

Curriculum Vitae Qi Guo

CONTACT INFORMATION

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GitHub: <https://github.com/1QiGuo>

EDUCATION

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|-------------------------|---|-----------------------|
| Graduate student | Biomedical informatics
The Ohio State University, Columbus, OH, USA
Advisors: Prof. Qin Ma, Prof. Phillip Popovich
Training: <i>Bioinformatics, Computational system biology, Spinal cord injury, and Neuroinflammation.</i> | 2022 - present |
| B.E. | Biomedical engineering
Harbin Medical University, China
Advisors: Xia Li, Yingqi Xu.
Training: <i>Bioinformatics, Pharmaco-Informatics</i> | 2018 - 2022 |

RESEARCH INTEREST

- Single-cell and spatial multi-omics analysis
- Cell-cell communication prediction
- Neurological diseases, such as spinal cord injury and Alzheimer's Disease
- Neuroinflammation

RESEARCH EXPERIENCES

- **Exploring the Role of Microglia with Neuronal Regeneration in Spinal Cord Injury Repair using single-cell data.**
Supervisors: Prof. Qin Ma and Prof. Phillip Popovich
*Graduate Research Assistant, Ohio State University***2022 - present**
- **Using spatial transcriptomics and single-cell omics to reveal molecular associations with the middle temporal gyrus in Alzheimer's disease.**
Supervisors: Prof. Qin Ma and Prof. Hongjun Fu
*Graduate Research Assistant, Ohio State University***2022 - 2023**
- **Elucidation of the Dynamic Mechanism of Cardiac Hypertrophy to Heart Failure and Precision Medication based on Single-cell Progress Reconstruction, Cell Interaction, and Co-expression Network.**
Supervisors: Prof. Xia Li and Prof. Yingqi Xu
*Undergraduate thesis project, Harbin Medical University***2021 - 2022**
- **Detection and Validation of SNV and CNV in Liver Cancer Utilizing Second-Generation Sequencing Data.**
Supervisor: Prof. Zhaoqi Liu
*Internship project at Beijing Institute of Genomics, Chinese Academy of Science***06/2021**
- **Integrating Genomic Data and Environmental Factors for a Newborn Genetic Disease Risk Prediction Platform in Single-Gene Disorders**
Supervisor: Prof. Yihan Wang
*Undergraduate Students' Innovative Entrepreneurial Training Program, Harbin Medical University***2019 - 2020**
Team Leader

PUBLICATION

- Faith H Brennan, Yang Li, Cankun Wang, Anjun Ma, **Qi Guo**, Yi Li, Nicole Pukos, Warren A Campbell, Kristina G Witcher, Zhen Guan, Kristina A Kigerl, Jodie CE Hall, Jonathan P Godbout, Andy J Fischer, Dana M McTigue, Zhigang He, Qin Ma, Phillip G Popovich. Microglia coordinate cellular interactions during spinal cord repair in mice. *Nat Commun* 13, 4096 (2022). <https://doi.org/10.1038/s41467-022-31797-0>
- Shuo Chen, Yuzhou Chang, Liangping Li, Diana Acosta, Yang Li, **Qi Guo**, Cankun Wang, Emir Turkes, Cody Morrison, Dominic Julian, Mark E Hester, Douglas W Scharre, Chintda Santiskulvong, Sarah XueYing Song, Jasmine T Plummer, Geidy E Serrano, Thomas G Beach, Karen E Duff, Qin Ma, Hongjun Fu Spatially resolved transcriptomics reveals genes associated with the vulnerability of middle temporal gyrus in Alzheimer's disease. *acta neuropathol commun* 10, 188 (2022). <https://doi.org/10.1186/s40478-022-01494-6>

PREPRINT MANUSCRIPT

- Ricardo D'Oliveira Albanus, Gina M Finan, Logan Brase, Shuo Chen, **Qi Guo**, Abhirami Kannan, Mariana Acquarone, Shih-Feng You, Brenna C Novotny, Patricia M Ribeiro Pereira, John C Morris, David M Holtzman, Eric McDade, Martin Farlow, Jasmeer P Chhatwal, Dominantly Inherited Alzheimer Network (DIAN), Emily E Mace, Bruno A Benitez, Laura Piccio, Greg T Sutherland, Qin Ma, Hongjun Fu, Celeste M Karch, Oscar Harari, Tae-Wan Kim. Systematic characterization of brain cellular crosstalk signaling networks in Alzheimer's disease reveals a novel role for SEMA6D in TREM2-dependent microglial activation. bioRxiv. (2022). <https://doi.org/10.1101/2022.11.11.516215>.

MANUSCRIPT IN PREPARATION

- **Qi Guo**, Kristina Kigerl, Asghari Adib, Elham, Phillip Popovich, Qin Ma. An Integrated Mouse Spinal Cord Atlas Revealing Microglia Phenotypes in Health and Injury Conditions. In Preparation. 2023
- Kristina Kigerl, **Qi Guo**, Asghari Adib, Elham, Qin Ma, Phillip Popovich. Single-cell transcriptome analysis characterizes transcripts alteration of the spinal cord affected by gut microbiome after spinal cord injury. In Preparation. 2023

ABSTRACT & PRESENTATION

- **Qi Guo**, Kristina Kigerl, Phillip Popovich*, Qin Ma*. Gut microbiota modifies microglia transcriptome after spinal cord injury. Abstract and Oral Presentation. The 2023 OSU – NRI Summer Symposium. Columbus, OH. Presenter: Qi 06/23/2023
- **Qi Guo**, Kristina Kigerl, Elham Asghari Adib, Anjun Ma, Cankun Wang, Yi Jiang, Qin Ma*, Phillip Popovich*. An Integrated Mouse Spinal Cord Atlas Revealing Microglia Phenotypes in Health and Injury Conditions. Abstract and Oral Presentation. Advanced Computational Neuroscience Network (ACNN). Columbus, OH. Presenter: Qi 09/14/2023

CONFERENCE POSTER

- **Qi Guo**, Kristina Kigerl, Elham Asghari Adib, Anjun Ma, Cankun Wang, Yi Jiang, Qin Ma*, Phillip Popovich*. An Integrated Mouse Spinal Cord Atlas Revealing Microglia Phenotypes in Health and Injury Conditions. Advanced Computational Neuroscience Network (ACNN). Columbus, OH. 09/14/2023

LEADERSHIP ROLES and COMMUNITY SERVICE

- Volunteer, Asian Festival Member 2023
- Youth Volunteers Association 2018-2022
- Vice Leader, Vocal Group of Art Troupe 2019-2020
- Officer, Learning Department of Student Union 2018-2019

OTHER INFORMATION

- **Patent:** Haiping Guo, Qi Guo. An Absorbable Left Atrial Appendage Clip, Patent No.: ZL 2020 2 1164863.X, 05/25/2021, Utility Model Patent.
- **Programming:** R, Python, HTML, and Linux.
- **Bioinformatics Methods:** skilled in RNA-seq analysis, Metabonomic analysis; Pharmacogenomics; Computer-aided drug design; Network Analysis (Random walking), WGCNA; Multivariate analysis, Univariate difference analysis; Survival Analysis; Machine Learning; Cystoscape.