Kexin KONG

+86 17838355309
kk520@ic.ac.uk
F8, Unit 6, Bldg.3, No. 55 Chaofeng Rd. Minghu St., Zhengzhou City, Henan P.R.China

Education

Imperial College London Oct. 2020-Oct. 2021
Major: Applied Genomics
GPA: 68.40/100.00
Degree: Master of Science conferred in Oct. 2021

Ocean University of China Sep. 2016-Jun. 2020
Major: Aquaculture
GPA: 3.49/4.00
Degree: Bachelor of Agriculture conferred in Jun. 2020

Research Project

02/2021-10/2021 Identification and functional characterization of genes implicated in obesity-induced metabolic dysfunction in human adipocytes

Instructor: Dr William R. Scott
Responsibilities:
- Carried out extensive quality control analyses to the RNA sequencing data of 94 human adipocytes samples;
- Investigated differential gene expression of subcutaneous adipocytes (SA) and visceral adipocytes (VA) in obese and lean people to identify genes that might contribute to obesity using DESeq2 in R;
- Divided these genes into gene networks by using co-expression analyses (WGCNA);
- Investigated the biological pathways underlying these networks by using gProfiler;
- Carried out differential expression, gene network and pathway analyses of SA compared to VA;
- Silenced 2 prioritized genes *Palld* and *Prune2* in adipocytes by using siRNA and CRISPR;
- Examined the effects of gene silencing on adipocyte metabolic functions;

Achievements:
- Detected hundreds of differentially expressed genes between obese and lean people in SA and VA;
- Discovered two gene networks in obese SA and one gene network in obese VA which strongly correlated with BMI and identified the functions of each gene network, e.g., one obese SA networks was involved in lipid metabolism;
- Explored out that differentially expressed genes in VA grouped into two networks, and were enriched in multiple pathways, including inflammation and adipocyte browning;
- Found that knocking down *Palld* and *Prune2* would significantly decreased *Ppar-γ* and *Fabp4* expression, but it did not affect adipocyte lipid accumulation;

02/2019-12/2019 Whether knockdown of *gamma-secretase activating protein* (*gsap*) would reduce the accumulation of neurotoxic amyloid in zebrafish
Instructor: Professor Gen He
Responsibilities:
- Cared, maintained and breed zebrafish;
- Raised larvae zebrafish;
- Manipulated CRISPR/Cas9 technique for Genome Editing in Zebrafish;
- Microinjected the sgRNA and Cas9 mRNA to the zebrafish embryo during the early one-cell stage;
- Verified the gene knockout results by RT-PCR, Western Blotting, ELISA and Flow Cytometry;

Achievements:
- Learned how to care, maintain and breed zebrafish, how to distinguish the embryos of zebrafish in different stages;
- Mastered how to design the sgRNA primer by using CRISPRscan.org, generate sgRNA and produce the Cas9 mRNA;
- Mastered basic experimental operation technology of molecular biology;
- Enhanced capability of literature review;

Research Experiences

11/2021-present Key Laboratory of Metabolism and Molecular medicine, Ministry of Education, Fudan University
Research Assistant

- Culture C3H10T1/2 mesenchymal stem cells and differentiate them into adipocytes;
- Knockout of several candidate genes in C3H10T1/2 mesenchymal stem cells with team-members;
- Analyse the transcriptome data of various differentiation stages of preadipocytes by using R programming;
- Literature review on research methods and current therapeutic targets of obesity, diabetes and other diseases;

Social Practices

07/2019 Summer Camp for Independent Enrolment of Life Science and Technology College of Shanghai Jiaotong University

- Listened to the lectures, learned about the biological mechanism of mesenchymal stem cells, the research on the skeleton in various regions of the world in recent years, the regulation of energy metabolism in transgenic mice, and the research technics of human obesity at the genetic level;
- Participated in the interview in the final stage of the summer camp, mainly explaining our scientific research experiences, campus life and expounding our views on scientific research and biology;
- Was unanimously recognized by teachers and eventually won the honor title of Excellent Battalion Staff;

04/2018 Field Investigation of Aquaculture Farm

- Interviewed with the technicians in the factory to understand the advantages and disadvantages of some traditional and emerging aquaculture methods;
- Saw many conventional aquaculture methods, such as pond farming, and some new aquaculture methods, like cage farming;
- Published a paper titled *Development Strategy of Aquaculture Facilities and Deepwater Aquaculture Platform Engineering* in Southern Agriculture;

Internship Experiences

03/2019 Laizhou Changyu Fisheries Co., Ltd Skilled Worker

- Raised scallops and oysters, and was in charge of the seeding culture of scallop;
- Fed, fertilized and sprayed medicines for scallops;

Volunteer Activity

11/2017 Qingdao International Marathon Volunteer

- Organized the Marathon route with team-members before the race, and investigate the road conditions on the spot;
- Provided support for the participants at the supply station;
- Felt satisfaction to help others, saw the shining points on the athletes and took them as an example to improve myself;

Honors and Awards

2019 Certificate of Excellent Campers in Summer Camp for Independent Enrollment of Life Science and Technology College of Shanghai Jiaotong University;
2019 Certificate of Summer Camp Activities for Biomedical and Health Engineering of Tsinghua University;
2018 Obtained Student Study Scholarship of Ocean University of China;
2018 Obtained the Third Class Scholarship Award for Excellence in academic work of Ocean University of China;
2018 National Computer Rank Examination Certificate - Level 2;

Interests

Long-distance Running

- Making me more self-disciplined, persistent, adaptable and more focused and productive at study and work;
- Getting me ready to take challenges;

Photography and Visiting Art Shows

- Exercising my aesthetic ability and make me more optimistic and positive towards life;