

Xiangyu Li

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EDUCATIONAL BACKGROUND

Central South University — Hunan, China

- **PhD candidate**, School of Life Sciences (Genetics) — Period: Sep 2019 – Present
- **Joint-Supervision Program:** Professor Jiada Li and Yousheng Shu

Central South University — Hunan, China

- **Bachelor of Science**, Biological Science — Period: Sep 2015 – Jun 2019
- **Honors:** Excellent Graduates of Central South University

RESEARCH EXPERIENCES

Project: Neural mechanisms underlying social deficits in Prader–Willi Syndrome (PWS)

- Elucidated the neural mechanism underlying social deficits in Prader–Willi Syndrome by characterizing Necdin knockout mice.
- Discovered that loss of Necdin leads to an increased excitation–inhibition (E/I) ratio via whole-cell patch-clamp recordings.
- Demonstrated the causal link between synaptic dysfunction and social behavior deficits, identifying a potential therapeutic target for PWS.
- **Outcome:** Published as First Author in Molecular Psychiatry (Accepted).

PUBLICATIONS

1. **Xiangyu Li**, Ibrahim M. I. Bader, Xing Li, Renbin Lu, Yousheng Shu, Jing Zhang and Jiada Li. *Loss of Prader–Willi protein Necdin leads to increased excitation–inhibition ratio and social deficit in mice*. Molecular Psychiatry. 2025: 1–13. (Q1, IF: 10.1)
2. Chenjun Mu, Pan Liu, Liang Liu, Yaqing Wang, Kefu Liu, **Xiangyu Li**, et al. *KCTD10 p.C124W variant contributes to schizophrenia by attenuating LLPS-mediated synapse formation*. PNAS. 2024;121(48):e2400464121. (IF: 9.4)
3. Dengfeng Liu, Zhengyu Xie, Panyang Gu, **Xiangyu Li**, Yi Chun Zhang, et al. *Cry1A11 mutation induces ADHD-like symptoms through hyperactive dopamine D1 receptor signaling*. JCI Insight. 2023;8(16):e170434. (Q1, IF: 6.1)

4. Qingtao Gao, Runyi Tian, Hailong Han, Jesse Sloane, Caifang Wang, Xiao Ke, Tongmei Zhang, **Xiangyu Li**, et al. *PINK1-mediated Drp1 S616 phosphorylation modulates synaptic development and plasticity via promoting mitochondrial fission*. *Signal Transduct Target Ther.* 2022;7:103. (IF: 39.3)
5. **Xiangyu Li**, Jiada Li. *Social Behavior Experimental Methods*, Animal Behavior Experimental Methodology (Chapter IX). Published July 2023.

RESEARCH FUNDING & CONFERENCE POSTERS

Research Funding

- **Project Manager**, "Electrophysiological phenotype of Pogz knockout mice," Central South University (¥50,000), 2020–2023. Project Number: 12700-150110008.

Conference Posters

- 2023: Loss of Prader–Willi Protein Necdin Leads to Increased Excitation–Inhibition Ratio and Social Deficit in Mice. The 16th Annual Meeting of Chinese Neuroscience Society & The 2nd CJK International Meeting (Abstract and Poster).
- 2021: Deletion of Necdin Leads to Social Deficits in Mouse. The Second Medical Interdisciplinary Graduate Student Innovation Forum of Central South University (The Third Prize).

INTERNSHIP & POPULAR SCIENCE ACTIVITY

ByteDance (Doubao Team) — STEM Expert Committee Member (Intern)

- Jul 2025 – Present: Constructed high-quality SFT and RLHF datasets for life sciences; designed 50+ complex prompts and ground truths targeting molecular biology and neuroscience.
- Established a domain-specific evaluation benchmark for biomedicine and formulated strict accuracy and safety standards.
- Utilized expert human feedback (RLHF) to significantly enhance model credibility in scenarios like gene editing and experimental design.

DEER TECHNOLOGY (CHONGQING) CO., LTD — Technical Director

- 2023 – Present: Developed a markerless pose-estimation platform using DeepLabCut to identify and track multiple mice; engineered features for identifying complex behaviors and analyzing gait via foot pressure measurement.

CSU_CHINA iGEM team — Team Leader and Advisor

- Jan 2018 – Nov 2021: Secured \$50,000 in annual grants; led a 12-member team to a Silver Award (2018) and advised teams to achieve Gold Awards (2019–2020).

2019 International Symposium on Cryobiology and Living Biobanking — Parallel Session Organizer & Media Liaison Officer

- Jul 2019 – Oct 2019: Organized the college student forum and led a 12-member team; coordinated conference publicity across multiple media outlets.

SKILLS

- **Wet Lab: Electrophysiology & Imaging**
 - Electrophysiology: Whole-cell and Cell-attached patch-clamp recordings; installation and maintenance of Axon patch-clamp systems.
 - Microscopy: Confocal imaging and Super-resolution imaging (Airyscan); Immunohistochemistry (IHC).
- **Molecular Biology & Genetics**
 - Stereotaxic viral injection (AAV); mouse genetics (generation and breeding of KO/KI/conditional lines).
 - Immunoblotting (WB), PCR, and Real-time PCR.
- **Behavioral Neuroscience**
 - Experimental paradigms: Three-chamber social interaction, Novel Object Recognition, Reciprocal interaction tests.
 - Platform development: Integrated foot-pressure measurement for gait analysis in freely moving mice; automated tracking with DeepLabCut.
- **Bioinformatics & Data Analysis**
 - Programming: MATLAB, Python (for DLC), R.
 - Data visualization & statistics: SPSS, GraphPad Prism, Origin.
 - Image analysis & tools: ImageJ, Imaris, PyMOL, SnapGene.
Graphic design: Adobe Illustrator, Photoshop.