

Targeting Topics: Recent Scientific References

Summarized by Matthew Kohls

Impairments in negative patterning, but not simple discrimination learning, in rats with 192 IgG-Saporin lesions of the nucleus basalis magnocellularis

Butt AE, Noble MM, Rogers JL, Rea TE
Behav Neurosci 116(2): 241-255, 2002

192-Saporin (Cat. #IT-01) administration to the basal forebrain has frequently been used in rats to create a model for Alzheimer's disease. The authors used 0.2 µl bilateral injections of 0.4 µg/µl 192-SAP into the nucleus basalis magnocellularis (NBM). Previous studies using non-specific excitotoxic agents have suggested the involvement of the NBM in learning and memory. The authors confirm more recent findings that indicate some of the deficits produced by these excitotoxins are due to the non-specific lesioning caused by these agents. The highly selective cholinergic lesioning produced by 192-Saporin left simple association learning intact but impaired more complicated configural association processes.



Featured Antibody

AB-N10 Antibody to Substance P

Substance P (SP) is an undecapeptide belonging to the tachykinin peptide family. It is widely distributed throughout the central and peripheral nervous systems and has been implicated as having a role in the transmission of pain.

Specificity: Substance P

Applications: ELISA and western blot

Visit the ATS website for a complete list of products and references.

Alpha-7 nicotinic receptor expression by two distinct cell types in the dorsal raphe nucleus and locus coeruleus of rat

Bitner RS, Nikkel AL
Brain Res 938: 45-54, 2002

Neuronal nicotinic acetylcholine receptors (nAChRs) are suspected to play a role in neurophysiological disorders such as schizophrenia, Alzheimer's disease, and epilepsy. Whereas the molecular and cellular properties of these receptors have been well characterized, the role of nAChRs in the nervous system is as yet unclear. The authors injected rats intracerebroventricularly with 5 µg/5 µl of anti-DBH-SAP (Cat. #IT-03) to eliminate the noradrenergic nuclei. Using these data along with data acquired by elimination of serotonergic nuclei with 5,7-DHT, the authors showed that both noradrenergic nuclei in the locus coeruleus and serotonergic nuclei in the dorsal raphe nucleus express the alpha-7 nAChR subunit.

Depressor and tachypneic responses to chemical stimulation of the ventral respiratory group are reduced by ablation of neurokinin-1 receptor-expressing neurons

Wang H, Germanson TP, Guyenet PG
J Neurosci 22(9): 3755-3764, 2002

The pre-Bötzinger complex is a region of the ventral respiratory group (VRG) in the brain. Injection of excitatory amino acids into this region can cause a variety of responses such as rapid breathing, hypotension, and elevated arterial pressure. The authors used SSP-SAP (Cat. #IT-11) to eliminate the neurokinin-1 receptor (NK-1r) positive neurons in the VRG to

determine their role in control of respiration and arterial pressure. Intraparenchymal injection of 0.313 ng/50 nl SSP-SAP produced several abnormal respiratory effects in rats treated with excitatory amino acids. The results indicate that NK-1r positive neurons in the ventrolateral medulla play an important role in respiratory rhythm and blood pressure.



Interactions between aging and cortical cholinergic deafferentation on attention

Burk JA, Herzog CD, Porter MC, Sarter M
Neurobiol Aging 23: 467-477, 2002

Trauma to forebrain cholinergic neurons is suspected to make these neurons more susceptible to future age-related loss of function. The authors tested this theory by making incomplete lesions of the basal forebrain cholinergic system using bilateral infusions of 192-Saporin (0.5 µl of 0.15 µg/µl, Cat. #IT-01) in rats trained prior to surgery. The attentional performance of the treated rats did not differ from control animals until the age of 31 months. The data indicate that pre-existing damage to the cholinergic basal forebrain region yields age-related attentional impairments.

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