



Longzhi Tan

Postdoctoral Research Fellow, Bioengineering

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BIO

Originally from Wuhan, China, Tan received his bachelor's degree in Physics with a minor in Biology from Massachusetts Institute of Technology in 2012, after transferring from Peking University. He worked on bacterial evolution with Jeff Gore, and human evolution with Pardis Sabeti. Tan earned his PhD in Systems Biology from Harvard University in 2018. He worked with Xiaoliang Sunney Xie to develop new methods for single-cell genomics. He uncovered the 3D structure of the human genome in a single cell, and revealed unique chromosome organization in the mouse eye and nose. He also attended the Neurobiology summer course at the Marine Biological Laboratory in 2014, and worked with Ibrahim Cisse at MIT in 2019. Tan is currently a postdoctoral scholar in Karl Deisseroth's lab at Stanford University, studying single-cell 3D genome changes and spatial transcriptome changes in normal behaviors and psychiatric disorders. Outside of the lab, he enjoys designing holiday cards, t-shirts, and music videos, and is a scientific illustrator.

HONORS AND AWARDS

- The Walter V. and Idun Berry Postdoctoral Fellowship, Stanford University (2020 – 2023)
- School of Medicine Dean's Postdoctoral Fellowship, Stanford University (2020 – 2021)
- Grand Prize, Science & SciLifeLab Prize for Young Scientists (2019)
- International Student Research Fellowship, Howard Hughes Medical Institute (2015 – 2017)
- Member, Phi Beta Kappa (2012)
- Member, Sigma Pi Sigma (2012)
- Philip Morse Memorial Award, Massachusetts Institute of Technology (2012)
- Freshman Fellowship, Peking University (2008)
- Gold Medal, Asian Physics Olympiad (2008)
- Gold Medal and “the Absolute Winner”, International Physics Olympiad (2008)

PROFESSIONAL EDUCATION

- Ph.D., Harvard University , Systems Biology (2018)
- Summer course, Marine Biological Laboratory , Neurobiology (2014)
- S.B., Massachusetts Institute of Technology , Physics (minor: Biology) (2012)
- Freshman student, Peking University , Physics (2009)

STANFORD ADVISORS

- Karl Deisseroth, Postdoctoral Faculty Sponsor

PATENTS

- Xiaoliang Sunney Xie, Dong Xing, Chi-Han Chang, Longzhi Tan. "United States Patent WO2018217912A1 Multiplex end-tagging amplification of nucleic acids", President And Fellows Of Harvard College, May 23, 2017

LINKS

- Personal Website: tanlongzhi.com: <http://tanlongzhi.com>

Publications

PUBLICATIONS

- **Three-dimensional genome structure of a single cell.** *Science (New York, N.Y.)*
Tan, L.
2019; 366 (6468): 964–65
- **Three-dimensional genome structures of single sensory neurons in mouse visual and olfactory systems** *NATURE STRUCTURAL & MOLECULAR BIOLOGY*
Tan, L., Xing, D., Daley, N., Xie, X.
2019; 26 (4): 297–+
- **Three-dimensional genome structures of single diploid human cells** *SCIENCE*
Tan, L., Xing, D., Chang, C., Li, H., Xie, S.
2018; 361 (6405): 924–28
- **A Near-Complete Spatial Map of Olfactory Receptors in the Mouse Main Olfactory Epithelium** *CHEMICAL SENSES*
Tan, L., Xie, X.
2018; 43 (6): 427–32
- **Single-cell whole-genome analyses by Linear Amplification via Transposon Insertion (LIANTI)** *SCIENCE*
Chen, C., Xing, D., Tan, L., Li, H., Zhou, G., Huang, L., Xie, X.
2017; 356 (6334): 189–94
- **Olfactory sensory neurons transiently express multiple olfactory receptors during development** *MOLECULAR SYSTEMS BIOLOGY*
Tan, L., Li, Q., Xie, X.
2015; 11 (12): 844
- **Single Cell Transcriptome Amplification with MALBAC** *PLOS ONE*
Chapman, A. R., He, Z., Lu, S., Yong, J., Tan, L., Tang, F., Xie, X.
2015; 10 (3): e0120889
- **Rare event of histone demethylation can initiate singular gene expression of olfactory receptors** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Tan, L., Zong, C., Xie, X.
2013; 110 (52): 21148–52
- **Modeling Recent Human Evolution in Mice by Expression of a Selected EDAR Variant** *CELL*
Kamberov, Y. G., Wang, S., Tan, J., Gerbault, P., Wark, A., Tan, L., Yang, Y., Li, S., Tang, K., Chen, H., Powell, A., Itan, Y., Fuller, et al
2013; 152 (4): 691–702
- **SLOWLY SWITCHING BETWEEN ENVIRONMENTS FACILITATES REVERSE EVOLUTION IN SMALL POPULATIONS** *EVOLUTION*
Tan, L., Gore, J.
2012; 66 (10): 3144–54
- **Hidden Randomness between Fitness Landscapes Limits Reverse Evolution** *PHYSICAL REVIEW LETTERS*
Tan, L., Serene, S., Chao, H., Gore, J.
2011; 106 (19): 198102