Liao Kuo

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EDUCATION

School of Biology and Biological Engineering **South China University of Technology** Sep. 2017- Jul. 2021

- B.E. in Biopharmaceutics (Cumulative GPA 3.5/4.0) *Guangzhou, China*
- Courses: Biochemistry, Cell Biology, Physiology, Molecular biology, Pharmacology et al.

School of Biology and Biological Engineering **South China University of Technology** Aug. 2021- Present

- M.S. in Biology (Cumulative GPA 3.7/4.0) *Guangzhou, China*
- Courses: Genomics, Bioinformatics, Genetics, Machine Learning et al.

RESEARCH EXPERIENCE

Avian Optic Tectum Structure, Function and Evolution Mar. 2023 - Oct. 2023

(Responsibility: study design, bioinformatic analysis, scientific writing)

- Used spatial omics and single-cell RNA transcriptome to reconstruct the landscape of avian optic tectum (OT)
- Analyzed the layer function and its mechanism of avian OT
- Compared with mice to understand the conservatism and innovation that existed in the evolution of vertebrate

Spatial Transcriptomic Reconstruction of Amniote Forebrain Evolution Jun. 2022 - Present

(Responsibility: bioinformatic analysis, scientific writing of the method section)

- Built the spatially resolved transcriptomic profiles of the amniote telencephalon, including turtles, birds, mice, and monkey
- Found key function genes and transcription factors that lead to convergent evolution of advanced functions in birds and mammals

(Sub-project of major national special project – **2030 China Brain Project**)

Prognostic Model Construction of Stromal Cells for Renal Cell Carcinoma Dec. 2021 - Apr. 2023

(Responsibility: study design, bioinformatic analysis, scientific writing**)**

- Built a cellular insight into renal cell carcinoma (RCC) with single-cell RNA sequencing technology
- Built up a prognostic model based on gene expression pattern for the clinical diagnosis of RCC

Construction of spatio-temporal atlas of human fetal brain Oct. 2023 - Present

(Responsibility: background investigation and bioinformatic analysis**)**

- The spatio-temporal omics sequencing and time sequence analysis were carried out on the fetal brain of GW8~GW21
- Focusing on the fetal brain in GW13 period, the whole brain transcriptome was reconstructed in 3D

PUBLICATIONS

- Spatial and Single-nucleus Transcriptomics Decoding the Molecular Landscape and Cellular Organization of Avian Optic Tectum. **Kuo Liao**, Ya Xiang, BFubaoqian Huangfu, Maolin Huang, Wenbo Xu, Youning Lin, Duoyuan Chen, Pingfang Liao, Zishi Wang, Lin Yang, Xinmao Tian, Zhenlong Wang*, Shiping Liu*, Zhenkun Zhuang*. ***iScience***. 2024. https://doi.org/10.1016/j.isci.2024.109009.
- A single-cell transcriptome analysis and prognostic model construction of stromal cells for renal cell carcinoma. **Kuo Liao**, Yifan Wang, Shuangxin Liu*, Quhuan Li*. ***bioRxiv***. 2023. https://doi.org/10.1101/202023.09.03.556072.
- Reconstructing the Evolution of the Mammalian and Avian Telencephalon through Spatial Molecular Architecture. Zhenkun Zhuang†, Fubaoqian Huang†, **Kuo Liao**†, Youning Lin†, Duoyuan Chen†, Hong Wang†, Jinfeng Huang, Maolin Huang, Yunqi Huang, Wenbo Xu, Yuting Yan, Tao Zhou, Yanru Zhang, Mengnan Cheng, Ying Lei, Chun Xu, Gilles Laurent, Jian Wang, Xun Xu, Longqi Liu, Zhenlong Wang*, Chengyu Li*, Robert K. Naumann*, Shiping Liu*. ***Cell***. 2024. *(In submission with journal collection for the China Brain Project)*
- Cross-species Single-cell Transcriptomics Reveals Neuronal Similarities and Heterogeneity in Amniote Pallium. Fubaoqian Huang†, **Kuo Liao**†, Pingfang Liao, Yunong Sun, Zihao Li, Yanru Zhang, Siyuan Jiang, Zhiyong Zhu,

Duoyuan Chen, Ying Lei, Youning Lin,*, Shiping Liu,*, Zhenkun Zhuang*. ***Zoological Research***. 2024. (*In submission*)

- Cross-species single-cell analysis reveals the influence of gene family evolution on amniotes brain cell type diversification. Duoyuan Chen†, Yuting Yan†, Yanru Zhang†, Zhenkun Zhuang†, Maolin Huang†, Youning Lin, Jinfeng Huang, Yunqi Huang, Wenbo Xu, Hong Wang, Fubaoqian Huang, **Kuo Liao**, Mengnan Cheng, Yinqi Bai, Gilles Laurent, Ying Lei, Yangang Sun, Jian Wang, Longqi Liu, Robert K. Naumann*, Chun Xu*, Xun Xu*, Zhenlong Wang*, Shiping Liu*. ***Cell***. 2024. *(In submission with journal collection for the China Brain Project)*
- Reversal of MYB-dependent suppression of MAFB expression overrides leukaemia phenotype in MLL-rearranged AML. A. Negri, C. Ward, A. Bucci, G. D'Angelo, P. Cauchy, A. Radesco, A. B. Ventura, D. S. Walton, M. Clarke, B. Mandriani, S. A. Pappagallo, P. Mondelli, **K. Liao**, G. Gargano, G. M. Zaccaria, L. Viggiano, F. M. Lasorsa, A. Ahmed, D. Di Molfetta, G. Fiermonte, M. Cives, A. Guarini, M. C. Vegliante, S. Ciavarella, J. Frampton*, G. Volpe*. ***Cell Death & Disease.*** 2023. 14, 763. https://doi.org/10.1038/s41419-023-06276-z.
- The Development of Immunotherapy for the Treatment of Recurrent Glioblastoma. Xudong Liu†, Zihui Zhao†, Wufei Dai, **Kuo Liao**, Qi Sun, Dongjiang Chen, Xingxin Pan, Lishuang Feng, Ying Ding, Shiyou Wei*. ***Cancers***. 2023; 15(17):4308. https://doi.org/10.3390/cancers15174308.

(†: contributed equally; *: corresponding author)

INTERNSHIP

BGI Research Bioinformatics analysis Sep. 2021 - Present

(BGI is one of the world's leading life science and genomics organizations, and one of top3 sequencing manufacturers)

- Participated in the research and development of COVID-19 detection integrated machine
- Participated in the brain evolution analysis project as a major member
- Participated in the comparison of different tools in single cell and spatial omics field

HONORS AND AWARDS

- Gold Award in the 6th China International College Students' "Internet+" Innovation and Entrepreneurship Competition
- China National Scholarship for Encouragement
- Excellent Student Cadre of South China University of Technology

SKILLS

Languages: Fluent in written and spoken English (**IELTS 7.0**); Mandarin (**native**)

Coding/Software: R, Python, shell; Linux Operating System; Microsoft Office, Adobe Photoshop and Illustrator, etc.