



Name:Dong Chuan Wu

Current Positions:Associate Professor,
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Education

2004-2010	PhD	University of British Columbia
1999-2003	PHD	Peking University
1996-1999	MS	Shandong University

Expertise

Neuroscience; Synaptic plasticity; Channel modulation; GABA_A receptor; Glycine receptor;
genetic neurological disorders

Research Interests

The research themes in my lab aim to decipher the underlying mechanism of genetic neurological disorders. We have combined biochemical, molecular biological and electrophysiological approaches and disease mouse models to investigate the relevant neuronal circuits, channel function and modulation.

Selected Grants:

The role of zinc in glycinergic synaptic transmission, hyperekplexia and neurodegeneration, PI (NHRI-EX110-10815NI)

A novel desensitization site of glycine receptors and the underlying mechanisms related to human hyperekplexia, PI (MOST 107-2320-B-039-061-MY3) (2018-2021)

Selected Publications

Mei YY, Lee MH, Cheng TC, Hsiao IH, **Wu DC***, Zhou N*. NMDA receptors sustain but do not initiate neuronal depolarization in spreading depolarization. *Neurobiol Dis*. 2020 Sep 2; 145:105071. doi: 10.1016/j.nbd.2020.105071.

Ge Y, Tian M, Liu L, Wong TP, Gong B, **Wu DC**, Cho T, Lin S, Kast J, Lu J and Wang YT. p97 regulates GluA1 homomeric AMPA receptor formation and plasma membrane expression. *Nature Commun*. 2019 Sep 9; 10(1):4089. doi: 10.1038/s41467-019-12096-7.

Mei YY, **Wu DC**, Zhou N*. Astrocytic Regulation of Glutamate Transmission in Schizophrenia. *Front. Psychiatry*. 2018 Nov; 9:544. doi: 10.3389/fpsy.2018.00544

Wang CH, Hernandez CC, Wu J, Zhou N, Hsu HY, Shen ML, Wang YC, Macdonald RL and **Wu DC***. A missense mutation A384P associated with human hyperekplexia reveals a desensitization site of glycine receptors. *J Neurosci*. 2018, Mar 14;38(11):2818-2831.

Wu DC, Chen RY, Cheng TC, Chiang YC, Shen ML, Hsu LL, Zhou N*. Spreading Depression Promotes Astrocytic Calcium Oscillations and Enhances Gliotransmission to Hippocampal Neurons. **Cereb Cortex**. 2017 Aug 1:1-13. doi: 10.1093/cercor/bhx192.

Lin CH, Hsu SP, Cheng TC, Huang CW, Chiang YC, Hsiao IH, Lee MH, Shen ML, **Wu DC**, Zhou N*. Effects of anti-epileptic drugs on spreading depolarization-induced epileptiform activity in mouse hippocampal slices. **Sci Rep**. 2017 Sep 19; (1)11884

Shen ML, Wang CH, Chen RY, Zhou N*, Kao ST*, **Wu DC***. Luteolin inhibits GABA_A receptors in HEK cells and brain slices. **Sci Rep**. 2016 Jun 13; (6)27695

Liu SP, Fu RH, **Wu DC**, Hsu CY, Chang CH, Lee W, Lee YD, Liu CH, Chien YJ, Lin SZ, Shyu WC. Mouse induced pluripotent stem cells generated under hypoxic conditions in the absence of viral infection and oncogenic factors and used for ischemic stroke therapy. **Stem Cells Dev**. 2014 Feb.23(4):421-433.

Zhou N, Wang CH, Zhang S, **Wu DC***. The GLRA1 Missense Mutation W170S Associates Lack of Zn²⁺ Potentiation with Human Hyperekplexia. **J Neurosci**. 2013, 33(45):17675-81.

Liu J¹, **Wu DC**¹, Wang YT. Allosteric potentiation of glycine receptor chloride currents by glutamate. **Nat Neurosci**. 2010 Oct;13(10):1225-32. doi: 10.1038/nn.2633. Epub 2010 Sep 12.