In EPO-treated diabetic mice. Conclusion: Diabetes resulted in deterioration in the cognitive power of the brain and histological degenerative changes in the dentate region of the hippocampus. These changes were ameliorated by the administration of EPO which may be useful in the treatment of diabetic neuropathy.

PT682
A novel mutation associated autism in Neuroligin1
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Abstract
Neuroligins (Nlgs) are postsynaptic adherent molecules consisting of five family members (Nlg1, 2, 3, 4X and 4Y). A number of genetic studies showed that the mutations of Nlg2, 3 and 4 have been associated with neuropsychiatric disorders including autism spectrum disorder (ASD). However, only few genetic and functional analyses have been reported in Nlg1.

In this study, we introduced whole-exome sequencing technique to find mutations in ASD siblings and identified a novel mutation predicted as damaging by in silico analysis. To uncover its functional significance, we performed comprehensive analyses both in vitro and in vivo.

We introduced this Nlg1 mutation into the mouse primary hippocampal neurons. The Nlg1 mutation altered not only subcellular localization from cytoplasm to endoplasmic reticulum (ER) but also dendritic spine induction.

To address how this mutation affects behavioral phenotypes, we generated knock-in mice with Nlgn1 mutation by direct injection of CRISPR/Cas9 RNA with guide RNA. In a series of behavioral tests, we found several autistic traits, such as impaired social communication, in addition to hippocampal dependent spatial memory deficit. Furthermore, our biochemical studies revealed that Nlgn1 protein was significantly decreased in the forebrain of mutant mice (both whole lysate and synaptosomal fraction). These results suggest that this novel Nlgn1 mutation is involved in ASD traits in a haploinsufficient manner and reinforce the significant association between mutations in Nlgs and neuropsychiatric disorders.

PT683
Effects of acute administration of moderate and high caffeine doses on the spatial memory and motor coordination in mice.
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Abstract
Caffeine is the most wildly consumed psycho-stimulant substances known to man. Caffeine has important effects on alertness. While moderate caffeine use is “generally recognized as safe” but heavy caffeine consumption has been associated with serious adverse health effects. The aim of this study was to evaluate the effects of moderate (0.1 gm/L) and high (1 gm/L) doses of caffeine administered mixed with drinking water on the learning and memory and motor coordination in mice. BLC57 mice were divided into 3 groups: control group (n=8 males, no caffeine), moderate dose group (n=8 males) and high dose group (n=8, males) were tested for spatial memory by the Morris-water