletion mutants demonstrate a low survival phenotype after heat shock, which can be partially rescued by overexpressing *lite-1* in ASH, ASI, or AWB neurons. Ectopic expression of *lite-1* in non-thermosensitive muscle cells confers thermosensitivity, suggesting that the photoreceptor LITE-1 is a potential high-temperature sensor. Based on the transcriptomic analysis, the *lite-1* mutants significantly upregulate the MAPK and FOXO pathway genes after heat shock.

This work demonstrated that LITE-1, mediated neurons to sense high temperature, is essential for the nuclear translocation of DAF-16/FOXO in intestinal cells and the response to noxious heat.

School of Environmental Studies, CUG **2019-2022**

Independent study, Professor Liyuan Ma's group

Acid mine drainage (AMD), typically characterized by low pH and excessive heavy metal concentrations, provides a natural place to study the evolutionary adaptation mechanisms of microorganisms to extreme environments.

Obtained the whole genome sequences of 92 *Acidithiobacillus* type strains from the National Center for Biotechnology Information (NCBI), which isolated from AMD environments. Using Prophage Hunter to identify prophages and functional annotation of their proteins. Furthermore, analyzed the genome characteristics of *Acidithiobacillus* and its associated prophages, as well as the evolution of prophages within *Acidithiobacillus*.

Combining OrthoANI clustering and phylogenetic taxonomy of prophage fragments, mapping and annotating upstream/downstream functional genes, this work analyzed the effects of prophage integration into *Acidithiobacillus* in terms of genetic evolution and potential gene functions, respectively.

Publications *(* indicates corresponding author)*

Liyuan Ma*, **Weiyi Yang**, Shanshan Huang, Rui Liu, Huiying Li, Xinping Huang, Junming Xiong, Xueduan Liu*. Integrative assessments on molecular taxonomy of *Acidiferrobacter thiooxydans* ZJ

and its environmental adaptation based on mobile genetic elements [J]. *Frontiers in Microbiology*, 2022, 13: 826829. doi: 10.3389/fmicb.2022.826829.

Shanshan Huang, Xueduan Liu, **Weiyi Yang**, Liyuan Ma*, Huiying Li, Rui Liu, Jingxuan Qiu, Yiran Li. Insights into adaptive mechanisms of extreme acidophiles based on quorum sensing/quenching-related proteins [J]. *mSystems*, 2022, 7(2), e01491-21. doi: 10.1128/msystems.01491-21.

Honors and Awards

Excellent Postgraduate Cadre, HUST	2023
Team Leader: First Prize, China Undergraduate Life Sciences Contest (National level)	2022
Team Leader: College Students' Innovation and Entrepreneurship Project (Provincial level)	2021
Outstanding Student, CUG	2020
Excellent interns, Zigui field ecology practice, CUG	2020
Excellent Undergraduate Cadre, CUG	2020

Conferences

The 7th China *C. elegans* Conference——**Abstract**	2024
The Yangtze River Worm Conference (online)——**Oral presentation**	2024
The 6th Member Representative Conference of the Biophysical——**Assisted in organizing**	2023
The 7th Youth Scholars Forum on Ion Channels and Receptors——**Abstract/Poster**	2023

Training and Certifications

The 6th IEEE EMBS International Summer School of Neural Engineering——Poster

ShangHai Jiao Tong University 2024

Attended lectures on passive Brain-Computer Interfaces (BCIs) for real-time monitoring of cognitive and emotional brain states, and the development of intracranial BCI systems for severe disabilities.

Explored the application of fMRI and AI in predicting brain aging and developmental diseases, focusing on biomarkers and cognitive disorders.

Gained insights into multimodal deep generative modeling in brain imaging and recognized the challenges of handling large neuroscience datasets.

BioBit Computational Biology Summer School——Poster / "Research Star" award

ZheJiang Lab 2023

Participated in lessons from world-leading researchers, exploring the integration of synthetic biology with bio-computation, focusing on designing of genetic circuits and logic gates within cells to endow them with computational abilities.

Discussed the feasibility and future applications of using DNA for long-term, high-density data storage, inspired by the cutting-edge research presented.

Recognized the significance of interdisciplinary approaches in life sciences, highlighting the integration of synthetic biology, bio-computation, and DNA data storage as crucial areas of research.

Special Equipment Safety Operators' Qualification	2023
Junior Red Cross First Aid Qualification	2022-2023

Related Professional Skills

Computer skills: Python, R, SPSS, Fiji (ImageJ2), Snapgene, GraphPad, Origin, Adobe Illustrator, WormLab

Laboratory skills: Calcium imaging, Molecular biology, *C. elegans* strain cultivation, Behavioral assays, Lifespan assay, qRT-PCR, Western blots, RNA interference, mRNA-seq

Coursework

Biophysics: Advanced neurobiology, Genetics, Animal physiology, Biochemistry, Molecular biology, Microbiology, Psychological stress and coping… …

Mathematical background: Advanced mathematics, Linear algebra, C programming language, Python programming language, R language and biostatistics, Multi-omics and big data processing, Bioinformatics… …

Academic Memberships

IEEE Engineering in Medicine and Biology Society (EMBS), Student Member 2024

Biophysical Society of China, Student Member 2024

Languages

Chinese (Native)

English (CET-6 535)

French (400+ days of self-study on Duolingo)

Extra-Curricular Activities

Youth Winter Olympics Support Program Volunteer Educator

Communist Youth League of the Central Committee (Online) 2022

Actively participated as a volunteer educator in the "Return to Your Hometown" social practice project. Completed four key activities aimed at promoting physical health among youth, enhancing awareness of winter sports, and advocating Olympic culture.

Director of Science and Technology Department

University Student Science and Technology Association, CUG 2019-2020

Coordinated and organized university-level scientific research competitions, ensuring communication and collaboration between various departments and student participants. Managed the consolidation and reporting of competition results, ensuring accurate and timely dissemination of information.