

## Curriculum Vitae

NAME	POSITION TITLE	BIRTHDATE ( <i>Mo., Day, Yr.</i> )
Zhang, Qi	Assistant Professor	Sept., 18, 1973

EDUCATION (*Begin with baccalaureate or other initial education and include postdoctoral training.*)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
Fudan University, China	B.S.	07/1997	Genetics
Iowa State University, Ames, IA	Ph.D. candidate	06/2001	Molecular Biology and Neuroscience
University of Pennsylvania	Ph.D.	05/2004	Neuroscience

### RESEARCH AND PROFESSIONAL EXPERIENCE:

#### **A. Personal Statement**

During my 13 years of training in biomedical research, I have become an expert in cell biology and molecular neuroscience, obtained ample experimental and analytic skills and contributed significantly in the field of neurotransmitter release and vesicle recycling. I have pioneered application of photoluminescent nanoparticle in super-resolution imaging of single synaptic vesicles, which was reported in my *PNAS* and *Science* papers. I have awarded with NIH “Pathway to Independence” (K99/R00) and Rosalinde and Arthur Gilbert New Investigator Awards among others for my scientific achievement and future career development. Such experience and support enable me to continue my quest on unraveling presynaptic mechanism underlying neurological disorders in my independent research laboratory.

#### **B. Positions and Honors**

##### *Employment*

1996-1998     Research scientist, State Key Laboratory of Genetic Engineering, Shanghai, China  
1998-2001     Research assistant, Dept. Mole. Cell. Develop. Bio., Iowa State University  
2001-2004     Research assistant, Department of Neuroscience, University of Pennsylvania  
2004-2009     Postdoctoral fellow, Department of Mole. Cell. Physiol., Stanford University  
2009-2010     Research Associate, Department of Mole. Cell. Physiol., Stanford University  
2010-present   Assistant Professor, Department of Pharmacology, Vanderbilt University

##### *Honors*

1993-1997     People’s Scholarship, Fudan University, Shanghai, China  
1998-1999     Premium for Academic Excellence, Iowa State University  
2001             Advanced Neuroscience Research Fellowship, Iowa State University  
2001             Advanced MCDB Research Fellowship, Iowa State University  
2001             “All But Dissertation” Scholarship, Iowa State University  
2007             Nominated for Beckman Senior Research Fellow  
2008             Grass Fellow, Marine Biology Laboratory  
2009             NIH “Pathway to Independence” K99/R00 award  
2009             Sammy Kuo Awards  
2010             Rosalinde and Arthur Gilbert New Investigator Awards  
2010             Edmund Optics Higher Education Grant Finalist

2011 NARSAD Young Investigator Award

*Professional Societies*

2000-present Society for Neuroscience

2007-present Society of General Physiologists

2007-present Society for Experimental Stroke

2009-present Society for Cell Science

2010-present Biophysical Society

**C. Peer-reviewed publications or manuscripts in press**

1. **Zhang, Q.**, et al. (1999) Molecular cloning and expression analysis of a novel human cDNA fragment encoding a putative Ser/Thr protein kinase. *Chinese Sci. Bull.* 44, 778-783.
2. Zhang, M., Yu, L., Tu, Q., Hu, P., **Zhang, Q.**, Bi, A., Jiang, C., Zhao, S. (1999) Separation and cloning of a novel human gene encoding suppressor of cytokine signaling-2 (humSOCS-2). *Chinese Sci. Bull.* 44, 131-135.
3. Fan, Y., Yu, L., **Zhang, Q.**, Jiang, Y., Dai, F., Cheng, C., Tu, Q., Bi, A., Xu, Y., Zhao, S. (1999) Cloning and expression of a new member of human  $\beta$ -1,4- galactosyl transferase gene family. *Sci. China C Life Sci.* 29, 1-8.
4. Fan, Y., Yu, L., Tu, Q., Gong, R., Jiang, Y., **Zhang, Q.**, Dai, F., Chen, C., Zhao, S. (2002) Molecular cloning, genomic organization, and mapping of  $\beta$ 4GalT-VIb, a brain abundant member of  $\beta$ 4-galactosyltransferase gene family, to human chromosome 18q12.1. *DNA Seq.* 13, 1-8.
5. **Zhang, Q.**, et al. Fusion-related release of glutamate from astrocytes. (2004) *J Biol Chem.* 279, 12724-12733.
6. **Zhang, Q.**, Fukuda, M., Van Bockstaele, E.J., Pascual, O., Haydon, P.G. (2004) Synaptotagmin IV regulates glial glutamate release. *PNAS.* 101, 9441-9446.
7. Shcherbakova, O. G., Hurt, C. M., Xiang, Y., Dell'Acqua, M. L., **Zhang, Q.**, Tsien, R. W., Kobilka, B.K. (2007) Organization of beta-adrenoceptor signaling compartments by sympathetic innervation of cardiac myocytes. *J Cell Biol.* 176, 521-533.
8. **Zhang, Q.**, Cao, Y.Q., Tsien, R.W. Quantum dots provide an optical signal specific to full collapse fusion of synaptic vesicles. *PNAS.* 104, 17843-17848.
9. **Zhang, Q.**, Li, Y.L., Tsien, R.W. (2009) Dynamics of dual fusion modes revealed by single quantum dot imaging. *Science* 323, 1448-1453.
10. Huang, W., Li, S., Hu, Y., Yu, H., Luo, F., **Zhang, Q.**, Zhu, F. (2010) Implication of the env Gene of the human endogenous retrovirus W family in the expression of BDNF and DRD3 and development of recent-onset schizophrenia. *Schizophr Bull.* (doi: 10.1093, early online publication, Jan 25, 2010)
11. **Zhang, Q.** Protocol for quantum dot – based single vesicle imaging in mammalian hippocampal neurons. (Accepted)
12. **Zhang, Q.** A perfect match between Neuroscience and Nanotechnology, application of photoluminescent quantum dot in imaging synaptic transmission in vitro and in vivo. (Accepted)

**D. Research Support**

1. “Super-resolution tracking of quantum dot labeled synaptic vesicles”, P.I.  
Agency: Grass Foundation  
Type: Summer Fellowship, period 05/18/2008-08/23/2008

The major goals of this project are to examine the trafficking of synaptic vesicles within and across presynaptic terminals in mammalian central nervous system.

2. “Presynaptic Plasticity in Reward Learning and Addiction”, P.I.  
Agency: NIDA, Grant Number: 1K99DA025143-01A1  
Type: K99, period 04/01/2009-07/15/2010  
The major goals of this project are to illustrate the contribution of presynaptic apparatus on reward learning and drug addiction
3. “A Mechanistic Study of Presynaptic Dysfunction in Alzheimer’s Disease”, P.I.  
Agency: Rosalinde and Arthur Gilbert Foundation and American Federation for Aging Research  
Type: New Investigator Award, period 07/01/2010-06/30/2012  
The major goals of this project are to understand the effect of endogenously generated  $\beta$ -Amyloid peptides on presynaptic apparatus and axon degeneration
4. “Presynaptic Plasticity in Reward Learning and Addiction”, P.I.  
Agency: NIDA, Grant Number: 4R00DA025143-03  
Type: R00, period 09/15/2010-09/14/2013  
The major goals of this project are to illustrate the contribution of presynaptic apparatus on reward learning and drug addiction
5. “A Super-Resolution Study of Synaptic Transmission Enabled by Quantum Dots”, P.I.  
Agency: NARSAD  
Type: New Investigator Award, period 01/15/2011-01/14/2013  
The major goals of this project are to examine the alternation of synaptic vesicle recycling and trafficking during the development of synaptic plasticity and in the context of major psychiatric disorders.