

Targeting Topics: Recent Scientific References

Reviewed by Matthew Kohls

Neonatal cholinergic lesions and development of exploration upon administration of the GABA_A receptor agonist muscimol in preweaning rats.

Scattoni ML, Calamandrei G, Ricceri L
Pharmacol Biochem Behav 76(2):213-221, 2003

The authors investigated GABAergic development in young rats lesioned with two 0.42-ng injections of 192-Saporin (Cat. #IT-01) into the third ventricle. The rats were then treated with the GABA agonist muscimol chloride and observed during locomotor and exploration tests. No change was noted in GABAergic agonist reactivity in lesioned animals.

Immunotoxic destruction of distinct catecholaminergic neuron populations disrupts the reproductive response to glucoprivation in female rats.

I'Anson H, Sundling LA, Roland SM, Ritter S
Endocrinology 144(10):4325-4331, 2003

The authors hypothesized that hindbrain catecholamine neurons suppressed estrous cycles during chronic glucoprivation as an extension of their role in glucoprivic feeding. 42-ng bilateral injections of anti-DBH-SAP (Cat. #IT-03) were made into the paraventricular nucleus of female rats. Lesioned rats demonstrated inhibition of reproductive function during chronic glucose deficit, but not when a normal amount of glucose was available.

Effects of hippocampal cholinergic deafferentation on learning strategy selection in a visible platform version of the water maze.

Bizon JL, Han JS, Hudon C, Gallagher M
Hippocampus 13(6):676-684, 2003

To investigate the effect of depleted acetylcholine (ACh) levels in the hippocampus on learning strategies that are thought to utilize the hippocampus, the authors lesioned the medial septum/vertical limb of the diagonal band of Broca in rats with two injections

of 75 and 50 ng of 192-Saporin (Cat. #IT-01). The unexpected result was that a hippocampal place strategy was promoted in the absence of ACh.

Neurokinin-1 receptor-expressing neurons in the amygdala modulate morphine reward and anxiety behaviors in the mouse.

Gadd CA, Murtra P, De Felipe C, Hunt SP
J Neurosci 23(23):8271-8280, 2003

Previous work has demonstrated that mice lacking the neurokinin-1 receptor do not show some of the behaviors associated with morphine reward. Bilateral 1.0- μ l injections of 1.0 μ M SP-SAP (Cat. #IT-07) were made into either the nucleus accumbens or the amygdala of mice. Animals with lesions of the amygdala displayed a reduction of morphine reward behavior and an increase in anxiety-like behavior in an elevated maze test.



Enhanced evoked excitatory transmitter release in experimental neuropathy requires descending facilitation.

Gardell LR, Vanderah TW, Gardell SE, Wang R, Ossipov MH, Lai J, Porreca F
J Neurosci 23(23):8370-8379, 2003

The authors investigate whether the effects of nerve injury-induced afferent discharge and central changes associated with experimental neuropathic pain might intersect at the spinal level. 1.5 pmol of dermorphin-SAP (Cat. #IT-12) was injected into each side of the rostral

ventromedial medulla of rats. The data indicate that increased afferent input is a driving force of neuropathic pain, and that some aspects of nerve injury-induced hyperesthesias may occur through the convergence of descending modulation, spinal plasticity, and afferent drive.

Changes in cortical acetyl-CoA metabolism after selective basal forebrain cholinergic degeneration by 192IgG-saporin.

Tomaszewicz M, Rossner S, Schliebs R, Cwikowska J, Szutowicz A
J Neurochem 87(2):318-324, 2003

Alzheimer's disease subjects often show deficits in cerebral glucose metabolism. To investigate whether cortical cholinergic input affects acetyl-CoA metabolism in cholinceptive cortical target regions, rats received 4 μ g 192-Saporin (Cat. #IT-01) into the left lateral ventricle. The data show evidence of differential distribution of acetyl-CoA in subcellular compartments of cholinergic and non-cholinergic nerve terminals.

Rostral ventrolateral medulla C1 neurons and cardiovascular regulation.

Madden CJ, Sved AF
Cell Mol Neurobiol 23(4-5):739-749, 2003

The authors review the use of anti-DBH-SAP (Cat. #IT-03) to study the role of C1 neurons within the rostral ventromedial medulla in cardiovascular regulation. This immunotoxin specifically removes C1 neurons containing dopamine beta-hydroxylase.

Destruction of midbrain dopaminergic neurons by using immunotoxin to dopamine transporter.

Wiley RG, Harrison MB, Levey AI, Lappi DA
Cell Mol Neurobiol 23(4-5):839-850, 2003

The authors demonstrate the effective and specific removal of neurons expressing the dopamine transporter in the substantia nigra pars compacta and

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