

GUAN WANG

Curriculum Vitae

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EDUCATION

Ph. D	2016	Neuroscience	Boston University
M. Sc.	2008	Genetics&Behavior	Chinese Academy of Sciences, China
B. Sc.	2005	Animal Science	Northwest A&F University, China

RESEARCH EXPERIENCE

2016 – Present Postdoctoral Research Scientist, Columbia University, New York City, NY

Mentor: Dr. Wayne Frankel

Projects: 1) Precision medicine of seizure based on animal models.

2009 – 2016 Ph. D student, Boston University, Boston, MA

Advisor: Dr. Hengye Man

Thesis: SIRT2 regulates AMPAR acetylation in synaptic plasticity and memory.

Other projects:

- 1) Single neuron genome sequencing and analysis.
- 2) A β -induced AMPAR ubiquitination in Alzheimer's disease.
- 3) Regulation of AMPAR synthesis in neurons by resveratrol.
- 4) Live-imaging of AMPAR dynamics at individual synapses.

2011, June Trainee in Cold Spring Harbor Laboratory

Summer Course in Cold Spring Harbor Laboratory: Ion Channel Physiology

Instructors: Dr. Nace Golding; Dr. Paul Kammermeier; Dr. Matthew Nolan.

2008 – 2009 Rotation PhD student, Boston University, Boston, MA

Advisor: Dr. Michael Baum; Dr. Matthew Wachowiak.

Projects: 1) Analysis of glomeruli activity in mice olfactory bulb.

- 2) *In vivo* fluorescent live-imaging of glomeruli activities in mice.

2005 – 2008 Master student, Inst of Zoology, Chinese Academy of Sciences, Beijing, China

Advisor: Dr. Fuwen Wei

Projects: 1) Local evolution of bitter taste receptor in wild giant pandas.

- 2) Seasonal changes of wild giant pandas behavior.

FELLOWSHIPS & AWARDS

Fulbright Sci & Tech International Outstanding Students Fellowship, 2008-2011.

Dean's Award of Graduate School of Arts & Sciences at Boston University, 2012-2015.

Teaching Fellowship of Graduate School of Arts & Sciences at Boston University, 2011-2012.
George Bernard Travel Award of Biology Department, Boston University, 2012
Award of Academic Excellence in Chinese Academy of Sciences, 2005-2006.
Award of Students Leadership in Chinese Academy of Sciences, 2005-2006.
Top Student Award of Academic Excellence at Northwest A & F University, 2001-2004.
Prize for Outstanding Students at Social Work, 2001-2002.

PUBLICATIONS

Wang, G., Li, S., Gritton, H., Li, Z., Han, X., Selkoe, D. J. and Man, H.-Y. (2016) SIRT2 regulates AMPA receptors acetylation in synaptic plasticity and memory, under revision for *Science*.

Wang, G., Gutierrez, D. and Man H.-Y. (2016) Non-scaling regulation of AMPA receptors in homeostatic synaptic plasticity, in submission to *J Neuroscience*.

Wang, G., Amato, S., Gilbert, J. and Man, H.Y. (2015) Resveratrol up-regulates α -amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid receptor expression via AMP-activated protein kinase – mediated protein translation, *Neuropharmacology*. 95: 144-153.

#Ning, L.W., #Li, Z.F., #**Wang, G.**, Hu, W., Hou, Q.M., Tong, Y., Zhang, M., Qin, L., Chen, X.P., Man, H.Y., Liu, P.H., He, J.K. (2015) Quantitative assessment of single-cell sequencing methods using hippocampal neurons, *Scientific Reports* 5: 11415 (#Equal contribution).

Wang, G., Gilbert, J. and Man, H.Y. (2012) Molecules and signaling cascades in AMPA receptor trafficking and homeostatic synaptic plasticity, *Neural Plasticity*, Vol. 2012:825364.

Gilbert, J., **Wang, G.** and Man, H.Y. (2012) Homeostatic synaptic plasticity: cellular mechanisms and implications in neurological diseases. in Book "*Synaptic Plasticity: Cell Biology, Regulation and Role in Disease*", Nova Science Publishers, Inc.

Veyrac, A., **Wang, G.**, Baum MJ, Bakker J. (2011) The main and accessory olfactory systems of female mice are activated differentially by dominant versus subordinate male urinary odors, *Brain Research*, 1402:20-29.

Jia, R., Luo, X., **Wang, G.**, Lin, C., Qiao, H., Wang, N., Yao, T., Barclay, J. L., Whitehead, J. P., Luo, X. and Yan, J.-Q. (2015) Characterization of cold-induced remodeling reveals depot-specific differences across and within brown and white adipose tissues in mice, *Acta Physiologica*, In press.

Hou, Q., Ruan, H., Gilbert, J., Ma, Q., **Wang, G.**, Yao, W.-D. and Man, H.-Y. (2015) MicroRNA miR124 is required for the expression of homeostatic synaptic plasticity, *Nature Communications*, 6: 10045.

Huo, Y., Hou, Q., Khatri, N., Gilbert, J., **Wang, G.** and Man, H. Y. (2015) The Deubiquitinating Enzyme (DUB) USP46 Regulates AMPA Receptor ubiquitination and Trafficking., *The Journal of Neurochemistry*, 134(6): 1067-1080.

Zhang, Z.J., Sheppard, J.K., Swaisgood R.R., **Wang, G.**, Nie, Y.G., Wei, W., Zhao, N.X., Wei, F.W., 2014. Ecological Scale and Seasonal Heterogeneity in the Spatial Behaviors of Giant Pandas, *Integrative Zoology*, 9: 46-60.

CONFERENCE & SYMPOSIUM

Wang, G., Li, S., Gritton, H., Li, Z., Han, X., Selkoe, D. J. and Man, H.-Y. (2015) Regulation of AMPA receptor acetylation by SIRT2: implications in synaptic plasticity and learning, *Society for Neuroscience: Annual Conference* (Oct. 17-22th, 2015, Chicago, IL, U.S.A.).

Wang, G., Amato, S., and Man, H.Y., (2012) Mechanisms on resveratrol-mediated up-regulation of glutamate receptor accumulation, *Society for Neuroscience: Annual Conference* (Oct. 13-17th, 2012, New Orleans, LA, U.S.A.).

Wang, G., and Man, H.Y., (2011) Sirtuin pathway-independent regulation of AMPA receptor synaptic accumulation by resveratrol in cultured neurons, *Cold Spring Harbor Laboratory Annual Meeting Series: Synapses: From Molecules to Circuits & Behavior* (April 12 -16th, 2011, Cold Spring Harbor, NY, U.S.A.), p127.

INVITED TALKS

- Institute for Genomic Medicine, Columbia University: Deacetylation of AMPA receptor by SIRT2 is essential in synaptic plasticity and learning memory, Mar. 28th, 2016, New York City, NY.
- Society for Neuroscience, Annual Conference: Regulation of AMPA receptor acetylation by SIRT2: implications in synaptic plasticity and learning, Oct. 17-22nd, 2015, Chicago, IL.
- Institute of Zoology, Chinese Academy of Sciences: Investigating the functional roles of bitter receptor TAS2R in giant pandas evolution, Aug. 10th, 2014, Beijing, China.
- Capstone Annual Seminar of Fulbright Fund: Social networking and its influences to academic success. June 19-23rd, 2012, Washington D.C.
- Cold Spring Harbor Laboratory Annual Meeting Series: Synapses: From Molecules to Circuits & Behavior, April 12-16th, 2011, Cold Spring Harbor, NY.

TECHNICAL EXPERTISE

Cell/Tissue culture:

- 6 years of experience in embryonic and neonatal rodent brain dissection for primary neuronal cell/glial cell/brain slice culture.
- Extensive experience with multiple immortal cell lines culture.

In vitro:

- Extensive experience in cell imaging techniques including IHC/ICC, voltage and ion sensitive dyes, and optogenetic manipulation of neural activity.
- Protein assays including immunoprecipitations, recombinant protein expression and purification, western blotting and ELISA systems.
- Skilled in molecular biology techniques such as subcloning, plasmid construction, shRNA/miRNA design and expression, adenovirus/lentivirus packaging and purification.

In vivo:

- 5 years of rodent survival surgery techniques including stereotaxic virus/drug injection to neonatal/adult rodent brain; partial skull boning and brain subregion imaging.

- Extensive experience in working with transgenic/disease model animals.
- 8 years of animal behavior assays in wild life or experimental rodents: Morris water maze, fear conditioning test, Barnes Maze, novel objects tests, three-chamber social behavior test etc.

Electrophysiology:

- Trained as an electrophysiologist in Cold Spring Harbor Lab in 2011 summer.
- Skilled in whole-cell patch-clamp/single channel recording in acute brain slice or culture neurons/cell lines.

Microscopy:

- Extensive experience with fluorescent, light, and confocal microscopy.
- Skilled with *in vivo/in vitro* brain/cell live-imaging, including FRET and FRAP studies.
- Skilled in imaging data collection and analysis with different programs (e.g. Image J).

TEACHING EXPERIENCE

2011-2014: *Introductory Biology* (BI 107, BI 108, approximately 50 students)

2015-2016: instructed graduate students Maggie O'Connor and Ouyang Guo for their studies.

2012-2013: mentored undergraduate student Ankush Chandra to study neurite development in cultured hippocampal neurons.

2013-2014: mentored undergraduate student Donovan Guttieres to study synaptic AMPA receptors imaging and analysis.

REFERENCES

Dr. Hengye Man, Associate Professor of Biology (Academic advisor of PhD)

Boston University, Biology Department, 24 Cummington Mall, RM 505, Boston, MA 02215

Phone: 617-358-4283.

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Dr. Kim McCall, Professor of Biology, Director of Graduate Studies

Boston University, Biology Department, 24 Cummington Mall, RM 503, Boston, MA 02215

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Dr. Michael J. Baum, Professor of Biology

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Dr. Fuwen Wei, Professor of Ecology (Academic advisor of Master)

Deputy Director, Institute of Zoology, Chinese Academy of Sciences

Director, Key Lab of Animal Ecology and Conservation Biology, Chinese Academy of Sciences

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*Additional references available upon request.