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PRINT: ISSN 0972-3757 ONLINE: ISSN 2456-6330

Int J Hum Genet, 24(2): 21-225 (2024)

DOI: 10.31901/24566322.2024/24.02.876

Role of Micro Ribonucleic Acid-124 in Protecting Against Nerve Injury After Cerebral Ischemia/Reperfusion

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KEYWORDS Cerebral Ischemia. Micro Ribonucleic Acid-124. Nerve Injury. Rat. Reperfusion

ABSTRACT The researchers aimed to evaluate micro ribonucleic acid (miR)-124 for its protective role in nerve injury in rats following cerebral ischemia/reperfusion. A focal middle cerebral artery embolism model was constructed. Compared with sham operation group, model and miR-124 NC groups had significantly increased miR-124 expression, neurobehavioral score, malondialdehyde (MDA) content, brain infarct volume, and apoptosis rate, elevated expression levels of Bcl-2-associated X (Bax) protein as well as cleaved caspase-3, 8 and 9, attenuated activity of superoxide dismutase (SOD), and lowered expression of B-cell lymphoma 2 (Bcl-2) ($P<0.01$). By contrast to those in model and miR-124 NC groups, Bcl-2 expression rose, miR-124 expression, neurobehavioral score, brain infarct volume percentage and apoptosis rate reduced, Bax, cleaved caspase-3, 8 and 9 expression levels declined, SOD activity enhanced, and MDA content in miR-124 mimic group dropped ($P<0.01$). In conclusion, miR-124 protects rats from nerve injury after cerebral ischemia/reperfusion by improving the antioxidant capacity and regulating the expressions of apoptosis-associated proteins.