

CEBSIT Recent Publications

(2025.01-2025.12)

1. Zhang, L*., Xu, Z., Jia, Z., Cai, S., Wu, Q., Liu, X., Hu, X., Bai, T., Chen, Y., Li, T., Liu, Z., Wu, B., Zhu, J., **Zhou, H.***(2025) Modulating mTOR-dependent astrocyte substate transitions to alleviate neurodegeneration. *Nat Aging*.: 10.1038/s43587-024-00792-z
2. Luo, T., Xu, M., Zheng, Z., **Gouki, O.*** (2025)Limitation of switching sensory information flow in flexible perceptual decision making. *Nature Commmun.* 16: 172.
3. Zhu, W., Meng, J., Li, Y., Gu, L., Liu, W., Li, Z., Shen, Y., Shen, X., Wang, Z., Wu, Y., Wang, G., Zhang, J., Zhang, H., Yang, H., Dong, X., Wang, H., Huang, X., **Sun, Y.***, Li, C.* , Mu, L.* , **Liu, Z.*** (2025)Comparative proteomic landscapes elucidate human preimplantation development and failure. *Cell*. 188:p814-831.
4. Zhang, M., Feng, J., Xie, C., Song, N., Jin, C., Wang, J., Zhao, Q., Zhang, L., Wang, B., Sun, Y., Guo, F., Li, Y.* , **Zhu, S.***(2025)Assembly and architecture of endogenous NMDA receptors in adult cerebral cortex and hippocampus. *Cell*. In Press.
5. Sun, Y., Re, M., Zhang, Y., Li, S., Luo, Z., Sun, S., He, S., Wang, G., Zhang, D., Mansour, S., Song, L., **Liu, Z.***(2025)Cas21 is required for both inner hair cell fate stabilization and outer hair cell survival. *Science*. In Press.
6. Huang, X., Sun, X., Wang, Q., Zhang, J., Wen H., Chen, W.* , **Zhu, S.***(2025)Structural insights into the diverse actions of magnesium on NMDA receptors. *Neuron*. In Press.
7. Zhang, S., Xu, N., Fu, L., Yang, X., Ma, K., Li, Y., Yang, Z., Li, Z., Feng, Y., Jiang, X., Han, J., Hu, R., Zhang, L., Lian, D., Gennaro, L., Paparella, A., Ryabov, F., Meng, D., He, Y., Wu, D., Yang, C., Bian, X., Bian, X., Lu, Y., Antonacci, F., Ventura, M., Shepelv, V., Miga, K., Alexandron, I., Logsdon, G., Phillippy, A., Su, B., Zhang, G., Eichler, E., Lu, Q., Shi, Y., **Sun, Q.***, Mao, Y.*(2025)Integrated analysis of the complete sequence of a macaque genome. *Nature*. In Press.
8. Zhang J, Duan J, Li W, Wang X, Ren S, Ye L, Liu F, Tian X, Xie Y, Huang Y, Sun Y, Song N, Li T, Cai X, Liu Z, Zhou H, Huang C, Li Y, Zhu S, Guo F. (2025)An antidepressant mechanism underlying the allosteric inhibition of GluN2D-incorporated NMDA receptors at GABAergic interneurons. *Sci Adv*. 11(10):eadq0444.
9. Feng, X., Zhu, Z., Wang, H., Zhou, H., Liu, J., Shen, Y., Zhang, Y., **Xiong, Z.*** (2025) A Novel Mouse Model Unveils Protein Deficiency in Truncated CDKL5 Mutations. *Neurosci Bull*. 41: 805–820

10. Fang, W., Jiang, X., Chen, J., Zhang, C., **Wang, L.*** (2025) Oscillatory control over representational geometry of sequence working memory in macaque frontal cortex. **Curr Biol.** 2025 Mar 8:S0960-9822(25)00194-0.
11. Peng, Y.*, Feng, C., Peng, S., Wang, Y., Zhang, Q., Jiao, Z., Cao, H., Huang, S., Tian, P., Sun, X., Xu, X., Fu, Y., Hu, J.*, **Zhang, Z.*** (2025) GLP-2 prevents antipsychotics-induced metabolic dysfunction in mice. **Nat Metab.** 7:730–741.
12. Han, L.#, Liu, Z.#, Jing, Z.#, Liu, Y.#, Peng, Y.#, Chang, H.#, Lei, J.#, Wang, K.#, Xu, Y.#, Liu, W.#, Wu, Z.#, Li, Q., Shi, X., Zheng, M., Wang, H., Deng, J., Zhong, Y., Pan, H., Lin, J., Zhang, R., Chen, Y., Wu, J., Xu, M., Ren, B., Cheng, M., Yu, Q., Song, X., Lu, Y., Tang, Y., Yuan, N., Sun, S., An, Y., Ding, W., Sun, X., Wei, Y., Zhang, S., Dou, Y., Zhao, Y., Han, L., Zhu, Q., Xu, J., Wang, S., Wang, D., Bai, Y., Liang, Y., Liu, Y., Chen, M., Xie, C., Bo, B., Li, M., Zhang, X., Ting, W., Chen, Z., Fang, J., Li, S., Jiang, Y., Tan, X., Zuo, G., Xie, Y., Li, H., Tao, Q., Li, Y., Liu, J., Liu, Y., Hao, M., Wang, J., Wen, H., Liu, J., Yan, Y., Zhang, H., Sheng, Y., Yu, S., Liao, X., Jiang, X., Wang, G., Liu, H., Wang, C., Feng, N., Liu, X., Ma, K., Xu, X., Han, T., Cao, H., Zheng, H., Chen, Y., Lu, H., Yu, Z., Zhang, J., Wang, B., Wang, Z., Xie, Q., Pan, S., Liu, C., Xu, C., Cui, L., Li, Y., Liu, S., Liao, S., Chen, A., Wu, Q., Wang, J., Liu, Z., Sun, Y., Mulder, J., Yang, H., Wang, X.*, Li, C.*, Yao, J.*, Xu, X.*, Liu, L.*, **Shen, Z.***, Wei, W.*, **Sun, Y.*** (2025) Single-cell spatial transcriptomic atlas of the whole mouse brain. **Neuron.** 13:2141-2160.e9
13. Jiao, Z.#, Gao, T.#, Wang, X., Wang, A., Ma, Y., Feng, L., Gao, L., Gou, L., Zhang, W., Biglari, N., Boxer, E., Steuernagel, L., Ding, X., Yu, Z., Li, M., Gao, M., Hao, M., Zhou, H., Cao, X., Li, S., Jiang, T., Qi, J., Jia, X., Feng, Z., Ren, B., Chen, Y., Shi, X., Wang, D., Wang, X., Han, L., Liang, Y., Qian, L., Jin, C., Huang, J., Deng, W., Wang, C., Li, E., Hu, Y., Tao, Z., Li, H., Yu, X., Xu, M., Chang, H., Zhang, Y., Xu, H., Yan, J., Li, A., Luo, Q., Stoop, R., Sternson, S., Brüning, J., Anderson, D., Poo, M., **Sun, Y.***, **Xu, S.***, Gong, H.*, **Sun, Y.***, **Xu, X.***. (2025) Projectome-based characterization of hypothalamic peptidergic neurons in male mice. **Nat Neurosci.** 28:1073–1088.
14. Lei, Y., Liu, Y., Wang, M., Yuan, N., Hou, Y., Ding, L., Zhu, Z., Wu, Z., Li, C., Zheng, M., Zhang, R., Gomes, A., Xu, F., Luo, Z., Liu, Z., Chai, Q., Misery, P., Zhong, Y., Song, X., Lamy, C., Cui, W., Yu, Q., Fang, J., An, Y., Tian, Y., Liu, Y., Sun, X., Wang, R., Li, H., Song, J., Tan, X., Wang, H., Wang, S., Han, L., Zhang, Y., Li, S., Wang, K., Wang, G., Zhou, W., Liu, J., Yu, C., Zhang, S., Chang, L., Toplanaj, D., Chen, M., Liu, J., Zhao, Y., Ren, B., Shi, H., Zhang, H., Yan, H., Ma, J., Wang, L., Li, Y., Zuo, Y., Lu, L., Gu, L., Li, S., Wang, Y., He, Y., Li, S., Zhang, Q., Lu, Y., Dou, Y., Liu, Y., Zhao, A., Zhang, M., Zhang, X., Xia, Y., Zhang, W., Cao, H., Lu, Z., Yu, Z., Li, X., Wang, X., Liang, Z., Xu, S., Liu, C., Zheng, C., Xu, C., Liu, Z., Li, C., Sun, Y., Xu, X., Dehay, C., Vezoli, J., Poo, M., Yao, J.*, Liu, L.*, Wei, W.*, Kennedy, H.*, **Shen, Z.*** (2025) Single-cell spatial transcriptome atlas and whole-brain connectivity of the macaque claustrum. **Cell.** 14:3863-3881.e25.
15. Ding, Q., Song, W., Shi, X., Feng, Z., Chen, X., Xie, T., Liu, Y., Zhou, J., Chen, Y., Lin, J., Wang, Q., Zhou, H., Liang, T., Jiang, T., Ren, B., Yao, H., Li, Y., Evrard, H., Poo, M., Li, H., Li, X., Gong, H.,

- Todd, A., Li, A.*, Wang, X.*, Deng, J.*, **Sun, Y.*** (2025) Single-neuron projectome reveals organization of somatosensory ascending pathways in the mouse brain. **Neuron**. 113:2083-2101.e5.
16. Deng, Z., Fei, X., Zhang, S., **Xu, M.*** A time window for memory consolidation during NREM sleep revealed by cAMP oscillation. (2025) **Neuron**. 113(12):1983-1997.e7.
 17. Qin, H., Yu, S., Han, R., **He, J.*** Age-dependent glial heterogeneity and traumatic injury responses in a vertebrate brain structure. (2025) **Cell Rep**. 44(4):115508.
 18. Shao, Z., Zhang, M., **Yu, Q.*** Stimulus representation in human frontal cortex supports flexible control in working memory.(2025) **elife**. 24;13:RP100287.
 19. Li, J.*, Liu, M., Du, W., Peng, X., Deng, H., Zi, H., Shang, H.*, **Du, J.*** Neural-activity-regulated and glia-mediated control of brain lymphatic development.(2025) **Cell**. 12:3274-3290.e16
 20. Wu, X., Lu, B., He, J., Zhang, Y., Wu, Z., **Xiong, Z.*** Aberrant outputs of glutamatergic neurons in deep cerebellar nuclei mediate dystonic movements.(2025)**Sci Adv**. 11(19):eadp2377.
 21. Tian, Y., Kang, L., Ha, N., Deng, J., **Liu, D.*** Hydrogen peroxide in midbrain sleep neurons regulates sleep homeostasis.(2025) **Cell Metab**. 37(6):1442-1452.e7.
 22. Tu, C.*, Qian, C., Li, S., Lin, D., Liu, Z., Ouyang, W., Kang, X., Chen, F., Song, S., **Cai, S.*** Targeting the chromatin remodeler BAZ2B mitigates hepatic senescence and MASH fibrosis. (2025) **Nat Aging**. 5(6):1063-1078.
 23. Chen, Z., Liu, Y., Yang, Y., Wang, L., Qin, M., Jiang, Z., **Xu, M.***, Zhang, S. *Whole-brain mapping of basal forebrain cholinergic neurons reveals a long-range reciprocal input-output loop between distinct subtypes. **Sci Adv**. (2025) 11(22):eadt1617.
 24. Zeng, Z., Zhang, C., Xu, Y., He, H.*, **Gu, Y.*** (2025) Distinct neural population code and causal roles of primate caudate nucleus in multimodal decision-making. **Nature Communications** 16(1): 5253.
 25. Gou, L., Wang, Y., Gao, L., Liu, S., Wang, M., Chai, Q., Fang, J., Zhan, L., Shen, X., Jiang, T., Ren, W., Ren, M., Jia, X., Xiao, C., Li, A., Li, X., Luo, Q., Okazawa, G., Yang, T., Liu, Z., Poo, M., Yang, X.*, Shen, Z.*, Xu, C.*, **Yan, J.***(2025) Single-neuron projectomes of macaque prefrontal cortex reveal refined axon targeting and arborization. **Cell**. 188(14):3806-3822.e24.
 26. Li, L., Huang, Y., Lu, D., Fu, J., Wu, L., Chen, Z., Liao, H., Zhang, J., Li, L., Gu, T., He, F., Liu, H., Leng, X., Tang, J., Yan, J., Liu, C., Li, C., Huang, H., Wang, L., Liu, L., Li, C., Poo, M., Li, H.*, **Sun, Y.***, **Liu, Z.*** (2025)Identification and application of cell-type-specific enhancers for the macaque brain. **Cell**. 16:4382-4400.e27.

27. Chen, H., Tan, Q., Li, L., Li, L., Fu, J., Zhu, W., Li, J., Wang, Y., Li, S., Li, H., Sun, Y., Sun, Q., Lu, Z., **Liu, Z.*** (2025) Refined DNA repair manipulation enables a universal knock-in strategy in mouse embryos. **Nat Commun.**16(1):6502.
28. Liu, B., Luo, Q., Liang, Z.*, He, H.*, **Gu, Y.*** (2025)Robust single-trial decoding of physical self-motion from hemodynamic signals in the brain measured by functional ultrasound imaging. **Proc Natl Acad Sci U S A.** 122 (29) e2414354122
29. **Zhou, Y.***, Su, Y., Yang, Q., Li, J., Hong, Y., Gao, T., Zhong, Y., Ma, X., Jin, M., Liu, X., Yuan, N., Kennedy, B., Wang, L., Yan, L., Viaene, A., Helbig, I., Kessler, S., Kleinman, J., Hyde, T., Nauen, D., Liu, C., Liu, Z., Shen, Z., Li, C., Xu, S., He, J., Weinberger, D., Ming, G.*, Song, H. *(2025)Cross-species analysis of adult hippocampal neurogenesis reveals human-specific gene expression but convergent biological processes. **Nat Neurosci.**
30. Yan, W., Gao, Q., Zhou, Y., Xu, .P., Wu, Z., Yuan, T., Xie, L., You, Z., Zhang, X., Feng, B., Yang, S., **Chen, Y.***, **Xiong, M.*** (2025)Human stem cell-derived A10 dopaminergic neurons specifically integrate into mouse circuits and improve depression-like behaviors. **Cell Stem Cell.** 9:1457-1474.e7.
31. Mei, Y., Xu, Y., Zhang, X., Feng. B., Zhou, Y., Cheng, Q., Li, Y., Peng, X., Wu, M., Xie, L., Xiao, L., Zhou, W., **Chen, Y.***, **Xiong, M.***(2025) 3D cultured human medium spiny neurons functionally integrate and rescue motor deficits in Huntington ’ s disease mice. **J CLIN INVEST.** In Press.
32. Tao, R.*, Sun, L., Qian, Y., Huang, Y., Chen, Y., Guan, C., Wang, M., Sun, Y., **Du, J. ***(2025)Designed optogenetic tool for bridging single-neuronal multimodal information in intact animals. **Nat Commun.** 16(1):7764.
33. **Yu, X.***, Nollet, M., Franks, N.*, Wisden, W*. (2025)Sleep and the recovery from stress. **Neuron.** 113(18):2910-2926.
34. Wang, M., Shi, Q., Shao, Y., Jiang, M., Fu, A., Huang, Y., Wang, Q., Wei, L., Zhang, Z., Xu, J., Yang, T., Li, Y.*, **Wang, Z.*** (2025) Oxytocin-mediated empathy internally facilitates cooperative behaviors in rats. **Sci Bull.** 20: 3397-3408.
35. Yuan, Z., Sun, Q., Luo, J., Zhang, L., Zhang, Y., Guo, J., Wang, C., Yang, K., Yang, S., Cao, Y., Shen, Y., Cui, J., Cui, H., Sun, H., Ma, T., Xu, X., Liu, C., Wang, T., Guo, A., Cheng, A., Zhang, L., Liu, J.*, Jiang, M.*, Tang, B.*, **Liu, J.*** (2025) Loss-of-function variations in solute carrier family 38 member 6 are associated with essential tremor. **Signal Transduct Target Ther.** 10(1):296.
36. Mao, D., **Gu, Y. ***(2025) Multisensory coding of self-motion and its contribution to navigation. 26(11):715-732.

37. Mao, S., Peng, W., Feng, Z., Chen, Y., Sun, J., Chen, H., Wang, P., Huang, P., Zhao, J., Wu, L., Wang, Y., Liu, J., Luo, H., Zang, Y., Yang, C., Qiao, X., Lu, Z., Wu, H., Chen, M., Sun, D., Xie, J.* , **Sun, Y.* , Zhou, C.*** (2025)Design of optimized epigenetic regulators for durable gene silencing with application to PCSK9 in nonhuman primates. **Nat Biotechnol.** In Press.
38. Zhang, Y., Song, T., Yang, C., Shen, Y., Yang, Y., Hu, X., Zhao, R., Wang, W., Wang, X., Liu, H., Yan, H., Jia, C., Liu, Y., Wu, X., Huang, H., Hu, X., Zhou, J., Tan, L., Lau, P., Wang, H., Poo, M., Zhou, P., Bi, G.* , Xiao, Y.* , **Liu, C.*** , Xu, F.* (2025)Whole-brain reconstruction of fiber tracts based on cytoarchitectonic organization. **Nat Methods.** 22:2639–2648.
39. Sun, L.* , Peng, X., Zi, H., Zhang, Z., Gong, Y., Li, J., Zhu, Y., Yang, Y., Cao, H., Hu, D., Wang, K., **Du, J.*** (2025)Globally patterned locus coeruleus-norepinephrine neuron-pericyte coupling orchestrates brain-wide vascular dynamics. **Neuron.** In Press.
40. Zhao, H.* , Xu, Y., Xue, B., Zhao, S., Zhang, M., Wu, X., Wang, T., Wen, Y., Li, S., Zhang, Q., Yang, Z., Sun, H., Pan, T., Lian, Y., Gao, X., Gao, C., Wang, Z., Wu, C., Zhang, C., Jian, X., Peng, L., Zhang, X., Wang, B., Wei, L., He, Y., Xia, D., Wu, Z., Yang, Q., Sun, Y., Ding, Y., Du, S., Xia, G., Jing, Y., Xu, H., Shi, W., Liu, J., He, L., Chen, Z., Cao, Y.* , Li, Z.* , **Shi, Y.*** (2025) Multi-ancestry genome-wide association analyses of polycystic ovary syndrome. **Nat Genet.** 57(11):2669-2681.
41. Gao, L., Wang, H., Chen, Y., Chen, Z., Deng, L., Liu, D., Ding, X., Le, Z., Liu, Y., Du, Y., Wang, Q., Dou, Y., Wang, D., Huang, Y., Zhan, L., Lei, S., Liu, Q., Jiang, T., Ren, M., Feng, Z., Li, A., Gong, H., Xu, X.* , Xu, C.* , Wang, X.* , **Yan, J. ***(2025) Integrative analysis of single-neuron projectomes links connectome, transcriptome, and function in the mouse cortex. **Neuron.** In Press.
42. Li, N., Zhao, B., Shen, X., He, H., Zhou, J., Zhang, J.* , Xu, L.* , Chen, X.* , **Xu, C. ***(2025)The Dorsal CA2 to Ventral CA1 Circuit Contributes to Spatial and Context-Dependent Memories. **Neurosci Bull.** In Press.
43. Li, S., Chen, J., Zhang, C., Tang, S., Xie, Y.* , **Wang, L.*** (2025) Flexible Use of Limited Resources for Sequence Working Memory in Macaque Prefrontal Cortex. **Nat Commun.** 16(1):10386.
44. Yang, Z., Zhang, L., Jiang, X., Yang, X., Ma, K., Yoo, D., Lu, Y., Zhang, S., Chen, J., Nie, Y., Bian, X., Han, J., Fu, L., Zhang, J., Ventura, M., Zhang, G., Sun, Q., Eichler, E., Mao, Y. (2025) Incomplete lineage sorting of segmental duplications defines the human chromosome 2 fusion site early during African great ape speciation. **Cell Genom.** 2:101079.
45. Chen, J.* , Yang, T.* , Liu, C.* , **Wang, Z.*** (2025) Towards biologically plausible DNN optimization: Replacing backpropagation and loss functions with a top-down credit assignment network. **Neurocomputing.** 28 :132330

46. Zhang, X., Wu, Z., He, H., Guan, Q., Ouyang, Q., Wang, R., Xie, L., Zhou, Y., Feng, B., Luo, Z., Xu, P., Yan, W., Hu, G., Li, J., Zhang, M., Zou, Y., Xu, X., Zhou, C., Cheng, Q., Liu, J., Gao, Q., Yang, S., Xiong, M.*, **Chen, Y.*** (2025) 3D-generation of high-purity midbrain dopaminergic progenitors and lineage-guided refinement of grafts supports Parkinson ' s disease cell therapy. *Cell Stem Cell*. 11:1758-1772.e8
47. Liu, T., Li, H., Gu, S.*, Sun, L., Zhang, R., Zu, J., Zhang, Y., Yu, S., Zheng, X., Yin, J., Chen, Q., He, J., Xu, B.*, **Du, J.*** (2025) NMDA receptors coordinate brain vascular development via neuron-to-endothelial tip cell crosstalk in zebrafish. *Nat Commun*. 16(1):10856.
48. Tong, C.*, Li, W., Zou, Y., Xia, Y., Pei, M., Zhang, K., Luo, Y., **Liang, Z.*** (2025) Norepinephrine-mediated arousal fluctuations drive inverted U-shaped functional connectivity dynamics. *Nat Commun*. 16(1):11318.
49. Ji, C., Zhang, Y., Lin, Z., Zhao, Z., Jiao, Z., Zheng, Z., Shi, X., Wang, X., Li, Z., Yu, S., Qu, Y., Wei, Y., Rui, T., Zheng, B., Xie, T., Shi, H., Wang, Q., Yu, X., Xu, X., Chen, J., Fan, J., Cai, W.*, **Li, Y.*** (2025) Activation of hypothalamic-pontine-spinal pathway promotes locomotor initiation and functional recovery after spinal cord injury in mice. *Nat Commun*. In Press.