OMB No. 0925-0001 and 0925-0002 (Rev. 03/2020 Approved Through 02/28/2023)

BIOGRAPHICAL SKETCH

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NAME: Jinliang Wang

eRA COMMONS USER NAME (credential, e.g., agency login): JINLIANGWANG

POSITION TITLE: Postdoctoral Researcher

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(*if applicable*)*	START DATE MM/YYYY	END DATE MM/YYYY	FIELD OF STUDY
Hainan University, China	B.S.	09/2007	06/2011	Bioscience
University of Science and Technology of China, China	M.S.	09/2011	01/2014	Cell biology/Biochemistry
The University of Texas at El Paso, USA	PH.D.	06/2015	12/2018	Biochemistry
The University of Utah, USA	Postdoctoral	01/2019	11/2021	Biochemistry
University of Southern California, USA	Postdoctoral	12/2021	Present	Biochemistry

A. Personal Statement

Training Experiences: Beginning in 2007, I received intensive scientific training in modern molecular biology and biochemistry techniques in Hainan University, China. I cloned and sequenced many genes involved in salt-tolerance gene in plants. The extensive and intensive training created my special interests in the biochemistry and molecular biology. During my bachelor studying, I also got trained for the protein expression, purification, and protein structure determination by using X-ray crystallography at Guangzhou Institutes of Biomedicine and Health, Chinese Academy of Sciences. I obtained my master degree in University of Science and Technology of China (USTC); and there I have acquired more valuable skills in solving challenging problems in creative ways. During the Master period in USTC, my research work focused on two directions: (i) the relationship between microRNA and tumor metastasis. (ii) Nuclear-cytoplasm protein shuttle under stress condition. I have working experience in Beijing Genomics institute (BGI), which has contributed 1% of the Human Genome

Project's reference genome, and that enriched my theory and laboratory skills in single cell sequencing. In 2015, I joined the laboratory of Dr. Ricardo Bernal, at The University of Texas at El Paso (UTEP), where I acquired systematic training in X-ray crystallography and cryo-electron microscopy (cryo-EM). My Ph.D. project was focused on defining the molecular basis for hereditary spastic paraplegia and Mit-CHAP- 60 disease. After receiving my PhD in 2018, I joined Dr. Erhu Cao's lab at the University of Utah as a postdoc researcher to to understand the role of polycystin 1 Like 1 (PKD1L1)/ polycystin 2(PKD2) in the molecular and pathogenic mechanisms of heart asymmetry arrangement, and ultimately, advancing development of novel therapies in the congenital heart defects (CHD). In Dr. Cao's lab, with collaborate with Dr. Paul DeCaen lab, I reported the PKD2 C331S variant structure to demonstrate the molecular mechanism of the C331S mutation leading to AKPKD disease. I joined Paul Seidler's lab in 2021 to study the structure-based drug screening in Alzheimer Disease.

Academic career development:

My academic training and research experience have provided me with an excellent background in multiple biological disciplines including molecular biology, microbiology, biochemistry, cell biology, physiology, and genetics. My long-term career goal is to serve as a principle investigator in academia to advancing the knowledge of biomedical sciences, and ultimately helping patients with suffering from various diseases. My interest is trying to develop a comprehensive understanding of key developmental pathways and how alterations in protein structure contribute to human disease, elucidate the origin of conformational changes that lead to diseases by combining single-particle cryo-EM, biochemistry, liposome reconstitution, and electrophysiology approaches, eventually translate into therapeutic breakthroughs for treating patients.

B. Positions and Honors

Positions and Employment

2007.9 – 2011.6	Undergraduate researcher, Hainan University
2011.9 – 2014.1	Research Assistant, USTC
2014.3 – 2014.6	Internship, Beijing Genomic Institute
2014.6 – 2015.5	Technical Support, Hangzhou Neoline
2015.6 – 2018.12	Research Assistant, UTEP
2019.1 – 2021.11	Postdoctoral Researcher, University of Utah
2021.12 –	Postdoctoral Researcher, University of Southern California

Other Experience and Professional Memberships

2020	Member, American Heart Association
2020	Member, American Society of Nephrology

Honors

2008	Outstanding Student First-rank Scholarship of Hainan university (top 1%)
2009	Times Coast Scholarship
2009	Most innovative and social practice students of Hainan university (top 1%)
2009	Outstanding Student second-rank Scholarship (top 5%)

2010 Hainan Airlines elite scholarship (only ten members)
2010 Outstanding Student First-rank Scholarship (top 1%)
2011 School-level outstanding student (top 1%) graduated from Hainan university
2017 Travel Grant, Texas Protein Folders and Function meeting
2017 DODSON RESEARCH GRANT, UTEP
2018 Travel Grant, UTEP Graduate School

C. Contribution to Science

1. **Graduate Career- M.S. graduate studies:** MicroRNAs have emerged as key regulators in vascular diseases and are involved in the formation of atherosclerotic lesions. However, the atherosclerotic-specific MicroRNAs and their functional roles in atherosclerosis are unclear. We report that miR-378c protects against atherosclerosis by directly targeting Sterile Alpha Motif Domain Containing 1 (Samd1), a predicted transcriptional repressor.

    a. Tian S*, Cao Y*, **Wang J***, et al The miR-378c-Samd1 Circuit Promotes Phenotypic Modulation of Vascular Smooth Muscle Cells and Foam Cells Formation in Atherosclerosis Lesions. Scientific reports 11, no. 1 (2021): 1-15. * These authors contributed equally to this work

2. **Graduate Career- Ph.D. studies:** My graduate research contributions focused on the molecular mechanism of chaperonin hsp60 in the protein folding cycle and how the point mutation of hsp60 leads to the neuromuscular degenerative disorders MitCHAP-60 and SPG13. My research suggests that hsp60 plays a crucial role in folding important players in aerobic respiration such as the β-subunit of the ATP synthase. The hsp60 mutations D3G and V72I impair its ability to fold mitochondrial substrates leading to abnormal ATP synthesis and the development of the MitCHAP-60 and SPG13 neuromuscular degenerative disorders. Our finding will give some hints to the drug development for neuromuscular degenerative disorders.

    a. **Wang J*,** Enriquez AS*, Li J*, Rodriguez A, Holguin B, Von Salzen D, et al. MitCHAP-60 and hereditary spastic paraplegia SPG-13 arise from an inactive hsp60 chaperonin that fails to fold the ATP synthase β-subunit. Scientific reports 2019;9(1):1-1 * These authors contributed equally to this work
    b. Bhatt JM, Enriquez AS, **Wang J**, Rojo HM, Molugu SK, Hildenbrand ZL, et al. Single-ring intermediates are essential for some chaperonins. Frontiers in Molecular Biosciences 2018;5:42.

3. **Postdoctoral Career:** As a postdoctoral fellow in Erhu Cao's lab at the University of Utah, I am pursing biochemical, biophysical and structural analyses of polycystin family of ion channels and receptors, which are key players in normal functions of cardiovascular and renal systems. Recently, I reported the PKD2 C331S variant structure to demonstrate the molecular mechanism of the C331S mutation leading to AKPKD disease. This work was published in Proceedings of the National Academy of Sciences.

a. Vien TN*, **Wang J***, Ng LCT, Cao E, DeCaen PG. Molecular dysregulation of ciliary polycystin-2 channels caused by variants in the TOP domain. Proceedings of the National Academy of Sciences 2020;117(19):10329-10338. * These authors contributed equally to this work

D. Scholastic Performance

Transcript from The University of Texas at El Paso is shown below.

YEAR	COURSE TITLE	GRADE
	UT EL PASO	
2016	Advanced Analytical Chemistry	A
2016	Advanced Biochemistry	A
2017	Contemp Topics in Analyt Chem	A
2018	Graduate Seminar	A