**CURRICULUM VITAE**

**Hailan Hu**

Professor, Senior Investigator

Zhejiang University Interdisciplinary Institute of Neuroscience and Technology (ZIINT)

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**Education**

2002 Dec. Ph.D. in Neuroscience, University of California Berkeley,

 with Corey Goodman

1996 Jul.B.S. in Biochemistry and Molecular Biology, Beijing University

**Postdoctoral training**

2004-2008Cold Spring Harbor Laboratory/UCSD, with Roberto Malinow

2003-2004 University of Virginia, with Julius Zhu and Roberto Malinow

**Professional positions**

2015-present Professor, Senior Investigator, QiuShiAcademy for Advanced Studies/Medical School, Zhejiang University

2009-2015 Principal Investigator, Institute of Neuroscience, Chinese Academy of Sciences

1996-1997 Postgraduate researcher, University of California San Francisco

**Research interest**

 Emotions color our lives and profoundly shape the way we think and behave. Research in my lab aims to understand how emotional and social behaviors are encoded in the brain, with a main focus on the neural circuitry underlying depression and social dominance. Specifically we are looking into three major problems: First, we study how the brain represents emotions of different valence. Through simultaneously mapping the neural activity response to rewarding and aversive stimuli in the same mouse brain and at single cell resolution, we have identified a functional valence map. Second, we search for the molecular and circuit mechanism of depression, focusing on a brain region called habenula, which encodes negative reward. We have identified several key habenula-expressing molecules that play important roles in the etiology of depression. Third, we establish animal models for studying social hierarchy in mice and explore the neural mechanism underlying the dominance trait. We are recording and manipulating neural activity during social competition to study how dominance hierarchy arises from interplay between the activity of specific neural circuits and social experience such as history of winning or losing. We are tackling these problems using combinatorial techniques including imaging, electrophysiology (both *in vitro* and *in vivo*), molecular genetics and optogenetic. We hope that these studies will shed new light on the neural basis of some essential emotional and social behaviors, and provide therapeutic implications for the treatment of emotional disorders.

**Awards and honors**

2016 TanJiaZhen Life ScienceAward

2016 14th Chinese Young Scientist Award

2015 Chang Jiang Scholar Award

2015 12thL’Oreal Women Scientist Award of China

2015 Sanofi Scholar Award

2013 Meiji Life Science Outstanding Award

2012 Chinese Distinguished Young Scholar Award

2012, 2014 Excellent Mentorship Award of Chinese Academy of Sciences

2010-2012 Shanghai Pujiang Talent Award

2009-2012 Chinese Hundred Talent Plan Award

2003-2006 Damon Runyon Foundation Postdoctoral Fellowship

2002 HHMI and IBRO fellowships for MBL Neurobiology Course

1998-2003 Howard Hughes Medical Institute Predoctoral Fellowship

**Referee for** Science, Nature Medicine, Nature Neuroscience, Neuron, eLife, Current Biology etc.

**Committee Service:**

2015- 2018 SFN Program Committee

2013- 2015 IBRO Alumni Committee

2009- present Reviewer for Chinese National Science Foundation Grants

2010 Reviewer for UK MRC grant

**Teaching:**

2008-present Neurobiology (Lecture: The Autonomous Nervous System)

2012-2014 ION summer school (Lecture: Neural Mechanism of Emotion)

**Trainees present:**

Qiye He (associate professor, Postdoc with Julia Zeitlinger at Stowers Institute)

Yihui Cui (postdoc fellow, PhD with Laurent Venance at College de France)

Yan Yang (postdoc fellow, PhD with Yuqiu Zhang at Fudan University)

Hong Zhu (graduate student)

Tingting Zhou (graduate student)

Qi Zhang (graduate student)

Jihua Wang (graduate student)

Xunxun Chu (graduate student)

Zhengxiao Fan (master student)

Ying Xu (master student)

Yiyan Dong (graduate student)

**Ph.D students graduated (current position):**

Fei Wang (postdoc, HHMI Janellia Farm, with Barry Dickson)

Kun Li (postdoc, Rockefeller University, with Nathaniel Heintz)

JianboXiu (postdoc, Peking Union Medical School, with Qi Xu)

Tao Zhou (Assistant investigator, Shanghai Sci& Tech University)

**Undergraduate students trained (current position):**

Zhanmin Lin (graduate school, Erasmus Univ.)

Jia Shen (graduate school, SUNY/CSHL, US)

**Research Subjects**

[1] Neural representation of emotional valence

[2] Molecular and circuit mechanism of depression

[3] Neural circuit mechanism of social hierarchy

**Selected Publications**

1. **Hu H.** (2016) Reward and aversion. **Annual Review in Neuroscience**, in print(invited review)

2.LvQ, Yang L, LiG, Wang Z, ShenZ, Yu W, JiangQ, HouB, PuJ, **HuH**, Wang Z. (2015) Large-scale persistent network reconfiguration induced by ketamine in anesthetized monkeys: relevance to mood disorders. **Biological Psychiatry**, in print.

3. Xiu JB, Zhang Q, Zhou T, Zhou TT, **Hu, H**. (2014) Visualizing an emotional valence map in the limbic forebrain by TAI-FISH. ***Nature Neuroscience***,17:1552-1559 (Selected by **Faculty 1000**,)

4. Wang F, Kessels H\*, **Hu H\***. (2014)The mouse that roared - neural mechanisms of social hierarchy. ***Trends in Neuroscience***11:674-682(invited review, cover article, \* co-corresponding author)

5. Li, K, Zhou, T, Liao, L, Yang, Z, Wong, C, Henn, F, Malinow, R, Yates, J, **Hu, H.** (2013) βCaMKII in lateral habenula mediates core symptoms of depression. ***Science***, 341:1016-1020. (Highlighted in ***Nat. Rev. Neuro.***, ***JAMA***, selected by **Faculty 1000**)

6. Wang, F, Zhu, J, Zhu, H, Zhang, Q, Lin, Z, **Hu, H** (2011) Bidirectional control of social hierarchy by synaptic efficacy in medial prefrontal cortex. ***Science***, 334: 693-697. (Highlighted in ***Science***,)

7. **Hu, H\***, Qin Y\*, [Bochorishvili](https://www.researchgate.net/researcher/14802536_Genrieta_Bochorishvili) G, Zhu Y,Van Aelst, L, and Zhu, JJ. (2008) Ras signaling mechanism for impaired synaptic plasticity and AMPA receptor trafficking in a mouse model of fragile X syndrome (***Journal of Neuroscience***, 28(31): 7847-62.) (\* co-first author)

8.**Hu H**, Real E, Takamiya K, Kang MG, Ledoux J, Huganir R, Malinow R. (2007) Emotion Enhances Learning via Norepinephrine Regulation of AMPA-Receptor Trafficking. ***Cell*** 131: 160-73. (Highlighted in ***Nature*** Journal club and ***Nat. Rev. Neurosci.***)

9.**Hu H\***, Li M**\***, Labrador J, McEwen J, Lai EC, Goodman CS, Bashaw GJ. (2005) Cross GTPase-activating protein (CrossGAP)/Vilse links the Roundabout receptor to Rac to regulate midline repulsion. ***ProcNatlAcadSci***102(12): 4613-8. (\* co-first author)

10. Godenschwege TA, **Hu H**, Shan X, Goodman CS and Murphey RK. (2002) Bi-directional signaling by Semaphorin 1a during central synapse formation in Drosophila. ***Nature Neuroscience*** 5: 1294-301.

11. Bashaw GJ, **Hu H**, Nobes CD, Goodman CS. (2002) A novel Dbl family RhoGEF promotes Rho-dependent axon attraction to the central nervous system midline in Drosophila and overcomes Robo repulsion***. Journal of Cell Biology***155(7): 1117-1122. (Cover article)

12.**Hu H**, Marton T and Goodman CS. (2001) PlexinB Mediates Axon Guidance in Drosophila by Simultaneously Inhibiting Active Rac and Enhancing RhoA Signaling. ***Neuron*** 32(1): 39-51. (Highlighted in the Preview of ***Neuron***)

13. Driessens MH, **Hu H**, Nobes CD, Self A, Jordens I, Goodman CS, Hall A. (2001) Plexin-B semaphorin receptors interact directly with active Rac and regulate the actin cytoskeleton by activating Rho. ***Current Biology***, 11(5): 339-44.

14. Bellocchio EE, **Hu H**, Pohorille A, Chan J, Pickel VM and Edwards RH. (1998) The Localization of the Brain-Specific Inorganic Phosphate Transporter Suggests a Specific Presynaptic Role in Glutamatergic Transmission. ***J. Neurosci.***, 18(21): 8648-59.

**Invited Talks**

2017 MIT Picower Symposium on Neural Circuits of Emotion and Motivation, Boston, USA

2017 Gordon Conference on Excitatory Synapses & Brain Function, Diablerets, Switzerland

2017 Francis Crick Symposium of Neuroscience, Cold Spring Harbor Asia Conference, meeting

co-organizer, Suzhou, China

2016 UCSD symposium “Wiring and Functional Principles of Neural Circuits”, San Diego, USA

2016 Nature Conference on Neural Circuitry of Emotion, Shenzhen, China

2016 AnnualConference of Chinese Psychology Society, Plenary lecture, Chongqing, China

2016 Chinese-American Kavli Frontiers of Science Conference, Session organizer, Irvine, USA

2016 Korean Society of Neuroscience symposium talk, Seoul, Korea

2016 FENS meeting, symposium organizer, Copenhagen, Denmark

2016 “The Neurobiology of Mental Health” NCCR Conference, Geneva, Switzerland

2016 NYU-Shaghai seminar

2015 Biennial Conference of Chinese Neuroscience Society, Plenary lecture

 Wuzheng, China

2015 Francis Crick Symposium of Neuroscience, Cold Spring Harbor Asia Conference,

 Suzhou, China

2015 “From Neural Circuitry to Neurotechnology” meeting by AAA Science, RIKEN & IPSEN,

 Tokyo,Japan

2014 Society of Japanese Neuroscience Conference, symposium on aggression behavior, Japan

2014 RIKEN seminar, Japan

2014 Chinese-American Frontiers of Science Symposium

2014 Institute of Biophysics "Bei Shi Zhang" seminar, Chinese Academy of Sciences, Beijing

2013 FMI seminar, Basel, Switzerland

2013 EMBL seminar, Monterotondo, Italy

2013 Cold Spring Harbor Asia Conference, Francis Crick Symposium of Neuroscience:

 The Changing Brain. Suzhou, China

2013 CGSB Meeting of NYU, Abu Dhabi, UAE

2012 College de France, Paris, France

2012 University of Muenster/EMBL, Muenster, Germany

2012 The European Science Foundation/FENS conference on The Neurobiology of Emotion,

 Stressa, Italy.

2012 14th International Congress of Histochemistry and Cytochemistry (ICHC 2012). Kyoto, Japan.

 （**Session co-chair** on “Neurobiology of social behavior”）

2012 Cold Spring Harbor Asia Conference on Neural Circuit Basis of Behavior and its Disorders.

 Suzhou, China.

2011 Erasmus Univeristy, Department of Neuroscience seminar, the Netherlands.

2011 VU University of Amsterdam seminar, the Netherlands.

2011 4th Sino-German Frontiers of Science Symposium in Berlin

2010 Japan National Institute for Physiological Science meeting “Synapse”

2009 22nd Biennial Meeting of International Society of Neurochemistry, Young Scientist

Lecture, “In search of the Molecular and Circuit Mechanism of Depression”

2008 New York University, Center for Neural Science

2008 Mount Sinai Medical School

2008 Harvard University, Center for Brain Science

2008 MIT, Picower Center for Learning and Memory