

Targeting Topics: Recent Scientific References

Reviewed by *Matthew Kohls*

No facilitation of amphetamine- or cocaine-induced hyperactivity in adult rats after various 192 IgG-saporin lesions in the basal forebrain.

Jeltsch H, Lazarus C, Cosquer B, Galani R, Cassel JC

Brain Res 1029(2): 259-271, 2004

Previous data have indicated that intracerebroventricular (icv) injections of 192-Saporin (Cat. #IT-01) induce a dramatic increase of the locomotor response to amphetamine. The authors of this study examined the locomotor effects of several lesions on the response to amphetamine or cocaine. Rats were injected with 5 µg 192-Saporin icv or 0.4 µg bilaterally into the septal region, or 0.4 µg into the nucleus basalis magnocellularis. While the results did not confirm the amphetamine effect, they did suggest that the effect of cocaine can be altered by these lesions.

The behavioral and neuroanatomical effects of IB(4)-saporin treatment in rat models of nociceptive and neuropathic pain.

Tarpley JW, Kohler MG, Martin WJ

Brain Res 1029(1):65-76, 2004

Using the fact that primary afferent neurons bind isolectin B4 (IB4), the authors injected 5 µg of IB4-SAP (Cat. #IT-10) into the sciatic nerve in the left thigh. After recovery, these animals were then treated with a L5 spinal nerve ligation. Lesioned animals displayed attenuated NGF-induced hyperalgesia, as well as differences in other pain-model markers. The data indicate that IB4-positive C-fibers play a discrete role in NGF-induced hyperalgesia, as well as in the development of neuropathic pain.

Spinal neurons that express NK-1 receptors modulate descending controls that project through the dorsolateral funiculus.

Khasabov SG, Ghilardi JR, Mantyh PW, Simone DA

J Neurophysiol [epub] Sep 29, 2004

The involvement of neurokinin-1 receptor-expressing neurons in the spinal cord with the ascending systems of hyperalgesia and central sensitization has been well established. The authors used 10 µl injections of 5 µM SP-SAP (Cat. #IT-07) into the intrathecal space of rats, and examined the descending systems that travel via the dorsolateral funiculus (DLF). While SP-SAP alone had no effect, administration of SP-SAP in conjunction with a DLF transection enhanced neuronal responses to mechanical and heat stimuli.



Medullary noradrenergic neurons release norepinephrine in the medial amygdala in females in response to mating stimulation sufficient for pseudopregnancy.

Cameron NM, Carey P, Erskine MS

Brain Res 1022(1-2):137-147, 2004

Norepinephrine (NE) plays an important role in female reproductive function. While the ventral noradrenergic bundle is known to be necessary for transmitting the pseudopregnancy (PSP) response, the mechanism by which this occurs is not

understood. The authors administered 20 ng of Anti-DBH-SAP (Cat. #IT-03) to the left posterodorsal medial amygdala of ovariectomized rats. The results indicate that NE may play an important role in the establishment of PSP.

The medial septum mediates impairment of prepulse inhibition of acoustic startle induced by a hippocampal seizure or phencyclidine.

Ma J, Shen B, Rajakumar N, Leung LS

Behav Brain Res 155(1):153-166, 2004

Deficits in sensorimotor gating, suppression of a motor response by a sensory stimulus are found in schizophrenic patients, as well as laboratory animals after administration of compounds such as phencyclidine (PCP). The authors lesioned the cholinergic system of the medial septum in rats with 0.14-0.21 µg injections of 192-Saporin (Cat. #IT-01) to examine the involvement of these neurons in sensorimotor gating. The authors suggest that GABAergic, but not cholinergic septohippocampal neurons mediate this deficit.

Transient attenuation of CO₂ sensitivity after neurotoxic lesions in the medullary raphe-area in awake goats.

Hodges MR, Opansky C, Qian B, Davis S, Bonis J, Bastasic J, Leekley T, Pan LG, Forster HV

J Appl Physiol 97(6):2236-2247, 2004

The authors wished to investigate the influence medullary raphe-area neurons have on breathing. This control may be through CO₂/H⁺ chemoreceptors and/or through non-chemoreceptor modulation. 1 or 10 µl of 50 pM SP-SAP (Cat. #IT-07) or Saporin (Cat. #PR-01) was injected into the raphe of goats. Breathing and CO₂ sensitivity were evaluated during different physiologic

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