showed that among SRS rats, the depression-like portion displayed significantly decrease in the total number of arm entries, the ratio of open arm entries and open arm retention time in the elevated maze test. The positive ratio of total SRS rats is 47%. The forced swimming test showed that motionless time of 50% SRS rats was significantly prolonged. The occurrence rate of the depression-like behaviors in SRS rats is about 25% after combining two behavioral test evaluation. In addition, the average optical density (OD) value of myelin basic protein (MBP) positive expression signal and myelin specific fast blue staining was reduced significantly in certain white matter regions (e.g. callosum corpus, cingulated gyrus) of SRS and depression comorbid rats. PCR results also proved that the expression of MBP mRNA in the white matter of SRS and depression comorbid rats was decreased. However, when compared SRS rats without comorbid depression with control group, there were no statistical significant differences of the OD value and MBP mRNA expression in the white matter regions. Our results indicate myelin development defects in cerebral white matter may play a certain role in promoting depressive behaviors in epilepsy.

E6486
Ryanodine receptors (RyRs) in oligodendroglial development
Tao Li, Lingyun Wang, Yanping Tian, Xiyuan Wu, Teng Ma, Jianqin Niu, Hongli Li*, Lan Xiao*
Department of Histology and Embryology, Chongqing Key Laboratory of Neurobiology, Third Military Medical University, Chongqing 400038, China
E-mail: lihongli@tmmu.edu.cn, xiaolan35@hotmail.com

It has been demonstrated that intracellular Ca$^{2+}$ increase in oligodendrocyte progenitor cells (OPCs) is important to initiate differentiation, while the intracellular calcium-release channel involved in this process remains unclear. As one of the intracellular calcium channels which mediate endoplasmic reticulum (ER) calcium release, the role of Ryanodine receptors (RyRs) in oligodendroglial development is undetermined. In this study, we demonstrated that: (1) among RyRs, RyR3 was specifically expressed in oligodendrocyte (OL) lineage cells but downregulated following OPC differentiation. The strong RyR3 positive signals were distributed all over the cytoplasm and processes in OPCs and/or immature OLs (imOLs), while it gradually decreased and located just around the perinucleus region in mature OLs. (2) RyR3 mediated intracellular Ca$^{2+}$ waves following caffeine stimulation were correlated with their expression patterns, in that high flat Ca$^{2+}$ fluctuations and spontaneous oscillatory Ca$^{2+}$ waves were more frequently recorded in OPCs and/or imOLs comparing to mature OLs. (3) RyR antagonist ryanodine pretreatment could neutralize the increase of intracellular Ca$^{2+}$ induced by OPC differentiation, and reduced the number of mature OLs, and finally (4) Knockdown of RyR3 in OPCs resulted in inhibition of OPC differentiation. Taking together, our results may provide a new insight into the crucial role of RyR3-mediated ER Ca$^{2+}$ release in regulation of OPC differentiation and/or myelination. Acknowledgements: This work is supported by CNSF (31171046, 31271467) and CSTCKJCXLJRC07.

E6541
Hypermethylation induced by L-methionine leads myelin breakdown and schizophrenia-like behavior in adolescent mice
Xurui Jin*, Nanxin Huang*, Jianqin Niu*, Subao Liu, Xianjun Chen, Xiyuan Wu, Qiyan Cai, Pingtian Yan*, Xingshu Chen*, Lan Xiao*
1. The Seven Battalion of Student Brigade, 2. Department of Histology and Embryology, Third Military Medical University, Chongqing 400038, China
E-mail: lanxiao35@hotmail.com; xingshuchen2011@163.com

Increasing evidence revealed that down-regulation of oligodendroglia genes expression and myelin deficits are important figures in schizophrenia (SZ) but the underlying mechanism remains unclear. DNA methylation, one of the epigenetic factors, have been shown to modulate neuronal function in SZ, while it is unknown whether DNA hypermethylation impact oligodendroglia that may contribute to pathogenesis of SZ. In the present study, by using L-methionine (Met) induced hypermethylation mouse model, we found that 2-week Met treatment induced: (1) high methylation statuses in neurons and oligodendroglia; (2) myelin breakdown in prefrontal cortex and corpus calosum; (3) down-regulation of myelin genes including PDGFRA, Olig2, Sox10 and CC-1 that correlated with their higher methylation levels. Importantly, Met treatment mice showed schizophrenia like behaviors, which can be attenuated by Aza treatment. These results indicated that hypermethylation leads to myelin breakdown and schizophrenia-like behaviors. This work was supported by National Natural Science Foundation of China (No. 31671117), CSTCKJCXLJRC07 to LX and National Natural Science Foundation of China (Grant No. 31100771)

E6596
Dynamic patterns of colocalization of enkephalineric neurons with calbindin, calretinin and parvalbumin in the mouse spinal cord during development
Huang J, Wang YY, Chen J, Li YQ, Wu SX*
Department of Anatomy, Histology and Embryology, K. K. Leung Brain Research Center, Fourth Military Medical University, Xi’an 710032, P. R. China

Enkephalin (ENK) ergic neurons are important elements of the neuronal circuitry in the spinal dorsal horn and play crucial roles in the modulation of nociception. A more complete characterization of their phenotype is required to better understand the role of this population of ENKergic neurons in spinal cord function. To gain a fuller neurochemical identification of ENKergic neurons throughout development, in the present study we investigated the colocalization of calbindin, parvalbumin and calretinin with ENK in cells of the mouse spinal cord during late embryonic and several postnatal ages from birth until 4 weeks after birth. We used preproenkephalin-green