Targeting Topics: Recent Scientific References

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received a 10-μl infusion of 1 mM SP-SAP (Saporin, Cat. #PR-01, was used as a control) into the sub-arachnoid space terminating in the L4-5 region. Results suggest that NK1r-expressing cells are involved with activity in noradrenergic pathways and descending facilitation.

Emergence of spatial impairment in rats following specific cholinergic depletion of the medial septum combined with chronic stress.

Craig LA, Hong NS, Kopp J, McDonald RJ
Eur J Neurosci 27:2262-2271, 2008.

Rats received bilateral injections of 192-IgG-SAP (Cat. #IT-01) into the medial septum and vertical limb of the diagonal band of Broca totaling 0.075 μg. Animals were not impaired in a water maze task, but lesioning combined with stress caused significant reduction in performance.

Substance P receptor-expressing dorsal horn neurons: Lessons from the targeted cytotoxin, substance P-saporin.

Wiley RG
Pain 136:7-10, 2008.

This review covers some of the more recent work utilizing SP-SAP (Cat. #IT-07) and SSP-SAP (Cat. #IT-11) in the dorsal horn. The potential of these conjugates as pain therapeutics is explored.

Involvement of the basal cholinergic forebrain in the mediation of general (propofol) anesthesia.

Laalou FZ, de Vasconcelos AP, Oberling P, Jeltsch H, Cassel JC, Pain L
Anesthesiology 108:888-896, 2008.

192-IgG-SAP (Cat. #IT-01) was injected three ways: icv injection of 2 μg, 0.4 μg into the nucleus basalis magnocellularis, and 0.8 μg into the medial septum/ vertical diagonal band of Broca. The results suggest that loss of cholinergic neurons in the cortex and hippocampus leads to potentiation of the anesthetic effects of Propofol.

Unilateral Ablation of preBötzinger Complex Disrupts Breathing During Sleep but not Wakefulness.

McKay LC, Feldman JL
Am J Respir Crit Care Med [Epub Apr 17], 2008.

Here rats received a unilateral injection of SP-SAP (Cat. #IT-07, 6.7 ng) into the left preBötC. SP plus unconjugated saporin (Cat. #PR-01) was used as control. Unilaterally-treated rats did not develop disrupted breathing patterns during wakefulness.

Selective cholinergic lesions in the rat nucleus basalis magnocellularis with limited damage in the medial septum specifically alter attention performance in the five-choice serial reaction time task.

Harati H, Barbelivien A, Cosquer B, Majchrzak M, Cassel JC
Neuroscience 153:72-83, 2008.

Here the authors examined the effect of lesions in the nucleus basalis magnocellularis (NBM) when septal damage was kept to a minimum. The NBM received bilateral 0.2-μg injections of 192-IgG-SAP, and the animals were then tested in a 5-choice serial reaction time task. The disruption of sustained visual attention remained, but other variables were close to normal.

Oxaliplatin Acts on IB4-Positive Nociceptors to Induce an Oxidative Stress-Dependent Acute Painful Peripheral Neuropathy.

Joseph EK, Chen X, Bogen O, Levine JD
J Pain 9:463-472, 2008.

The authors administered 3.2-μg intrathecal injections of IB4-SAP (Cat. #IT-10), using saporin (Cat. #PR-01) as a control. Lesioning IB4-binding neurons in the dorsal horn completely prevented oxaliplatin-induced hyperalgesia.

Selective lesion of retrotrapezoid Phox2b-expressing neurons raises the apnoeic threshold in rats.

Takakura AC, Moreira TS, Stornetta RL, West GH, Gwilt JM, Guyenet PG
J Physiol 586.12: 2975-2991, 2008

Injections of SSP-SAP (Cat. #IT-11) into the retrotrapezoid nucleus eliminated $Phox2b^{+}TH^{-}$ neurons but spared other neuron classes. Several different amounts of the conjugate were used (0.15, 0.3, or 0.6 ng in 1 or 2 injections). Elimination of ≥70% of $Phox2b^{+}TH^{-}$ neurons markedly attenuated the central chemoreflex.

Additional Product References

Beaulieu JM *et al.* (2008) Proc Natl Acad Sci U S A 105(4):1333-1338. *(Cat. #AB-N09: Antibody to Serotonin Transporter)*

Chidlow G *et al.* (2008) Invest Ophthalmol Vis Sci 49(2):762-771. *(Cat. #AB-N08: Ab to OX7)*

Dhaka A *et al.* (2008) J Neurosci 28(3):566-575. *(Cat. #AB-N04: Ab to NK-1 Receptor)*

Huh CY *et al.* (2008) J Neurosci 28(6):1404-1409. *(Cat. #FL-01: Cy3-labeled 192-IgG)*

Lau T *et al.* (2008) FASEB J 22(6):1702-1714. *(Cat. #AB-N09: Ab to Serotonin Transporter)*

Lorier AR *et al.* (2007) J Neurosci 27(5):993-1005. *(Cat. #AB-N04: Antibody to NK-1r)*

Momiyama T *et al.* (2007) J Physiol 580 (1):103-117. *(Cat. #FL-01: Cy3-192-IgG)*

Xu J *et al.* (2007) Endocrinology 148(11):5385-5395. *(Cat. #AB-02: Ab to CRH/CRF)*

Momiyama T *et al.* (2006) J Neurophysiol 96(2):686-694. *(Cat. #FL-01: Cy3-192-IgG)*

Shekhar A *et al.* (2006) J Neurosci 26(36):9205-9215. *(Cat. #AB-N27AP: Ang IIr (AT-1r)*

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