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T4-4

靶向TRPA1通道治疗有机磷导致的神经损伤

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摘要：有机磷是很多杀虫剂、除草剂和神经性毒剂的有效成分，急性中毒可导致病人死亡，主要是由于体内一种被称为乙酰胆碱酯酶的蛋白活性被抑制所导致。对于急性中毒，临床上目前已有成熟的治疗手段和药物。然而部分有机磷中毒的患者在急性中毒缓解后可发生以肢体感觉异常、共济失调性步态和瘫痪为特征的临床症状，病理检测可见典型的神经损伤，被称为有机磷致迟发性神经病（OPIDN）。迄今为止，OPIDN的发病机制一直未被阐明，临床上亦无治疗方法和药物。本项研究中，科研人员证明有机磷致TRPA1通道激活是OPIDN的主要致病机制，并发现了2个已上市药物可通过抑制该通道缓解OPIDN的症状和病理损伤，为紧急情况下治疗有机磷中毒致神经损伤提供了潜在的选择。
关键词：TRPA1通道；有机磷；神经损伤

T4-5

Optogenetic dissection of neuronal circuit underlying temporal lobe epilepsy

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Abstract: Temporal lobe epilepsy (TLE) is a common type of epilepsy and is not well controlled by current treatments. The frequent failure to treat TLE may be due to our lack of precise cellular/circuit mechanisms underlying TLE. The early series of our studies have proved the success of low-frequency stimulation treatment for epilepsy, which was mainly depending on the stimulation target, the stimulation frequency and stimulation time (the therapeutic-window phenomenon). Now, by using optogenetics, viral tracing, multiple-channel EEG analysis, imaging, electrophysiology and pharmacology strategies, we are continued to investigate the circuit mechanism of therapeutic deep brain stimulation, and found that entorhinal principal neurons mediate antiepileptic "glutamatergic-GABAergic" neuronal circuit for brain stimulation treatments of epilepsy. Meanwhile, we are currently focusing on the interplay of inhibitory and excitatory network in the key input/output regions of the hippocampus that related to the generation of in TLE. Specially, we found that depolarized GABAergic signaling in subicular microcircuit mediates generalized seizures in TLE and a direct septal cholinergic circuit attenuates TLE through driving hippocampal somatostatin inhibition. These findings may be of therapeutic interest in understanding the pathological neuronal circuitry in TLE and further the development of novel therapeutic approaches or drug targets.
Key words: epilepsy; neuronal circuit; depolarized GABAergic signaling; optogenetics;
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T4-6

Engagement of circular RNA HECW2 in non-autophagic role of ATG5 implicated in endothelial-mesenchymal transition

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