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Upregulation of calcium channel alpha-2-delta 1 subunit in dorsal horn contributes to spinal cord injury-induced tactile allodynia

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Abstract

BACKGROUND CONTEX: Spinal cord injury (SCI) commonly results not only in motor paralysis but also in the emergence of neuropathic pain, both of which can impair the quality of life for SCI patients. In the clinical field, it is well known that pregabalin, which binds to the voltage-gated calcium channel $\alpha_2\delta$-1subunit has therapeutic effects on neuropathic pain after SCI. A Previous study has demonstrated that SCI increased $\alpha_2\delta$-1 in L4–6 dorsal spinal cord of SCI rats by Western blot analysis and that the increase of $\alpha_2\delta$-1 was correlated with tactile allodynia of the hind paw. However, the detailed feature of an increase in $\alpha_2\delta$-1 protein in the spinal dorsal horn and the mechanism of pregabalin effect on SCI induced neuropathic pain has not been fully examined.