Lingzhi Yang

15087702680 lingzhi_yang@outlook.com https://lingzhi-yang.netlify.app/about

Education

ChongQing Medical University(CQMU) **Sep. 2021 – June. 2024**
M.M. in Clinical Medicinee *Chongqing, China*
GPA: 89.2/100

ChongQing Medical University(CQMU) **Sep. 2017 – June. 2021**
BMed in Clinical Medicine *Chongqing, China*
GPA: 89.81/100 (3.94/5) Ranking: 2/129

Huazhong University of Science and Technology(HUST) **Sep. 2016 – Sep. 2017**
Joint Student *Wuhan, China*
GPA:91.10/100 (4.20/5) Ranking: 2/129

Publications

Journal:

[1] **Lingzhi Yang**, Wei Huang, Risk of incident atrial fibrillation with low-to-moderate alcohol consumption is associated with gender, region, alcohol category: a systematic review and meta-analysis. **EP Europace**

It is important to identify modifiable risk factors in AF management. Although the association between acute alcohol consumption and the onset of an AF episode has been validated, the effect of chronic alcohol consumption on AF is controversial, especially for those with low to moderate levels of consumption. To comprehensively address this issue, a systematic review and meta-analysis was conducted. The current study included 13 observational studies with 10 266 315 participants. In order to infer whether current pooled analyses are of high confidence to give an absolute answer, graphical augmentations to the funnel plot (extfunnel plot) was used as a robustness testifying method. The main findings are as follows: 1) Low-to-moderate alcohol consumption increased risk of incident AF in males but not in females (Hazard Ratio (HR) is 1.14 (95% Confidence Interval (CI): 1.07–1.21), HR 1.14 (95% CI: 1.01–1.28), respectively. 2) Moderate alcohol consumption increased risk in Europeans (HR 1.32 (95% CI: 1.23–1.42)) and Asians (HR 1.09 (95% CI: 1.07–1.11)) but not in Americans. 3) Low alcohol consumption increased risk of incident AF in Europeans (HR 1.12, 95% CI: 1.07–1.17) but not in North Americans. 4) Moderate beer consumption increased risk of incident AF (HR 1.11, 95% CI: 1.02–1.21).
[PDF] [DOI] [ProjectPage]

[2] **Lingzhi Yang**, Wei Huang, Hub Genes Identification, Small Molecule Compounds Prediction for Atrial Fibrillation and Diagnostic Model Construction Based on XGBoost Algorithm. **Frontiers in Cardiovascular Medicine**

The aim of current study is to investigate the mechanisms of atrial fibrillation (AF) at transcriptomic level. Six persistent atrial fibrillation microarray data sets from atrium, the atrial appendage, or the sleeve of the pulmonary vein tissues were used for integration and potential genes involved in the pathogenesis of AF were filtered by using RobustRankAggregation method, weighted Gene Co-expression Network Analysis (WGCNA) and protein to protein interaction (PPI) network. It was suggested that CXCL12 increased the immune response and inflammatory status by series of functional enrichment analysis and immune infiltration analysis. It was suggested that CXCL12 might be an important intermediate in the development of AF by increasing the infiltration of mast cells, neutrophils, and γ δ T cells, and reducing infiltration of regulatory T cells. Owing to the property of CXCL12 as a secretory protein with stable physicochemical properties, CXCL12 might serve as a potential marker for AF subsetting. A molecular classifier for AF and sinus rhythm was constructed on the basis of XGBoost algorithm and it showed great performance with an AUC of 0.9385 (95 CI: 0.9044–0.9725) and brier score of 0.12. Collectively, this study identified four key genes involved in the pathogenesis of AF, and suggested CXCL12 could be an important intermediate between the local inflammatory microenvironment and atrial fibrosis.
[PDF] [DOI] [ProjectPage]

In Submission:

[1] **Lingzhi Yang**, Wei Huang, Identification of Cuproptosis-related subphenotypes and implication of PDHB in Pulmonary Arterial Hypertension. **Scientific Reports(Under Review)**
Heterogeneity of group I pulmonary hypertension has arisen. Classifier based on Cuproptosis-related genes may be used for identifying heterogeneity of PAH. The downregulation of PDHB could affect metabolic status, mitochondrial function and immune infiltration in PAH.

[2] Yunwei Chen, Yunjing Yang, **Lingzhi Yang**, Wei Huang, NCAM1 Promotes the Proliferation and Migration of Pulmonary Arterial Smooth Muscle Cells via the ERK1/2 Pathway. **iScience(Under Review)**
NCAM1 may be associated with pulmonary arterial hypertension and promotes the proliferation and migration of PASMCs via the ERK1/2 signaling pathway.

Projects

- **Pregnant Women With Pulmonary Hypertension in China (NCT05198206): January 2021**
Background: Despite of noteworthy advancements in the treatment of patients with PAH, pregnancy is still regarded as contraindication for the substantial risks to both maternal and fetal health. It is of vital to investigate the current diagnostic and treatment status in China and provide a basis for identifying high-risk pregnant women and optimizing clinical practice.
Current result: with the collaboration of other colleagues across China, we established a nationwide observational cohort and identified patients at higher risk of adverse outcome. A risk stratification strategy for these group of patients is raised and presents good performance in internal validation. Specifically, it was found that sever WHO heart function, non-congenital heart disease related PAH, early onset of symptom, high Brain natriuretic peptide (BNP)/N-terminal pro-B-type natriuretic peptide (NT-proBNP) are all risk factors for adverse clinical events.
- **ADAMTSL4 in Idiopathic Pulmonary Hypertension and CTEPH (NCT05478226): January 2021**
Background: Currently, idiopathic pulmonary artery hypertension (IPAH) and chronic thromboembolic pulmonary hypertension (CTEPH) are lack of specific biomarker for diagnosis and risk stratification. Multi-omics technology makes it possible to screen for used for clinical practice.
Result: By combining plasma proteomic and tissue transcriptomic data, the current study identified significantly increased ADAMTSL4 expression and good clinical features correlation.
Contribution: By searching public database, GSE15197 dataset was chosen for transcriptomic analysis. ADAMTSL4 expression level was increased in lung tissures in IPAH patients.
- **Exploration of the Mechanisms of the α-klotho-FGF23 Axis in Neurological Dysfunction Associated with Chronic Kidney Disease (CKD): January 2019**
Backgroud: Neurological dysfunction can occur as a complication of chronic kidney disease (CKD). Resolving the problem is of importance for long-term management of CKD patients. Restoring the imbalance of alpha-klotho-FGF23 axis in CKD has showed great promise since that it played critical role in mineral metabolism, vascular function, oxidative stress, inflammation and hormonal modulation.
Contribution: Experimental plan was conceived: a. Animal Model Selection: subtotal nephrectomy. b. Experimental Groups: i. Control group (no CKD induction) ii. CKD group (induced CKD) iii. CKD + α-klotho supplementation group (CKD animals receiving α-klotho) iv. CKD + FGF23 inhibition group (CKD animals receiving FGF receptor (FGFR) 1c inhibitors) c. Neurological Assessments: Conduct a battery of neurological tests to evaluate cognitive, motor, and sensory functions in all experimental groups. Utilize appropriate behavioral paradigms, such as Morris water maze, rotarod. d. Tissue Collection and Analysis: sacrifice animals and collect brain and kidney tissues for subsequent analysis. Analyze α-klotho and FGF23 levels, as well as relevant downstream signaling pathways, using techniques such as Western blotting, ELISA, and immunohistochemistry. In Vitro Experiments: a. Cell Culture: Choose a suitable neuronal cell line (e.g., primary neurons, SH-SY5Y) and renal cell line (e.g., HK-2) for in vitro experiments. b. CKD Condition: Simulate CKD conditions in the renal cell line. c. α-klotho and FGF23 anipulation: Modulate α-klotho and FGF23 expression levels in the renal cell line using techniques such as gene knockdown (siRNA) or overexpression (plasmid transfection). d. Neurological and Molecular Assessments: Evaluate neuronal function and viability using assays such as MTT assay, immunofluorescence staining, and electrophysiological recordings. Assess intracellular signaling pathways and oxidative stress markers using techniques like qPCR, Western blotting, and immunocytochemistry.

Intership

Standardized Training for Resident Physicians at the First Affiliated Hospital of Chongqing Medical University. **From 2021 to 2024**

First-line Volunteer work for Anti-COVID 19 epidemics. **2022**

Awards

National Scholarship for Master's Degree Students. January 2022

Meritorious student at Department Level January 2022

Outstanding Individual in Scientific and Technological Innovation Chongqing Medical University. January 2022

Outstanding Graduate of Chongqing Medical University. January 2020

Second Prize in the "Concept Cup" Experimental Competition. January 2019

"Excellent Award" at the Chongqing Medical University Undergraduate Basic Medical Science Innovation Forum and Experimental Design Competition. January 2018

Second Prize at the University Level in the "Foreign Language Teaching and Research Press (FLTPR)" National English Writing Competition January 2019

Second Prize in Category C of the National English Contest for College Students. January 2019

"Outstanding Communist Youth League Member" of the Second Affiliated Hospital of Chongqing Medical University. January 2019

Meritorious Student Scholarship at the Department Level, Chongqing Medical University. January 2020

Meritorious Student Scholarship at the Department Level, Chongqing Medical University. January 2019

Merit Student Scholarship at the University Level, Chongqing Medical University. January 2018

Meritorious Student Scholarship at the Department Level, School of Chemistry and Chemical Engineering, Huazhong University of Science and Technology. January 2017

Self-Improvement Scholarship of the School of Chemistry and Chemical Engineering, Huazhong University of Science and Technology. January 2017

Excellent Academic Performance Scholarship of the School of Chemistry and Chemical Engineering, Huazhong University of Science and Technology. January 2017

Skills

License: License of Practicing Physician.
Languages: CET-4 (642), CET-6 (600).
Experimental skills: RNA extraction and real-time PCR.
Bioinformatic skills: Proficient in bulk transcriptomic data analysis, and scRNA-seq/snRNA-seq data analysis. Familiar with multiple databases, including but not limited to NCBI, Ensembl, UniProt, KEGG, STRING, Reactome, JASPAR, and CMAP. Master the usage of software such as PyMOL and AutoDock Vina. Familiar with two sample mendelian randomization analysis.
Programming language: Familiar with R, Python, and Linux.

Self evaluation

- I am a good learner, listener and collaborator. I hold the belief that the journey of a thousand miles begins with a single step.