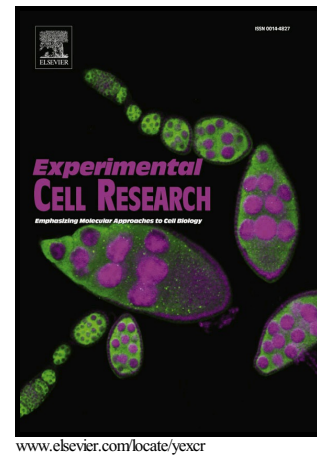


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MiR-138/SIRT1 axis is implicated in impaired learning and memory abilities of cerebral ischemia/reperfusion injured rats

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Abstract

The present study aimed to explore whether deregulated miR-138 is implicated in cerebral I/R injury-impaired learning and memory abilities. Rats were subjected to bilateral common carotid occlusion followed by reperfusion to induce cerebral I/R injury. A model of oxygen-glucose deprivation and reperfusion (OGD/R) was conducted to mimic cerebral I/R conditions in vitro. MiR-138 expression levels were reduced in the hippocampus of cerebral I/R injured rats. Inhibition of miR-138 ameliorated the impaired learning and memory abilities of rats, and promoted autophagy and thus attenuated apoptosis in the OGD/R-treated hippocampal neurons. Moreover, miR-138 targets the 3'-UTR of SIRT1 and repressed its expression. These results showed that miR-138 could improve the learning and memory abilities via promoting autophagy under cerebral I/R injured conditions.

Keywords: cerebral ischemia/reperfusion injury; bilateral common carotid occlusion; hippocampus; learning; memory; autophagy; SIRT1

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