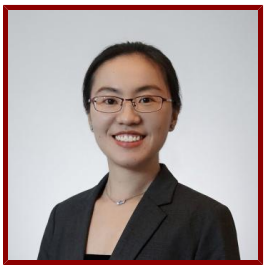
Stanford



Shu Zhang

Postdoctoral Scholar, Pathology

Bio

BIO

My research interest is the correlation between tumor heterogeneity and ecDNA, especially related to drug resistance.

HONORS AND AWARDS

- Outstanding Graduate of Peking University, Peking University (2020)

STANFORD ADVISORS

- Paul Mischel, Postdoctoral Faculty Sponsor

Research & Scholarship

LAB AFFILIATIONS

- Howard Chang, Chang lab (7/22/2022)
- Paul Mischel, Mischel lab (7/22/2022)

Publications

PUBLICATIONS

- **EcDNA-borne structural variants drive oncogenic fusion transcript amplification.** *Cell*
  Yi, H., Zhang, S., Swinderman, J., Wang, Y., Kanakaveti, V., Hung, K. L., Tsz-Lo Wong, I., Srinivasan, S., Curtis, E. J., Bhargava-Shah, A., Li, R., Jones, M. G., Luebeck, et al
  2026

- **Single-cell transcriptomics identifies divergent developmental lineage trajectories during human pituitary development** *NATURE COMMUNICATIONS*
  Zhang, S., Cui, Y., Ma, X., Yong, J., Yan, L., Yang, M., Ren, J., Tang, F., Wen, L., Qiao, J.
  2020; 11 (1): 5275

- **A single-cell transcriptomic landscape of primate arterial aging** *NATURE COMMUNICATIONS*
  Zhang, W., Zhang, S., Yan, P., Ren, J., Song, M., Li, J., Lei, J., Pan, H., Wang, S., Ma, X., Ma, S., Li, H., Sun, et al
  2020; 11 (1): 2202

- **A single-cell RNA-seq survey of the developmental landscape of the human prefrontal cortex** *NATURE*
  Zhong, S., Zhang, S., Fan, X., Wu, Q., Yan, L., Dong, J., Zhang, H., Li, L., Sun, L., Pan, N., Xu, X., Tang, F., Zhang, et al
  2018; 555 (7697): 524-+

- **Micronuclear ecDNA constrains tumor cell fitness and is associated with favorable patient survival.** *Nature genetics*
  Brückner, L., Xu, R., Tang, J., Gnanasekar, A., Herrmann, A., Wong, I. T., Zhang, S., Tu, F., Pilon, M., Kukalev, A., Pardon, K., Sidorova, O., Atta, et al

2026

- **scAmp enables focal gene amplification analysis from single-cell data.** *Nature communications*
  Jones, M. G., Weiser, N. E., Hung, K. L., Yan, X., Agarwal, S., Luebeck, J., Gnanasekar, A., Zhang, S., Wong, I. T., Tang, J., Howitt, B. E., Curtis, E. J., Yu, et al
  2026; 17 (1)

- **Accurate prediction of ecDNA in interphase cancer cells using deep neural networks.** *Communications biology*
  Prasad, G., Rajkumar, U., Curtis, E. J., Wong, I. T., Yan, X., Zhang, S., Brückner, L., Turner, K., Wiese, J., Wahl, J., Hemmati, H., Wu, S., Theissen, et al
  2026

- **Unveiling ecDNA spatial organization and epigenetic landscapes through long-read multi-omic sequencing and high-content microscopy.**
  Wang, Y., Yan, X., Weiser, N. E., Zhang, S., Tsz-Lo Wong, I., Huang, Y., Li, R., Altemose, N., Mischel, P. S., Chang, H. Y.
  AMER ASSOC CANCER RESEARCH.2026

- **Dynamic and defective repair of extrachromosomal DNA drives genome instability in cancer**
  Zhang, S., Wang, Y., Watkins, T. B., Yan, X., Gnanasekar, A., Tang, J., Wong, I. T., Chang, H. Y., Mischel, P. S.
  AMER ASSOC CANCER RESEARCH.2026

- **Reconstructing the three-dimensional architecture of extrachromosomal DNA with ec3D.** *Nature communications*
  Chowdhury, B., Zhu, K., Li, C., Alsing, J., Luebeck, J., Stefanova, M. E., Chapman, O. S., Kraft, K., Zhang, S., Lim, J. Y., Xie, Y., Kim, Y. J., Wu, et al
  2025

- **Oncogene Silencing via ecDNA Micronucleation.** *bioRxiv : the preprint server for biology*
  Brückner, L., Xu, R., Tang, J., Herrmann, A., Wong, I. T., Zhang, S., Tu, F., Pilon, M., Kukalev, A., Pardon, K., Sidorova, O., Atta, J., Yu, et al
  2025

- **Engineered extrachromosomal oncogene amplifications promote tumorigenesis.** *Nature*
  Pradella, D., Zhang, M., Gao, R., Yao, M. A., Gluchowska, K. M., Cendon-Florez, Y., Mishra, T., La Rocca, G., Weigl, M., Jiao, Z., Nguyen, H. H., Lisi, M., Ozimek, et al
  2024

- **Enhancing transcription-replication conflict targets ecDNA-positive cancers.** *Nature*
  Tang, J., Weiser, N. E., Wang, G., Chowdhry, S., Curtis, E. J., Zhao, Y., Wong, I. T., Marinov, G. K., Li, R., Hanoian, P., Tse, E., Mojica, S. G., Hansen, et al
  2024; 635 (8037): 210-218

- **PVT1 fusion on extrachromosomal DNA (ecDNA) increases oncogene RNA stability and cancer cell growth**
  Yi, H., Zhang, S., Jones, M. G., Belk, J. A., Swinderman, J., Shi, Q., Curtis, E. J., Kanakaveti, V. P., Mischel, P. S., Chang, H. Y.
  AMER ASSOC CANCER RESEARCH.2024

- **Cohesin prevents cross-domain gene coactivation.** *Nature genetics*
  Dong, P., Zhang, S., Gandin, V., Xie, L., Wang, L., Lemire, A. L., Li, W., Otsuna, H., Kawase, T., Lander, A. D., Chang, H. Y., Liu, Z. J.
  2024

- **CoRAL accurately resolves extrachromosomal DNA genome structures with long-read sequencing.** *Genome research*
  Zhu, K., Jones, M. G., Luebeck, J., Bu, X., Yi, H., Huang, K. L., Wong, I. T., Zhang, S., Mischel, P. S., Chang, H., Bafna, V.
  2024

- **Single-cell transcriptomic profiling reveals the tumor heterogeneity of small-cell lung cancer.** *Signal transduction and targeted therapy*
  Tian, Y., Li, Q., Yang, Z., Zhang, S., Xu, J., Wang, Z., Bai, H., Duan, J., Zheng, B., Li, W., Cui, Y., Wang, X., Wan, et al
  2022; 7 (1): 346

- **Cell-fate transition and determination analysis of mouse male germ cells throughout development** *NATURE COMMUNICATIONS*
  Zhao, J., Lu, P., Wan, C., Huang, Y., Cui, M., Yang, X., Hu, Y., Zheng, Y., Dong, J., Wang, M., Zhang, S., Liu, Z., Bian, et al
  2021; 12 (1): 6839

- **Single-cell transcriptome and genome analyses of pituitary neuroendocrine tumors** *NEURO-ONCOLOGY*
  Cui, Y., Li, C., Jiang, Z., Zhang, S., Li, Q., Liu, X., Zhou, Y., Li, R., Wei, L., Li, L., Zhang, Q., Wen, L., Tang, et al
  2021; 23 (11): 1859-1871

- **Decoding the development of the human hippocampus** *NATURE*
  Zhong, S., Ding, W., Sun, L., Lu, Y., Dong, H., Fan, X., Liu, Z., Chen, R., Zhang, S., Ma, Q., Tang, F., Wu, Q., Wang, et al
  2020; 577 (7791): 531-+