

Targeting Topics: Recent Scientific References

Intrathecal substance P-saporin attenuates operant escape from nociceptive thermal stimuli.

Vierck CJ, Kline RH, Wiley RG
Neuroscience 119(1):223-232, 2003.

Administration of SP-SAP (Cat. #IT-07) eliminates sensitization of nociceptive reflexes. The authors investigate whether SP-SAP elimination of neurokinin-1 receptor-expressing neurons in the lumbar spinal cord affects nociceptive sensitivity in general, or preferentially affects nociception dependent on spinal and brainstem, or cerebral processing. Rats treated with spinal intrathecal injections of 175 ng of SP-SAP showed attenuated thermal hyperalgesia, and no secondary hyperalgesia, while innate reflexes were unaffected by SP-SAP treatment.

Ablation of striatal interneurons influences activities of entopeduncular neurons.

Chiken S, Tokuno H
Neuroreport 14(5):675-678, 2003.

To investigate the role of the basal ganglia in informational processing of voluntary movement, the authors used SP-SAP (Cat. #IT-07) to lesion SP receptor-expressing neurons in the striatum. A 0.5 μ l injection of 40 ng/ μ l SP-SAP into the dorsolateral portion of the striatum decreased the spontaneous discharge of entopeduncular neurons. These data indicate that SP receptor-positive striatal interneurons indirectly regulate activity of basal ganglia output neurons.



Food- and light-entrained circadian rhythms in rats with hypocretin-2-saporin ablations of the lateral hypothalamus.

Mistlberger RE, Antle MC, Kilduff TS, Jones M

Brain Res 2003, avail online at
[http://dx.doi.org/10.1016/S0006-8993\(03\)02755-0](http://dx.doi.org/10.1016/S0006-8993(03)02755-0)

Food-anticipatory behaviors in mammals can follow circadian rhythms entrained by daily feeding schedules. Lateral hypothalamic (LH) neurons express hypocretin (also known as orexin) receptors, therefore rats were treated with four 500-ng injections of orexin-SAP (Cat. #IT-20) to eliminate these neurons. Lesioned animals displayed altered dietary behavior, but maintained anticipatory activity before the daily meal.

Neural stem cells and cholinergic neurons: Regulation by immunolesion and treatment with mitogens, retinoic acid, and nerve growth factor.

Calza L, Giuliani A, Fernandez M, Pirondi S, D'Intino G, Aloe L, Giardino L
Proc Natl Acad Sci U S A 100(12):7325-7330, 2003.

The authors explore the influence of exogenous administration of hormones, cytokines, and neurotrophins on stem cells following a lesion. Rats were treated with 2 or 3 μ g of 192-Saporin (Cat. #IT-01) into the cerebral ventricles, which induced a lesion of the cholinergic

system in the basal forebrain. The surgery was followed by infusion of EGF, bFGF, and NGF into the lesioned area, as well as addition of retinoic acid to the food pellets. This pharmacological control of endogenous neural stem cells increased the number of proliferating cells in both lesioned and non-lesioned animals, as well as improved performance in a water maze test.

Long-term effects of decreased noradrenergic central nervous system innervation on pain behavior and opioid antinociception.

Jasmin L, Boudah A, Ohara PT
J Comp Neurol 460(1):38-55, 2003.

Noradrenaline (NA) is an essential element of the endogenous pain inhibitory system. The authors injected 5 μ g of anti-DBH-SAP (Cat. #IT-03) into either the cerebral ventricles or lumbosacral cistern of rats to investigate whether a permanent reduction of noradrenergic innervation of the spinal cord leads to a chronic decreased nociceptive threshold. Although treated animals were less responsive to the antinociceptive effects of morphine, the results suggest that NA makes only a modest contribution to the nociceptive threshold.

Role of the medial septum diagonal band of Broca cholinergic neurons in oestrogen-induced spine synapse formation on hippocampal CA1 pyramidal cells of female rats.

Lam TT, Leranth C
Eur J Neurosci 17(10):1997-2005, 2003.

Estrogen effects on the hippocampus are known to be mediated by subcortical structures. The authors examined the role that the medial septum diagonal band of Broca (MSDB) plays in this mediation. An injection of 0.5 μ g of 192-Saporin (Cat. #IT-01) into the right lateral ventricle of rats was used to specifically

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