Jiaze Liu

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Wuhan University, Wuhan, 430072, China

Education

Wuhan University, Wuhan, China **Sept. 2020-Present**

Hongyi Honor Class, College of Life Science

Major: Biological Science Cumulative GPA: **3.92/4.00 (1/35)** TOEFL: 106 (out of 120)

Research Experiences

Undergraduate Researcher, Lab of Prof. Yanxun Yu **July 2021-Present**

Medical Research Institute, Wuhan University, Wuhan, China

Exploring the neuronal circuit for ethanol sensing in *Caenorhabditis Elegans*

● Generated several transgenic *C. elegans* strains deficient in specific neurons by the expression of Caspase or miniSOG, and characterized ethanol sensing behavior in those strains, to find out the neurons implicated in ethanal sensing circuit.

● Constructed 6 strains that express ChR-2 or gtACR-2 within specific neuron, to use optogenetics to manipulate neuronal activity, and verify the conclusion that certain neuron does plays a role in ethanal sensing.

● Constructed 2 strains that express HisCl in different neuron, and performed behavior essay with these strains, and used chemical genetics to verify the role that certain neuron plays in ethanal sensing.

● Generated two chromosomal knockout strain using CRISPR/Cas9 system that is deficient in two genes that has putative function in ethanal sensing, and performed behavior essay on these strains. To finds out the molecular basis behind ethanal sensing

● Obtained 3 worm strain to be used in calcium imaging.

● Constructed 10 transgenic strains that express Cmk in certain neuron and characterized their response towards ethanal and IAA, for phenotypic rescue that aims to find out the neuron in which calcium related cell signaling leads to ethanol chemosensation.

● Characterized the influence of temperature on IAA sensing in wild type *C. elegans* strain

● Currently characterizing the influence temperature has on ethanol sensing in wild type strain as well as ins-1, and is planning on performing rescue in ins-1 mutant background.

● Currently trying to obtain one strain that express ChR2 in neuron ASER solely and one strain that co-expresses ChR2 and R-Geco in the same neuron, to use calcium imaging to characterize the response of ChR2 towards blue light, to find out the optimal condition when doing optogenetic experiments.

Exploring the genetic basis of ferroptosis **March 2022- Jun 2022**

● Aided in the screening of genes that may participate in the ferroptosis pathway using CRISPR/Cas9

● Constructed some of the plasmids that are used for the expression of shRNA, to knockdown the genes that was obtained using a CRISPR-Cas9 knockout screen that may play a part in ferroptosis, to verify the conclusion

● Prepared lentivirus of shRNA to perform knockdown of genes

● Participated in minor tasks such as cell counting using hemocytometer, to seed cells with shRNA of target genes in the 96-well plate; or to prepare other cell strains to be tested with the same gene (for example, detecting mycoplasma)

iGEM Competition, Lab of Prof. Zhixiong Xie **April 2021-October 2021**

College of Life Science, Wuhan University, Wuhan, China

Using synthetic biology to provide a cure to acne

● Using directed evolution to decrease leaky expression and increase sensitivity of a fatty acid sensitive promoter

Honors & Awards

● Merit student (for top 10% of students) **Sept. 2021**

● Top 10 students of Wuhan University (for 10 out of entire undergraduate students, won this award as a member of iGEM team) **May. 2021**

● First class of Study Scholarship of Hongyi Honor College (for top 5% of students) **Sept. 2021**

● First class of Study Scholarship of Wuhan University (for top 5% of students) **Sept. 2021**

● Gold Award for iGEM 2021 competition **Oct. 2021**

● Best Measurement Nomination for iGEM 2021 competition **Oct. 2021**

● New Youth Pacesetter of Hongyi Honor College **June. 2022**

Skills

● Proficient in Molecular cloning; Experiments concerning *C. elegance* such as transgenic *C. elegance* construction, behavior assay, crossing, calcium imaging with microfluidic chips; *in vitro* biochemical assays, cell culturing; etc.

● Computer skills: C, HTML, CSS, Graphic Design, etc.