Targeting Topics: Recent Scientific References

Reviewed by Matthew Kohls

Noradrenergic Neurons in the Locus Coeruleus Contribute to Neuropathic Pain

Brightwell JJ, Taylor BK
Neuroscience [Epub], 2009.

Noradrenergic neurons were eliminated with 5 μg intracerebroventricular injections of anti-DBH-SAP (Cat. #IT-03). Mouse IgG-SAP (Cat. #IT-18) was used as a control. Animals lesioned with anti-DBH-SAP displayed a reduction in behavioral signs of several kinds of allodynia.

Neuropeptide Y receptor-expressing dorsal horn neurons: Role in nocifensive reflex responses to heat and formalin

Wiley RG, Lemons LL, Kline RH
Neuroscience [Epub], 2008.

This work examines the effect of lumbar intrathecal administration of NPY-SAP (Cat. #IT-28), and the role of Y1 NPY receptor-expressing neurons (Y1R) in response to thermal and chemical stimulation. Rats received 500 ng or 750 ng intrathecal injections of NPY-SAP. Blank-SAP (Cat. #IT-21) was used as a control. Lesioned animals displayed a specific loss of Y1R in the dorsal horn, as well as reduced nocifensive reflex responses.

Cognitive Performances of Cholinergically Depleted Rats Following Chronic Donepezil Administration

Cutuli D, Foti F, Mandolesi L, De Bartolo P, Gelfo F, Federico F, Petrosini L
J Alzheimers Dis [Epub], 2009.

The authors examined whether donepezil could improve cognitive functions in rats with lesions of the cholinergic cells in the forebrain. Treated animals received 4 μg bilateral intracerebroventricular injections of 192-IgG-SAP (Cat. #IT-01), followed by treatment with donepezil or a control. Donepezil-treated animals performed significantly better than control animals.

Spinal NK-1 receptor-expressing neurons and descending pathways support fentanyl-induced pain hypersensitivity in a rat model of postoperative pain

Rivat C, Vera-Portocarrero LP, Ibrahim MM, Mata HP, Stagg NJ, De Felice M, Porreca F, Malan TP
Eur J Neurosci 29(4):727-737, 2009.

Opioids activate hyperalgesia and allodynia. The authors test the hypothesis that NK-1 receptor-containing ascending pathways play a role in sensitivity to fentanyl. Rats received an intrathecal injection of SP-SAP (Cat. #IT-07), and controls received saporin (Cat. #PR-01). The data indicate that these ascending pathways have a role in fentanyl-induced hyperalgesia.

Dependence of monocyte chemoattractant protein 1 induced hyperalgesia on the isolectin B4-binding protein versican

Bogen O, Dina OA, Gear RW, Levine JD
Neuroscience 159(2):780-786, 2009.

Monocyte chemoattractant protein 1 (MCP-1) is involved in generation of inflammatory and neuropathic pain, but the mechanisms underlying this involvement are not understood. Rats received 3.2 μg intrathecal injections of IB4-SAP (Cat. #IT-10). Ten days later the rats received intradermal MCP-1. Animals treated with IB4-SAP did not exhibit the mechanical hyperalgesia normally seen when treated with MCP-1.

Efficacy of a murine-p75-saporin immunotoxin for selective lesions of basal forebrain cholinergic neurons in mice

Nag N, Baxter MG, Berger-Sweeney JE
Neurosci Lett 452(3):247-251, 2009.

The authors tested a new version of mu p75-SAP (Cat. #IT-16) in mice. Mice received bilateral injections of 0.65 or 1.3 μg of immunotoxin into each lateral ventricle. Both amounts produced a complete loss of cholinergic neurons in the medial septum, while a dose-dependent loss of cholinergic neurons was seen in the nucleus basalis magnocellularis.

Developmental forebrain cholinergic lesion and environmental enrichment: behaviour, CA1 cytoarchitecture and neurogenesis

Frechette M, Rennie K, Pappas BA
Brain Res 1252:172-182, 2009.

The authors investigated the effect of neonatal cholinergic lesions on plasticity in the presence or absence of enrichment. Each lateral ventricle of 7 day-old rats received 300 ng of 192-IgG-SAP (Cat. #IT-01). Although the lesions did not attenuate neurobehavioral plasticity, there were several physiological changes that occurred despite the environmental enrichment.

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