

Targeting Topics: Recent Scientific References

Summarized by Matthew Kohls

Effects of lateral hypothalamic lesion with the neurotoxin hypocretin-2-saporin on sleep in Long-Evans rats

Gerashchenko K, Blanco-Centurion C, Greco MA, Shiromani PJ

Neuroscience 116:223-235, 2003

Recent data has linked narcolepsy to the loss of neurons containing the neuropeptide hypocretin, also known as orexin. The authors wished to investigate whether the variance in severity of narcolepsy could be explained by the extent of loss of these neurons. After injection of 90 or 490 ng of orexin-SAP (Cat. #IT-20) into the lateral hypothalamus, the measurement of several parameters demonstrated the severity of narcolepsy may be linked to the degree of loss of neurons expressing the orexin receptor.

Ablation of NK1 receptors in rat nucleus tractus solitarii blocks baroreflexes

Riley J, Lin LH, Chianca DA, Talman WT

Hypertension 40(6):823-826, 2002

Stimulation of arterial baroreflexes releases the neuropeptide substance P (SP) from vagal afferent nerves within the nucleus tractus solitarii. To ascertain whether the neurons taking up this SP are critical to baroreflex transmission, the authors injected 18 ng SP-SAP (Cat. #IT-07) into the nucleus tractus solitarii of rats. In animals that received bilateral injections, baroreflex gain was significantly reduced, indicating that neurons expressing SP receptors play a critical role in mediation of this process.

Effects of lesions of basal forebrain cholinergic neurons in newborn rats on susceptibility to seizures

Silveira DC, Cha BH, Holmes GL

Dev Brain Res 139:277-283, 2002

It has previously been shown that adult rats treated with the cholinergic lesioning agent 192-Saporin (Cat. #IT-

01) display increased susceptibility to generalized seizures. Here, the authors studied the effects of 200 ng intracerebroventricular injections of 192-Saporin in neonatal rats. Although treated rats did not demonstrate differences in seizure duration or EEG ictal duration, a significantly shorter latency to seizure onset was observed. No significant differences were observed in spatial learning between treated and control rats.



Immunolesion of norepinephrine and epinephrine afferents to medial hypothalamus alters basal and 2-deoxy-D-glucose-induced neuropeptide Y and agouti gene-related protein messenger ribonucleic acid expression in the arcuate nucleus

Fraleigh GS, Ritter S

Endocrinology 144(1):75-83, 2003

Neuropeptide Y (NPY) and agouti gene-related protein (AGRP) are important peptides in the control of food intake. Prior studies have shown that mRNAs for both these peptides are increased in the arcuate nucleus of the hypothalamus (ARC) by glucoprivation. Using bilateral 42 ng intracranial injections of anti-DBH-SAP (Cat. #IT-03) in rats, the authors investigated the role of hindbrain catecholamine afferents in this increased ARC NPY and AGRP gene expression. The results indicate that these afferents

contribute to basal NPY and AGRP gene expression as well as mediate the responsiveness of NPY and AGRP neurons to glucose deprivation.

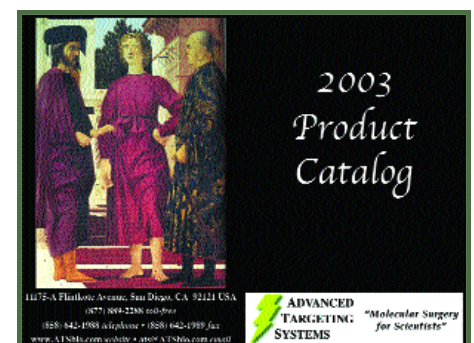
Specific contributions of the basal forebrain corticopetal cholinergic system to electroencephalographic activity and sleep/waking behaviour

Berntson GG, Shafi R, Sarter M

Eur J Neurosci 16(12):2453-2461, 2002

There is a large amount of data suggesting the basal forebrain cholinergic system plays an important part in arousal and REM sleep. In this study the authors used 192-Saporin (Cat. #IT-01, 0.05 µg injected into the basal forebrain of each hemisphere) to lesion the corticopetal projection and examined cortical EEG activity across sleep/wake states. Lesioned animals displayed significantly reduced high frequency EEG activity across all stages of sleeping and wakefulness, indicating that the basal forebrain cholinergic system may exert a general activational effect on the cortical mantle.

2003 Catalog



Request yours online at
[www.ATSBio.com!](http://www.ATSBio.com)

(continued on page 4)