TIANFENG LU

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EDUCATION

Zhejiang University, *Chu Kochen* Honors College **August 2019-June 2023**
4th Year, BS in Biology Science (Qiushi Class)(major) *Major GPA: 3.97/4.00, 90.05/100,1st in the major*
Information and Computing Science(minor) *Overall GPA: 3.91/4.00, 88.78/100,1st in the major*

MAJOR COURSEWORK

- Molecular Biology(99)
- Cell Biology(94)
- Neurobiology(88)
- Genetics(92)

MINOR COURSEWORK

- Data Structures and Algorithms(98)
- Point Set Topology/Algebraic Topology(93/94)
- Ordinary Differential Equations(89)
- Probability Theory/Mathematical Statistics(95/97)
- Algebra II/Algebra III(85/78)
- Numerical Algebra(92)

RESEARCH INTERESTS

Computational Neuroscience, Computational Geometry & Topology, Neural Circuits, Multi-Omics Analysis

RESEARCH EXPERIENCE

Scientific research training I **May 2020-July 2020**
Mentored by Dr.Cunqi Ye *Life Sciences Institute, Zhejiang University*
I constructed plasmids, cloned PCR products and transformed *S. cerevisiae* to express fusion proteins (NLS-GST-GFP). The location change of this enzyme had a significant influence to survival in adversity.

Metabolic control of Drosophila trachea stem cell **August 2020-present**
Mentored by Dr.Hai Huang *School of Medicine, Zhejiang University*
This project focuses on the development of the Drosophila trachea. To study the influence of metabolic change on transcriptome, I performed the most of upstream processing and downstream bioinformatics analysis in this project including bulk RNA-seq and ChIP-seq. This work revealed a metabolic control induced by transcription cofactor Yki in progenitor cells during the Drosophila tracheal remodeling. For sake of a further understanding about this process, I depicted a single-cell atlas for the Drosophila trachea system. Our findings provided a transcriptome landscape and captured several genetic drivers in the trachea development.

Neural dynamics in general anesthesia **July 2022-September 2022**
Mentored by Dr.Zengcai Guo *IDG/McGovern institute, Tsinghua University*
Widefield imaging technique was utilized to record thousands of L2/3 pyramid neurons in general anesthesia. I wroted a novel cluster-based analysis pipeline to automatically extract reliable trace, decode low dimensional information and integrate different trials. Our result established an asymmetric model in awake-anesthesia transition, providing a cellular basis to estimate anesthesia depth and examining a few consciousness theories based on the similar reversible unconsciousness.

PUBLICATIONS

Li Y, Dong P, Yang Y, Guo T, Zhao Q, Miao D, Li H, **Lu TF**, Xia F, Lyu J, Ma J, Kornberg TB, Zhang Q, Huang H. Metabolic control of progenitor cell propagation during *Drosophila* tracheal remodeling. *Nat Commun* **13**, 2817 (2022). https://doi.org/10.1038/s41467-022-30492-4

SELECTED AWARDS AND HONORS

Second Prize in China High School Biology Olympiad *2018*
Academic Excellence Award & Zhejiang University Scholarship *2020, 2021, 2022*
First Class Scholarship for Top talents in Basic Sciences *2021, 2022*
Yongping Scholarship *2022*

For more details, please visit my personal website https://tianfeng-lu.github.io/