Tzu-Chiao Lu (盧子喬), Ph.D.

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Education

Ph.D.	Graduate Institute of Life Sciences, National Defense Medical Center, Taiwan	09/10– 10/17
M.S.	Institute of Molecular Biology, National Chung Cheng University, Taiwan	09/05 – 07/08
B.S.	Chemistry, National Chung Cheng University, Taiwan	09/00 – 06/04

Research experience

Baylor College of Medicine, Houston, U.S.

07/21 – present Postdoctoral Research Fellow under Dr. Hongjie Li

- Employed scRNA-seq methodologies for cross-species analysis
- Delved into the cellular-level transcriptomics of aging and disease

National Yang Ming Chiao Tung University, Taipei, Taiwan

10/17 – 07/21 Research Fellow under Dr. Ao-Lin Allen Hsu

- Spearheaded scRNA-seq projects focusing on worm samples
- Investigated mTOR pathway's translational regulation in mice
- Assessed potential lifespan-extending natural compounds
- Explored HSF-1's role in mediating worm longevity

Academia Sinica, Taipei, Taiwan

09/10 – 09/17 Ph.D. Candidate mentored by Wen-chang Lin and Jun-Yi Leu

- Uncovered *de novo* gene origins within the *Saccharomyces sensu stricto* genus
- Highlighted the rapid evolution of essential genes in *Saccharomycetaceae*

07/09 – 08/10 Research assistant under Wan-Sheng Lo

- Studied the regulatory role of Jhd2 in heterochromatin silencing in yeast

National Chung Cheng University, Chiayi, Taiwan

02/03 – 06/09 Research assistant, graduate student, and undergraduate student mentored by Hau-Ren Chen

- Investigated the interaction between the RNF2 protein and the coat protein of the Nervous Necrosis Virus (NNV)

Awards

2023 Roy M. Huffington Distinguished Lecture & Estella E. Medrano Award for Excellence in Aging Research

2017 National Defense Medical Center Research Poster Outstanding Award

2017 SMBE Conference Travel Grant

2014 IBMS, Academia Sinica Conference Travel Grant

Invited talks

2023 Aug. 10 PharmiGENE seminar, Taiwan (virtual)

2023 June 21 National Yang Ming Chiao Tung University College of Life Sciences, Taipei, Taiwan

2023 June 15 Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan

2023 June 9 Department of Biomedical Sciences, National Chung Cheng University, Chiayi, Taiwan

2023 June 7 Department of Biological Science and Technology, National Yang Ming Chiao Tung University, Hsinchu, Taiwan

2020 Dec. 14 HGT Bioinformatics Symposium and Workshop, Taipei, Taiwan

Publications

- Ye-Jin Park[*], **Tzu-Chiao Lu**[*], Tyler Jackson, Lindsey D. Goodman, Lindsey Ran, Jiaye Chen, Chung-Yi Liang, Erin Harrison, Christina Ko, Ao-Lin Hsu, Shinya Yamamoto, Yanyan Qi, Hugo J. Bellen[#], Hongjie Li[#]. Whole organism snRNA-seq reveals systemic peripheral changes in Alzheimer's Disease fly models. **bioRxiv 2024**
- Nadja S Katheder, Kristen C Browder, Diana Chang, Ann De Maziere, Pekka Kujala, Suzanne van Dijk, Judith Klumperman, **Tzu-Chiao Lu**, Hongjie Li, Zijuan Lai, Dewakar Sangaraju, Heinrich Jasper. Nicotinic acetylcholine receptor signaling maintains epithelial barrier integrity. **Elife 2023**
- Akira Mamiya, Anne Sustar, Igor Siwanowicz, Yanyan Qi, **Tzu-Chiao Lu**, Pralaksha Gurung, Chenghao Chen, Jasper S. Phelps, Aaron T. Kuan, Alexandra Pacureanu, Wei-Chung Allen Lee, Hongjie Li, Natasha Mhatre, John C. Tuthill. Biomechanical origins of proprioceptor feature selectivity and topographic maps in the Drosophila leg. **Neuron 2023**
- **Tzu-Chiao Lu**[*], Maria Brbić[*], Ye-Jin Park, Tyler Jackson, Jiaye Chen, Sai Saroja Kolluru, Yanyan Qi, Nadja Sandra Katheder, Xiaoyu Tracy Cai, Seungjae Lee, Yen-Chung Chen, Niccole Auld, Doug Welsch, Samuel D'Souza, Angela Oliveira Pisco, Robert C Jones, Jure Leskovec, Eric C Lai, Hugo J Bellen, Liqun Luo, Heinrich Jasper[#], Stephen R Quake[#], Hongjie Li[#]. Aging Fly Cell Atlas Identifies Exhaustive Aging Features at Cellular Resolution. **Science 2023** 380 (6650), eadg0934
- Chiao-Yin Lim, Huan-Ting Lin, Caroline Kumsta, **Tzu-Chiao Lu**, Feng-Yung Wang, Yun-Hsuan Kang, Malene Hansen, Tsui-Ting Ching, Ao-Lin Hsu. SAMS-1 coordinates HLH-30/TFEB and

PHA-4/FOXA activities through histone methylation to mediate dietary restriction-induced autophagy and longevity. **Autophagy 2023** 19 (1), 224-240.

- Baiping Wang, Heidi Martini-Stoica, Chuangye Qi, **Tzu-Chiao Lu**, Shuo Wang, Wen Xiong, Yanyan Qi, Yin Xu, Marco Sardiello, Hongjie Li, Hui Zheng. TFEB-vacuolar ATPase signaling regulates lysosomal function and microglial activation in tauopathy. **Nature Neuroscience. 2023**
- Elisa M Crombie, Seonyoung Kim, Stuart Adamson, Han Dong, **Tzu-Chiao Lu**, Yiju Wu, Yajun Wu, Yotam Levy, Nolan Stimple, Wing Moon R Lam, Hwee Weng D Hey, Dominic J Withers, Ao-Lin Hsu, Boon Huat Bay, Julien Ochala, Shih-Yin Tsai. Activation of eIF4E-binding-protein-1 rescues mTORC1-induced sarcopenia by expanding lysosomal degradation capacity. **Journal of Cachexia 2022**, Sarcopenia and Muscle
- Margaret Herre, Olivia V Goldman, **Tzu-Chiao Lu**, Gabriela Caballero-Vidal, Yanyan Qi, Zachary N Gilbert, Zhongyan Gong, Takeshi Morita, Saher Rahiel, Majid Ghaninia, Rickard Ignell, Benjamin J Matthews, Hongjie Li, Leslie B Vosshall, Meg A Younger. Non-canonical odor coding in the mosquito. **Cell 2022** 185 (17), 3104-3123. e28
- Hongjie Li, Jasper Janssens, Maxime De Waegeneer, Sai Saroja Kolluru, Kristofer Davie, Vincent Gardeux, Wouter Saelens, Fabrice PA David, Maria Brbić, …, **Tzu-Chiao Lu**, …, Norbert Perrimon, Bart Deplancke, Stephen R Quake, Liqun Luo, Stein Aerts. Fly Cell Atlas: A single-nucleus transcriptomic atlas of the adult fruit fly. **Science 2022** 375 (6584), eabk2432
- Po-Chen Hsu, **Tzu-Chiao Lu**, Po-Hsiang Hung, Yu-Ting Jhou, Ahmed A A Amine, Chia-Wei Liao, Jun-Yi Leu. Plastic rewiring of Sef1 transcriptional networks and the potential of non-functional transcription factor binding in facilitating adaptive evolution. **Mol Biol Evol 2021** 38 (11), 4732-4747
- Surojit Sural, **Tzu-Chiao Lu**, Seung Ah Jung and Ao-Lin Hsu: HSB-1 Inhibition and HSF-1 Overexpression Trigger Overlapping Transcriptional Changes To Promote Longevity in *Caenorhabditis elegans*. **G3 (Bethesda) 2019**, 9:1679-1692.
- **Tzu-Chiao Lu**, Jun-Yi Leu, Wen-chang Lin: A Comprehensive Analysis of Transcript-Supported *De Novo* Genes in *Saccharomyces sensu stricto* Yeasts. **Mol Biol Evol 2017**, 34:2823-2838.