

Peptide OM-LV20 promotes structural and functional recovery of spinal cord injury in rats

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Abstract

At present, there are no satisfactory therapeutic drugs for the functional recovery of spinal cord injury (SCI). We previously identified a novel peptide (OM-LV20) that accelerated the regeneration of injured skin tissues of mice and exerts neuroprotective effects against cerebral ischemia/reperfusion injury in rats. Here, the intraperitoneal injection of OM-LV20 (1 µg/kg) markedly improved motor function recovery in the hind limbs of rats with traumatic SCI, and further enhanced spinal cord repair. Administration of OM-LV20 increased the number of surviving neuron bodies, as well as the expression levels of brain-derived neurotrophic factor and its receptor tyrosine receptor kinase B. In the acute stage of SCI, OM-LV20 treatment also increased superoxide dismutase and glutathione content but decreased the levels of malonaldehyde and nitric oxide. Thus, OM-LV20 significantly promoted structural and functional recovery of SCI in adult rats by increasing neuronal survival and BDNF and TrkB expression, and thereby regulating the balance of oxidative stress. Based on our knowledge, this research is the first report on the effects of amphibian-derived peptide on the recovery of SCI and our results highlight the potential of peptide OM-LV20 administration in the acceleration of the recovery of SCI.

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