Hechen Bao, Ph.D.

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EDUCATION

2007-2011	Shanghai Jiao Tong University, P.R. China	B.S.	Biotechnology
2011-2018	Shanghai Jiao Tong University, P.R. China	Ph.D.	Biology
2014-2017	University of North Carolina, Chapel Hill	Research Assistant	Adult Neurogenesis
2018-present	University of North Carolina, Chapel Hill	Postdoctoral	Adult Neurogenesis

RESEARCH SKILLS

In vivo optogenetics, in vivo chemogenetics, rodent behavioral assays, in vivo electrophysiology, in vivo fiber photometry, rabies-based retrograde tracing, immunohistology, molecular biology, cell culture.

RESEARCH INTERESTS

Adult neurogenesis, neural stem cells, neural circuit, cognition, mental disorders.

POSITIONS AND EMPLOYMENT

2018-present	Postdoctoral Associate, Dept. of Pharmacology, University of North Carolina, Chapel Hill
2015-2017	Research Assistant, Dept. of Pharmacology, University of North Carolina, Chapel Hill
2014.1-2014.7	Visiting Scholar, Dept. of Pharmacology, University of North Carolina, Chapel Hill
2011-2018	Graduate Student, Bio-X Institute, Shanghai Jiao Tong University, P.R. China
2009-2010	Undergraduate Research Volunteer, Shang Jiao Tong University, P.R. China
2010.2	Internship, ChemPartner Co., Shanghai, P.R. China

OTHER EXPERIENCES

2012-2014	Student Mentor, Genome to Biome Summer Internship Program (SJTU and Harvard undergraduates), Shanghai Jiao Tong University, P.R. China
2012.4	Staff, International Symposium on Molecular Cognition and Translation Research of Neuropsychiatric Disorders, Shanghai Jiao Tong University, P.R. China

PROFESSIONAL EXPERIENCES

Ad Hoc Reviewer:

Neurobiology of Learning and Memory (15), eNeuro (7), Brain and Behavior (7), Neuroscience (6), STAR Protocols (6), Molecular Brain (2), Neuroscience Letters (2), Frontiers in Psychiatry (1), (Publons, SfN RMP certified)

Guest Editor:

Neuroscience Letters (Adult Neurogenesis Special Issue)

Membership:

Society for Neuroscience

AWARDS

- 2019 Pharmacology Postdoc Excellence Award, University of North Carolina, Chapel Hill
- 2019 UNC Postdoc Travel Award, University of North Carolina, Chapel Hill
- 2019 Trainee Professional Development Award (TPDA), Society for Neuroscience
- 2019 Best Oral Presentation, Pharmacology Research Retreat, University of North Carolina, Chapel Hill
- 2019 Nominee of Excellent Doctoral Dissertations, Shanghai Jiao Tong University, P.R. China
- 2018 Distinguished Ph.D. Graduates of Shanghai, Shanghai Jiao Tong University, P.R. China
- 2017 Bio-X Awards, Shanghai Jiao Tong University, P.R. China

OTHER HONORS

- 2018 Journal cover designer of Trends in Molecular Medicine (volume 24 number 12)
- 2018 Article and cover selected as Best of 2017 for Cell Stem Cell (annual reprint)
- 2018 Journal cover designer of Stem Cell Reports (volume 10 number 3)
- 2017 Journal cover designer of Cell Stem Cell (volume 21 number 5)

PUBLICATIONS AND PRESENTATIONS

Publications:

- Luo Y[#], **Bao H**[#], Crowther AJ[#], Asrican B, Li YD, Tart DS, Deng F, Wan J, Zhang Li, Patel A, Song J*. Serotonin-1A receptors mediate sex-dependent regulation of neural stem cell expansion and stress vulnerability in adult hippocampus. 2022 (Under review)
- **Bao H**, Hu Z, Lee S, Kolagani R, Chao T, Luo Y, Ban W, Sullivan H, Alameda S, Yu Y, Hsieh J, Wickersham I, Brenner S, Shih Y, Song J*. Dysregulation of hippocampal adult-born immature neurons disrupts a brain-wide network for spatial memory. **2022** ***(In revision, preprint in bioRxiv)***
- Li Y, **Bao H**, Luo Y, Yoan C, Sullivan H, Quintanilla L, Wickersham I, Lazarus M, Shih Y, Song J*. Supramammillary nucleus synchronizes with dentate gyrus to regulate spatial memory retrieval through glutamate release. **eLife. 2020**
- Asrican B[#], Wooten J[#], Li Y, Quintanilla L, Zhang F, **Bao H**, Yeh CY, Wander C, Luo Y, Olsen R, Lim SA, Jin P, Song J*. Neuropeptides modulate local astrocytes to regulate adult hippocampal neural stem cells. **Neuron. 2020**
- Quintanilla L, Yeh CY, **Bao H**, Catavero C, Song J*. Assaying Circuit Specific Regulation of Adult Hippocampal Neural Precursor Cells. **JoVE. 2019**
- **Bao H**, Song J*. Treating Brain Disorders by Targeting Adult Neural Stem Cells. **Trends Mol Med. 2018** ***(Cover featured article, Invited review)***
- Yeh CY[#], Asrican B[#], Moss J, Quintanilla LJ, He T, Mao X, Cassé F, Gebara E, **Bao H**, Lu W, Toni N, Song J*. Mossy Cells Control Adult Neural Stem Cell Quiescence and Maintenance through a Dynamic Balance between Direct and Indirect Pathways. **Neuron. 2018** ***(Featured article, issue highlights)***
- Crowther AJ[#], Lim SA[#], Asrican B, Albright BH, Wooten J, Yeh CY, **Bao H**, Cerri DH, Hu J, Shih Y, Asokan A, Song J*. An Adeno-Associated Virus-Based Toolkit for Preferential Targeting and Manipulating Quiescent Neural Stem Cells in the Adult Hippocampus. **Stem Cell Reports. 2018** ***(Cover article)***
- **Bao H**[#], Asrican B[#], Li W[#], Gu B, Wen Z, Lim S, Haniff I, Ramakrishnan C, Deisseroth K, Philpot B, Song J*. Long-range GABAergic inputs regulate neural stem cell quiescence and control adult hippocampal neurogenesis. **Cell Stem Cell. 2017** ***(# Co-first authors, Cover featured article, Recommended by F1000, Best of 2017 Cell Stem Cell)***
- Liu K, Kim J[#], Kim D[#], Zhang Y[#], **Bao H**, Denaxa M, Lim S, Kim E, Liu C, Wickersham I, Pachinis V, Hattar S, Song J, Brown S, S. Blackshaw*. Lhx6-positive GABA-releasing neurons of the zona incerta promote sleep**. Nature. 2017**
- Catavero C, **Bao H**, J. Song*. Neural mechanisms underlying GABAergic regulation of adult hippocampal neurogenesis. **Cell Tissue Research. 2017**
- Chen L, Serdyuk T, Yang B, Wang S, Chen S, Chu X, Zhang X, Song J, **Bao H**, Zhou C, Wang X, Dong S, Chen F, He G, He L, Zhou Y, Li W*. Abnormal circadian oscillation of hippocampal MAPK activity and power spectrums in NF1 mutant mice. **Molecular Brain. 2017**
- Jesse F, Miao Z, Chen Y, **Bao H**, and Li W*. A constant illumination optical transmission method for free space biological networks. **Optical Molecular Probes, Imaging and Drug Delivery. 2015**
- Song W, Zhang K, Sun J, Ma L, Jesse F, Teng X, Zhou Y, **Bao H**, Chen S, Wang S, Yang B, Chu X, Ding W, Du Y, Cheng Z, Wu B, Chen S, He G, He L, Chen X, Li W*. A Simple Spatial Working Memory and Attention Test on Paired Symbols Shows Developmental Deficits in Schizophrenia Patients. **Neural Plasticity. 2013**

Oral presentations:

- 2019 Society for Neuroscience, Chicago. (selected nanosymposium speaker)
- 2019 Society for Neuroscience, Trainee Professional Development Awards Poster presentation, Chicago. (invited awardee presentation)
- 2019 Pharmacology Research Retreat, UNC Chapel Hill, NC (selected speaker, best oral presentation)
- 2017 Shenzhen Institutes of Advanced Technology, Shenzhen, China. (invited speaker)
- 2016 Society for Neuroscience, San Diego. (selected nanosymposium speaker)
- 2012 International Symposium on Molecular Cognition and Translation Research of Neuropsychiatric Disorders, Shanghai, China (poster presentation)