简历

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教育经历:

2005-2009	本科 (生物医学工程)	华中科技大学
2009-2014	博士 (生物物理)	华中科技大学

工作经历:

2014-2020	博士后	圣路易斯华盛顿大学
2021-2025	助理教授	澳门科技大学
2026-今	副教授	澳门科技大学

学术贡献:

离子通道蛋白广泛表达于人体每一个细胞，对维持人体众多生理活动至关重要。离子通道的异常开关可导致严重疾病（如心血管疾病、中风、癌症等），同时也是新药研发与疾病治疗的重要靶点。自 2009 年以来，我一直致力于心脑血管系统中关键离子信道的开关机制、病理机理以及新型治疗方案（新药开发）的研究，解决了该领域若干基础性科学难题，获得了广泛认可。相关研究成果以第一作者或通讯作者身份发表在 Cell Research（2 篇）、Circulation Research、PNAS、Nature Communications（2 篇）、eLife（2 篇）、Pharmacological Research 等权威期刊。

代表研究论文（#第一/共第一作者，*通讯/共同通讯作者）：

1. Xinyu Cheng, Shuangyan Wan, Dexiang Jiang, Hangyu Zhang, Bin Hu, Tong Che, Yuanpeng Chen, Weiwei Nan, Zhuo Zhou, Chenxin Xiao, Ling Zhong, Yuting Zhang, Bing Xiong, **Panpan Hou***, Jin Zhang*. Structural basis of the neuronal M-current generated by an asymmetric KCNQ2/3 assembly. ***Cell Research.*** 2026 May 25.
2. Ling Zhong, Xiaoqing Lin, Xinyu Cheng, Shuangyan Wan, Yaoguang Hua, Weiwei Nan, Bin Hu, Zhenzhen Yan, Dexiang Jiang, Hangyu Zhang, Fengjiao Liu, Chenxin Xiao, Zhuo Zhou, Haijie Yu, Lijuan Ma, Chen Huang, Vincent Kam Wai Wong, Sookja Kim Chung, Bing Shen, Zhi-Hong Jiang, Erwin Neher, Wandi Zhu, Jin Zhang*, **Panpan Hou***. Secondary structure transitions and dual PIP2 binding define cardiac KCNQ1-KCNE1 channel gating. ***Cell Research.*** 2025. 18(6).
3. Ling Zhong#, Zhenzhen Yan#, Dexiang Jiang, Kuo-Chan Weng, Yue Ouyang, Hangyu Zhang, Xiaoqing Lin, Chenxin Xiao, Huaiyu Yang, Jing Yao, Xinjiang Kang, Changhe Wang, Chen Huang, Bing Shen, Sookja Kim Chung, Zhi-Hong Jiang, Wandi Zhu, Erwin Neher, Jonathan R Silva*, **Panpan Hou*.** Targeting the IKs Channel PKA Phosphorylation Axis to Restore Its Function in High-Risk LQT1 Variants. ***Circulation Research.*** 2024 Sep 13;135(7):722-738.
4. **Panpan Hou***, Lu Zhao, Ling Zhong, Jingyi Shi, Hong Zhan Wang, Junyuan Gao, Huilin Liu, Joan Zuckerman, Ira S Cohen, Jianmin Cui*. The fully activated open state of KCNQ1 controls the cardiac “fight-or-flight” response. ***PNAS Nexus***. 2024 Oct 9;3(10).
5. Zhenzhen Yan#, Ling Zhong#, Wandi Zhu, Sookja Kim Chung, **Panpan Hou***. Chinese herbal

medicine for the treatment of cardiovascular diseases ─ targeting cardiac ion channels. ***Pharmacological Research***. 2023. 106765.

6. Demin Ma#, Ling Zhong#, Zhenzhen Yan, Jing Yao, Yan Zhang, Fan Ye, Yuan Huang, Dongwu Lai, Wei Yang*, **Panpan Hou***, Jiangtao Guo*. Structural mechanisms for the activation of human cardiac KCNQ1 channel by electro-mechanical coupling enhancers. ***PNAS.*** 2022. 119(45).
7. **Panpan Hou,** Po Wei Kang, Audrey Deyawe Kongmeneck, Nien-Du Yang, Yongfeng Liu, Jingyi Shi, Xianjin Xu, Kelli McFarland White, Mark A. Zaydman, Marina A. Kasimova, Guiscard Seebohm, Ling Zhong, Xiaoqin Zou, Mounir Tarek*, and Jianmin Cui*. Two-stage electro-mechanical coupling of a K_V channel in voltage-dependent activation. ***Nature Communications*.** 2020; 11: 676.
8. **Panpan Hou,** Jodene Eldstrom, Jingyi Shi, Ling Zhong, Kelli McFarland, Yuan Gao, David Fedida, Jianmin Cui*. Inactivation of KCNQ1 potassium channels reveals dynamic coupling between voltage sensing and pore opening. ***Nature Communications.*** 2017. 8(1):1730.
9. **Panpan Hou,** Jingyi Shi, Kelli McFarland White, Yuan Gao, Jianmin Cui*. ML277 specifically enhances the fully activated open state of KCNQ1 by modulating VSD-pore coupling. ***eLife.*** 2019. Jul 22;8.
10. Keenan C. Taylor#, Po Wei Kang#, **Panpan Hou**#, Nien-Du Yang, Georg Kuenze, Jarrod A. Smith, Jingyi Shi, Hui Huang, Kelli McFarland White, Dungeng Peng, Alfred L. George Jr., Jens Meiler, Robert L. McFeeters, Jianmin Cui*, and Charles R. Sanders*. Structure and Physiological Function of the KCNQ1 Channel Voltage Sensor Intermediate State. ***eLife.*** 2020. Feb 24;2.
11. Haowen Liu#, **Panpan Hou**#, Xiying Guo#, Zhiwen Zhao, Bin Hu, Xia Li, Lu-Yang Wang, Jiuping Ding*, Sheng Wang*. Structural Basis for Calcium and Magnesium Regulation of a Large Conductance Calcium-Activated Potassium Channel with β1 Subunits. ***J. Biol. Chem.*** 2014. 289:16914-16923.
12. Junnan Li, Zhenni Yang, Shaoying Zhang, Yangliang Ye, Jiangnan He, Yan Zhang, Huayun Han, Wan Kong, Jiangru Liu, Yu Min, Juwen Shen, Lianghe Mei, Zongsheng Chen, Panpan Hou, Jiangtao Guo, Qiansen Zhang & Huaiyu Yang*. Small molecule inhibits KCNQ channels with a non-blocking mechanism. ***Nature Chemical Biology***. 2025.(5)3874.
13. Shaoying Zhang, Demin Ma, Kun Wang, Ya Li, Zhenni Yang, Xiaoxiao Li, Junnan Li, Jiangnan He, Lianghe Mei, Yangliang Ye, Zongsheng Chen, Juwen Shen, **Panpan Hou**, Jiangtao Guo, Qiansen Zhang, Huaiyu Yang*. A small-molecule activation mechanism that directly opens the KCNQ2 channel. ***Nature Chemical Biology***. 2024.(3)7265.
14. Demin Ma, Yueming Zheng, Xiaoxiao Li, Xiaoyu Zhou, Zhenni Yang, Yan Zhang, Long Wang, Wenbo Zhang, Jiajia Fang, Guohua Zhao, **Panpan Hou**, Fajun Nan, Wei Yang, Nannan Su, Zhaobing Gao, Jiangtao Guo. Ligand activation mechanisms of human KCNQ2 channel. ***Nature Communications***. 2023 14:6632
15. Julian A. Schreiber, Melina Möller, Mark Zaydman, Lu Zhao, Zachary Beller, Sebastian Becker, Nadine Ritter, **Panpan Hou,** Jingyi Shi, Jon Silva, Eva Wrobel, Nathalie Strutz-Seebohm, Niels Decher, Nicole Schmitt, Sven G. Meuth, Martina Düfer, Bernhard Wünsch, Jianmin Cui, and Guiscard Seebohm. A benzodiazepine activator locks Kv7.1 channels open by electro-mechanical uncoupling. ***Communications Biology***. 2022. 5:3
16. Yangyang Lin#, Sam Z. Grinter#, Zhongju Lu#, Xianjin Xu#, Hong Zhan Wang, Hongwu Liang, **Panpan Hou,** Junyuan Gao, Chris Clausen, Jingyi Shi, Wenshan Zhao, Zhiwei Ma, Yongfeng Liu, Kelli McFarland White, Lu Zhao, Po Wei Kang, Guohui Zhang, Ira S. Cohen*, Xiaoqin Zou* & Jianmin Cui*. Modulating the voltage sensor of a cardiac potassium channel shows antiarrhythmic effects. ***PNAS.*** 2021 May 18;118(20).
17. Wandi Zhu, Andrea Mazzanti, Taylor L. Vwoelker, **Panpan Hou**, Jonathan D. Moreno, Paweorn Angsutararux, Kristen M. Naegle, Silvia G. Priori, Jonathan R. Silva*. Predicting Patient Response to the Antiarrhythmic Mexiletine Based on Genetic Variation: Personalized Medicine for Long QT Syndrome. ***Circulation Research.*** 2018. 124(4):539-552.

学术兼职:

中国神经科学学会离子通道与受体分会委员；
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1) 2018-2020
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4) 2023-2026
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Funding #: 0074/2022/A2
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