

2<sup>nd</sup> International Conference on

# Parkinson's Disease & Movement Disorders

December 05-07, 2016 Phoenix, USA

## Disrupted-in-schizophrenia1 (DISC1) L100P mutation alters synaptic transmission and plasticity in the hippocampus and causes recognition memory deficits

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**D**isrupted-in-schizophrenia 1(DISC1) is a promising candidate susceptibility gene for a spectrum of psychiatric illnesses that share cognitive impairments in common, including schizophrenia, bipolar disorder and major depression. Here we report that DISC1 L100P homozygous mutant shows normal anxiety- and depression-like behavior, but impaired object recognition which is prevented by administration of atypical antipsychotic drug clozapine. Ca<sup>2+</sup> image analysis reveals suppression of glutamate-evoked elevation of cytoplasmic [Ca<sup>2+</sup>] in L100P hippocampal slices. L100P mutant slices exhibit decreased excitatory synaptic transmission (sEPSCs and mEPSCs) in dentate gyrus (DG) and impaired long-term potentiation in the CA1 region of the hippocampus. L100P mutation does not alter proteins expression of the excitatory synaptic markers, PSD95 and synapsin-1; neither does it changes dendrites morphology of primary cultured hippocampal neurons. Our findings suggest that the existence of abnormal synaptic transmission and plasticity in hippocampal network may disrupt declarative information processing and contribute to recognition deficits in DISC1 L100P mutant mice.

### Biography

Yu Zhou has completed her PhD from the Chinese Academy of Sciences (CAS), Shanghai Life Science Center and Postdoctoral training from Department of Neurobiology, University of California at Los Angeles (UCLA). She is currently appointed as a Full Professor in the Medical School of Qingdao University. Her research interests are focused on neurobiology of cognition and associated disorders. She has published more than 25 research papers in reputed neuroscience journals.

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