

RDF Funded Research Project: Budget and Expected Outcomes

This form is to be completed by the Principal Investigator (PI) after the award has been approved by the XJTLU Research Review Panel. Please present your APPROVED BUDGET and your EXPECTED OUTCOMES in this form.

RDF Ref No.: RDF-23-01-104

Principal Investigator			
Name	Weiwei Dai	School	School of Science
		Department	Department of Biological Sciences
Project Information			
Project Title	The mechanism of urea cycle suppression-induced ammonia accumulation promotes liver cancer progression via calcium-dependent manner		
Start Date	01/01/2024	Complete Date	31/12/2026
Awarded Amount (RMB)	100,000		

Approved Budget		
Please paste the approved budget of the project here.		
Categories	Amount (RMB)	Justification
Equipment Expenses	0	none
Operational Expenses	92,500	Antibodies: P-Akt Ser473 #4060 (Cell Signaling, 3,495.00 ¥); P-Akt Thr308 #9275S (Cell Signaling, 3,495.00 ¥); P-S6K1 T389 #9234S (Cell Signaling, 3,315.00 ¥); Arginase1 #93668 (Cell Signaling, 2,785.00 ¥); Acetyl- β -Catenin #9030s (Cell Signaling, 5012.00 ¥); anti-H3K9bhb antibody (polyclonal; PTM Bio, PTM-1250, 3495.00 ¥); anti-histone H3, 1:1,000 (clone D1H2; CST, 4499S; 3,315.00 ¥); β -Catenin (D10A8) (CST, #8480T, ¥1,950) Reagents for transfection: Lipo 2000 4,610 ¥ for 1.5 ml* 1 =4,610.00 ¥; Opti-MEM (480 ¥*2=960.00 ¥) Cell culture consumables: DMEM (Gibco, 50.00 ¥*10=500.00 ¥); MEM (Gibco, 50.00 ¥*40=2,000.00 ¥); FBS (NEWZERU, 1,800.00 ¥*5=9,000.00 ¥); Penicillin-Streptomycin Solution (Hyclone, 190.00 ¥*15=2,850.00 ¥) C57BL/6 mouse (40 ¥/mouse*280=11,200.00 ¥) RNA extraction kit (1,104 ¥/50 extraction*2=2,208.00 ¥) WB materials: 30% Acr-Bis (Sparkjade, EC0006-B, 240 ¥*5=1,200

		¥); Mini Trans Blot Filter Paper (Biorad, 1 bag, 260.00 ¥); 4x Laemmli Sample Buffer (Biorad, #1610747, 75 ¥/10ml*4=300.00 ¥) Consumable expenses including pipet tips, various tubes, tissue paper, and materials required for bacteria culture and DNA extraction (140,500 ¥) Sample testing expenses including metabolomics, ATAC-seq, CHIP-qPCR, and RNA-seq analysis (12,500.00 ¥) Travelling expense for the travelling of expert consultation and travelling for listening relevant scientific talks (4,000.00 ¥)
Labour Expenses	7,500	Non-full-time research assistant: 500 ¥/month*6 months/year*2 years=6,000.00 ¥; Consultation with senior research scientist: 1500 ¥/day for 1 day=1,500.00 ¥
Total amount:		100,000RMB

Timeline and Work Plan

No.	Timeline	Work Plan
1	01/2024-06/2024	1) Perform in vivo experiments in Fig3A and do LC-MS, IHC and RNA-seq analysis using liver samples; 2) Perform the experiments in Fig3D, double-confirm ammonia-induced effects on mTORC2, calcium channels, start to explore the mechanisms; 3) Publish a review paper "Role of ammonia in physiology and cancer";
2	06/2024-12/2024	1) Perform in vivo experiment in Fig3C, and do relevant analysis using liver tissue samples; 2) Perform the experiments in Fig3B, and start to explore the mechanisms using CHIP-qPCR, LC-MS, necessary inhibitors and/or sgRNAs
3	01/2025-06/2025	1) Perform in vivo experiment in Fig3F, and do relevant analysis using liver tissue samples; 2) Keep exploring the mechanisms "how calcium channels are selectively regulated" and using in vitro methods; 3) Submit an abstract related to "ammonia-Ca ²⁺ -mTORC2" in a national conference
4	06/2026-12/2025	1) Perform in vivo experiment in Fig3E and do analysis using liver tissue samples; 2) Perform necessary in vivo experiments to valid the mechanisms/findings in Fig3A/3B at molecular levels; 3) Present the findings in conference
5	01/2026-06/2026	1) Perform necessary in vivo experiments to valid the mechanisms/findings in Fig3D at molecular levels; 2) Submit an abstract of UCE regulation in a national conference 3) Prepare and publish the "ammonia-Ca ²⁺ -mTORC2" paper
6	06/2026-12/2026	1) Prepare and publish "UCE regulation" paper; 2) Present the UCE regulation findings in conference; 3) Preparing the completion report

Outcomes Summary

	Total Number		Number	Note
Publication	5	Journal Paper	3	IF>10
		Conference Paper	2	
		Other (e.g. book, chapter, monograph)	0	
Intellectual Property		Invention	0	
		Utility Model	0	
		Design Patent	0	
		Software Copyright	0	
Practice Outcome		Visual Art Work	0	
		Design, Architecture, Interiors	0	
		Textual Work	0	
		Audio-Visual Recording	0	
		Inter-Arts	0	
		Digital Creative Work	0	
		Website / Web-Based Exhibition	0	
Exhibition or Presentation		Competition entries	0	
		Physical or Live Exhibition	0	
		Exhibition via Virtual/Online/Broadcast/Projection	0	
		Inclusion within School or University curriculum	0	
		Research Report	0	
Others (e.g. social Impact, host events)	(Please give description here.) Give oral or poster presentations about nitrogen metabolism in liver cancer at national scientific conferences, regional workshops, and invited research talks in universities.			
What external funding will you attempt to seek?	Funding body (e.g. *NSFC)	National Natural Science Foundation of China (NSFC)-2024		
	Programme (e.g. General Programme)	Jiangsu Science and Technology Programme-2024		
	Expected submission date	2024/03/13		

*NSFC refers to National Nature Science Foundation of China

Ethical Requirements of Research Projects Involving Human and Animals

Research which involves human (including human participants, survey respondent, human genetic resources and personal data) or animals will always require formal ethical consideration.

Yes

No

Declaration:

I accept the XJTLU RDF fund for my proposed research project.

By making use of the University Research Development Fund, I will do my best

- to ensure that the research resources are used for the ultimate benefits of the University in enhancing his/her research profiles and in generating maximum research outcome contributing to knowledge generation, innovation and benefiting the University and the wider Society;
- to conduct the research in line with Good Research Conduct and in Observance of Professional Guidance and standards, research ethics as well as the University related policies and procedures;
- to complete the RDF funded research project as outlined in the Research Proposal and deliver the expected outcomes as specified above.

Signature of PI: Weiwei Dai

Stamp of Research Management Office

Date: 10 January,2024

Date: 07 September,2023

