

# Ji Hu (胡霁)

Principal Investigator and Assistant Professor  
1000 Talented Young Scholar(青年千人)  
School of Life Science and Technology, ShanghaiTech University  
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## EDUCATION

**National Institute of Biological Sciences, Beijing** 2005-2008  
Ph.D. in Neurobiology  
Dissertation: "Detection of near-atmospheric concentrations of CO<sub>2</sub> by an olfactory subsystem in the mouse"

**Institute of Neuroscience, Chinese Academy of Sciences** 2003-2005  
Ph.D. candidate in Neuroscience, transferred to National Institute of Biological Sciences

**Huazhong University of Science and Technology** 1999-2003  
B.S., major: Biotechnology

## RESEARCH EXPERIENCE

**Assistant Professor, ShanghaiTech University** 2014-present  
- To develop new techniques to illuminate deep brain structure and dynamics.  
(Optogenetics, Transgene/virus based neural tract tracing, Multiple optetrode recording, Grin lens based deep brain Ca<sup>2+</sup> imaging)  
- To investigate how the odorant information are encoded in higher brain area.  
- To investigate the neural mechanism for mood regulation

**Principal Investigator, Xi'an Jiaotong University** 2013-2014  
- To develop new techniques to illuminate deep brain structure and dynamics.

**Postdoctoral Associate, Massachusetts Institute of Technology** 2009-2013  
Advisor: Li-Huei Tsai  
- Investigated the mechanism of neurodegeneration at the circuitry level and applied the optogenetical approaches to restore the learning and memory after neurodegeneration.

**Postdoctoral Associate, National Institute of Biological Sciences** 2008-2009  
Advisor: Minmin Luo  
- Identified the role of GC-C in midbrain dopamine neuron using perforated patch recording and behavioral analysis.

**Ph.D. Student, National Institute of Biological Sciences, Beijing**  
**Institute of Neuroscience, Chinese Academy of Sciences** 2003-2008  
Advisor: Minmin Luo

- Revealed that mammalian necklace olfactory system is dedicated to detect atmospheric CO<sub>2</sub>.

**Undergraduate Research Assistant, Huazhong University of Science and Technology** 1998-1999

Advisor: Anlian Qu

- Designed the electrical circuitry to control micro-manipulator for patch recording.

## **PUBLICATIONS**

1. **Hu J\***, Zhong C\*, Ding C, Chi Q, Walz A, Mombaerts P, Matsunami H, and Luo M (2007) Detection of near-atmospheric concentrations of CO<sub>2</sub> by an olfactory subsystem. **Science** 317:953-957. (\*co-first author)
2. Sun L, Wan H, **Hu J**, Han J, Matsunami H, and Luo M (2009) Guanylyl cyclase-D in the olfactory CO<sub>2</sub> neurons is activated by bicarbonate. **PNAS** 106:2041-2046.
3. Luo M, Sun L, and **Hu J** (2009) Neural detection of gases—carbon dioxide, oxygen—in vertebrates and invertebrates. **Curr Opin Neurobiol** 19:354-361.
4. Gao L, **Hu J**, Zhong C and Luo M (2010) Integration of CO<sub>2</sub> and odorant signals in the mouse olfactory bulb. **Neuroscience** 170:881-892.
5. Gong R\*, Ding C\*, **Hu J\***, Lu Y, Liu F, Mann E, Xu F, Cohen MB and Luo M\* (2011) Role for the membrane receptor guanylyl cyclase-C in attention deficiency and hyperactive behavior. **Science** 333:1642-1646. (\*co-first author)
6. **Hu J**, Tsai L. Recovery of learning and memory by optogenetical stimulation of basal forebrain cholinergic system after severe neurodegeneration. in preparation