Ji Hu ( )

Principal Investigator and Assistant Professor
1000 Talented Young Scholar( )
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 CO2 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 Unvierisity 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^{2+} 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 Unvierisity 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_2.

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 CO2 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 CO2 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 Opinion Neurobiol*** 19:354-361.

4. Gao L, **Hu J**, Zhong C and Luo M (2010) Integration of CO2 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