

哥倫布論文獎-論文摘要

To investigate the effects of gene therapy on neuropathic pain:

jellyfish GFP as negative control

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Sensory disturbances are observed in various neuropathies. Some of the mechanisms for neuropathic pain have been briefly recognized, including central sensitization, central disinhibition, sympathetic activation, and peripheral sensitization. Many treatments or drugs have been studied or used for neuropathic pain, but most of them are not effective as desired and even produce side effects. It is therefore urgent to develop novel pathways of neuropathic pain to offer more effective and successful therapeutic strategies. To investigate the role of X-gene in pain regulation, we introduce an adenoviral vector containing green fluorescent protein (GFP) and X cDNA into the central nervous system (CNS) in rats and evaluate the pain response. Our data indicated that intrathecal injection of Ad-GFP-X to CCI induced rats significantly enhanced the rats' nociceptive behaviors compared to either the CCI or CCI+ Ad-GFP groups. Furthermore, administration of Ad-GFP-X induced cAMP response element-binding protein (CREB) activation in the spinal cord. Therefore, we suggest that cAMP-PKA-CREB signaling pathway may participate in X-gene regulative effects on CCI-induced neuropathic pain.